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Do Welfare State Taxes and Transfers Reduce Gender Income Inequality? Evidence from Eight European Countries

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Do welfare state taxes and transfers reduce gender income inequality? Evidence from eight European countries*

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Abstract

We complement the institutional literature on gender and the welfare state by examining how taxes and transfers affect the incomes of men and women. Using microsimulation and intra-household income splitting rules, we measure the differences in the level and composition of individual disposable incomes of men and women in eight European countries covering various welfare regime types. We quantify the extent to which taxes and transfers are able to close the gender gap in earnings, as well as which policy instruments contribute most to reducing the gap. We find that with the exception of old-age pensions, taxes and transfers – both contributory and means-tested – significantly reduce gender income inequality but cannot compensate for high gender earnings gaps. The equalizing effect of benefits is higher than that of taxes but varies significantly not only across countries but also across groups with different demographic characteristics.

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Keywords: gender inequality, income distribution, welfare state, social policy, Europe

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INTRODUCTION

A large body of scholarly work has examined the links between the modern welfare state and gender inequality. Following early debates on the patriarchal nature of the welfare state (Gordon, 1990; Jenson, 1986; Kolberg, 1991), feminist scholars have built on the seminal work of the 'power resources' school (Korpi, 1983) to refine welfare regime classification criteria by incorporating issues that were particularly important for women such as access to paid work and economic independence from the family (Lewis, 1993; Lister, 1994; Orloff, 1993; Sainsbury, 1999). Lister (1994) coined the term 'defamilisation': the extent to which the welfare system lessens individuals' reliance on the family and promotes their economic autonomy.

The focus of this body of work has remained on institutional indicators which have the advantage of examining welfare state policies directly. However, they also have some limitations. First, the same policies (institutions) may have different effects depending on context. For example, the effect of long parental leaves may depend on how well women are integrated into the labour force and on the gender division of unpaid work. Second, the same set of policies may affect women with different characteristics differently. For example, public support for privately provided day care via the tax system will be advantageous for high earners but of little help to low paid women. Finally, welfare states are not homogeneous and serve many purposes other than gender equity. As such, welfare policies cannot be expected to be entirely coherent with regard to 'defamilisation'. Some policies may support women's independence while others will hinder it. While scholars of the institutional approach generally recognize this, in practice they rely on a limited set of policy indicators for their empirical analyses. Subsequent findings may be highly dependent on the specific indicators one

happens to choose and studies using different indicators may arrive at different conclusions.

A different methodological approach – the one adopted in this paper – is to examine actual outcomes from a gender perspective and to assess the extent to which these outcomes can be attributed to various welfare state policies. We examine gender inequality in earnings and disposable income across different welfare regimes. We decompose the disposable incomes of men and women by source. This allows us to highlight the role of separate policy instruments (taxes and social transfers) in reducing the gender gap in incomes. Finally, we verify whether conventional welfare state classifications based on institutional indicators are confirmed by gender income inequality outcomes.

We focus on income inequality because income is arguably the best single indicator of economic resources and it is directly influenced by welfare state policies. In addition, we make two methodological contributions. First, we propose a way of measuring the personal income of individuals within couples/multi-person households. This allows us to include men and women living in couples in our analysis in a meaningful way. Previous work on gender income inequality has relied almost exclusively on comparing the earnings of men and women or the disposable incomes of single men and women. Second, we use microsimulation techniques to improve on existing survey measures of income. This is especially true of income taxes and social insurance contributions which tend to be either missing from survey microdata or, as in our dataset, measured very imprecisely. In addition, we are able to disaggregate benefits that are measured only at the household level in the original data.

The analysis covers eight EU countries in 2014: Belgium, the Czech Republic, Germany, Finland, France, Romania, Spain, the United Kingdom. The countries have been chosen

to represent the variety of welfare state institutional arrangements in the EU relevant for the treatment of women.

The rest of the paper proceeds as follows. Section two reviews the literature on gender income inequality and welfare states and discusses one specific methodological issue that restricted the scope of previous studies, i.e. the issue of intra-household allocation of income. Section three discusses our methodology and the data. Section four presents our results and section five discusses them. Finally, section six concludes.

GENDER INCOME INEQUALITY AND THE WELFARE STATE

A natural way of evaluating welfare states from a gender perspective is to look at the extent to which they limit gender income inequality. Unfortunately, there are virtually no studies that address this question explicitly. Previous scholarly work has focused on dimensions of gender inequality other than income, such as wages (Gangl & Ziefle, 2009; Gornick & Jacobs, 1998; Mandel, 2012; Mandel & Semyonov, 2006), and the division of unpaid housework and care work (Gesit, 2005; Hook, 2010). There are at least three ways in which the welfare state can affect women's incomes relative to men's.

First, it is well documented that the arrival of children has dissimilar consequences for men and women even when their human capital characteristics are similar. Mothers are more likely to experience career interruptions, reductions in their working hours and they are more likely to have low-paying jobs, as compared to non-mothers, and men. This has been referred to as the 'family gap' or the 'wage penalty for motherhood'. By providing affordable childcare and generous parental leave, the state can enable women to more easily combine paid work with motherhood. While wage penalties associated

with motherhood have been found in all welfare regimes, they tend to be lowest in the Nordic countries where childcare and parental leave provisions are the most generous (Gangl & Ziefle, 2009; Sigle-Rushton & Waldfogel, 2007). Second, the key role of social transfers in closing the gender gap in poverty, especially for lone mothers and lone elderly women, was highlighted in multiple studies (Bastos, Casaca, Nunes, & Pereirinha, 2009; Brady & Burroway, 2012; Christopher, England, Smeeding, & Ross Phillips, 2002). Short term, generous benefits in the immediate aftermath of childbirth and child allowances were shown to significantly reduce female poverty (Misra, Moller, & Budig, 2007). In contrast, benefits requiring a long, uninterrupted contribution history tend to disadvantage women. This is the case with the welfare state's most prominent transfer – old-age pensions. According to Bettio, Tinios, and Betti (2013), in 2009 the average gender pension gap in Europe amounted to 39%, twice as high as the average gender gap in earnings. One exception among contributory benefits are survivor's pensions that are more beneficial for women. However, the decline and instability of marriage are likely to undermine the effectiveness of this instrument in equalizing the incomes of men and women in retirement.

Third, the welfare state is important for gender income inequality also because it incentivizes certain types of behaviour. High marginal effective tax rates (METRs), either due to progressive joint taxation or means-testing, may undermine women's incentives to undertake paid work or to increase their earnings by working more hours or at a higher wage rate (Figari, Immervoll, Levy, & Sutherland, 2007; Thomas & O'Reilly, 2016). Depending on the country context, long-term generous paid parental leave may also discourage maternal employment and in the long run increase female poverty (Misra et al., 2007), as well as gender disparity in earnings within couples (Dotti Sani, 2015).

INDIVIDUAL VS HOUSEHOLD LEVEL MEASURES OF INCOME: THE PROBLEM OF INTRA-HOUSEHOLD ALLOCATION DECISIONS

Unlike earnings which are measured at the individual level, disposable income is usually measured at the household level. This is because it encompasses income sources that may be easily individualised such as for example family benefits or social assistance. Virtually all studies of gender income inequality/ poverty use a household level measure of income. The two underlying assumptions are that all household members pool all their incomes and share them equally. These assumptions are rooted in the unitary model of household behaviour which treats the household as if it were a single individual (Becker, 1974). While suitable in certain contexts, the assumptions can lead to substantial bias in assessing income inequality among individuals, and in particular, between men and women (Sophie Ponthieux & Meurs, 2015). First, although couples do pool their income, especially when they are married, have children or have a long history (Bonke, 2015; Bonke & Uldall-Poulsen, 2007), the assumption of complete income pooling is unrealistic. Early on, studies of financial decision making and financial management within couples have pointed to a variety of arrangements, only a few of them egalitarian (Pahl, 1983; Vogler & Pahl, 1994). Moreover, work on trends in money management documents a shift in practices, from couples managing their finances as a single economic unit to individualised financial arrangements (Pahl, 2005). More recent survey data suggest that at least 47% of adults in the EU are living in multi-adult households where at least part of income is not fully shared (S. Ponthieux, 2013). Second, because poverty/incomes are measured at the household level, results are driven by the characteristics of single men and single women (with or without children) and their share in the population. Men and women living in couples have by definition

the same incomes and as such cannot contribute to any gender disparity in income or poverty measures.

