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## Household structure, its changes and the distribution of income. A comparison across welfare regimes

### 1. Introduction

Since the 1980s the vast majority of industrialized countries have experienced rising inequality in individual wages as well as in household disposable income (Atkinson *et al.* 1995; Gornick and Jäntti 2014; Gottschalk and Smeeding 1997; Morelli *et al.* 2014; OECD 2008, 2011a). The latter trend has been paralleled by important changes in the demographic and economic composition of households: the growth of single-headed households and the increase in women's employment (Esping-Andersen 2009; OECD 2011b).

Rising income inequality and household transformations are presumably related because households characterized by different compositions have different incomes and redistributive capacities (Biewen and Juhasz 2012).

In this article, I investigate the role that household's demographic and economic composition plays for (1) income inequality levels and (2) income inequality changes. Moreover, I will elaborate on the distinction between the household capacity to *stratify* income between households; and the household/family capacity to *redistribute* income within the household. To the best of my knowledge, the literature has not theoretically discussed or explicitly empirically addressed these important concepts yet.

Based on that distinction, the aim of this paper is to fill the existent research gap by asking: (1) to what extent does household composition stratify income, i.e. account for income inequality levels? (2) To what extent have changes in household composition contributed to the changes in income inequality?

Households, moreover, operate in contexts which are structured by several «inequality-shaping» institutions. The overall amount of welfare/income that individuals dispose of is the result of a joint activity of the market, the state, and the household/family. I will therefore also examine the mediating role that these institutions play, via income redistribution, in the relationship between households' characteristics and overall income inequality. While this is certainly not the first paper studying income inequality in comparative perspective and looking at how different institutions shape the income distribution, a research gap exists in explaining how households' characteristics stratify income across countries. I thus ask: to what extent does redistribution by the market, the state, and the family affect the stratification produced by the household? And further, how do these institutions mediate the link between household changes and income inequality changes?

Therefore, this paper contributes to the current literature by looking at how household composition stratifies inequality levels; and by looking at the processes through which the household shapes the distribution of income once we focus on complex income concepts (equivalent disposable household income) as compared with simple income concepts (i.e. earnings).

## 2. Inequality and its drivers

The distribution of income among households can be considered the core of economic inequality (Salverda *et al.* 2009).<sup>1</sup> Given the complexity of the topic, the majority of studies have focused only on a few aspects simultaneously; yet an almost infinite list of factors has been explored (see Gottschalk and Smeeding 1997; Gustafsson and Johansson 1999). This notwithstanding, the vast range of factors can be sociologically traced back to mainly three institutions: the market, the family/household and the state.

Income is a function of the market (mainly the labor market), household (through the pooling of resources and economies of scale), and welfare state (through taxes and transfers). Thus, in order to study the distribution of income among households, three issues are particularly important: 1) individuals in the labor market and their wages; 2) the patterns of household formation and specifically how individual earners sort into households; and 3) public transfers to household members, taxes and social insurance contributions.

### 2.1. Individuals in the labor market

Existing research has documented the importance of the market for economic and social inequality (Atkinson *et al.* 1995; Gustafsson and Johansson 1999; Salverda and Checci 2014), as income from employment provides the lion's share of households' income. In fact, the market represents the main source of economic well-being throughout individuals' adulthood (Esping-Andersen and Myles 2009; Kalleberg and Sorensen 1979). The occupational structure and labor market regulations of a country are important in shaping the labor market behaviors and wages of individuals, and thus the overall distribution of market income. For example, the rising dispersion in market income – attributed to the skill-biased consequences of globalization and technological progress – has been often considered as a driver of the increase in overall income inequality (Blau and Kahn 2009; Jenkins 1995; OECD 2008, 2011a).

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<sup>1</sup> Economic inequality is a rather broad concept that refers to inequalities in the distribution of income but also of other resources such as wealth, income from capital, employment, and human capital. Recent research has shown that wealth and income from capital have gained importance in contributing to inequality (Piketty 2014; OECD 2011a). Another important asset that may be associated with inequality, for example by affecting household redistribution processes, is home ownership which represents a resource that may strongly affect individuals' and households' standards of living. However, notwithstanding the relevance that these sources of inequality may have, their examination is beyond the scope and possibilities of the paper.

Given the relevance of income deriving from employment, I focus on the way employment behavior and wages of household members structure inequality. The sorting behavior of individual earners is strictly related to that.

## 2.2. The household «paradox»: stratification and redistribution

The ways in which individuals sort into households is crucial for at least two, and apparently opposing, outcomes: stratification and redistribution. While the first concept pertains to processes in place between households, and in particular between households with different economic and demographic compositions, the second concept relates to processes within households.

### *Stratification*

Despite long-standing research, we know very little on the extent household characteristics account for income inequality, i.e. to what extent the household stratifies economic resources.

I argue that we cannot understand the processes that link changes in households to changes in income inequality if we do not understand how the household is linked to the income distribution.

In order to do so, and for conceptualizing the household as a dimension of inequality clustering, it must be clarified how income is allocated within the household. In this respect, much of the existing research follows the unitary economic models of the household (Becker 1965). According to this model, the household is considered a single unit where decisions (most importantly about economic behaviors) are jointly-taken by its members and where incomes are pooled and shared equally. The literature usually refers to this as «income pooling hypothesis» or «equal sharing assumption».

