Inequalities Within Couples: Market Incomes and the Role of Taxes and Benefits in Europe

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ABSTRACT

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Market Incomes and the Role of Taxes and Benefits in Europe[*]

In spite of there being few elements of tax or cash benefit systems in developed countries that are any longer explicitly gender-biased in a discriminatory sense, it is well recognised that they have significant gender effects. To the extent that women earn less than men on average under tax-benefit systems that are progressive, there is some redistribution from men to women overall. However, an aggregate perspective is insufficient for understanding how earning opportunities and public policies affect living arrangements at the family level in general and the circumstances of men and women in particular. Arguably, it is within the household that a gendered division of labour is most relevant. It is difficult to observe how income and other resources get allocated within households. We can, however, observe the incomes brought into the household and to what extent taxes and benefits mitigate (or indeed exacerbate) any inequality of income between men and women. We explore the effects of tax and benefit systems on differences in income and in incentives to earn income between men and women within couples in a selection of the member countries of the European Union (EU) using EUROMOD, the EU tax-benefit microsimulation model. This comparative perspective allows us to establish the relative effects of different policy regimes, given the underlying characteristics of each national population, using a consistent approach and set of incidence assumptions across countries.

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1. Motivation

In spite of there being few elements of tax or cash benefit[1] systems in developed countries that are any longer explicitly gender-biased in a discriminatory sense, it is well recognised that they have significant gender effects. Policies that compensate for time spent in childbearing or caring may at the same time reduce womens' incentives to earn an independent income. Partly because of their caring roles women earn less than men, on average. So, to the extent that the combined effects of tax-benefit systems are progressive and therefore reduce income inequalities, they result in redistribution from men to women in aggregate. However, an aggregate perspective is insufficient for understanding how earning opportunities and public policies affect living arrangements at the family level in general and the circumstances of men and women in particular. Arguably, it is *within* the household that a gendered division of labour is most relevant and this paper focuses on the relative situation of the individuals in male-female co-resident couple relationships.

The effects of public policies on income inequality within couples operate both through *access* to income (and hence consumption) and *potential* access to independent (earned) income, through work incentives. Of course, public policies also influence other inequalities within the household – notably those related to the use of time and the influence over decision-making in all spheres. This influence may be indirect, through inequalities in income and work incentives, which are the subjects of this paper. Or it may be through other mechanisms, which are beyond its scope.

It is difficult to observe how resources get allocated within households. We can, however, observe the incomes brought into the household and to what extent taxes and benefits mitigate (or indeed exacerbate) any inequality of income between men and women. The within-household redistributive effect is particularly relevant when the assumption of income pooling in the couple does not hold. Indeed this assumption has been often rejected empirically: the degree of control that a partner has on the household income affects the composition of the household consumption set (Browning and Bonke, 2006; Ermish and Pronzato, 2007). We can pose the question as: how much does the tax-benefit system contribute to the equalisation

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[1] "Benefit" is here used in its European sense of a cash transfer from the state. It is a term that includes contributory earnings replacement insurance payments, payments to compensate for contingencies such as disability, payments to support children and families, means-tested social assistance or welfare payments and "in-work" subsidies of low earnings.

of the distribution of resources between men and women and hence the within-household distribution of welfare?

On the other hand, if we do accept the pooling hypothesis as is conventionally done – for the sake of convenience rather than conviction – in the measurement of income inequality or poverty, then the equalising effect of taxes and benefits is still informative. It tells us how much of the within-household redistribution that is implied by pooling is accomplished through the tax-benefit system and how much (by implication) by intra-household transfers between men and women themselves.

We explore these questions for working age couples in nine of the member countries of the European Union (EU) using EUROMOD, the EU tax-benefit microsimulation model.[2]

This comparative perspective allows us to explore the relative effects of different policy regimes, given the underlying characteristics of each national population, while using a consistent approach and set of incidence assumptions across countries. The within-household equalising properties of tax-benefit systems are compared for particular types of couple and in terms of the influence of different types of policy instrument.

Depending on how they are implemented, redistributive policies can alter work incentives and, hence, participation in the labour market. A huge amount of research has been done on the trade-off between redistribution and behavioural distortions (for an example using EUROMOD, see Immervoll et al. (2007)). Yet, there is much less empirical work on the importance of any such trade-off within households. What is the potential effect on activity patterns of tax and transfer policies that serve to reduce gender inequalities? From a gender equity perspective this is a crucial question. Tax-benefit systems that reduce income inequalities within couples may, at the same time, have the effect of reducing the lower earner's incentive to earn an independent income. Whether this is the case, and the extent it is so across country and by types of couple is explored in the second part of this paper using a range of indicators of work incentives for working-age men and women. Results take into account the full range of relevant direct taxes and cash benefits. They show whether and to what extent women in couples face lower incentives to work than their male partners and how

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[2] See http://www.iser.essex.ac.uk/msu/emod/ and Sutherland (2007) or Lietz and Mantovani (2007) for more information.

these patterns are associated with the (within-household) redistributive properties of tax-benefit systems in each country.

The next section explains how incomes and work incentives have been measured and this is followed in section 3 by a description of the data and methods used, together with more detailed description of how income components are allocated to individuals. Section 4 quantifies inequalities in independent income received by men and women in couples in the nine countries considered and the following section explores the corresponding inequalities in income after the operation of the tax and benefit systems. In section 6 the equalising properties of four main components of these systems (income taxes, social contributions, means-tested and non means-tested benefits) are explored. Section 7 quantifies for two-earner couples the within-couple differences in the incentives to increase income from paid work. Section 8 explores, for a selection of countries, the incentives of women in couples with earning partners to take paid work themselves. The final section concludes by considering whether there is a trade-off in the extent of the within couple difference in work incentives and the way in which tax-benefit systems reduce inequalities in income within couples. Do tax-benefit systems reduce income inequalities at the expense of increasing disparities in incentives to earn independent income?

2. Measuring redistribution and differential incentives within couples

The first aim is to quantify the difference in independent income brought into the household by male and female partners in couples and then to measure by how much any gap is closed due to the operation of the tax system on those incomes, and due to the payment of benefits to either member of the couple or to the couple jointly. We consider "independent" income to be own current earned income and income from capital as well as any transfers from other households.[3] The "redistribution" is considered to be achieved through the operation of income taxes and other direct personal taxes, employee and self-employed social insurance contributions, and contributory and non-contributory benefit payments. Of course, contributions and contributory benefits, particularly pensions, do not simply have the function of redistributing between persons. They also re-distribute individual income over each person's lifecycle. However, it would be misleading to downplay or ignore them in this context. Not only do they have some intra-personal redistribution role through their social

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[3] Mainly maintenance and alimony payments.

protection function, but also they may reflect or recognise gender differences in particular ways. For example, maternity benefits are not usually financed through higher social contributions made by women. Our analysis accounts for this as a "plus" for women's incomes compared with men's. It also distinguishes between the equalising effects of contributory and non-contributory benefits and between the effects of contributions and income taxes so that the between-person redistributive functions of contributory systems can be identified separately. The analysis focuses on working age couples, which is consistent with our interest in work incentives, and also avoids the need to consider how to treat derived rights pensions in this framework. The inclusion of contributions but not pensions means that our analysis is partial at the aggregate level.

Our "outcome" measure is disposable income: that is gross market income less income taxes and contributions, plus cash benefits. Since this ignores the incidence of some other taxes as well as spending on non-cash benefits, it does not provide a comprehensive picture at the couple level either. In international comparative perspective this matters to some extent as the balance between cash and non-cash spending and between direct and indirect or personal and corporate taxation varies across countries. Nevertheless, the use of household disposable income as the measuring stick for this study provides a useful link to studies of poverty and income distribution which often also use this concept.

In this study we allocate incomes, taxes and benefits to individuals within households. Some assumptions have to be made, particularly in relation to benefits paid for children or the family as a whole, and in relation to joint taxation. These are discussed in detail in the next section. Our samples of couples are selected to exclude cases where there are other adults with income from any source in the household. This is so that household disposable income can be fully allocated to the members of the couple and our analysis can be in terms of shares of female (or male) income - or income component - in the household total. Our basic measure of income distribution within a couple is the share of the woman's income in the total.[4] If this is closer to 50% after taxes and benefits than before, then we consider that the tax-benefit system has an equalising function. The size of the increase is a measure of the scale of the redistribution.

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[4] Jansson (1996) uses the same measure for a study of redistribution within Swedish households.

In order to assess the effect of the tax-benefit system on differential incentives to work for men and women in couples we make use of three indicators. Work incentives are usually measured in terms of the amount of household net income gained following a change in earnings by one or other individual. The change may be a small addition to existing earnings, capturing the incentive to work a bit longer, a bit harder or at a higher wage rate (the *intensive* margin), or it may be an increase in earnings equivalent to that on entry into work (the *extensive* margin). In this paper we consider two types of intensive margin for couples where both are in paid work. The first corresponds to a small proportional increase (3%) in existing labour market effort and the second to an increase in individual work effort such that couple disposable income increases by 10%. At the extensive margin we focus on women with partners in work to assess the incentives to take paid work themselves.

3. Methods, data and assumptions

Our analysis makes use of EUROMOD, which simulates tax liabilities and benefit entitlements for the household populations of EU Member States. A microsimulation approach is necessary because information on taxes and contributions is not always present in the household micro-data sources that are available for these countries. Importantly, the combination of micro-data with a model of tax and benefit rules in a microsimulation model can be used to compute Marginal Effective Tax Rates (METRs) and Participation Tax Rates (PTRs), which are not observed in micro-data. By varying each observation's incomes by a certain amount and then re-computing tax liabilities and benefit entitlements, the effective tax burden on any additional income can be captured.