Even if a household were to pool all its income resources and grant all adult members equal access, control over money entering the household is retained by the individual contributing it. Adults who contribute few or no economic resources are in a vulnerable position as withdrawal of financial support can leave them economically deprived, as attested by the large negative economic consequences that union dissolution can have for some women (Aassve, Betti, Mazzuco, & Mencarini, 2007; Andreß, Borgloh, Bröckel, Giesselmann, & Hummelsheim, 2006).

To overcome the conceptual and methodological problems posed by measuring income at the household level, we focus instead on individual/personal income. To construct individual incomes, we allocate all household income at the individual level (Section 3.2 provides detailed information about our income splitting strategy). We generally assume that individuals retain all income received in a personal capacity, including earnings and all individual level benefits. We believe that the assumption of no or minimal pooling is justified in our case based on three considerations. First, a consistent finding of the empirical literature on intra-household allocation is that the woman's consumption/living standard in the household is strongly correlated with her share of earnings (Bennet, 2013; Bonke, 2015) or, more broadly, with her share of income (Cantillon, 2013; Himmelweit, Santos, Sevilla, & Sofer, 2013; Pahl, 1983). Second, our assumption is consistent with non-unitary models of household decision making. In these models, decisions over the allocation of consumption are taken by negotiating partners whose bargaining power depends on the resources they command when the relationship breaks down (i.e. 'the threat point') (Himmelweit et al., 2013; Lundberg & Pollak, 1996). Our approach can be thought of as mirroring the '*separate spheres*

bargaining' model developed by Lundberg and Pollak (1996). In this model, the threat point is determined by income received/controlled within the marriage. Because divorce can be a high-cost, traumatic event, the threat of withdrawing cooperation within the marriage/ union is more plausible in the context of day-to-day bargaining. From a public policy perspective, it has the advantage that it allows for shifts in the intra-household allocation of resources in response to policies relocating income within the marriage/union but not affecting the incomes of divorced men and women (for example, changing the recipient of child benefits).Third, by examining individual income we capture not only gender inequality in consumption but also in other dimensions that are important to individual well-being such as status, personal autonomy and control over one's life (Pahl, 2005).

DATA AND METHODOLOGY

Country Selection

We assess the extent to which taxes and benefits support women's incomes and redistribute resources across gender lines in eight EU countries. The countries have been chosen to represent the variety of European welfare regimes with different levels of social spending for families and different outcomes in terms of female employment (see Table A1). In particular, when choosing the countries for the study we relied on the classification of gender regimes by Pascall and Lewis (2004) and a meta-analysis of different studies providing quantitative measures of defamilisation by Lohmann and Zagel (2016).

Finland is a representative of the Scandinavian welfare regime, usually considered to approximate most closely the *'dual breadwinner'* model. It typically ranks top on defamilisation indices. Partly due to their pronatalist goals, France and Belgium have an extensive system of family related transfers and childcare provision/subsidies, and consequently, also score high on defamilisation measures. Germany and Spain most closely approximate the traditional '*male breadwinner*' model where female employment is lower, public childcare provision is limited and women are expected to be primarily carers for their family. Both countries typically score low on defamilisation measures. However, Germany has significantly higher generosity and coverage of cash transfers compared to Spain. Finally, the UK is a representative of the liberal regime where public support for families is largely means-tested and while female labour market participation is high, women tend to have part-time, lower-paid jobs. The UK tends to have the lowest scores on defamilisation measures.

In addition, our study covers two countries of Central and Eastern Europe (CEE), the Czech Republic and Romania. Previous research on defamilisation was focused on Western Europe and the CEE countries were rarely included due to the lack of data. In the state socialist welfare regime women worked full-time but have also retained their care work and housework. Following the transition to a market economy in the early 1990s, social expenditures were severely cut back. The Czech Republic retained its system of family support, although at less generous levels, following the continental model, whereas Romania, following the liberal model, reduced public support for families to a minimum and targeted it on the poorest. A severe fall in fertility rates in the 2000s that became a common trend in the region prompted these countries to introduce generous childbirth related transfers.

Income Definition and Measurement

We wish to examine gender inequality not only in gross earnings but in disposable incomes, i.e. accounting for the income provided by social transfers and that taken away by taxes and social contributions. To this end, we construct a measure of individual disposable income in a series of steps (a detailed description is given in Table A2). We restrict our sample to individuals aged 18 and older. First, we assume that all earnings and benefits where entitlement is at the individual level (such as pensions, unemployment benefits or parental leave benefits) are retained by the individual receiving them. We lack individual measures of some types of market income in our data, most notably asset (i.e. investment and property) income. However, for the vast majority of households, asset income represents only a small fraction of overall income. We individualize it by assigning it to the members of the oldest couple (or oldest person) on the assumption that asset income requires relatively long periods to accumulate. Income from other sources is split equally among all household members.

We are able to accurately simulate taxes and social insurance contributions in all countries at the taxpayer unit level. This is usually the individual. In countries with joint taxation, we allocate taxes to individuals in proportion to their taxable income. For instance, if the woman's earnings constitute 30% of the joint taxable income, her share of the joint tax will be equal to 30%, while 70% is allocated to her partner/spouse.

Finally, some benefits such as social assistance, household benefits and child related transfers are initially recorded only at the household level. To allocate them to individuals, we take two steps. First, we simulate most of these benefits using the respective benefit entitlement unit (which may be smaller than the household). Second, we allocate the benefit among the adults of the entitled unit, assuming each adult

receives an equal share. In the absence of specific information about income sharing within the household and the likely heterogeneity of sharing practices across households, we believe this is the most fruitful approach. However, we test the sensitivity of our results by building two additional scenarios (see Table A2).

In the first sensitivity scenario, we assume that the primary earner takes advantage of his/her bargaining power to retain common sources of benefit income (e.g. family benefits, social assistance benefits, etc.). The primary earner is defined as the person with the highest earnings within the benefit unit (or the highest income from all market sources and individual contributory social transfers if earnings alone cannot determine a unique primary earner). Note that there is no explicit gender dimension in the definition of the primary earner. In the second sensitivity scenario, we assume that common sources of benefit income are assigned to the secondary earner. The secondary earner is defined as the partner of the primary earner; if the primary earner has no partner, then the secondary earner is defined as the person with the second highest earnings or market/replacement income. Note that the assumptions in the three scenarios only apply to income sources that are not readily individualised.

To account for economies of scale in consumption and be able to compare households with different sizes and/or composition, we use a special form of equivalisation. For each adult, we calculate an individual weight based on the 'modified OECD' scale . The 'modified OECD' scale assigns a weight of 1 to the first adult, 0.5 to subsequent adults (aged 14 and above), and 0.3 to children (aged 13 and under). We modify this scale in two steps. First, we add the weights of adults living in the same household and divide them by the number of adults present. Second, we take into account the cost of having children by attributing the weight of children to their parents. When both parents are

present, we assume that the costs of their children are split equally. Children are defined as individuals below 18 years old, unless they live in single-person households.

Data and Tools

We use EUROMOD (Version H1.0), the static tax-benefit microsimulation model for the EU-28 (see: https://www.euromod.ac.uk/). It simulates all components of disposable income, including cash benefits, social insurance contributions and personal direct taxes. Income elements that cannot be (fully) simulated are market incomes and benefits which depend on the previous contribution history (e.g. pensions) or on some unobserved characteristics (e.g. disability benefits). These are taken from the microdata. The input data for EUROMOD are derived from the European Union Statistics on Income and Living Conditions (EU-SILC) dataset. Detailed information on EUROMOD and its applications can be found in Figari and Sutherland (2013). Our analysis refers to 2014.