In the last three decades, however, the literature has brought into question this model by recognizing the differences in preferences and power between household members, and have thus contested the assumption that income is equally redistributed within the household (Himmelweit *et al.* 2013; Lundberg *et al.* 1997; see Chiappori and Meghir 2014 for a discussion). This notwithstanding, the unitary economic model of the household remains the most commonly employed in empirical research, not least because of data limitations. In fact, the data at hand do not provide information on income pooling and sharing among household members, and this paper is no exception. Following the existing literature, I assume that within households incomes are equally redistributed.<sup>2</sup>

Therefore, the economic and demographic composition of the household may be conceived as a dimension of income stratification because household composition is associated with income capacity. In fact, as Breen and Salazar (2011) pointed out, inequality is the result of the allocation of resources to individuals and of the allocation of individuals into households. Furthermore, as also Albertini (2008) observed for Italy,

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<sup>2</sup> While existing research has shown that the way in which income is spent is not independent from who earns the income (whether the man or the woman, see Himmelweit *et al.* 2013), my choice of employing the equal sharing assumption should not affect my results given that my unit of aggregation is the household, rather than the individual.

the household composition stratifies income similarly to the most classical dimensions of social stratification, such as social class and education.

A linked aspect is assortative mating or homogamy, namely the fact that couples tend to be formed by individuals with rather similar traits (Schwartz and Mare 2005). When these traits are associated with income – such as in the case of education, employment and earnings – assortative mating is important for inequality and has in fact attracted much research (among others Breen and Salazar 2011; Chen *et al.* 2014; Schwartz 2010). In this paper, I do not focus on assortative mating because it has already been investigated in recent research (Grotti and Scherer 2016a).

### *Redistribution*

Income pooling not only stratifies, but also redistributes. Indeed, it allows individuals without income to benefit from the economic resources of the other household members, usually the partner. The number of household members and the number of earners among them are thus important in defining the redistributive capacity of the household, and the overall level of inequality.

Beyond income pooling, a second redistributive mechanism is the generation of economies of scales. Larger households have larger expenses. For example, a couple living together has more expenses than a single in terms of food, clothing, housing, and so on. However, the costs for a couple are not exactly twice as much as the costs for a single person, because of the creation of economies of scale: within the household, certain expenses are shared and thus amortized among members. Indeed, expenses increase with the number of household members, but not proportionally. While income pooling affects income directly, economies of scale affect it indirectly through consumption, still contributing to determine the amount of income that individuals can enjoy and consequently the overall distribution of income.

### 2.3. The state

The distribution of income is finally affected by the state (Grotti and Scherer 2016b). As a matter of fact, in virtually all OECD countries, inequality measured with disposable income is lower than inequality in market income (OECD 2011a).

The state may affect income distribution directly, by providing households public transfers and services, and via the taxation system; and indirectly, by influencing the opportunity cost of labor market participation, and thus labor income (Atkinson 1995; Milanovic 2000). For example, it can favor female employment via policies aimed to reconcile family and paid work or foster employment via active labor market policies.

Despite the various ways in which the state can affect the income distribution, my interest is in the role of transfers and taxes, two elements that shape the income distribution at the very end of the «process». Taxes and cash transfers are the most direct policy instruments able to affect distributional outcomes, and, thus, crucial in understanding the extent to which the state pursues redistribution. More in detail, the degree of resource redistribution by the state is mainly associated with the progressivity of the fiscal system and the targeting and generosity of the resource provision in terms of cash transfers (Esping-Andersen and Myles 2009).

Countries strongly differ in these respects. For example, if we look at public social expenditures in cash benefits for the non-elderly population in the mid-2000s, Denmark is certainly the country that presents the highest levels of expenditures, about 10% of the GDP. At the other extreme, there are the United States and Italy, which spend about 2.5%. In between, we find Germany and the United Kingdom that present levels ranging between 5 and 6% of the GDP. These values are almost constant over time. Only Italy and the United Kingdom have experienced a slight decline in public social spending from the mid-1980s onward (Immervoll and Richardson 2011).

While the list of ways in which the market, the household, and the state affect income could be easily expanded, my interest lies in investigating the ways these institutions shape the final distribution of income, given a certain distribution of household types defined by the sorting and the employment characteristics of household members.

### 3. The comparative perspective

The level of inequality in a country does not derive only from the redistributive processes associated with the market, the household, and the state; but also from their interconnection, which can be different among countries. This implies that the importance of each institution can vary between countries, thus calling for a comparative perspective. The most prominent theory in this respect, basis for the present work, is Esping-Andersen's welfare regimes theory, (Esping-Andersen 1990; 1999), subsequently extended by the contribution of Ferrera (1996).

Welfare regimes theory recognizes three clusters of countries, according to their different configuration of state, market, and household. In the social-democratic regime – including Scandinavian countries – the state represents the chief institution; it is highly committed to de-commodifying and de-familializing individuals, namely the welfare of individuals is guaranteed independently from their position on the labour market and as members of a family. The liberal regime comprises the Anglo-Saxon countries, where the market is at the forefront. Also this regime is de-familialistic, but it is highly commodifying: individuals secure their well-being through the market and buy welfare services in the private sector – de-familialization is indeed pursued in this way. The conservative regime characterizes the majority of Continental European countries. Here the family is the main institution at work. State intervention is limited – because it follows a subsidiarity principle – and the development of the private sector is negligible. Ferrera proposed a fourth regime: the Mediterranean regime that encompasses Southern European countries. This regime is particularly familialistic and sub-protective and is characterized by a very scarce state support to households, and a very strong role of the family, in the form of kinship and informal networks that operate as a social security cushion in place of the state.