In this paper we include a selection of nine countries: Austria (AT), Finland (FI), France (FR), Germany (GE), Greece (GR), Italy (IT), the Netherlands (NL), Portugal (PT) and the UK. The calculations are based on the datasets shown in Table A1 of the Appendix, updated to 2001 incomes, prices and tax-benefit systems.[5]

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[5] EUROMOD relies on micro-data from twelve different sources for fifteen countries. The datasets used in this paper are the European Community Household Panel (ECHP) User Data Base made available by Eurostat; the Austrian version of the ECHP made available by the Interdisciplinary Centre for Comparative Research in the Social Sciences; the Income Distribution Survey made available by Statistics Finland; the Enquête sur les Budgets Familiaux (EBF) made available by INSEE; the public use version of the German Socio Economic Panel Study (GSOEP) made available by the German Institute for Economic Research (DIW), Berlin; the Survey of Household Income and Wealth (SHIW95) made available by the Bank of Italy; the Socio-Economic Panel Survey (SEP) made available by Statistics Netherlands through the mediation of the Netherlands Organisation for Scientific Research - Scientific Statistical Agency; and the Family Expenditure Survey (FES), made available by the UK Office for National Statistics (ONS) through the Data Archive. Material from the FES is Crown Copyright and is used by permission. Neither the ONS nor the Data Archive bears any responsibility

In each country we select all couples living in the same household where both are under age 65 and neither is receiving income from old age pensions. We exclude those sharing households with other adults. We define other adults as people aged over 25, or those between 16 and 25 who have their own sources of income, who are not in couples themselves and who do not have their own children. Table 1 shows how many such couples are in the datasets and what proportion this sub-set is of all households and all couples in each dataset. There are differences across countries in the relative size of the subset: in the Netherlands the couples we focus on make up 70% of all couples, whereas in Portugal the proportion is as low as 43%. The propensity to live in couples at all will vary, as will the prevalence of sharing households with grown up children or elderly relatives. Decisions about household formation are choices which are influenced by, among very many things, the incentives and support offered by tax and benefit systems. Thus our selection criteria may to some extent bias the comparisons that are made of the effects of tax-benefit systems within couples.[6] This should be borne in mind when interpreting results.

Table 1 shows more information about the samples of couples which turns out to be quite consistent with stylised facts about the countries concerned. In Greece they are more likely to be older, to have children, for the woman to not have her own earnings and to be legally married than in other countries; in Finland they are much less likely to be married, are among the youngest and have the highest rate of both partners earning (85%). Greece and Italy have the lowest rate of cohabitation (1%) and also low rates of both partners earning (38% and 48% respectively). The UK sample has the highest rate of workless couples (11%) and a high rate of cohabitation. Both UK and the Netherlands have higher than average propensities for the woman to be the sole earner (7% and 5% respectively) and the Netherlands, like the UK also has a high proportion of unmarried couples. Portugal and Germany both have high rates of both partners earning (71% and 73% respectively) although the proportion of Portuguese sample couples with children is relatively high (66%) and the corresponding proportion in the German sample is the lowest in all countries considered (49%). France is another country with a relatively high rate of unmarried couples whereas Austria has the lowest rate among the non-Southern countries (12%) as well as a relatively low rate of employment by the woman in couples.

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[6] Bonke (2006) makes a similar choice of sample.

When calculating marginal effective tax rates, the samples are further reduced to only include couples where both are in <u>current</u> paid work. In practice this is complicated by the fact that most of the datasets record incomes for the past year and because an individual's employment status can change during this year. Those who have any receipt of out-of-work benefits or earnings below a low threshold (30 euro per month) are excluded on the basis that they probably were only working part of the year.

Incomes are allocated to individuals in the following ways:

- Independent incomes are allocated depending on who earns or receives them. This applies to gross earnings from employment and self-employment, income from capital and any private pension income paid to the people included in our sample, as well as transfers received from other households. We also refer to this as pre- tax-benefit income.

- Benefits received by individuals to compensate for individual risks such as maternity or unemployment or individual contingencies such as own disability are allocated to the individual concerned. These may be means-tested (on individual income or assets) but typically are not.

- Benefits intended for the support of dependent children or for the family as a whole are split in half between the couple. These benefits include child and family benefits, whether means-tested or not, social assistance and other means-tested support, including in-work benefits, housing benefits. Of course, this assumption of an equal split does not necessarily reflect what happens in practice and ignores the fact that children have a claim on resources within the household. However, it is an assumption that is transparent and in the absence of other information about the sharing of benefit incomes, this seems reasonable.[7] Within this category benefits are divided into those that are non-means-tested and those that are means-tested.

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[7] This results in an allocation that is somewhere between the usual complete sharing assumption and the opposite extreme of assuming that income is retained by those who receive it. The latter way of allocating income has been used by Sutherland (1997) for the UK and Fritzell (1999) for Sweden. It would be interesting to explore the implications of this approach in comparative perspective. However, this is not straightforward for two reasons. First, detailed national knowledge about the payment of benefits in each country would be required. Secondly, the issues raised by joint taxation – not relevant in the UK or Sweden and discussed below - would need to be resolved.

- Social contributions are generally levied on individual incomes and so are allocated to that individual.

- The allocation of income taxes depends on whether the tax system is based on individual or joint assessment. In the case of individual taxation, the tax is allocated to the individual concerned. In the case of joint taxation – usually only of married couples - the tax is allocated in proportion to taxable income. This is a rather strong assumption, but the one conventionally used and necessary since we have no evidence on how joint tax liability is actually split between the couple. Typically what happens in practice is that they will each pay some amount of withholding tax deducted from earnings (and, in some cases, other income sources) during the year. There will be an end-of-year retrospective reconciliation which will involve some refund or extra payment. How this is transferred into or out of the household and how it is shared within the household will depend on many factors, not least the mode of tax administration. Indeed, arguably it may be income after the tax is deducted at source (typically before the operation of the joint system) that is critical to the day-to-day resource division within the household, rather than the final liability. What actually happens at the end-of-year adjustment stage when sometimes significant rebalancing must take place would be an interesting matter for study. The proportional assumption that we employ has the effect of reducing the within- married couple equalising properties of income tax to those that arise from the extent to which taxable income is distinct from total individual independent income. However, it is difficult to construct an alternative that is plausible across all types of joint taxation.[8] In some countries couples can choose whether to be taxed separately or together and we assume that the couple chooses the option that minimises their joint tax. This may not always happen, in fact, but our data do not allow us to identify directly couples' choices in this respect.

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[8] One alternative way of allocating joint tax would be to assume that each individual would pay the amount equivalent to the individual taxation minus an equal share of the "joint taxation benefit" (i.e. what they save from being taxed jointly).

4. Inequalities in individual independent income

The extent to which sharing of income resources needs to take place within households depends, among other things, on inequalities in independent income. Table 2 shows the average share of couple pre- tax-benefit income received by women, overall and in each quintile group of the couple disposable income distribution.[9] The share overall ranges from 18% in Greece to 37% in Finland. In all countries considered on average the male partner has higher pre- tax-benefit income than the female. However this is not the case for all individuals. In Finland and the UK the woman has the higher income in around a quarter of the couples we consider. The proportion is half this size in Austria, Greece and Italy (last row of Table 2).

Three factors in combination can explain why the average share is less than 50% in all cases and why there is variation in the share across countries. First, not all women in couples have any independent income of their own, due mainly to their non-participation in paid work. The rate of non-participation by women (where her partner is in work) varies from 58% in Greece to less than 10% in Finland (Table 1). Secondly, for couples with both partners in paid work, lower hours of work and/or lower female wages will contribute to lowering women's share. Finally, the "pairing" of male and female independent incomes within couples across countries will vary. In some cases – particularly those where part time working by women after marriage or motherhood is prevalent – relatively high earning males may be paired with relatively low earning females. In other cases differences in the level of earnings between partners may be in line with average male-female earnings differences generally.

In most countries the average share of the woman clearly rises with household income but this is not the case in the UK, nor very clearly the case in Finland. In France, Portugal, Italy and Germany, the women's share is lower in the top quintile than in the next quintile down.

The lower share of women's incomes is driven to a large extent by their lower earnings and the cross-country differences in this respect are indicated by comparing the quintile points of

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[9] Here, household disposable incomes are equivalised in order to calculate quintile points. Although we only consider couple households, some have children and some do not, so equivalisation is necessary to account for different needs. We use the modified OECD equivalence scale. The quintile points are shown in Appendix table A2.

the female and male earnings distributions (Appendix table A2).[10] Female earnings are lower at all four points in the distributions in all countries, reflecting lower wage rates, lower working hours, or both. The least unequal countries overall are Portugal followed by Italy, France and then Greece and Finland. So while participation rates of women are low in Greece and, to a lesser extent, in Italy, the earnings of women who do work in these countries are relatively close to men's earnings. In all countries except Portugal the situation is particularly extreme at the bottom quintile. In Germany, the Netherlands and Austria, the 20% of working women with the lowest earnings earn less than one third of the lowest-earning group of men.

Table 2 also shows the share of independent income received by women according to quintiles of male and female earnings respectively. Not surprisingly, the female shares in couples without female earnings are very low – although they amount to 6% in the UK and 8% in Finland. For couples without male earnings female shares are of course much higher than average. However, they are not the mirror image of the couples with no female earnings – between 52% (in the Netherlands) and 11% (in Austria) of the couple income is on average received by the man, even though he is not earning. Clearly, there are within couple gender inequalities in income sources apart from earnings. The importance of cases with only one earner in the calculation of women's share overall varies across countries (Table 1). The effect of the low share of income for non-earning women is particularly strong in countries with high proportions of couples with only the man earning: Greece followed by Italy and Austria. The effect of the high shares accorded to women in couples with only female earnings will be smaller in general, because of the low occurrence of this type of couple, but will have some effect in pushing up the overall share in UK and the Netherlands.[11]

If men and women were paired into couples according to their gender-specific earnings quintile then we would expect to see no change in women's mean share across earnings quintiles. However, there is a clear positive gradient in all countries for the effect of female earnings level on the female share of income. There is a less clear inverse relationship between the male level of earnings and the female share. In Portugal the female share is

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[10] The quintiles are calculated for the members of couples in our samples, not for the male and female earnings distributions as a whole. In calculating quintiles, individuals with earnings of less than 30 euro per month are excluded. These, together with people with no earnings are shown in a separate category.

[11] It should be noted that in cases where the couple has no pre-tax and benefit income at all it is not possible to calculate the share of female income. These couples are excluded from the share calculation where this is the case. The numbers affected range from 6% of all couples in the UK to less than 1% in Finland and Germany. They are nearly all located in the bottom quintile group of household disposable income.

almost independent of the male earnings quintile and the relationship is also rather flat in the lower half of the male earnings distribution in France and in the middle in Greece.

5. The within-couple redistributive effects of tax-benefit systems

The effect of the tax-benefit systems in reducing the average inequality between men and women in couples is illustrated by comparing the shares of disposable income received by women (Table 3) with the shares of independent pre-tax-benefit income, shown in Table 2. Figure 1 summarises the differences by showing women's mean share before the tax-benefit system (pale section of the bars) with the equalising effect of taxes and benefits shown as the darker additional sections of the bars. The countries are ranked by the size of the proportional increase in share due to the impact of the tax-benefit system.