Using EUROMOD has a number of advantages over using the original EU-SILC data. First, EUROMOD allows us to generate accurate and individualized measures of both direct income taxes and social insurance contributions which are lacking in EU-SILC. Second, while all family benefits are generally measured at the household level in SILC, using EUROMOD we are able to simulate individual benefits such as, for instance, parental leave benefits, and allocate them to their actual recipients. Third, EUROMOD allows us to accurately determine which individuals belong to a unit entitled to receive non-individual transfers such as housing benefits or social assistance. In turn, this allows us to allocate incomes only among entitled individuals rather than among all adults present in the household. This may be especially important in the case of child related

transfers if the parents are living together with other adults. Fourth, using EUROMOD we obtain potentially more accurate measures of some types of income transfers that are known to be poorly captured by surveys (such as, for example, means-tested benefits).

Measuring the Impact of Welfare State Policies

We first document the gender inequality in incomes by showing ratios of average female to average male incomes. We obtain a first impression of the impact of transfers and taxes linked to the welfare state by comparing earnings ratios to disposable income ratios. We then calculate the proportion of income that comes from market incomes, benefits (including pensions) and taxes (including social insurance contributions), for men and women separately. In addition, we decompose cash transfers by benefit function. These calculations enable us to assess if the tax-benefit system overall and specific types of policies are more beneficial for women or for men. A social transfer is considered progressive or equalising across the genders if its share relative to market income is higher for women than for men. Vice versa, a tax is considered progressive and equalising if its share relative to market income is lower for women than for men. In other words, if men pay a higher share of their income in taxes, the tax system has an equalizing effect on income across gender lines. Similarly, if women rely on means-tested or on family benefits for a greater proportion of their income compared to men, these social transfers are considered equalising.

It should be noted that our approach is only suitable for analysing the first-round impact of direct taxes and cash transfers. In-kind provision of services, especially affordable, quality, publicly provided childcare (and to a lesser extent elderly care) is

crucial to enable women to combine paid employment with their family and care responsibilities. Unfortunately, we are not able to account for the effects of childcare in the same way that we can for direct transfers and taxes. We only have indirect evidence about childcare services from the gender gap in earnings. In countries where parents have access to quality and affordable childcare, the differences between the earnings of men and women should be smaller.

European welfare states have traditionally had different programs in place for the working age and the elderly. We thus study these two groups separately. It is noteworthy that contributory public pensions, the main source of income for the elderly, can either be treated as direct transfer or as deferred income (Mahler & Jesuit, 2010). Given the overwhelming weight of the public pension system in EU countries, they are conventionally treated as social transfers and in this paper we also follow this approach. We have also examined households with particular demographic characteristics: single persons, lone parents, one earner couples with and without children and two earner couples with and without children. In this paper we opted for focusing on the results pertaining to two earner couples with and without children. This household type helps us to demonstrate how welfare states succeed or not in mitigating the income penalty associated with motherhood. Other results are available from the authors upon request.

RESULTS

The Gender Gap in Incomes

We measure the gender income gap using ratios of average female to male disposable incomes. A higher gender gap is associated with a lower income ratio and vice versa.

Figure 1 shows the gender gap in earnings and disposable incomes among working age individuals and those aged 65 and over. Among the working age, the largest income gap is found in Spain (ratio of 58%) and the smallest in Finland (ratio of 93%). Gender gaps in earnings are higher in all eight countries, suggesting that taxes and transfers have an equalizing effect. The difference they make however varies enormously. Generally, countries cluster in three groups. In Romania, the Czech Republic and the UK, taxes and transfers reduce the gender income gap by approximately 20 pp, in France, Belgium and Germany by around 10pp and in Finland and Spain, by less than 5 pp.

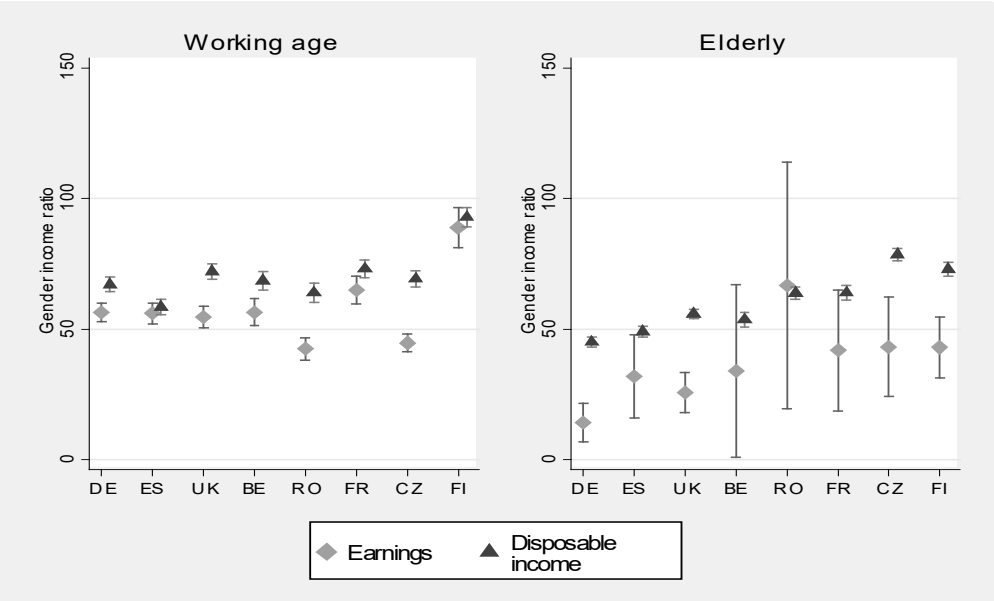

Fig 1: Earnings and disposable income gender ratios for the working age (18-64) and the elderly (65+)

Among the elderly, the highest income gaps continue to be found in Germany and Spain (ratios of 45% and 49% respectively). The lowest gender income inequality is found in the Czech Republic (ratio of 80%) and Finland (73%). Note also that the gender income

gap in disposable incomes is usually higher among the elderly than the working age. This is especially so in Germany and Finland.

Gender income gaps for two earner couples are shown in Figure 2. When couples have no dependent children, taxes and benefits matter little for the income gap with the exception of France, Finland and Belgium where they have an equalizing effect (the income ratios drop by 6-7 pp). Taxes and benefits become more important when couples have children. They reduce the gender income gap by between 4pp (Spain) and 9 pp (Finland).

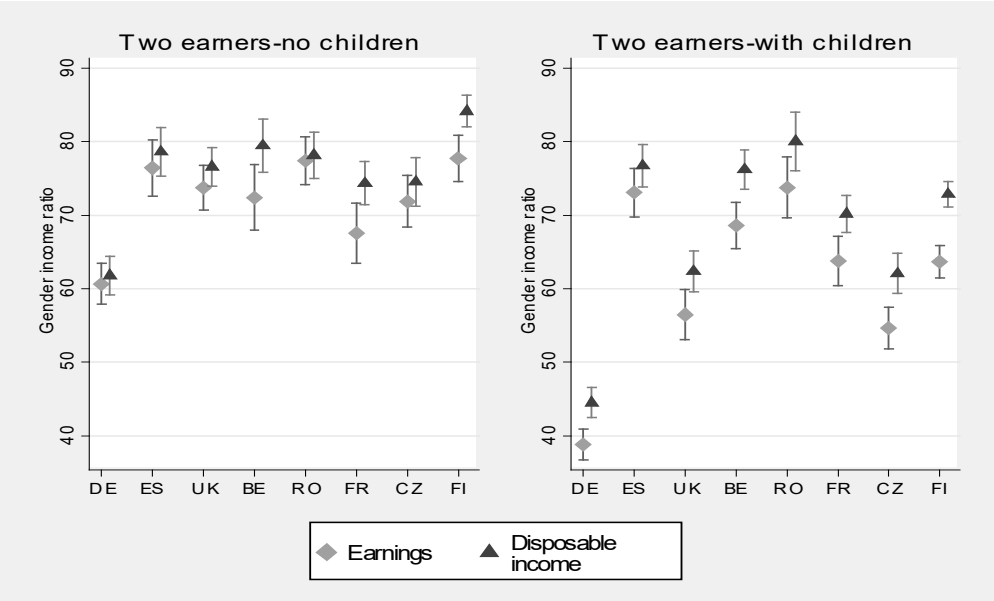

Fig 2: Earnings and disposable income gender ratios among two earner couples with and without children