#### 3.1. The transformation of households and inequality

A comparative perspective is also important because countries are characterized by differences in the distribution of households, namely in their demographic and economic composition, and in their changes over time.

Demographic changes include, first of all, the change in household size. This

phenomenon mainly reflects the rise of single-headed households, attributable to the increase of divorces and of people who do not marry (Burtless 1999, 2009; Esping-Andersen 2009; OECD 2008). However, other forces such as aging can be mentioned (Eurostat 2015). Concerning income (re)distribution, single-headed households are in a disadvantaged position because they profit neither from income pooling nor from the economies of scale.

As Oppenheimer (1997) argues, married couples are involved in long-term relationships and are therefore able to distribute parental and economic responsibilities and resources between husbands and wives. Consequently, when individuals pool their incomes into a couple, the societal level of inequality in household income is considerably lower compared to cases where individuals form separate households (Burtless 2009). As Karoly and Burtless (1995) observe, a considerable part of the increase in inequality that occurred in the United States starting from the '70s can be attributed to the rise in single households. In the same direction go the studies of Martin (2006) and Western and colleagues (2008).

In terms of changes in the economic composition of households, the most relevant transformation is the increased labor market participation of women. Women's earnings have gained increasing relevance in contributing to household income and in accounting for income inequality. However, it remains unclear whether the increased female labor market participation weakens or strengthens inequality, as it depends on the distribution of women's employment across households. If women mainly increase their labor market participation in low-income households, inequality should decrease because women's employment furnishes a supplementary source of income to the worst-off. In contrast, if women who increase their labor market participation are concentrated in high-income households, inequality should increase because their employment furnishes additional income to the well-off. This second scenario implies a polarization between high- and low-income households.

Several studies have investigated the consequences of (the changes in) women's employment, reaching mixed results (cf. Breen and Salazar 2010; Harkness 2013). A number of studies on the United States (Cancian and Reed 1998; Cohen and Bianchi 1999; Esping-Andersen 2009; Reed and Cancian 2001) and European countries (Esping-Andersen 2007) claimed that the «new role» of women has contributed to reducing inequality because mainly women from low-income households have entered the labour market. However, other studies on the United States (Blau *et al.* 2006; Karoly and Burtless 1995) and European countries (Del Boca and Pasqua 2003; Esping-Andersen 2007; Fiorio 2011) find a larger increase in labor market participation among highly educated women that, in turn, has contributed to the increase of inequality.

### 3.2. Linking the household to the income distribution: expectations

In the following, I will focus on various income concepts which are meant to capture the different mechanisms of production and allocation of income. *Heads' labor income* (in short *Labour income*) sums the labor incomes of the household's head and that of his/her

partner, when present.<sup>3</sup> This income concept focuses on market-generated mechanisms but already includes part of the family role via income pooling among partners. *Equivalent household market income plus private transfers (Family income)* also includes income pooling of all sources of household income (incomes of other household members, capital income, and private transfers) as well as economies of scale. This income concept permits to fully capture the role played by the family. Finally, *Equivalent disposable household income (Disposable income)* adds the role of the state via transfers and taxes. The present work will mainly employ the last specification, as it approximates individuals' well-being.<sup>4</sup>

Importantly, these income concepts might result in differences not only in the level of overall inequality but also in the extent to which household composition is linked to inequality – i.e. to its stratification capacity.

For example, in the case of household heads' *labor income*, it is obvious to expect a noticeable degree of association between household composition and inequality, because labor income defines the economic composition of the households. Of a greater interest are instead the more complex income concepts for which the association between household composition and inequality, namely stratification, should be weaker. In detail, the relative importance of household characteristics in accounting for income inequality should be weaker for family income and even more so for disposable income, namely when family's and state's redistributive mechanisms are considered.

Therefore, I expect that the family and the state relax the stratification produced by household composition. Moreover, considering the comparative perspective, the extent to which this happens is likely to mirror the role played by various institutions across national contexts, as suggested by the welfare regimes theory (Esping-Andersen, 1990; 1999).

If the household composition is associated with inequality, then changes in the household composition should be associated with changes in inequality. Moreover, if institutions are able to relax the association between household composition and inequality levels, it follows that also the impact of changes in the household on inequality is reduced by institutions. In other words, I expect that the link between household changes and inequality changes is mediated by the market, the family, and the state and that it varies between countries characterized by different welfare regimes. Following welfare regime theory, I expect the state to be the chief institution in countries belonging to the social-democratic regime. The family, instead, should play the largest role in the Conservative

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<sup>3</sup> Labor income includes cash payments and the value of goods and services received from dependent employment, profits/losses and the value of goods from self-employment.

Family income is the sum of cash and non-cash income from labor and income from capital of all household members plus household private transfers.

Disposable household income is the sum of cash and non-cash income from labor, income from capital, income from pensions (including private and public pensions) and non-pension public social benefits stemming from insurance, universal or assistance schemes (including in-kind social assistance transfers), as well as cash and non-cash private transfers, less the amount of income taxes and social contributions paid.