In all countries, tax-benefit systems are shown to reduce within-couple income inequalities on average. The Austrian tax-benefit system achieves the greatest proportional increase in equality within couples and this is partly a product of the pre-tax-benefit share of income being the second lowest out of the nine countries considered. The absolute increase in women's income share is, however, also highest in Austria (4.1 percentage points), followed by Finland (3.8), the UK (3.2) and France (3.1). Greece is the least equal before the effects of the tax-benefit system which itself makes little difference. The equalising effect of the German and Portuguese systems are also small (1.4 and 1.3 respectively) and that of the Netherlands and Italy are intermediate (2.5 and 2.0 respectively). Figure 2 summarises the differences across countries in the average extent of equalisation, given the level of within-couple inequality in pre-tax benefit incomes. The mean of the women's share of pre-tax-benefit income is plotted against the share after the tax-benefit system. Markers above the 45 degree line indicate that tax-benefit systems reduce within-couple gender inequality on average. Of course there is some variation within these averages and the relative size of this is indicated in Figure 2 by "error" bars showing the coefficient of variation around the mean pre- and post- shares of income. Indeed, the overall equalising effect obscures the fact that in all countries, while the majority of couples do see some shift from man to woman (between 80% of couples in Austria and 58% in Italy), for a significant minority the tax-benefit system reduces the female share or has no effect on the share (Table 4). In some countries the proportion for whom the female share falls corresponds closely to the proportion of couples where the woman has the higher pre- tax-benefit income (see Table 2): Austria, Finland,

France, Greece and Portugal. Equalisation is taking place, but from woman to man. In Germany, Italy and the Netherlands the tax benefit system reduces the female share of income in some couples where the woman does not have the larger share (Table 4). This happens in 14% of couples in Germany and Italy and 5% in the Netherlands.

The mean equalising effects are systematically larger, both in proportion and in absolute terms for couples with low income: Figure 3 shows the same information as Figure 1, but for couples in the bottom quintile group by disposable income. For this group, France has the most equalising properties, and Greece, again, the least. With the exception of Finland and the UK, pre- tax-benefit incomes are distributed much less equally for low income couples than for couples as a whole (in the case of the UK the relative degree of equality within low income couples is driven by the preponderance of workless couples: neither partner has any earnings). Yet in these two countries the tax-benefit system does also allocate more to women than men, increasing women's share of income to over 40%. In the other countries it remains at or below 25%.

Pre- tax-benefit incomes tend to be more equal for men and women in couples with high combined incomes (in the top quintile group – see Figure 4), and the tax-benefit systems have a rather small but mostly positive equalising effect, although the effect is very slightly negative in Portugal.

Table 4 shows the absolute equalising effects of the operation of tax-benefit systems for different types of couple. As in Figure 1, the equalising effect (percentage point increase in women's share of income) declines with the level of combined couple disposable income (except in Greece, where the effect is always small). The effect is larger than average in all countries for couples where the woman does not have her own earnings, and negative where only the women is earning (except in Italy where the result is based on a limited number of observations with women earning a small amount and men in receipt of un-earned income). Where neither partner is earning, the effect is quite variable, increasing the man's income share under some systems (Austria, Finland, Greece, Italy) and reducing it in others (France, the Netherlands, Portugal and the UK).[12] Greater equalisation takes place among couples with dependent children and for those aged under 40. This is consistent with some proportion of

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[12] These results are based on small numbers of observations and are not statistically significant in some cases.

the equalisation taking place through the operation of family benefits, maternity benefits and tax concessions for children.

In more than half of the countries, the equalising effect is stronger for married couples than for unmarried ones (France, Germany, the Netherlands, Portugal and the UK). Joint tax systems tend to result in smaller tax burden differences between the higher and lower-earning partners. Because joint assessment is generally limited to married couples, we might expect smaller equalising effects for married couples in countries where income tax systems are joint. Under our assumption that tax liability is split proportionally to taxable income, this does not seem to be so in all cases. The countries with joint taxation of some form are France, Germany and Portugal, all countries where married couples are subject to *more* equalisation than unmarried couples. There could of course be other factors at work since there may be other differences between married and unmarried couples explaining this unexpected effect (if, for example, unmarried couples are less likely to have children). The next section considers the equalising role of each part of the tax-benefit system.

6. The equalising properties of individual policy components

Assessing the contribution to equalisation of each component of the tax-benefit system is of interest, especially since it is relevant to the design of policies to reduce gender inequalities. We consider income taxes, social contributions and benefits categorised as means-tested and non means-tested benefits. However, such an assessment is not straightforward. This is because, firstly, there is some interaction between components of the system. We have chosen to assess equalisation in terms of the absolute increase in the female share of income. If there are interactions, for example if there are benefits that are taxable, then the order of calculation matters.[13] We start with independent pre- tax-benefit incomes (labelled (1) in Table 5) and add non means-tested benefits (2). Table 5 shows the percentage point equalisation (increase in female share) due to these benefits. The next stages are to add means-tested benefits (3), deduct contributions (4) and deduct income taxes (5). The final row shows the woman's share of disposable income as in Table 3 and the sum of the components of equalisation, (2), (3), (4) and (5) is the same as the overall equalisation shown in Table 4. A negative sign indicates that the income component has the effect of increasing the male share.

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[13] This analysis shares some of the issues associated with decomposing the distributional properties of taxes and benefits systems across the income distribution (rather than within couples). See Immervoll et al. (2006) for a discussion of some of these issues, as well as an empirical analysis using EUROMOD.

Table 5 shows the decomposition for all couples in our sample and for those in the bottom and top quintile groups of the distribution of household disposable incomes. The same information is plotted in Figure 5. Looking first at the average picture, it is notable how variable are the contributions of each component across countries. Non means-tested benefits have a relatively large equalising effect in Finland, France and also Austria and the UK, as well as making up a large proportion of the total effect in Germany. They only have a small impact in Greece and Italy and a negative effect on women's income shares in the Netherlands and Portugal. The net effect of these benefits depends very much on the balance between different types of benefit in payment e.g. parental benefits (received disproportionately by women), unemployment benefits (received disproportionately by men in many countries) and child and family benefits (shared equally, by assumption). Means-tested benefits play a large role in Austria, Italy and Portugal. Interestingly, they are less important in the UK, in spite of means-tested benefits playing a large role in the system as a whole. Contributions play a small positive role in most countries although the effect is negative in Germany. In this case women in couples pay a higher proportion of their income in contributions than do men, largely because of the operation of an upper limit on contributions. The positive effect in Austria is relatively large, reflecting the high proportion of male earner only couples as well as a significant number of female earners with earnings below the contributions threshold. The effect is very large in the Netherlands, where contribution burdens are large and low-earning individuals can receive a refunded tax credit through the "people's insurance" part of the Netherlands contribution system.[14] Progressive income taxes reduce within-couple inequalities in all countries although the effect is relatively small in the joint taxation countries (Portugal especially and also France and Germany).

In the bottom quintile of household income (Figure 5b) there is more equalisation than on average (except in Greece) and, not surprisingly, less of a role is played by income tax (except in Italy) and more by benefits. Means-tested benefits have a particularly important equalising effect in Portugal, UK, Italy and Austria and France (and proportionally, in Greece). Non means-tested benefits are important in redistributing towards women in Austria, Finland and France, but have a negative role in the Netherlands and Portugal.

At the top end of the household income distribution (Figure 5c) there is less equalisation generally and the net effect is very small in France, Germany, Italy and Portugal. Income

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[14] Arguably, this refund could also be considered as a benefit.

taxes are the most important instrument (except in Portugal) and contributions, where they have an effect, play a de-equalising role due to the operation of upper contribution limits on higher incomes.

To summarise:

- The extent of within couple income equalisation achieved by tax benefit systems varies considerably across countries, narrowing the gap between male and female shares by more than 4 percentage points in Austria and less than 1 percentage point in Greece.

- Non means-tested benefits, including universal family benefits, as well as insurance-based out-of-work benefits, can have a positive or negative effect on women's share of income, depending on who is most likely to receive them. Their effect is particularly large and positive in Finland and France and negative in the Netherlands and Portugal.

- Means tested benefits play a larger role at lower incomes and contribute most to equalisation in the bottom quintile in all countries considered except Finland, Germany and the Netherlands.

- Income taxes reduce within-couple inequalities, particularly at higher incomes and particularly in countries operating largely individual income tax systems: Austria, Finland, the Netherlands and the UK.

- Contributions tend to be progressive at lower earnings levels (due to the contribution thresholds) and regressive for earnings close to the contribution ceiling. Accordingly, they can play a (small) equalising role at lower incomes but can exacerbate gender inequalities at high incomes.

Income taxes, contributions and means-tested benefits all affect the income gain that can be achieved through working at all, or working longer or harder. The following two sections consider whether the countries that achieve significant equalisation within couples do so at the expense of damaging women's work incentives relative to those of their male partners.

7. Within-household gender differences in work incentives

Decisions about how much to work have a number of different dimensions. Within couples there are not only individual factors but also issues that couples may consider jointly. In a manner that is consistent with the analysis in the preceding part of this paper we consider the implications for couple income of various labour market choices that one or other of the couple members might make. We consider three types of work-related decisions. In the first case we ask how a standard marginal proportional increase in earnings (3%, roughly corresponding to the earnings for an extra hour per week of full-time work) is treated by the tax-benefit systems in its effect on household disposable income. This, conventionally calculated, Marginal Effective Tax Rate (METR) tells us about the incentives of each partner in two-earner couples to work a little more but does not account for the fact that in many couples the man has higher earnings. Thus the marginal increase in earnings tends to be worth more to the couple if it is the man that increases his work effort. It may simply be the higher wage rates rather than the tax-benefit effects that provide better incentives for the man to increase the amount worked.[15]

To measure the size of the effect of differential pre- tax-benefit incomes we pose the question how much of an increase in earnings is necessary for each partner in order to increase the couple disposable income by 10%. This is intended to be illustrative of the type of aspiration that many couples may have, for example to afford a larger house or to meet debt re-payments. How much increase in effort is necessary by the woman compared with the man to achieve the same increase in joint disposable income?

The following section considers the third type of decision: the incentives of women in couples with earning partners to take paid work themselves. This is done by calculating Participation Tax Rates (PTRs) which quantify the proportion of the lost earnings that is compensated by lower taxes and contributions and higher benefits when not in paid work.

The distribution of METRs for a margin of 3% of individual earnings is given in Appendix Table A3, with the modal range highlighted, and the gender and country differences are summarised in Table 6.[16] The difference in the average METR for men and women in couples

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[15] In principle there may also be effects on the measured METR because the margin itself is of different absolute size for members of the couple. We also consider the effect on household disposable income of couple earnings increasing by 10%, with the total increment being added in turn to each of the man and woman's earnings, making the absolute size the same (although larger than the 3% increase considered for the METR). We find very little difference in the size of the mean effective marginal rates when calculated in this way.