Consistent with previous studies, we find that the arrival of children increases gender income inequality in most countries. Earnings gaps increase significantly in some countries and while taxes and transfers have an important mitigating role, they do not make up for the fall in the earnings ratios. As a consequence, couples with children

experience higher gender income inequality compared to couples without children. In Germany gender income gaps are higher among two earner couples with children by 17pp and this is largely due to an increase in the earnings gap (22pp). Other countries where having children increases the gender income gap among two earner couples considerably (by 11-14 pp for disposable incomes and 14-17 pp for earnings) are the Czech Republic, the UK and Finland. In contrast, increases are much smaller (between 0-4pp both for disposable incomes and earnings) in Romania, Spain, France and Belgium.

The choice of scenario (see Fig A1-A4) makes little difference to the calculation of gender income ratios, except in two earner households with children. Income gaps are largest in the scenario where common benefit income is attributed to the primary earner (Sensitivity 1) and smallest in the scenario where common benefit income is attributed to the secondary earner (Sensitivity 2), while our main individualized income scenario (common benefit income split equally) lies in-between. However, these differences are small.

The Decomposition of Incomes Received By Men and Women by Source

Next, we examine the levels and composition of men and women's incomes. To facilitate cross-national comparisons, we divide incomes by the national median disposable income which we use as an indicator of the national living standard. Our results show the level of incomes of men and women (from different sources) relative to the national median. To avoid any possible bias stemming from our methodological choices, we use the median equivalised disposable income calculated in the 'standard' way, i.e. pooling all incomes within a household, equivalising it (using the 'modified OECD' scale) and attributing it to all members of the household. We focus on the extent to which taxes

and transfers equalize (or not) incomes across genders. The redistributive effect of any policy will depend both on its progressivity (women receiving a higher share relative to market incomes) and size. The more progressive and the bigger a policy is, the higher its potential for redistribution.

Figure 3 shows the level and composition of incomes of men and women. We distinguish between market incomes (earnings plus private pensions and capital income), benefits (including public pensions) and taxes (including social insurance contributions). In absolute terms, men have significantly higher market incomes and pay more in taxes than women in all the countries. In terms of benefit income, the gap is smaller and in some countries women receive more than men. Benefits are more important than taxes for equalizing the incomes of men and women both for working age individuals and for the elderly. In the absence of taxes, income gaps among working age individuals would increase by between 0.5 and 5 pp, whereas they would increase by between 1-30pp in the absence of benefits. Both taxes and benefits do most to limit the gender income gap in the Czech Republic, Romania and the UK. This finding is somewhat surprising given that these countries have flat or quasi-flat rate taxation and benefit systems that are considered relatively ungenerous.

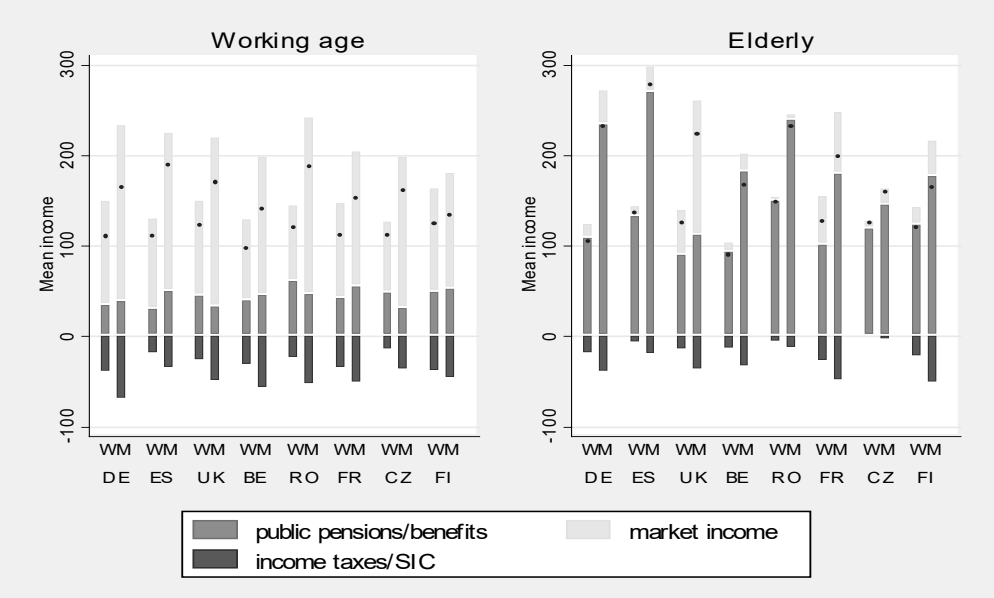

Fig 3: Decomposition of average disposable incomes received by men and women by source and age (incomes are shown as percentage of median equivalised disposable income)

Figure 3 shows that with the exception of the UK and France, market incomes are a relatively minor income source for the elderly. In all countries, elderly men receive more benefit income compared to elderly women. Disparities are particularly large in Germany, Spain, Belgium and France, all conservative welfare states with strong links between contributions and benefits. In contrast, benefit income is much more equally distributed across the two genders in the Czech Republic, the UK and Finland. Taxes have a clear equalizing role only in Finland where they reduce the income gap by around 6 pp. In the other countries, taxes are more or less proportional and so affect the income gap very little.

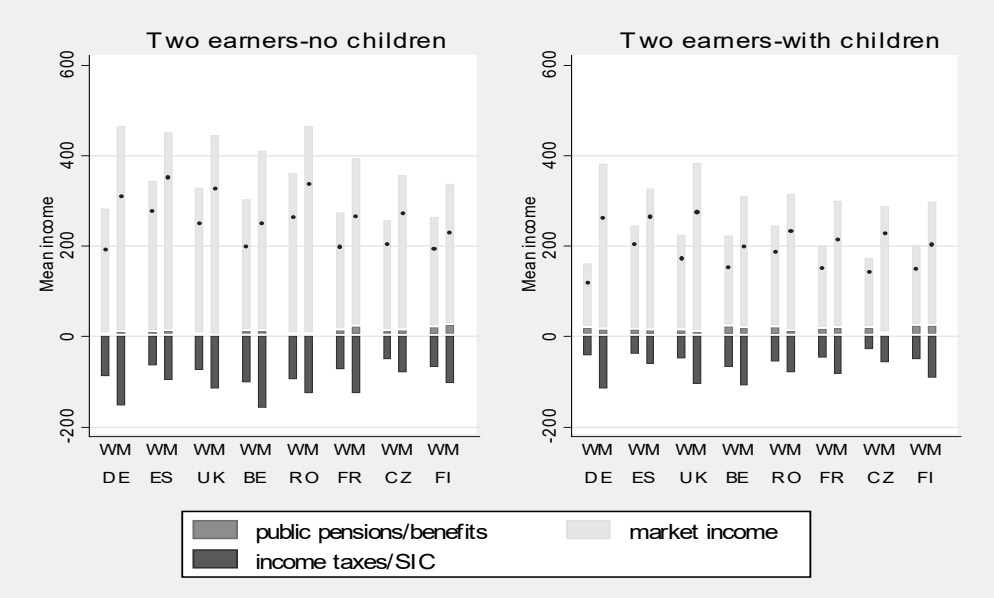

Fig 4: Decomposition of average disposable incomes received by men and women in two earner couples by source and having children (incomes are shown as percentage of median equivalised disposable income)

The composition and level of incomes of men and women in two earner couples are displayed in Figure 4. Two earner couples without children receive little in benefit incomes and so unsurprisingly benefits have virtually no impact on the gender income gap. Taxes are redistributive but their effect is rather limited. They reduce the income gap most (by around 5 pp) in France, Finland and Belgium. Taxes are more redistributive among two earner couples with children. They reduce the income gap by around 10 pp in Finland and by 5-8 pp in the other countries. Benefit income is very progressively distributed across gender lines in two earner couples with children. With the exception of France, women receive more benefit income than men in absolute terms. Even in France, benefits remain redistributive as they are much more equally distributed than other types of income. However, due to their small size, the overall

redistributive effect is rather small. It is strongest in the Czech Republic and the UK where the gender gap is reduced by approximately 5-6 pp.