<sup>4</sup> Comparability issues about incomes are discussed in the Appendix.

and especially in the Mediterranean regime. Finally, I expect a limited role of both the family and especially the state in the Liberal regime.

In detail, the extent to which changes in households translate into changes in inequality should vary between the income concepts for which inequality is evaluated.

#### 4. Data and methods

The present work relies on data from the Luxembourg Income Study (LIS 2014), which provides detailed information on incomes and on other characteristics at both individual and household level.<sup>5</sup> The information is harmonized over a long time span (for the majority of countries data are available starting from the mid-1980s) for many European and non-European countries, making it ideal for a comparative focus on different welfare regimes. In this respect, Denmark represents the social democratic regime (I focus on the following years: 1987, 1995, and 2004), the United Kingdom (1986, 1995, and 2004) and the United States (1986, 1994, and 2004) the liberal regime, Germany (1984, 1994, and 2004) represents the conservative regime, and finally, Italy represents the Mediterranean regime (1987, 1995, and 2004).<sup>6</sup> I deliberately limit the observational window to the period before the 2007-08 crisis. The rapid changes in inequality that took place since the crisis period are indeed hardly attributable to changes in household but rather to other forces (see for example Jenkins *et al.* 2012).

Given that the interest is on household structure and household economic composition, I select all households headed by individuals aged 25-54 years of age. I chose to include in the analyses only individuals that are potentially apt to form a household and to be employed.<sup>7</sup>

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<sup>5</sup> Incomes have been top-coded at the 99th percentile to avoid extreme income values. Given that some countries in the LIS use registry data (such as Denmark), which are more likely to collect information on high incomes, top coding also permits to limit possible comparability problems deriving from different data collection methods. Finally, economies of scale are accounted for by dividing income by the square root of the number of household members, a common procedure in the LIS literature.

<sup>6</sup> The LIS does not furnish data for each year, but rather at irregular intervals. For this reason, I selected those years which permit to have a common time trend for all countries. Sample sizes are reported in Table A.1 in the Appendix.

<sup>7</sup> This implies that the levels of inequality presented are slightly different from those of official statistics (such as OECD statistics) that usually include the whole population in the inequality computation.

Individuals younger than 25 and older than 54 who live in households headed by individuals aged 25-54 enter however in the computation of family and disposable income, both via economies of scale but also because other possible sources of income – both labor income and public or private transfers that they receive. This point might have implications for cross-county comparisons: as I will mention in the section «Summary and conclusions», cross-country differences in the distribution of other household members within households might contribute to explain some of the patterns that I observe.



The principal analyses are based on inequality decomposition techniques of the Theil index – see Appendix (Cowell 2011).<sup>8</sup> This index is particularly suitable because it allows for decomposition by subgroups of the population. Here, subgroups are represented by household types defined by household living arrangements and economic composition. Coupled households are classified according to the man’s and woman’s employment status distinguishing between not employed and, if employed, according to their position in the distribution of labor income (defined by the quartile to which he/she belongs in his/her own sex labor income distribution). If the household head has no partner, the household is classified according to the head position. In this way, it is possible to take into account both the distribution of singles and the employment behaviors of individuals. The result is a six by six two-way table built as in Figure 1.<sup>9</sup>

[Figure 1]

I classified household types with great detail in order to be able to isolate «effects» due to changes in partnership formation decision and to changes in female labor market participation from effects due to changes in assortative mating behavior.

The Theil index, in its decomposed form, can be written as follows<sup>10</sup>

$$T = \sum_j p_j \frac{\bar{x}_j}{\sum_j p_j \bar{x}_j} \ln \left( \frac{\bar{x}_j}{\sum_j p_j \bar{x}_j} \right) + \sum_j p_j \frac{\bar{x}_j}{\sum_j p_j \bar{x}_j} T_j \quad (1)$$

From Eq. (1), it is easy to note that there are only three quantities that enter into play: the group mean income ( $\bar{x}_j$ ), the group population share ( $p_j$ ), and the within-group Theil value ( $T_j$ ), where the subscript  $j$  indexes the groups – i.e. household types.

I evaluate the importance of household characteristics via the *between*-group component of inequality represented, in Eq. (1), by the part on the left-hand side of the sign plus (as opposed to the *within*-group component on the right-hand side).

Finally, I examine the impact of changes in the distribution of household types using counterfactuals. Starting from the Eq. (1) it is possible to answer the following question: how the level of inequality would have been today had only the distribution of households ( $p_j$ ) changed since the 80s? This counterfactual is computed by holding fixed the groups’

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<sup>8</sup> The Theil index, together with the mean log deviation (MLD) and the half the squared coefficient of variation (HSCV), belong to the family of generalize entropy measures. All these indexes permit a subgroup decomposition of inequality, but differ for their sensitivity to different parts of the income distribution. The MLD gives more weight to the bottom part of the distribution, the Theil to the middle part, while the HSCV to the top of the distribution. I chose the Theil index because, by weighting the middle of the distribution the most, it resembles to the Gini index, the most commonly used measure of inequality.

<sup>9</sup> The unit that I am interested in is the household, considered as the aggregation unit, where individuals pool and share their resources (i.e. incomes). However, the unit of analysis is the individual. Indeed, I measure inequality at the individual level under the assumption that income is equally shared among members within the household. Concerning labor income, household members considered are the heads only while concerning equivalent household income concepts household members considered are all the individuals in the household.