[16] See Immervoll (2004) for more detail about calculations of this type.

is expressed in absolute terms as percentage point difference. Positive values indicate a higher METR – and hence worse work incentives - for women in the group on average. In all the independent tax countries the women on average face lower METRs, and hence less disincentive to work a little more, than their male partners. This advantage is largest in Austria (7 percentage points difference in METR on average) and similar (4-5 percentage points) in the other five countries. In contrast, women are in a worse position than their partners in all three joint taxation countries, Portugal, France and Germany. The discrepancy, however, is not large (just one percentage point in Portugal and France, and two points in Germany). Again, these averages obscure the variation within countries.

Women have less of a tendency than men to face very high effective marginal rates, which are here defined as more than 50%. In the countries with higher tax rates overall (Finland, Germany and the Netherlands) this is largely a reflection of men facing higher marginal income tax rates rather than the effects of benefit withdrawal. In Germany, where high tax rates are combined with joint taxation, women outnumber men in facing rates over 50% (56% compared with 48%). In Finland, with an individual tax system, men greatly outnumber women in facing high METRs (37% compared with 12%). In the UK, where high METRs are explained by means-tested benefit withdrawal in combination with tax and contribution deductions, the risk of a high rate is similar for men and women.

Aside from the effects of joint taxation, there does not seem to be a generalised problem of the tax and benefit system damaging female work incentives more than those of men. It is nevertheless possible that significant gender disparities may exist *within* couples. Indeed, within-couple differences of work incentives are the most relevant aspect of work incentives when considering activity patterns and divisions of labour within households.

 In some countries men and women in two-earner couples do tend to face similar METRs as each other: in France all but 27% and in Portugal all but 20% (Table 6). A significant minority of women face rates more than 5 percentage points higher than their partners in all countries, ranging from 26% in Germany to 9% in the Netherlands. However, with the exception of the joint taxation countries larger proportions of men have METRs more than 5 percentage points higher than their female partners. These proportions range from 56% in Austria to 36% in the UK.

The absence of a disadvantaging treatment of female additional earnings is also confirmed looking at differences in incentives to earn a little more within couple. There are some high METRs, but, with the exception of the joint taxation countries, these are as likely to be faced by men in the case of the two-earner couples we consider. If, for example, a couple is deciding between themselves which one should take on more paid work, it does not appear that the tax benefit systems of the countries we consider place particular obstacles in the way of the woman. The fact that she will typically earn less for the same extra time worked, and that any additional responsibilities outside the household will leave her less time for activities within it are much more likely to be factors that affect any such decision. Indeed, it is only by virtue of these differences that the tax-benefit system could have a differential effect.

In order to establish what differences there are in members of couples to earn a little more we consider what return the household would receive on each of them increasing the amount they earn. Imagine a couple that wished to increase their household disposable income by 10%. One factor in choosing which of them should work more is their rate of pay and the proportional increase in time (or effort in other ways) that they would need to spend working. Another is the relative degree to which the tax-benefit system taxes or withdraws the additional earnings. Table 6 shows the proportional increase in earned income that would be necessary for each of them individually to achieve the 10% increase. The median rather than the mean of this variable is shown because very large amounts of earnings, which distort the mean, are necessary to achieve the target increase in household disposable income in some circumstances. These arise where (a) there is a large discrepancy between the earnings of the couple and/or (b) the withdrawal rate within the tax-benefit system requires a large increase in earnings to achieve a small increase in disposable income (the "poverty trap"). As a measure of the relative importance of such cases across countries, Table 6 shows the proportion of individuals where a 50% increase in earnings is not sufficient to result in a 10% increase in disposable income. Relatively large proportions of women in two earner couples are in this situation ranging from 42% in Germany to 17% in Portugal. Not unexpectedly smaller proportions of men are affected: as low as 3% in the Netherlands and Austria up to 11% in Finland and 8% in Greece and the UK.

The median increase in male earnings necessary to achieve a 10% increase in couple disposable income is quite similar across all countries: between 26.4% in Finland and 19.4%

in the UK.[17] There is more variation in the median necessary increase in female earnings which in every country is larger than the median for men. This ranges from 28.9% in Portugal and 30.1% in France up to 42.3% in Germany and 41.6% in Austria. The ratio at the median of the proportional extra earnings required from women relative to men is lowest in Finland where part-time working by women is relatively rare, but still over 1.3. The ratio is highest in the Netherlands (2.1) and Austria (1.9).

To summarise, it seems that the main effects of tax-benefit systems on the relative incentives of men and women in couples to increase their work effort are via the income tax system and in particular whether it taxes couple income jointly or individually. Joint taxation results in worse incentives on the intensive margin for the lower-earning member of the two-earner couple (France, Germany and Portugal). This is usually the woman and, as we have also seen, it is the discrepancy in couple wage rates and hours of work that drives our finding that for the couple to increase their disposable income it makes most sense in most cases for the man to increase his effort rather than the woman. This apparently self-perpetuating imbalance between couple earnings seems particularly strong in Austria, Germany and the Netherlands and less so in Portugal, France and Finland.

8. Incentives to work for women as second earners

A longstanding policy concern in many countries is the incentive to work at all. For women in couples the issues are less about the level of generosity of out-of-work social protection systems as such, than they are about the effect of their potential earned income on the taxes and benefits of the couple. On the one hand, the partners of unemployed men have little incentive to take paid work themselves if the benefits he receives are assessed on her income as well as his they will be reduced with her earnings. On the other hand, work entry by the partners of earning men may be accompanied by loss of in-work jointly-assessed benefits or the taxation of her earnings from the first euro earned. It is this latter issue that we consider as it is particularly relevant to the maintenance of family incomes at a level that is adequate when the earning capacity of one partner (in this case the man) is not high. It is also relevant to gender equality in maintaining human capital and earning opportunities. To assess the effect of tax-benefit systems on incentives to be in paid work for women with partners in work we calculate Participation Tax Rates (PTRs): the proportion of the lost earnings that is

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[17] More than 10% is needed in part because of the effects of the tax-benefit system and in part because the

compensated by lower taxes and contributions and higher benefits after leaving paid work. The basis of such calculations is explained in Immervoll and O'Donoghue (2002). The calculations are carried out for women in two-earner couples, by simulating what happens to their income on leaving work under two assumptions: that they qualify in full for contributory unemployment benefits, and that they do not. The second assumption can also be interpreted as what happens in the longer run after any eligibility for contributory benefits has been exhausted. Showing to what extent the tax-benefit system replaces lost earnings, the PTRs tell us what would happen if the woman did leave work, and hence the incentive she has to work as she does.

The top panel of Table 7 shows PTRs for three of the nine countries considered in this paper: Austria, Italy and UK, that are traditionally characterized by very different systems of social protection. Women in the UK seem to face better incentives to work both in the short (only 35% of lost earnings are replaced by the tax-benefit system) and long run. At the opposite extreme, in Austria the income insurance provided by the tax-benefit system is higher, particularly if the woman receives unemployment benefits that guarantee half of the lost earnings.

In order to assess the incentives to participate into the labour market, it is also important to consider the reverse situation of women observed to not be in work and assuming they move into work. In this case the PTRs tell us the proportion of the woman's gross earnings that is deducted as taxation and contributions and lost in out-of-work benefits on entry into work. In principle the PTRs calculated for each direction of the transition (in to out of work, and out of work to in) are trying to capture the same thing. However, in practice we only observe each woman in one state or the other and which this is depends on, among other things, the underlying incentive structure and the woman's potential earnings. In the case of the move into work, their earnings are predicted on the basis of those received by women currently in work corrected for sample selection bias, using Heckman selection-corrected wage regressions.[18] Generally these predicted earnings are lower than those actually received by women observed to be in work. Therefore, PTRs calculated for the in-to-out transition are not the same as those for the out-to-in transition. Both are needed to give a balanced picture of the incentives to take paid work.

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increase in income arises from just one partner's earnings.
[18] Regression coefficients are shown in appendix table A4.

The bottom panel of Table 7 shows the PTRs for women living in couples with a partner who is earning and being themselves either unemployed or inactive.[19] In Austria and Italy, the incentive for moving into employment is on average much higher for inactive women than for those unemployed.[20] In Italy, where the income support provided by the tax-benefit system is generally low, the incentive to work is quite high: only 22% of the earnings would be taxed away on average by the tax-benefit system.

In the UK, given the low level and short duration of unemployment benefits, the incentive to start working is very similar for women who are unemployed or inactive. In the latter case the incentive is, however lower compared to the other countries. Part of the explanation lies in the relatively sizeable system of in-work benefits. These may be received based on the man's employment and earnings. On her entry into paid work the woman's earnings result in withdrawal of these benefits which are assessed on joint income. In our sample of UK couples as a whole 21% are entitled to one or more in-work benefits.[21] For the one-earner couples that are considered for the inactivity-to-employment transition by the woman, 48% are entitled to such benefits before the transition and face their partial or complete withdrawal on employment.

9. Conclusions: is there a within-couple trade off?

Of those we consider, the countries with the tax-benefit systems that do most to equalise couple incomes are Austria, Finland, the UK and France. Figure 2, discussed above, summarises the differences across countries in the extent of equalisation, given the level of within-couple inequality in pre-tax benefit incomes. Figure 6 focuses on the position of two-earner couples, the group for whom we have assessed work incentives along the intensive margin as well as the extensive margin for women as second earners (from in-work to out-of-work). In this case, the pre- tax and benefit incomes are more equally distributed and the four countries achieving the most equalisation are Austria, Finland, the UK and the Netherlands. We have seen that these are also the countries where the income tax system contributes particularly to within couple equalisation. They are all countries with individual tax systems.

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[19] A woman is classified as being unemployed if she receives unemployment benefit income and she does not have any in-work income. She is considered inactive if she does not have any unemployment or in-work income and if she is not in education.

[20] These results should be interpreted with caution given the limited number of observation on which they are based.

[21] Working Families Tax Credit, Housing Benefit and Council Tax Benefit

It is the joint tax countries (France, Germany and Portugal) where there seems to be a discernable disadvantage introduced through the tax-benefit system to (earning) women compared with their (earning) partners in the incentive to work more intensively. In general it is the lower earnings of women than their partners that drive within-couple differences in work incentives. When viewed as a couple decision about who should work more to achieve a higher couple disposable income there are clear advantages in terms of extra proportional effort (at the median) in the man, rather than the woman, doing more.