The Decomposition of Social Benefits Received By Men and Women by Benefit Type

We now look more closely at cash transfers and decompose them by benefit function. Figure 5 shows average benefit amounts for the working age population and the elderly as a percentage of the national median equivalised disposable income. Among working age individuals, total benefit income received by men is higher than that received by women in all but three countries, i.e. the Czech Republic, Romania and the UK. In the remaining countries, the ratio of female to male benefit income varies from 60 percent (Spain) to 90 percent (Finland and Germany).

Which type of benefit constitutes the most important income source varies by country but it is clear that pensions play a prominent role especially in Romania, France and the Czech Republic. The extent to which pensions equalize the incomes of working age men and women varies dramatically by country. In the UK, Romania and the Czech Republic and to a lesser extent in Finland, pensions are strongly pro-women. In contrast, in Spain, pension income among working age individuals is strongly skewed towards men. A similar mixed picture is found in the case of unemployment benefits. While men generally receive higher amounts of unemployment benefits in absolute terms, they receive less than their share of market incomes except in the UK, Belgium, Spain and France. Survivor benefits are important in Germany, Spain and Belgium and they overwhelmingly benefit women. Similarly, women receive on average higher amounts of family benefits while receiving proportionately more from disability/sickness and

social/housing assistance benefits. All these benefits redistribute incomes across genders.

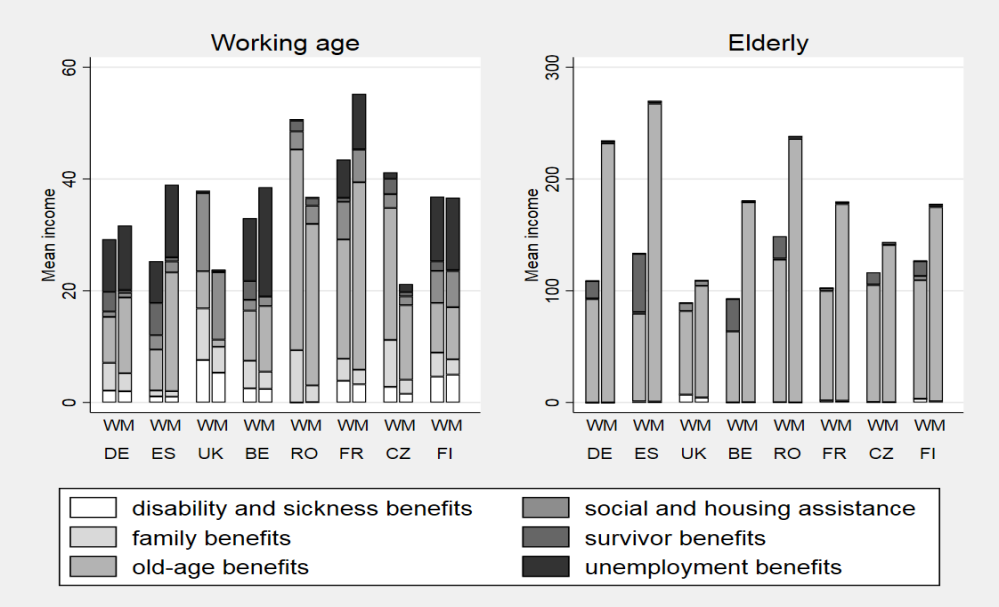

Fig 5: Decomposition of average social benefits received by men and women by function and age (incomes are shown as percentage of median equivalised disposable income)

Unsurprisingly, old-age pensions are the predominant benefit income received by the elderly in all countries. Pension income is generally skewed towards men. The disparities are particularly large in Belgium, Spain and Germany where female pension income is only 30-40 percent of male pension income. The most egalitarian distribution is found in the UK and in the Czech Republic where women's pensions are on average a quarter lower than men's. Survivor benefits are important in Spain, Belgium, Romania and Germany where they are received mostly by women.

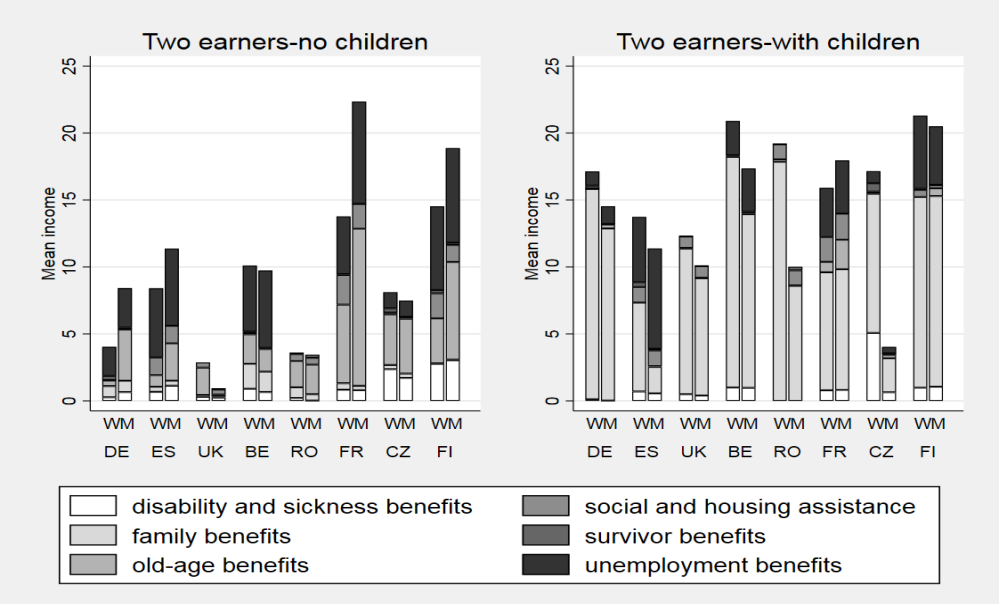

Fig 6: Decomposition of average social benefits received by men and women in two earner couples by function and having children (incomes are shown as percentage of median equivalised disposable income)

As shown in Figure 6, the benefit income of two earner households without children is mainly made up of unemployment, disability/sickness and old-age benefits. Unemployment and disability/sickness benefits are generally more equally distributed than earnings and so they reduce gender income inequality. However, the amounts involved are often very small and so the effect is very limited. The distribution of pension income across genders varies enormously among countries. Women receive more pension income than men in absolute terms in Belgium and the UK and more than their share of market incomes in the Czech Republic and Romania. Pensions are disequalizing in the remaining countries but effects are small due to their small weight in the incomes of this group.

Benefit income is slightly larger when two earner couples have children. Family benefits are the most important type of benefit received by these families, together with

unemployment benefit in some countries. Family benefits are strongly equalizing in all countries and reduce the gender income gap significantly especially in Belgium, the Czech Republic, Germany and Romania.

DISCUSSION

Our analysis points to the tax-benefit system reducing gender income inequality in all countries. However, the size of the effect varies significantly both across countries and across groups with different demographic characteristics. Generally, benefits have a much stronger equalizing role compared to taxes. For working age individuals, taxes reduce the gender income gap by between 0.5 and 5pp, while benefits reduce it by between 1-30pp. Contrary to expectations, we found that both taxes and benefits do most to reduce gender income inequality in the Czech Republic, Romania and the UK. This is despite these countries having relatively flat rate taxation and modest or moderately generous benefit systems where targeting plays an important role. The Czech, Romanian and British tax-benefit systems achieve their strong effects on gender income inequality by targeting benefits on women. However, it should be noted that these countries start from high gender gaps in earnings and other market incomes. It is generally "easier" to achieve a high impact (in absolute terms) when starting from a low base. We also cannot rule out that their tax benefit systems influence the gender gap in market incomes, something that is not captured by our analysis.