<sup>10</sup> A more detailed discussion of the Theil index is reported in the Appendix.

mean income ( $\bar{x}_j$ ) and the within-groups' Theil ( $T_j$ ) at their observed value in the 1980s and permitting the distribution of households' types ( $p_j$ ) to vary as observed. In this way, I can evaluate the impact of changes in household composition on inequality.

The decomposition technique I use has the advantage of providing an intuitive assessment of the importance of the attributes defining groups and of the impact of changes in the distribution of groups on inequality. However, the results I present should not be interpreted as causal impacts of changes in households on inequality, but rather as a description of the association between changes in households and changes in inequality. In fact, the statistical tool employed has a few drawbacks. The calculation of counterfactuals assumes that the distribution of income within and between household types were independent from the distribution of household types, and more generally that the three quantities that enter the Theil equation were independent. It is hardly credible that changes in the distribution of household types do not translate also into changes in income dispersion within types of households, or in income differences between them. Moreover, the non-exogeneity of changes in households is another important point. Changes in the distribution of household types, indeed, may not be considered exogenous, but they are instead affected by the social and economic climate. For example, increases in single households might not be independent from increased economic independence of women.

Another example in this direction may relate to the increased labor market flexibilization which many industrialized countries have experienced. On the one hand, labor market flexibilization may increase inequality by widening the earnings gap (OECD 2011). On the other hand, it may impact on household types by increasing the number of people who are not able to form an autonomous household and/or to have children, at least in some contexts (Barbieri *et al.* 2015).

## 5. Results

### 5.1. Household types and stratification

This section investigates the role of household demographic and economic composition in structuring income inequality.

Figure 2 shows the percentage of the *between*-group inequality in the five countries. *Between*-group inequality represents the amount of inequality deriving from income differences between homogeneous groups of the population – i.e. the household types as presented in Figure 1. Therefore, it can be interpreted as an indicator of the importance of the attributes that define these groups. The higher the income dispersion between groups, the more the attributes that define the groups stratify income and are associated with inequality.

Considering this component of inequality in relative terms allows capturing the role that institutions play in relaxing income stratification produced by household types, rather than their role in diminishing income inequality. The results presented in Figure 2 are in fact independent from the capacity of institutions to reduce inequality via redistributive processes. Rather, they capture the extent to which those redistributive processes reduce stratification via their *targeted* character, namely reduce income differences between household types rather than within household types.

When looking at household heads' *labor income*, the composition of households undoubtedly matters. Employment and sorting behaviors account for the greatest part of inequality ranging from about 70% in Italy to about 90% in the United Kingdom. The income dispersion *within* household types accounts for the remainder – about 30% of inequality at the most. Given that the income concept considered includes exclusively income from labor, the huge proportion of inequality attributable to differences between household types is not surprising. In fact, being household types partially defined according to heads' position in the labor income distribution, they are by definition strongly associated with inequality in labor income. Nevertheless, looking at household heads' *labor income* is useful because it provides a benchmark against which to compare the other income concepts. The picture indeed changes when we consider the whole contribution of the household via *family income*.

[Figure 2]

For *family income*, the share of *between*-group inequality is lower, ranging from about 35 to 75%. The difference between the share of the *between*-group inequality in heads' *labor income* and in family income can be interpreted as an indicator of the contribution of family's redistributive mechanisms to decreasing income differences between household types. This signals that the family operates in a «targeted» way across groups, significantly relaxing the stratification produced by household composition for *labor income*. Ideally, had family redistributive mechanisms worked to the same pace for all household types, no reduction would have been detected in the *between* component.

This result might suggest that the family supports more individuals belonging to lower- than to higher-income households, reducing the income differences between households collocated at different parts of the income distribution. In doing so, the family seems able to mediate the link between household composition and inequality.

In this respect, Italy is an interesting case. This country, in line with the expectations, presents the greatest decrease in the share of between-group inequality – about 32 (65% – 33%) percentage points in the mid-'80s. This indicates that the redistributive function of the family is particularly strong, and certainly more so than in other countries. Over time, though, the family seems to have lost part of this capacity – with the share of *between*-group inequality decreasing to 25 and 13 percentage points in the mid-90' and mid-2000s respectively.

Finally, when considering *disposable income*, the share of between-inequality declines again. The state seems to act as a mediator in the link between household composition and inequality as well. At this point, the distribution of individuals across household types is less prominent than it was for the second (*family income*) and especially for the first (*labour income*) income concept examined, coming down to 20% in Denmark and 65% in the UK. However, also in this case, we observe important variations between countries which are in line with welfare regime theory. The role of the state is negligible in the US (around 3 percentage point), while it is substantial in Denmark (up to 38 percentage points). The United Kingdom, also, presents a substantial reduction of inequality although it is far from a generous welfare state. Although transfers are very ungenerous, it could be that they are mainly targeted to the bottom of the distribution. When comparing the UK with the US, both countries belong to the same welfare cluster and are ungenerous in terms of public social spending, but the US is particularly ungenerous: its spending on

cash benefits is half the UK spending (Immervoll and Richardson 2011). This might explain the difference between the two liberal countries in their redistributive capacity. The evolution of the *between*-group component over time shows other interesting aspects. Overall, we observe a general increase in the household stratification capacity for all countries and income concepts. However, while the increase in the *between* component for heads' *labor income* is moderate, the increase in both *family* and *disposable income* is substantial. This suggests a substantive loss in the capacity to offset stratification of the state and especially of the family.