In terms of the design of tax-benefit systems there does not appear to be any systematic trade off between the gender equalising properties of the tax-benefit systems in the countries we have considered, and their effects on the relative incentives to increase the amount of paid work. Such a trade off seems to be relevant only for the decision for a woman to work at all. As expected, in countries where the level of out-of-work support is lower (as in Italy), the incentive for a woman to take paid work is much higher. Furthermore, where in-work support for low earnings is substantial as in the UK, the incentive for the partners of low earning men to take work themselves is relatively low. This is due to the joint couple income assessment of these benefits. As with joint income tax assessment, this reduces work incentives for the "second" earner. Joint income tax also reduces the within couple redistributive power of the tax-benefit system whereas this does not seem to be the case for jointly assessed means-tested benefits which play an important equalising role (Figure 5) based on the incidence assumptions that have been adopted in this paper. Assuming something apart from equal sharing of these sources of income would affect this result. Nevertheless, while there may be a degree of trade-off between the within-couple equalising and work incentive effects of means-tested benefits, this is not the case for joint taxation systems, which have a negative impact on both counts.

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Table 1: The samples of couples: of working age, in households without other adults

	Austria	Finland	France	Germany	Greece	Italy	Netherlands	Portugal	UK
Sample size (unweighted)	748	4142	4439	2626	1818	2850	1981	1507	2334
% of all households	27.6%	30.1%	36.2%	28.1%	36.0%	35.1%	42.6%	34.4%	34.4%
% of all couples	45.6%	55.4%	57.6%	55.5%	47.1%	48.3%	69.4%	42.7%	58.4%
Sample characteristics									
Without children	36.4%	48.4%	36.6%	51.0%	33.3%	33.1%	49.8%	33.8%	49.3%
With children	63.6%	51.6%	63.4%	49.0%	66.7%	66.9%	50.2%	66.2%	50.7%
Older partner aged under 40	53.6%	55.6%	54.8%	48.3%	46.4%	48.7%	52.1%	53.7%	52.8%
Older partner aged 40+	46.4%	44.4%	45.2%	51.7%	53.6%	51.3%	47.9%	46.3%	47.2%
Man only earning	34.9%	9.6%	28.1%	21.9%	57.9%	44.8%	22.2%	24.7%	20.5%
Woman only earning	2.4%	3.4%	3.0%	3.1%	2.0%	3.3%	5.0%	2.7%	7.3%
Both earning	60.2%	85.3%	65.9%	73.1%	38.1%	47.9%	65.7%	71.0%	61.1%
Neither earning	2.6%	1.6%	3.0%	1.8%	1.9%	4.0%	7.1%	1.6%	11.1%
Not married	11.7%	35.2%	20.2%	19.5%	1.2%	1.2%	21.8%	6.1%	21.5%
Married couple	88.3%	64.8%	79.8%	80.5%	98.8%	98.8%	78.2%	93.9%	78.5%

Source: EUROMOD. Except for the first row, all results in this table are weighted using survey weights designed to correct for non-response.

Table 2: Women's share of couple pre- tax-benefit incomes (%) by household income and female and male earnings quintiles

	Austria	Finland	France	Germany	Greece	Italy	Netherlands	Portugal	UK
All	23%	37%	28%	29%	18%	22%	27%	31%	32%
Disposable income quintile for couples									
Q1	16%	35%	14%	21%	13%	13%	22%	17%	34%
Q2	16%	34%	26%	25%	9%	10%	23%	29%	28%
Q3	21%	37%	33%	31%	15%	20%	26%	33%	32%
Q4	30%	40%	37%	36%	22%	35%	31%	40%	33%
Q5	33%	37%	30%	32%	31%	31%	32%	38%	34%
No female earnings	3%	8%	0%	2%	2%	1%	3%	1%	6%
Female earnings quintile									
Q1	17%	23%	21%	12%	26%	29%	16%	31%	26%
Q2	26%	38%	38%	32%	38%	40%	30%	42%	34%
Q3	39%	45%	45%	40%	44%	44%	36%	44%	46%
Q4	45%	47%	48%	48%	48%	45%	43%	47%	49%
Q5	48%	50%	51%	55%	53%	49%	55%	52%	54%
No male earnings	89%	77%	52%	70%	77%	49%	48%	78%	62%
Male earnings quintile									
Q1	27%	47%	31%	40%	22%	18%	38%	30%	39%
Q2	20%	36%	30%	31%	15%	21%	25%	29%	29%
Q3	23%	33%	31%	26%	15%	22%	25%	31%	28%
Q4	18%	32%	25%	23%	17%	20%	19%	29%	25%
Q5	17%	26%	18%	14%	12%	18%	14%	27%	18%
Couples in which the woman has greater pre- tax-benefit income	12%	24%	19%	19%	12%	12%	16%	19%	26%

Source: EUROMOD. Household disposable income quintiles are calculated across all couples using the modified OECD equivalence scale.

Male and female earnings quintiles are calculated separately using the men and women who are in paid work in the whole couple sample.

Table 3: Women's share of couple disposable (post- tax-benefit) incomes (%) by household income and female and male earnings quintiles

	Austria	Finland	France	Germany	Greece	Italy	Netherlands	Portugal	UK
All	28%	41%	31%	30%	19%	24%	29%	33%	35%
Disposable income quintile for couples									
Q1	23%	41%	23%	25%	13%	20%	26%	23%	41%
Q2	21%	39%	29%	27%	10%	13%	25%	30%	31%
Q3	25%	41%	36%	31%	16%	21%	29%	34%	34%
Q4	33%	43%	38%	37%	23%	34%	33%	39%	36%
Q5	35%	39%	31%	32%	32%	31%	33%	38%	35%
No female earnings	12%	24%	11%	9%	3%	5%	13%	10%	21%
Female earnings quintile									
Q1	21%	32%	24%	16%	26%	30%	19%	30%	26%
Q2	31%	41%	38%	31%	39%	44%	29%	42%	36%
Q3	40%	45%	43%	39%	45%	44%	36%	42%	46%
Q4	45%	47%	48%	47%	49%	44	42%	45%	49%
Q5	47%	50%	51%	53%	54%	48%	53%	51%	54%
No male earnings	50%	60%	44%	50%	62%	50%	36%	53%	53%
Male earnings quintile									
Q1	34%	49%	36%	43%	23%	23%	41%	36%	44%
Q2	26%	42%	34%	34%	16%	23%	31%	31%	34%
Q3	28%	38%	34%	29%	16%	23%	29%	32%	31%
Q4	22%	37%	28%	25%	18%	21%	23%	30%	28%
Q5	21%	32%	20%	16%	13%	19%	18%	28%	21%

Source: EUROMOD. Household disposable income quintiles are calculated across all couples using the modified OECD equivalence scale.

Male and female earnings quintiles are calculated separately using the men and women who are in paid work in the whole couple sample.

Table 4: Equalising effects: absolute change in women's share of couple income due to the tax-benefit system (percentage points) by couple characteristics

		Austria	Finland	France	Germany	Greece	Italy	Netherlands	Portugal	UK
All		4.1	3.8	3.1	1.4	0.9	2.0	2.5	1.3	3.2
Disposable income quintile for couples	Q1	7.4	6.2	9.2	3.9	0.8	6.3	4.2	6.5	6.5
	Q2	4.4	4.8	3.0	2.9	0.7	2.6	2.6	0.5	3.2
	Q3	4.7	3.5	2.1	-0.1	1.1	0.9	3.1	0.9	2.2
	Q4	2.9	2.2	1.0	0.2	0.8	-0.1	1.7	-1.2	2.1
	Q5	1.8	2.3	0.6	0.2	1.2	0.3	1.4	-0.2	1.4
Man only earning		8.6	17.3	9.4	6.9	1.2	3.7	9.7	8.1	8.4
Woman only earning		-37.2	-21.9	-25.3	-28.1	-7.2	5.6	-26.2	-37.1	-17.6
Both earning		3.4	3.3	1.1	1.0	0.9	0.4	2.0	0.5	2.2
Neither earning		-25.5	-2.4	26.1	1.5	-9.7	-1.4	10.0	12.5	17.1
Female earnings quintile	Q1	3.6	9.0	2.6	4.2	0.0	1.6	3.1	-1.0	-0.5
	Q2	4.7	2.5	0.0	-1.7	0.4	3.5	-0.6	-0.3	2.0
	Q3	1.2	-0.1	-1.6	-0.6	0.6	-0.2	0.1	-2.1	-0.2
	Q4	0.1	-0.4	-0.8	-0.8	1.0	-0.3	-0.9	-1.3	-0.1
	Q5	-0.6	-0.5	-0.6	-2.1	0.4	-0.8	-2.0	-0.8	-0.5
Male earnings quintile	Q1	6.6	2.3	5.8	2.8	1.3	4.5	2.5	6.6	5.1
	Q2	6	5.6	4.1	3.0	0.6	2.2	5.5	2.2	4.7
	Q3	4.8	5.4	3.3	2.3	0.9	1.5	3.9	1.9	3.7
	Q4	4.9	5.1	2.9	2.0	1.1	0.9	4.1	0.9	2.9
	Q5	3.9	5.3	1.5	1.6	1.5	0.8	3.8	0.4	2.6
Without children		-0.5	1.4	1.7	-0.5	-0.1	0.4	0.5	0.2	1.2
With children		6.6	6.0	3.9	3.3	1.3	2.8	4.3	1.8	5.2
Older partner aged under 40		6.2	6.2	3.7	2.1	1.2	2.8	2.9	1.4	4.2
Older partner aged 40+		1.7	0.8	2.3	0.7	0.6	1.2	2.2	1.1	2.0
Not married		6.1	4.2	3.0	0.3	1.3	2.5	0.7	0.8	2.6
Married couple		3.8	3.6	3.1	1.6	0.9	2.0	3.0	1.3	3.3
Couples with increase in female share		80%	72%	72%	65%	59%	58%	79%	73%	76%
Couples with increase in male share		14%	27%	19%	33%	15%	26%	21%	22%	19%

Source: EUROMOD.