Examining social transfers in more detail, almost all transfers reduce gender income gaps. The exception is pensions. Women benefit particularly from survivor's pensions, social/housing assistance benefits and family benefits. However, the average impact tends to be limited because of their small size relative to earnings or pensions.

As expected, we find that the effect of the tax-benefit system is higher for the elderly and for families with children. For the elderly, pensions are the most important factor driving gender income inequality. Confirming previous findings, we show that pensions are heavily skewed towards men and that differences are especially large in the conservative cluster. As a result of pension income being more unequally distributed than earnings, gender income gaps are higher among the elderly than among the working age. The East European countries are an exception: gender income ratios for the elderly are similar or higher than those for younger individuals. Obviously, the large current income gaps among the elderly partly reflect historically low female labour market participation and our results do not necessarily apply to future cohorts of retirees.

The arrival of children generally has negative effects on the gender income gap by worsening (dramatically in some countries) the gender earnings gap. Taxes and benefits usually reduce gender income inequality more in (two-earner) couples with children compared to childless ones but nowhere do they fully compensate for the increase in the earnings gap. More generally, we find that among the working age gender income inequality is driven by inequality in earnings. For example, we find that gender income gaps are consistently low in Finland and consistently high in Germany, confirming predictions from the institutional indicators literature that suggest the Scandinavian, dual-earner model is best positioned to support women's economic independence while the conservative, earner-carer model fares worst in this respect.. However, the low income gaps in Finland are due to low gaps in earnings. In fact, taxes and benefits are not particularly redistributive across gender lines in Finland. The German system reduces gender income inequality more in some cases but the income gap remains high because of the initial gap in earnings. Similarly, in Romania, where women's earnings

constitute only 42% of men's earnings, the tax-benefit system succeeds in reducing the gender income gap among the working age population by half. Yet women's disposable income amounts to 64% of men's income. Thus, support for women's employment is crucial to closing the gender income gap. Yet, women's employment on its own is not sufficient as evidenced by extremely low gender income ratios among two earner couples with and without children in Germany. Women's employment needs to be on the same terms as men's employment (in terms of hours worked, hourly pay, promotion opportunities etc.).

Finally, we also found that county rankings differ substantially across groups with different demographic characteristics. For example, Spain's gender ratios in earnings and disposable incomes are lower than those in Germany when looking at all working age individuals but become substantially higher when examining two earner couples (with or without children). This pattern suggests that there is considerable heterogeneity in women's outcomes and their experience of the welfare state depending on their characteristics.

CONCLUSIONS

Our results confirm predictions borne out of the feminist institutional literature only in part. We show that the extent to which welfare states can be considered defamilialised depends on the characteristics of the women themselves. There is considerable heterogeneity in the way welfare state policies treat women, potentially explaining why institutional studies sometimes disagree about classifying certain countries. There are two exceptions. The gender income gap is generally lower in Finland mainly due to the fact that Finish women earn wages that are closer to men's compared to other

countries. At the opposite end, we confirm that the conservative model, of which Germany is an example, is associated with high gender inequality in incomes.

Whereas previous scholarly work has focused solely on the transfer side of the welfare state, we find that taxes and social insurance contributions also equalize the incomes of men and women. In fact, they are the most consistent policy instrument in reducing the gender income gap among the working age population. Contrarily, the equalizing effect of transfers depends on the characteristics of the household women live in and varies significantly by country. A strong link between the previous earnings and contributory transfers, prevalent in the conservative welfare regimes, results in higher gender income gaps for the elderly. We also find that while taxes and benefits can close the gender income gap considerably, they cannot make up for the absence of/or low earnings. Overall, our results suggest that to tackle gender income inequality, welfare states cannot rely on taxes and transfers alone but must support women's employment through the provision of public services.

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Annex

Table A1 – Characteristics of the welfare regimes related to promotion of gender equality

	Female employment rate, % of women aged 20 to 64	Part-time* female employment, % of total female employment	Cash benefits for families and children, % of GDP	In kind benefits for families and children, % of GDP	Children under 3 years in formal childcare for at least 30 hours per week, %	Children aged 3 years to minimum compulsory school age in formal childcare for at least 30 hours per week, %
European Union (28 countries)	63.5	31.7	1.6	0.8	14.4	49.2
Belgium	62.9	41.0	1.8	0.4	25.6	78.1
Czech Republic	64.7	9.4	1.5	0.1	1.8	52.4
Germany	73.1	46.7	2.0	1.1	15.3	53.5
Spain	54.8	25.3	0.5	0.8	16.3	41.4
France	65.6	30.5	1.6	0.9	25.8	55.9
Romania	57.3	9.2	0.8	0.4	0.6	14.0
Finland	72.1	17.5	1.5	1.7	22.6	58.5
United Kingdom	70.6	40.0	2.2	0.6	3.8	22.1

Source: EUROSTAT data (http://epp.eurostat.ec.europa.eu/portal/page/portal/population/data/database), date of extraction: 14 Sep 2017.

Notes: *Part-time employment is calculated as employment below 31 hours per week.

Table A2 – Allocation of disposable income components in three income sharing scenarios

COMPONENTS OF DISPOSABLE INCOME	Type of income	EUROMOD treatment	Main scenario	Sensitivity scenario 1	Sensitivity scenario 2
Individual level in EU-SILC					
Employee and self-employed income cash and near cash income	Market income	From data	Individual who receives this income	The same	The same
Pension from individual private plans	Market income	From data	Individual who receives this income	The same	The same
Unemployment benefits	Benefits/ Pensions	Simulated	Individual who receives this income	The same	The same
Old-age benefits	Benefits/ Pensions	From data	Individual who receives this income	The same	The same
Survivor' benefits	Benefits/ Pensions	From data	Individual who receives this income	The same	The same
Sickness benefits	Benefits/ Pensions	From data	Individual who receives this income	The same	The same
Disability benefits	Benefits/ Pensions	From data	Individual who receives this income	The same	The same

COMPONENTS OF DISPOSABLE INCOME	Type of income	EUROMOD treatment	Main scenario	Sensitivity scenario 1	Sensitivity scenario 2
Education-related allowances	Benefits/ Pensions	Simulated/ from data	Individual who receives this income	The same	The same
Household level in EU-SILC					
Income from rental of a property or land	Market income	From data	Shared equally between the oldest couple	The same	The same
Interest, dividends, profit from capital investments	Market income	From data	Shared equally between the oldest couple	The same	The same
Family/children related allowances	Benefits/ Pensions	Simulated/ from data	Shared equally among the adults in the assessment unit	Primary earner in the assessment unit	Secondary earner in the assessment unit
Social exclusion not elsewhere classified	Benefits/ Pensions	Simulated	Shared equally among the adults in the assessment unit	Primary earner in the assessment unit	Secondary earner in the assessment unit
Housing allowances	Benefits/ Pensions	Simulated/ from data	Shared equally among the adults in the assessment unit	Primary earner in the assessment unit	Secondary earner in the assessment unit
Regular inter-household cash transfer received	Market income	From data	Shared equally among the adults in the assessment unit	The same	The same
Income received by people aged under 16	Market income	From data	Shared equally among the adults in	The same	The same

COMPONENTS OF DISPOSABLE INCOME	Type of income	EUROMOD treatment	Main scenario	Sensitivity scenario 1	Sensitivity scenario 2
			the assessment unit		
Regular taxes on wealth	Taxes	From data	Shared equally between the oldest couple	The same	The same
Regular inter-household cash transfer paid	Market income	From data	Shared equally between all adults in the household	The same	The same
Tax on income and social contributions	Taxes/SIC	Simulated	SIC & individual taxes are allocated to respective individuals; taxes in joint taxation system are divided between spouses in proportion to their taxable income	The same	The same