Unfortunately, the present work cannot elaborate on the source of the loss in the redistributive capacity. For example, it cannot be conclusive in explaining whether the huge decline in the state's capacity that Denmark experienced over time comes either from the lack of adjustments of public policies (which became inadequate to facing the challenges of changing households) or rather from the retrenchment of the welfare state.

## 5.2. Household transformations and income distribution: accounting for inequality changes

In the previous section, I showed that the demographic and economic characteristics of households are important stratifiers of income. Thus, it is reasonable to expect changes in households to be associated with changes in income inequality. The natural question is then: to what extent do changes in the household, i.e. in the distribution of household types, account for changes in income inequality over time?

A huge amount of literature (see OECD 2011b for a review) documents substantive changes in household composition over time. Regarding the demographic composition, single households increased in all countries under study, but especially in Italy and Germany – although, in the latter, starting from substantially higher levels (see Table A.2 in the Appendix). Concerning the economic composition, female employment has initially decreased and then increased in Denmark while there is an increasing trend in the other countries, especially in Germany and Italy – which, however, still presents the lowest participation rate among the countries under investigation (see Table A.3 in the Appendix).

Overall, these two phenomena may have mixed consequences for income inequality because each trend can lead to (possible) opposite outcomes.

Table 1 presents the observed values of income inequality in the mid-'80s, mid-'90s, and mid-2000s, along with simulated results. Among the three income concepts examined, there are noticeable differences in the levels of inequality. As expected, observed inequality in heads' *labor income* is generally the highest. This result is reasonable since head's *labor income* is the income concept that benefits to a lesser extent from redistributive processes. Once the whole family redistributive capacity is considered, inequality declines, as reported for *family income*.

However, the role the family can play is not entirely captured by comparing heads' *labor income* with *family income*, as the former income concept already includes income pooling and redistribution between partners, which represent the most important redistributive mechanisms operating within the household.

When also the state enters into play inequality decreases further. Taxes and transfers level out inequality. Moreover, differences among welfare states also lead to important cross-national variation in state redistributive capacity (Korpi and Palme 1998). Denmark,

characterized as a generous welfare state, is the country where the state is the most effective. In fact, there is a reduction in inequality of more than two-thirds from the mid-‘90s onwards. On the other extreme, there is the US, a residual system of welfare, and Italy, a familialistic and sub-protective regime. Finally, Germany falls in-between. Family and state, thus, not only contribute to reducing the stratification, but also the overall level of inequality, in line with the expectations derived from welfare regimes theory.<sup>11</sup>

[Table 1]

Finally, concerning the trends, there is a general trend of increasing inequality for all income concepts across countries, even if differences exist.<sup>12</sup> Looking at *disposable income*, which is the main interest here, some notable cross-country differences emerge. For example, inequality increased during the first decade in Germany, the UK, and the US, after which it basically stabilized. On the contrary, Italy experienced increasing inequality in the second decade. Denmark, instead, after a sizeable inequality decline in the first decade, has shown an almost negligible increase in the second decade.

Coming to the core of the paper, I now examine whether the above mentioned changes in households and inequality are associated. I do that by using «counterfactual exercises» estimating predicted inequality for the changes in the distribution of household types ( $p_j$ ) between the mid-1980s and the mid-1990s, and between the mid-1990s and the mid-2000s. The «Data and methods» section explains how counterfactuals are computed. Inequalities are predicted for all the three income concepts. Results are again presented in Table 1.

The contribution of changes in household distribution should mirror the findings presented above: the family and the state should also mediate the association between household changes and inequality changes. Accordingly, a strong link should be observed for heads’ *labor income* while equivalent household *disposable income* should be the least associated. Results in Table 1 confirm this scenario.

Panel A shows that over the first decade the *predicted* value of inequality (Predicted change ‘80-‘90) for heads’ *labor income* is very similar to the *observed* value in the mid-‘90s. This suggests that changes in  $p_j$  is responsible for almost the entire change in inequality. For example, consider the case of Germany: in the mid-80s and in the mid-‘90s we observe a value of inequality of 0.1930 and 0.2212 respectively, while the predicted inequality in the mid-‘90s is equal to 0.2164. Therefore, all else being equal, had only the distribution of household types changed between the mid-‘80 and the mid-‘90, the (predicted) inequality in the second period would have been very similar to

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<sup>11</sup> Concerning the family, this is particularly true if we consider its «total» role, namely the extent to which inequality decreases comparing individual (instead of head’) income with family income. In this comparison, Italy emerges to be the country that benefit the most from family redistributive mechanisms. Then, we find Germany, and the UK and the US. Finally, Denmark results to be the country that benefit the less (results not shown, available from the author upon request).

<sup>12</sup> The decrease in inequality in heads earnings we observe for Italy and the United Kingdom in the second decade, is due to the overestimation of inequality in the first decade because of the data issue that these two counties face up to the mid-90s and discussed in the ‘Comparative issues on income’ section in the Appendix.

the observed real value. That is true for all countries, except the United States. The increase in inequality observed for the United States could be attributed to changes in the other quantities that contribute to inequality, namely changes in groups' mean income and within Theil.

The picture in the second decade partly changes. Between the mid-'90s and mid-2000s changes in household types have contributed to a lesser extent to changes in inequality compared to the previous decade.