Table 5: Decomposition of the equalising effects by component of the tax-benefit system

	Austria	Finland	France	Germany	Greece	Italy	Netherlands	Portugal	UK
All couples									
(1) Independent income	23.4%	36.7%	28.2%	29.1%	18.0%	21.9%	26.7%	31.5%	32.2%
(2) + Non means-tested benefits	0.9ppt	2.2ppt	1.4ppt	0.9ppt	0.2ppt	0.1ppt	-0.3ppt	-0.3ppt	1.0ppt
(3) + Means-tested benefits	1.5ppt	0.4ppt	0.9ppt	0.1ppt	0.3ppt	1.3ppt	0.1ppt	1.5ppt	0.9ppt
(4) - Contributions	0.6ppt	0.1ppt	0.1ppt	-0.2ppt	0.0ppt	0.0ppt	1.6ppt	0.1ppt	0.2ppt
(5) - Income taxes	1.2ppt	1.1ppt	0.6ppt	0.5ppt	0.4ppt	0.6ppt	1.0ppt	0.0ppt	1.2ppt
Disposable income	27.5%	40.5%	31.2%	30.5%	18.9%	23.9%	29.2%	32.7%	35.4%
Bottom quintile of household disposable income									
(1) Independent income	15.9%	34.5%	14.2%	21.2%	12.7%	13.3%	21.7%	16.8%	34.4%
(2) + Non means-tested benefits	3.1ppt	4.2ppt	4.1ppt	2.1ppt	0.1ppt	0.5ppt	-1.4ppt	-0.4ppt	1.6ppt
(3) + Means-tested benefits	3.7ppt	1.5ppt	3.9ppt	1.0ppt	0.9ppt	4.3ppt	0.8ppt	6.5ppt	4.1ppt
(4) - Contributions	0.9ppt	0.1ppt	0.8ppt	0.3ppt	-0.2ppt	0.0ppt	4.2ppt	0.4ppt	0.1ppt
(5) - Income taxes	-0.3ppt	0.4ppt	0.4ppt	0.5ppt	0.0ppt	1.6ppt	0.5ppt	0.0ppt	0.6ppt
Disposable income	23.4%	40.7%	23.4%	25.0%	13.5%	19.6%	25.9%	23.3%	40.8%
Top quintile of household disposable income									
(1) Independent income	33.4%	36.9%	30.1%	32.2%	31.0%	30.9%	32.0%	37.9%	33.7%
(2) + Non means-tested benefits	0.2ppt	0.7ppt	0.3ppt	0.2ppt	0.1ppt	0.0ppt	0.6ppt	-0.2ppt	0.2ppt
(3) + Means-tested benefits	0.2ppt	0.0ppt	0.0ppt	-0.1ppt	0.0ppt	0.0ppt	0.0ppt	0.1ppt	0.0ppt
(4) - Contributions	-0.2ppt	0.0ppt	-0.3ppt	-0.4ppt	-0.2ppt	-0.1ppt	-0.7ppt	-0.1ppt	-0.1ppt
(5) - Income taxes	1.7ppt	1.7ppt	0.6ppt	0.5ppt	1.3ppt	0.4ppt	1.5ppt	0.0ppt	1.3ppt
Disposable income	35.3%	39.2%	30.8%	32.3%	32.3%	31.2%	33.4%	37.7%	35.1%

Source: EUROMOD

Table 6 Marginal effective tax rates[a] (METRs) and earnings : income elasticities for men and women in two-earner couples

	Austria		Finland		France		Germany		Greece		Italy		Netherlands		Portugal		UK	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
METR %																		
Mean	43.0	36.2	48	44.1	30.6	31.2	48	50.4	31	25.2	40	35.7	41	36	26.7	27.8	32	27.1
Median	40	39	48	46	33	33	50	51	31	28	39	39	45	44	25	25	30	30
% with METR >50%	10	10	37	12	3	3	48	56	0	0	5	3	14	4	1	1	3	3
Mean within couple difference (women-men) ppts	-6.9		-4		0.6		2.2		-5.3		-4.3		-4.9		1		-5.3	
% couples with male>female METR[b]	56		47		13		22		47		48		50		8		36	
% couples with female>male METR[b]	13		12		14		26		19		15		9		12		10	
Proportional increase in individual earned income necessary to achieve an increase of 10% in couple disposable income																		
Median	21.6	41.6	26	35.4	21.7	30.1	23	42.3	22	33.6	24	33.9	20	41.3	20.8	28.9	19	35.7
% with earnings increase > 50%	3.0	35	11	27	6	21	5	42	8	31	7	29	3	38	5	17	8	33

Source: EUROMOD. [a] for a 3% increase in individual earnings. [b] by more than 5 ppts.

Table 7: Women's Participation Tax Rates (PTRs) under different labour market transitions

	Austria	Italy	UK
Move from in-work to unemployment (with Unemployment Benefits)			
Mean	49.6	38.4	35.4
Median	54.0	36.0	29.0
Sample size (unweighted)	375	1262	1334
Move from in-work to unemployment (without Unemployment Benefits)			
Mean	23.8	32.4	19.0
Median	25.0	32.0	19.0
Sample size (unweighted)	375	1262	1334
Move from Unemployment to Employment			
Mean	68.0	34.5	41.1
Median	54.0	30.0	31.0
Sample size (unweighted)	42	127	41
Move from Inactivity to Employment			
Mean	34.3	22.3	40.5
Median	24.0	23.0	29.0
Sample size (unweighted)	282	1311	709

Source: EUROMOD

Figure 1 Women's share of couple pre- and post- tax and benefit income and the equalising effect of tax-benefit systems: All couples
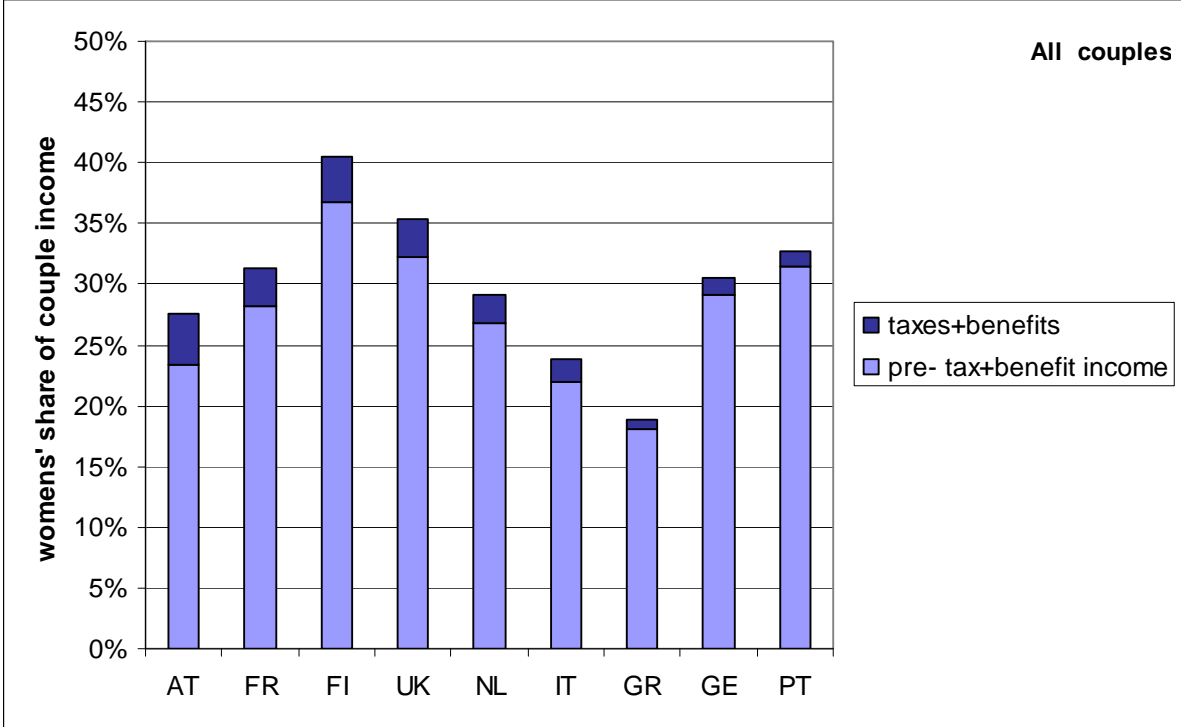
Source: EUROMOD

Figure 2: Women's share of income within couples: pre-and post- taxes and benefits
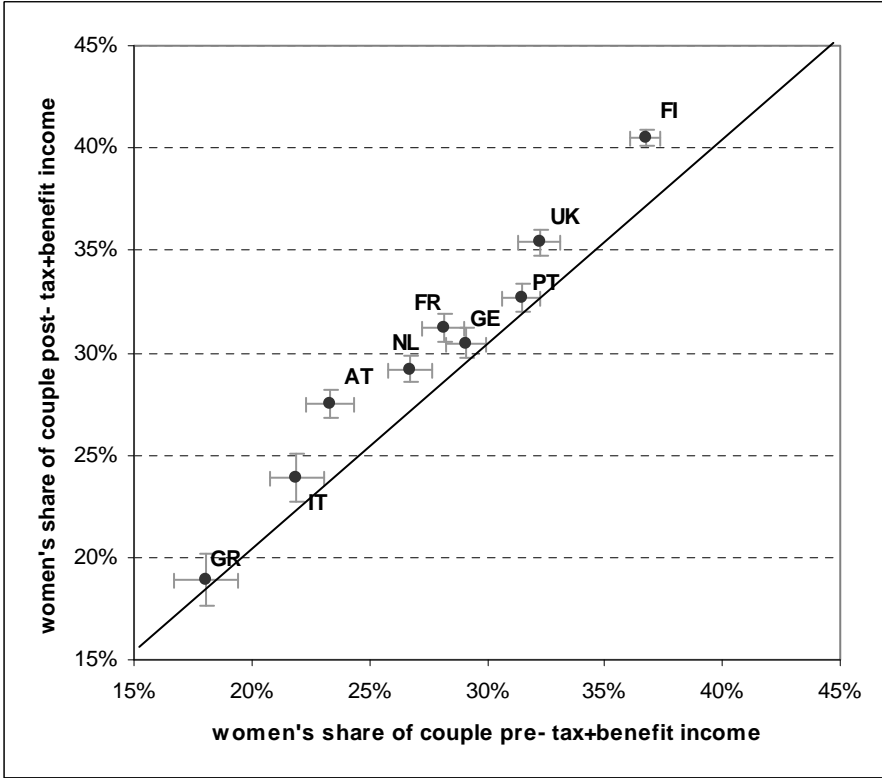
Source: EUROMOD. "Error bars" show coefficients of variation of pre- and post- tax-benefit incomes.