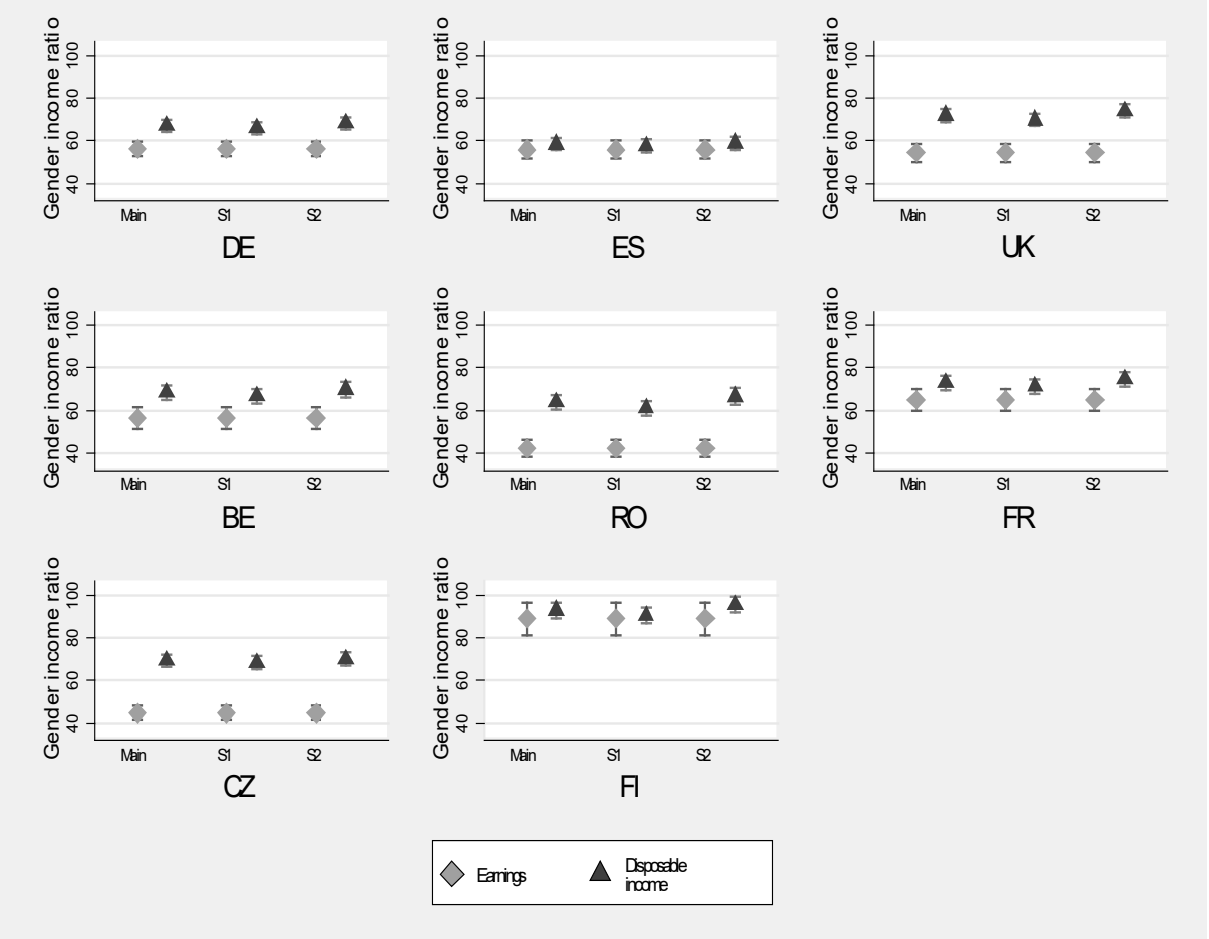

Figure A1 – Gender income ratios (mean disposable income of women as a percent of mean disposable income of men), in the three individualised income scenarios: Working age individuals

Note: Main=main splitting scenario; S1=Sensitivity 1; S2=Sensitivity 2

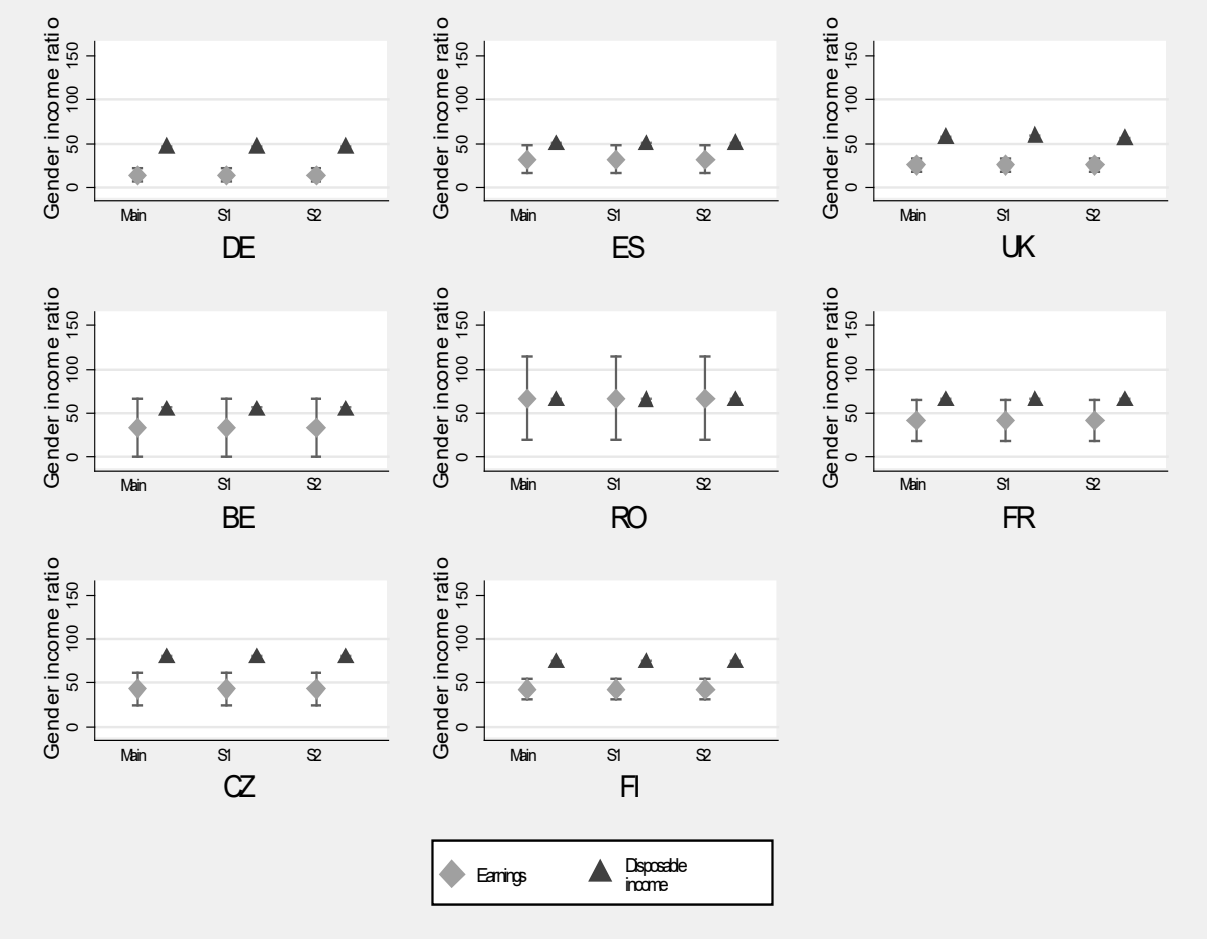

Figure A2 – Gender income ratios (mean disposable income of women as a percent of mean disposable income of men), in the three individualised income scenarios: Elderly