Panel B of Table 1 shows that changes in the distribution of household types contribute to a lower extent to changes in inequality when focusing on *family income*. An example, again, is Germany, which experienced significant increases in inequality from the mid-'80s to the mid-2000s. Comparing the observed and predicted values, changes in households contributed only partially to changes in inequality. In other cases, instead, predicted changes in inequality may be larger than those observed (such as in Italy in the first decade and in the UK in the second decade) or may go in the opposite direction (Italy in the second decade).

This makes clear how, indeed, different changes come with different, and partly off-setting, consequences, especially when dealing with complex income concepts. Overall, although the family mediates the link between household changes and inequality in a significant way, changes in household types still contribute to changes in inequality. Again, the United States is an exception.

Finally, Panel C looks at final welfare for which changes in inequality are little pronounced, especially in the second decade. The largest change that we observe regards the UK that experienced increasing income inequality from 0.1503 to 0.1883 between the mid-'80s and the mid-'90s. If we look at the impact of household changes on inequality in *disposable income*, predicted inequalities do not differ substantially from the initially observed values. This means that household changes did not contribute to changes in inequality for this income concept. These results signal that the more we move away from simple income concepts, such as those coming from the market only, the less the changes in the distribution of household types account for changes in inequality. This confirms, once more, that family and state reduce the stratification process associated with the labor market, beyond their influence on inequality levels.

Concluding, when focusing on *disposable income* (representing the income concept that better approaches individual and family welfare) the changes in inequality cannot be attributed to the changing composition of households.

### 5.3. Decomposition of changes: a more detailed look

The previous section showed that changes in the distribution of household types can hardly be the reason for changes in inequality levels in disposable income. This contradicts the expectations and the empirical findings present in the literature. Yet, I considered households' demographic and economic composition jointly. While allowing to be close to empirically observed changes, this procedure has the disadvantage of less analytical clarity. Indeed, it conflates distinct processes, namely changes in labor supply and in sorting of partners, possibly leading to opposing consequences for inequality.

To allow distinguishing the role played by the different processes, I decompose changes in the overall distribution of household types into changes in the distribution of single-headed households only, and into changes in female employment only. In order to

decompose changes, I create two new counterfactual distributions of household types ( $p_j$ ).

To understand how these counterfactual distributions are constructed, consider the case in which only the distribution of single-headed households is allowed to change between the mid-80s and the mid-90s. I first construct the 36-cell table of household types presented in Figure 1 (where the 6, 6 cell contains a zero). Based on this table, I fix the marginal distribution of the last row and the last column of the table (which refer respectively to single women and single men) at their value observed in the mid-1990s – namely with the proportion of single women and men observed. At this point, I recalculate the new distribution of single men over the last column, in a proportional way according to the observed distribution of the column in the mid-1980s. In this way, only the total share of single men changes but their labor market behavior does not. Then I do the same with single women. Once the last row and last column are filled in, I continue with the rest of the table representing couples. Given that the proportion of single households has increased, the proportion of couples has decreased, and therefore I reweight each entry of the couple sub-table to the new proportion of couples. Also in this case, the total proportion of couples change but their labor market behavior does not. This is then the counterfactual table for changes in partnership behavior only. The exactly analogous method was used to form the counterfactual table in which only the female labor market participation changes (cf. Breen *et al.* 2011).

[Table 2]

Table 2 reports the results for the decomposition of changes in households. The table shows that focusing on *disposable income*, neither changes in the distribution of single households (Panel A) nor changes in female labor market participation (Panel B) had any substantial impact on inequality. In fact, comparing predicted changes with observed initial values, we find basically the same levels of inequality – at every point in time and for every country. In particular, when inequality varies significantly, changes in households do not substantially contribute to the variations in inequality. One example is the UK which experienced an increase in inequality of 0.0381 between mid-‘80s and mid-‘90, whereas if only the distribution of single households had changed the increase in inequality would have been 0.0022; and had only female employment changed, inequality would have increased by 0.0020. Similarly, in Italy, in front of an increase in inequality of 0.0166 between mid-‘90s and mid-‘00s, had the distribution of single households or of female employment only changed, inequality would have instead decreased of 0.0009 or 0.0173 respectively.

Concluding, changes in singlehood and in female employment have not produced changes in inequality. Therefore, although changes in the distribution of household types seem to be associated with changes in inequality in market and (partially) in family income, they can be discarded as a possible explanation for the changes in inequality in *disposable income*.

## 6. Summary and conclusions

In this article, I have studied how institutions – market, family, and the state – and household composition and its changes shape income inequality and income

stratification. In order to do this, I focused on five countries that belong to different welfare regimes – Denmark, Germany, Italy, the United Kingdom, and the United States – from the mid-1980s to mid-2000s.

I have shown that the household/family is at the forefront in distributing and redistributing economic resources and it operates in two directions: it both structures and mitigates inequality. On the one hand, the demographic and economic composition of households is strictly associated with income capacities, and consequently represents a relevant dimension of stratification – especially when looking at market income. These findings contrast the view that socioeconomic risks are increasingly individualized (Beck 1992). Conversely, it goes in the same direction with the results for Italy by Albertini (2008) who argued that household type can be considered a relevant dimension of inequality clustering, similarly to other classical lines of stratification such as social class, gender, and education.