Figure 3 Women's share of couple pre- and post- tax and benefit income and the equalising effect of tax-benefit systems: Couples in the bottom quintile of disposable income
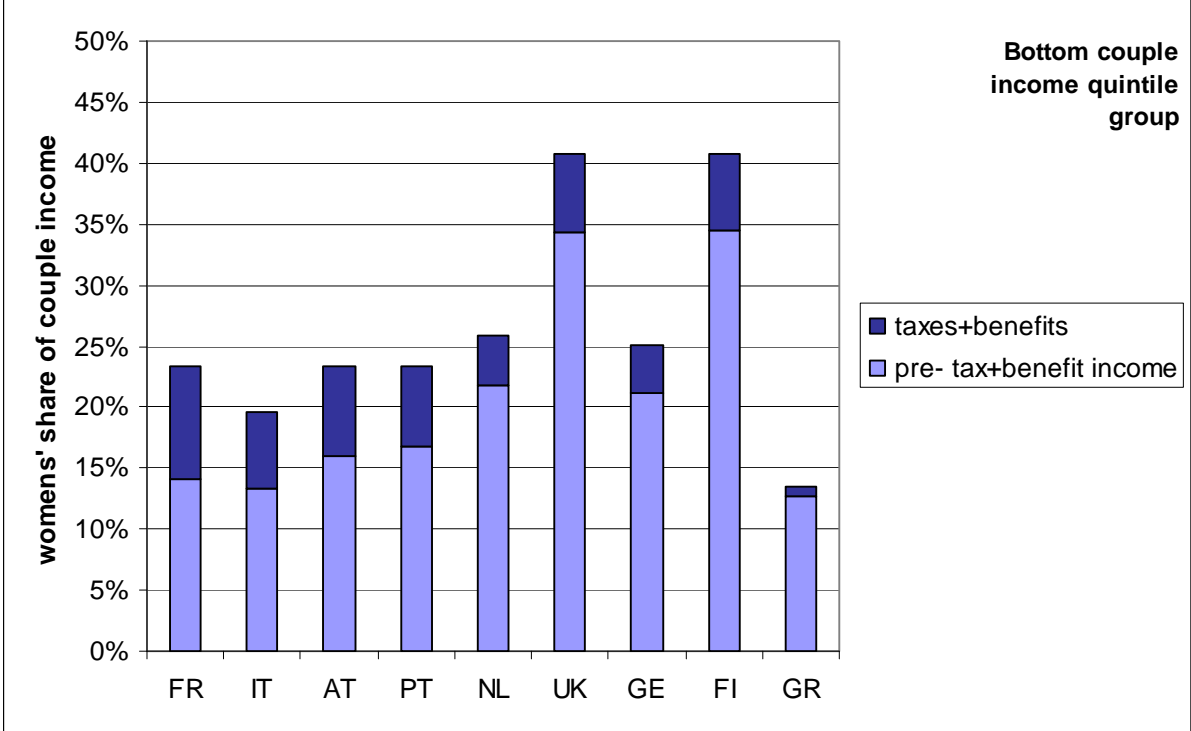
Source: EUROMOD.

Figure 4 Women's share of couple pre- and post- tax and benefit income and the equalising effect of tax-benefit systems: Couples in the top quintile of disposable income
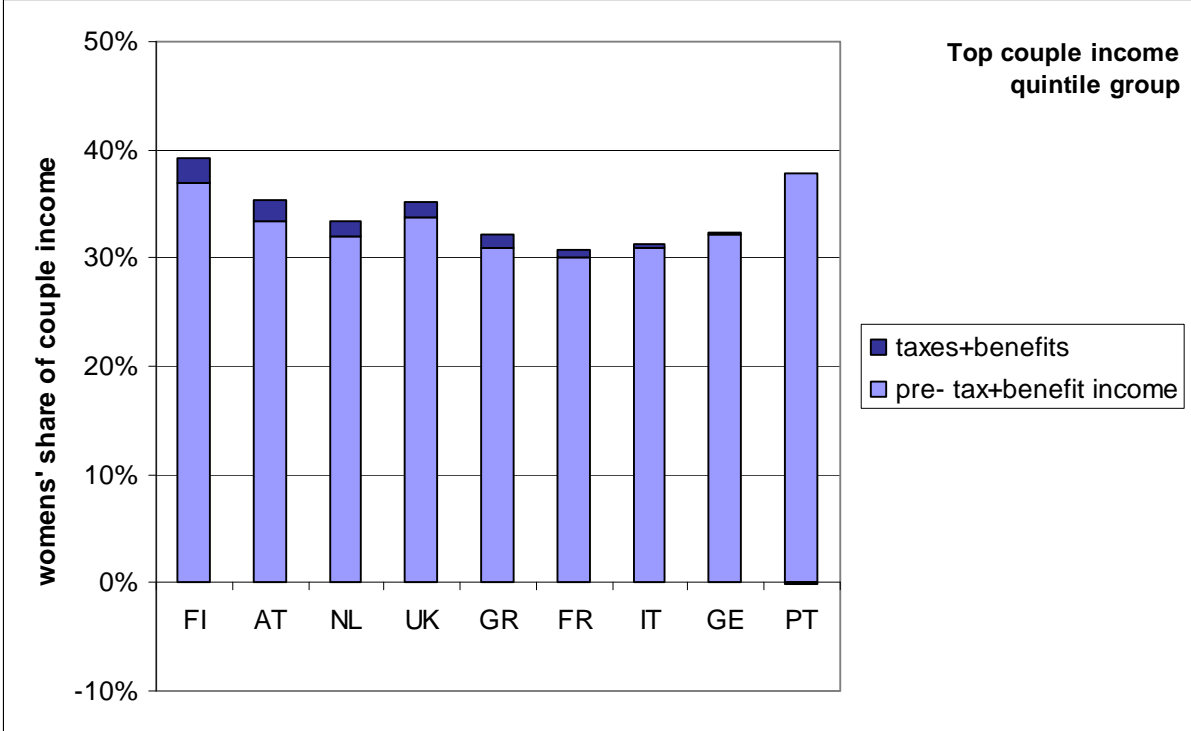
Source: EUROMOD.

Figure 5: Decomposition of the equalising effects by component of the tax-benefit system

(a)
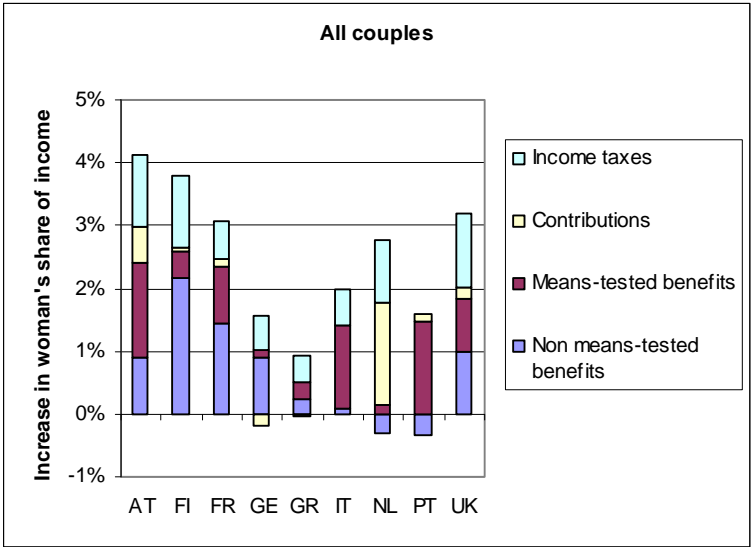
(b)
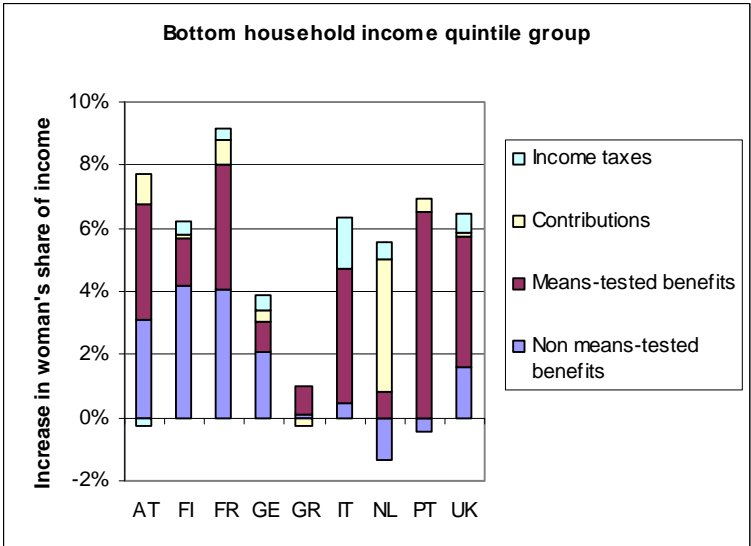
(c)
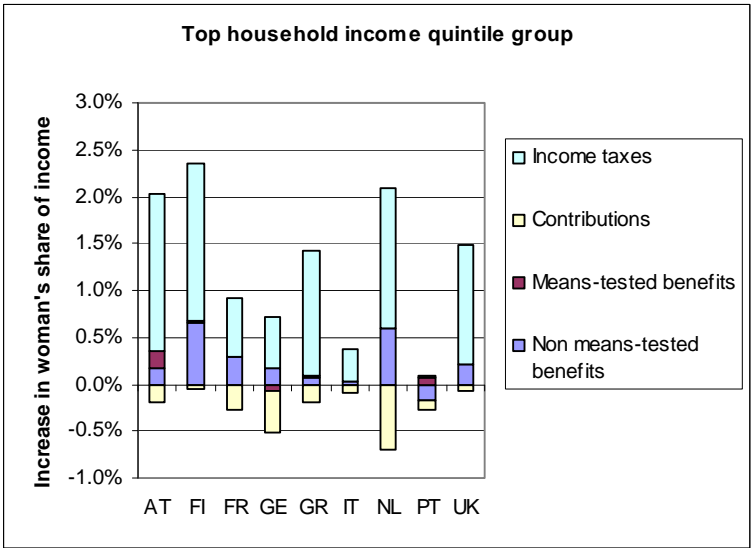
Source: EUROMOD.

Figure 6: Women's share of income within couples: pre-and post- taxes and benefits:
Two-earner couples
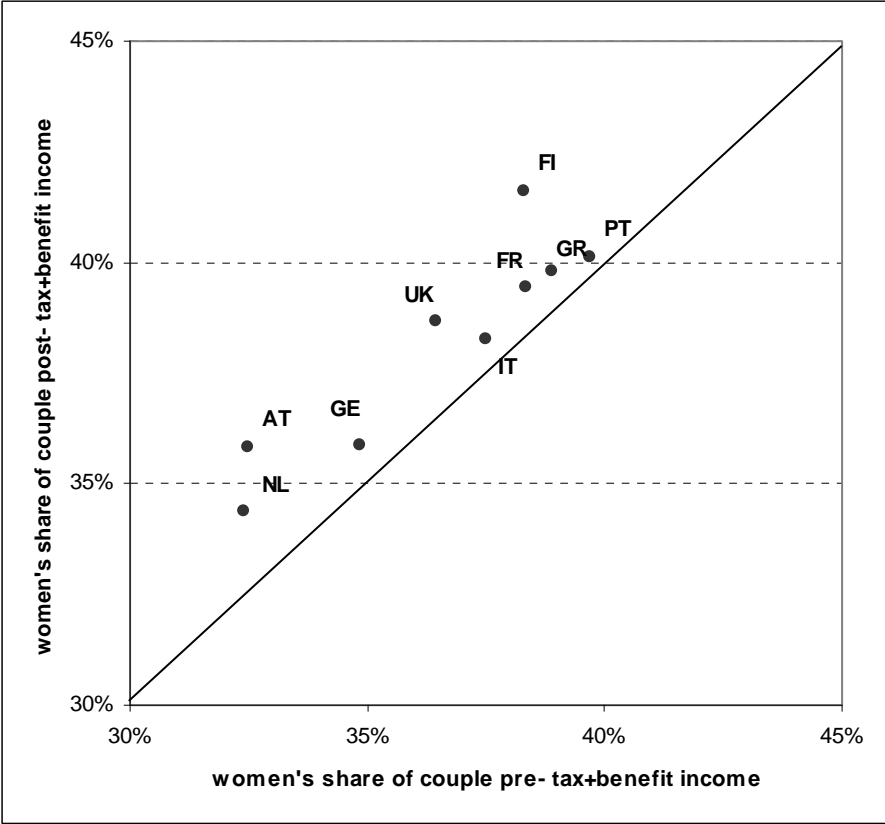
Source: EUROMOD.