Note: Main=main splitting scenario; S1=Sensitivity 1; S2=Sensitivity 2

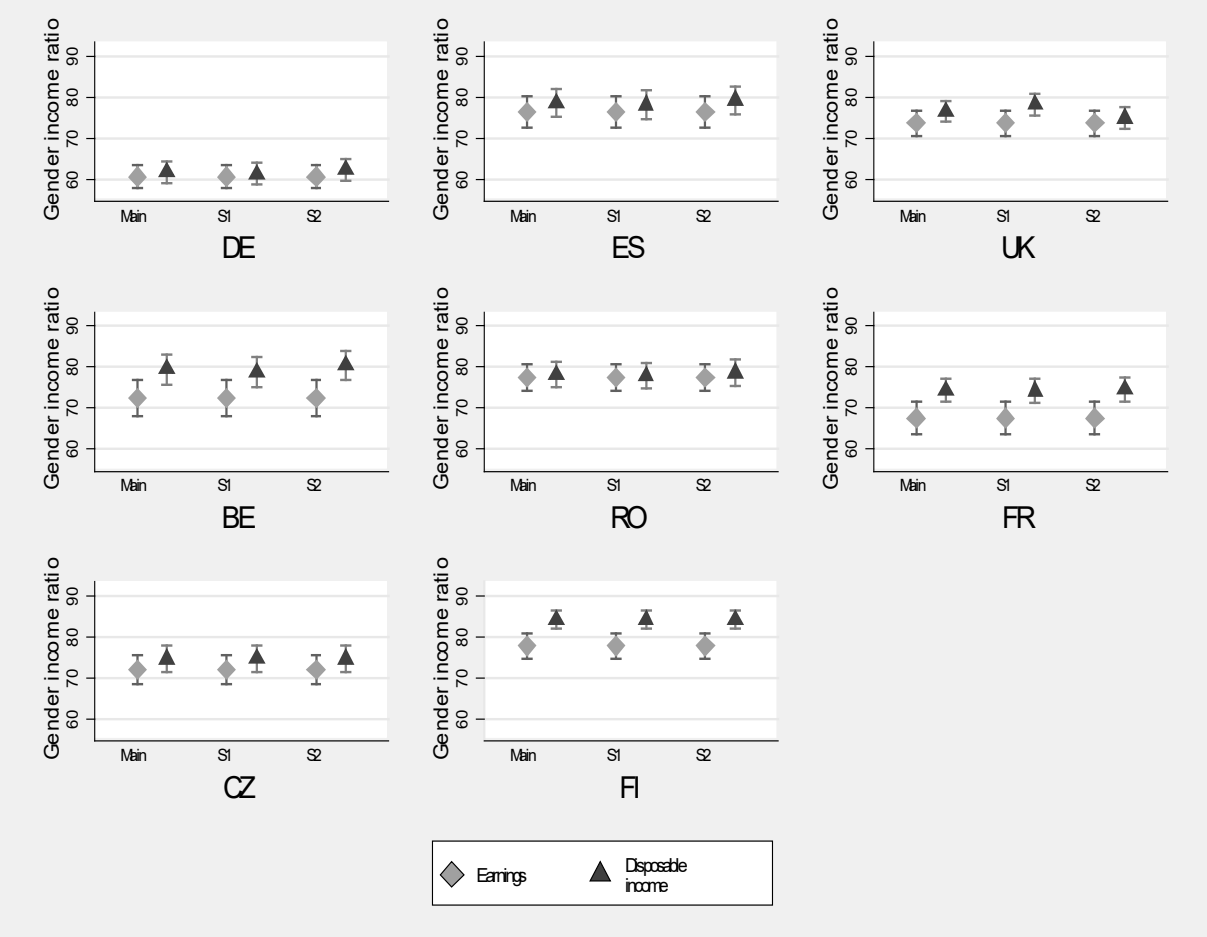

Figure A3 – Gender income ratios (mean disposable income of women as a percent of mean disposable income of men) in the three individualised income scenarios: Two earner couples without children

Note: Main=main splitting scenario; S1=Sensitivity 1; S2=Sensitivity 2

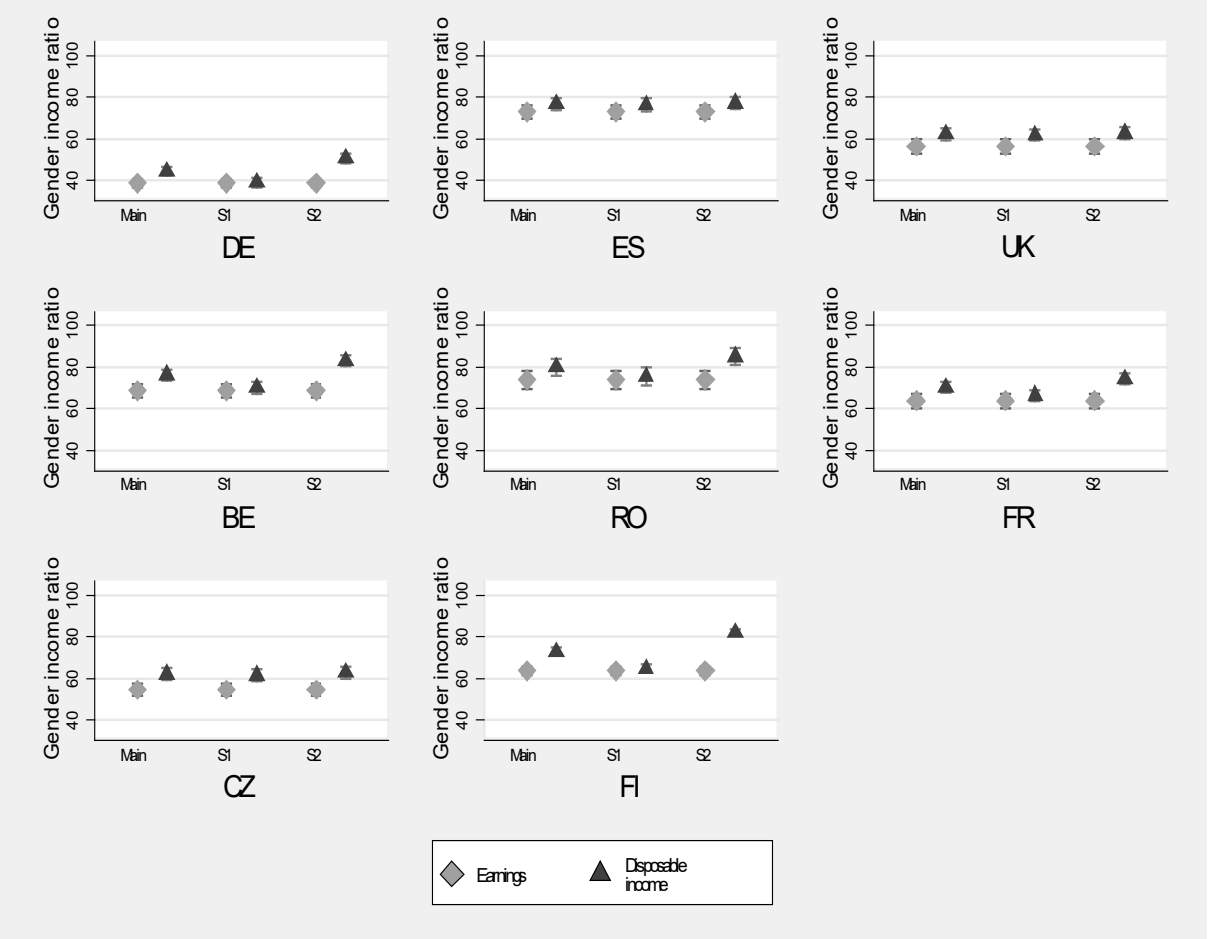

Figure A4 – Gender income ratios (mean disposable income of women as a percent of mean disposable income of men), in the three individualised income scenarios: Two earner couples with children

Note: Main=main splitting scenario; S1=Sensitivity 1; S2=Sensitivity 2