Appendix

Table A1: EUROMOD datasets

Country	Base Dataset for EUROMOD	Date of collection	Reference time period for incomes
Austria	Austrian version of European Community Household Panel	1998+1999	annual 1998
Finland	Income distribution survey	2001	annual 2001
France	Budget de Famille	1994/5	annual 1993/4
Germany	German Socio-Economic Panel	2001	annual 2000
Greece	European Community Household Panel	1995	annual 1994
Italy	Survey of Households Income and Wealth	1996	annual 1995
Netherlands	Sociaal-economisch panelonderzoek	2000	annual 1999
Portugal	European Community Household Panel	2001	annual 2000
UK	Family Expenditure Survey	2000/1	month in 2000/1

Table A2: Quintile points (in monthly euro)

	Austria	Finland	France	Germany	Greece	Italy	Netherlands	Portugal	UK
Disposable income quintile for couples (upper limit)									
Q1	999	1,075	944	1,123	415	595	1,083	352	1,074
Q2	1,239	1,373	1,304	1,435	591	830	1,400	546	1,583
Q3	1,537	1,679	1,668	1,771	795	1,162	1,736	704	2,081
Q4	1,996	2,079	2,237	2,318	1,113	1,628	2,178	1,050	2,812
Female earnings quintile (upper limit)									
Q1	551	586	733	493	396	746	541	414	757
Q2	1,015	1,295	1,344	1,225	741	1,269	1,031	514	1,331
Q3	1,567	1,696	1,833	1,834	1,088	1,602	1,493	679	1,942
Q4	2,216	2,122	2,444	2,546	1,460	1,948	2,058	1,372	2,805
Male earnings quintile (upper limit)									
Q1	1,816	1,316	1,462	1,837	848	1,193	1,918	586	1,885
Q2	2,317	1,932	1,901	2,449	1,192	1,626	2,386	753	2,605
Q3	2,904	2,398	2,388	3,116	1,518	2,026	3,048	1,012	3,392
Q4	3,924	3,165	3,472	4,205	2,041	2,829	3,911	1,579	4,559
Ratio of female: male earnings quintile (upper limits)									
Q1	0.30	0.45	0.50	0.27	0.47	0.63	0.28	0.71	0.40
Q2	0.44	0.67	0.71	0.50	0.62	0.78	0.43	0.68	0.51
Q3	0.54	0.71	0.77	0.59	0.72	0.79	0.49	0.67	0.57
Q4	0.56	0.67	0.70	0.61	0.72	0.69	0.53	0.87	0.62

Source: EUROMOD.

Table A3: Distribution of marginal effective tax rates for men and women in 2-earner couples (%)

Range of METR: upper limit	Austria		Finland		France		Germany		Greece		Italy		Netherlands		Portugal		UK	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
<0	0.0	0.3	0.0	0.0	3.2	2.3	0.0	0.1	0.0	0.0	0.0	0.0	3.1	3.4	0.0	0.1	0.0	0.0
0	2.0	13.1	0.0	0.0	0.1	0.0	0.2	0.4	4.7	3.8	2.1	3.0	0.2	0.2	1.8	1.5	1.4	10.2
5	0.0	0.0	0.2	0.0	0.2	0.1	0.0	0.2	3.1	5.9	0.0	0.2	0.5	0.5	0.0	0.0	0.0	0.1
10	0.0	0.0	0.1	0.4	0.5	0.5	0.1	0.5	1.2	1.0	1.5	4.9	0.1	0.1	4.7	2.2	0.2	0.3
15	0.0	1.0	0.0	0.1	1.6	1.0	0.0	0.5	3.1	1.4	0.0	0.0	0.3	0.0	16.0	17.9	0.1	1.0
20	1.1	20.8	1.0	1.4	4.8	6.2	0.2	1.8	14.3	30.0	1.7	3.7	0.3	0.2	8.3	7.3	0.8	2.6
25	0.0	0.6	1.2	2.9	18.5	21.5	0.7	1.9	1.4	7.3	1.3	1.7	2.0	22.3	25.1	22.9	7.3	8.6
30	1.0	1.0	2.3	3.8	5.9	1.0	2.1	1.3	17.4	17.0	1.8	9.3	0.9	1.7	0.7	0.3	12.8	7.1
35	0.8	3.8	1.2	1.8	33.2	36.5	6.9	6.2	10.1	6.8	10.6	16.1	1.1	17.2	24.1	28.1	56.6	62.6
40	34.8	27.8	3.4	5.9	17.1	18.9	5.9	8.2	6.3	1.1	43.6	40.7	0.8	0.7	0.8	0.3	5.5	0.2
45	27.1	12.6	12.5	31.7	7.8	5.9	11.3	6.4	29.2	25.1	12.7	10.1	58.7	47.6	15.7	15.9	8.4	3.9
50	22.8	8.8	40.7	39.9	3.8	3.6	24.4	16.7	8.8	0.8	19.4	7.5	17.9	2.1	2.2	2.9	4.1	0.4
55	1.8	2.1	27.2	9.1	0.6	1.0	31.5	31.0	0.4	0.0	2.3	0.7	12.5	2.3	0.0	0.0	0.2	0.1
60	5.3	1.9	8.1	2.1	0.6	0.2	12.0	16.8	0.0	0.0	0.4	0.5	0.3	0.1	0.0	0.0	0.3	1.8
65	0.5	0.0	1.7	0.3	0.5	0.1	2.8	5.3	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.2	0.4
70	0.2	3.7	0.0	0.0	0.1	0.0	1.0	1.5	0.0	0.0	0.3	0.3	0.2	0.1	0.0	0.0	1.9	0.3
75	0.2	0.0	0.0	0.1	0.0	0.0	0.8	0.4	0.0	0.0	0.2	0.1	0.5	0.0	0.0	0.0	0.1	0.1
80	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.1	0.0	0.0	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0
85	0.2	0.0	0.0	0.0	0.2	0.3	0.1	0.2	0.0	0.0	0.2	0.0	0.1	0.1	0.1	0.3	0.0	0.0
90	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.4	0.4	0.0	0.1	0.1
95	0.0	0.0	0.0	0.1	0.5	0.4	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.1	0.1	0.2	0.1	0.1
100	1.7	0.6	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.1	0.0
>100	0.5	2.1	0.5	0.1	0.5	0.3	0.5	0.5	0.5	0.0	0.5	0.7	0.5	0.6	0.5	0.0	0.5	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: EUROMOD. Highlighted cells indicate the modal range

Table A4: Selection-corrected wage regressions (women)

	Austria		Italy		UK	
	Coeff	Std. Dev.	Coeff	Std. Dev.	Coeff	Std. Dev.
Earnings Equation (Hourly wage ln)						
Years In Education	0.016	0.006	0.037	0.008	0.048	0.003
Years of Experience	-0.021	0.007	0.054	0.008	0.033	0.003
Years of Experience^2	0.001	0.000	-0.001	0.000	-0.001	0.000
Region 1					-0.137	0.052
Region 2	-0.039	0.036			-0.007	0.045
Region 3	-0.047	0.043	0.051	0.056	0.002	0.043
Region 4			0.086	0.083	-0.036	0.045
Region 5			-0.059	0.066	0.009	0.043
Region 6			0.091	0.077	-0.018	0.054
Region 7			-0.073	0.077	0.228	0.044
Region 8			0.042	0.057	0.070	0.039
Region 9			-0.031	0.063	0.002	0.043
Region 10			-0.206	0.081	-0.093	0.052
Region 11			-0.110	0.068	0.052	0.044
Region 12			-0.293	0.071		
Region 13			-0.071	0.078		
Region 14			-0.100	0.192		
Region 15			-0.330	0.074		
Region 16			-0.312	0.074		
Region 17			0.029	0.150		
Region 18			-0.233	0.097		
Region 19			-0.219	0.082		
Region 20			-0.220	0.088		
Armed forces					-0.760	0.442
Senior officials and managers	0.375	0.106	0.900	0.170	0.496	0.032
Professionals	0.505	0.083			0.652	0.057
Technicians and associate professionals	0.319	0.055	0.739	0.049		
Clerks	0.159	0.047	0.431	0.037		
Service and sales workers	-0.065	0.044			0.119	0.023
Skilled agricultural	-0.143	0.125			-0.088	0.113
Craft and trades workers	-0.092	0.073	-1.521	0.376	0.491	0.029
Plant and machine operators	-0.012	0.102				
Part-time	0.248	0.031	0.003	0.032	-0.080	0.019
Constant	4.876	0.095	1.142	0.225	0.817	0.073
Participation Equation						
Married	-0.212	0.050	-0.388	0.050	0.172	0.046
Cohabiting	0.031	0.095	0.196	0.263	0.352	0.068
Years In Education	0.041	0.008	0.085	0.005	0.070	0.006
Years of Experience	0.087	0.009	0.098	0.006	0.071	0.007
Years of Experience^2	-0.002	0.000	-0.002	0.000	-0.002	0.000
Regional Gender Unemployment Rate	-1.329	4.454	-2.401	0.150	-10.310	2.380
Number of Children (aged - 0 -5)	-0.380	0.041	-0.018	0.042	-0.560	0.037
Number of Children (aged - 6-10)	-0.189	0.040	-0.183	0.042	-0.235	0.036
Number of Children (aged - 11-17)	-0.148	0.031	-0.066	0.034	-0.143	0.034
Constant	-0.437	0.199	-1.108	0.108	-0.268	0.136
λ	-0.745	0.023	-0.052	0.106	0.035	0.038
No. of observations	2449		6701		5154	
Censored observations	1280		4189		2306	
Uncensored observations	1169		2512		2848	
Wald (c^2, 9)	371.9		1596.07		1477.37	
Prob > c^2	0		0		0	

Source: Authors' calculations.