On the other hand, the household mitigates inequality and stratification *via* its mechanisms of production and allocation of resources. For example, it mediates the link between household characteristics and inequality. This can be interpreted as a reduction of the stratifying capacity of household types once the family enters into play. Moreover, the family strongly reduces inequality, as inequality in household income is lower than in market income.

In comparative terms, while household characteristics stratify income to a similar extent across countries, cross-country variations in household's redistributive capacity are visible. In line with welfare regime theory, the Mediterranean welfare state – here represented by Italy – is the context in which the household plays the largest role compared to the other regimes. A possible explanation for this could be the presence of adult children in the household that contribute to the family budget via their employment. The fact that adult children in Italy are likely to live longer in the parental home than in other countries might contribute to explain the distinctively high redistributive role that the household plays in this country.

Along with the family, also the state contributes to lessening inequality and stratification. The extent to which the state influences income inequality is also in line with welfare regime theory: the state is in fact particularly effective in the social-democratic welfare state here represented by Denmark while it is almost negligible in sub-protective (Italy) and residual (US) welfare states.

Looking at the state role over the decades, we observe a weakening of its redistributive capacity. Whether this is due to welfare retrenchment or to the ineffectiveness of public policies in facing the new challenges associated with changing households is not easy to say. In the previous pages, I mentioned that Denmark, Germany, and the United States have not witnessed significant variation over time in public social spending, while the United Kingdom and Italy have instead experienced declining spending from the 1980s onward (Immervoll and Richardson 2011). The United Kingdom and Italy, however, have not experienced substantial declines in the state's capacity to reduce stratification, especially if compared with Denmark. These considerations, therefore, seem not to support welfare retrenchment as a driving factor of the decline in state's capacity to offset stratification.

Although household characteristics are associated with the distribution of income, I have shown that neither changes in the household structure, nor changes in households' economic composition can be considered the driving forces of inequality in individual welfare (proxied by equivalent disposable household income). More precisely, while



household changes substantially contributed to changes in inequality in heads' labor income and partially to changes in inequality in family income, they did not contribute to changes in inequality in disposable income.

Rather, changes in inequality in disposable income have been mainly driven by changes in the mean income and in the dispersion within household types. This finding is in line with the results of Fiorio (2011) for Italy, who observed that the changed dispersion of individual incomes has accounted for the majority of the changes in inequality, while changes in household structure and in the labor market participation of women have contributed only a little, if anything. Overall, for all countries, household mean income has grown over time for each type of household, but much more so for households at the top of the income distribution. These results are in line with most of the previous literature on economic inequality, which has recognized the disproportionate earnings growth at the top of the distribution, as one of the main drivers of rising income inequality (OECD 2008, 2011a).

Concluding, my findings point towards some implications for the welfare of individuals and for the society more in general. In fact, my findings suggest that the household plays an important role in today's stratification system. In doing so, the household might also affect the chances of future generations, and thus tomorrow's system of stratification. Given that the state, as an institution, has also the capacity to reduce stratification produced by the market and the way individuals are sorted in households, policymakers could pay more attention to the abovementioned implications, and plan public and fiscal policies in order to redistribute resources among households in a more effective way, at least in so far as redistribution is among their goals.

Finally, the present work is not free from limitations. The main limitation relates to the evaluation of the impact that household changes have had on income inequality. As already discussed, the counterfactual scenario in which only households change is hardly credible. This indeed assumes that household changes are independent from the distribution of income between and within households. On a similar note, changes in household may not be exogenous, namely there might be forces that have driven both changes in households and changes in inequality. It is in light of these aspects that my results have not to be interpreted as causal.

## References

- Albertini, M. (2008), Equalizing or not? The effect of changing household characteristics on income inequality, in *European Sociological Review*, vol. 24, n. 3, pp. 285–298.
- Atkinson, A.B. (1995), The Welfare State And Economic Performance, in *National Tax Journal*, vol. 48 n. 2, pp. 171–198.
- Atkinson, A.B., Rainwater, L., Smeeding, T.M. (1995), *Income Distribution in OECD Countries. Evidence from the Luxemburg Income Study*, Paris: OECD.
- Barbieri, P., Bozzon, R., Scherer, S., Grotti, R., Lugo, M. (2015), The rise of a Latin model? Family and fertility consequences of employment instability in Italy and Spain, in *European societies*, vol. 17, n. 4, pp. 423-446.
- Beck, U. (1992), *Risk Society: Towards a New Modernity*, New Delhi: Sage.
- Becker, G.S. (1965), A Theory of the Allocation of Time, in *The Economic Journal*, vol. 75, n. 299, pp. 493-517.
- Biewen M., Juhasz A. (2012), Understanding Rising Income Inequality in Germany, 1999/2000-2005/2006, in *Review of Income and Wealth*, vol. 58, n. 4, pp. 622–647.

- Blau, F.D., Kahn, L.M. (2009), Inequality and Earnings Distribution, in W. Salverda, B. Nolan, and T.M. Smeeding (eds), *The Oxford Handbook of Economic Inequality*, Oxford: Oxford University Press, pp. 177–203.
- Blau, F.D., Ferber, M.A., Winkler, A.E. (2006), *The Economics of Women, Men, and Work. 5th ed*, Upper Saddle River: Prentice Hall.
- Breen, R., Salazar, L., (2010), Has increased women’s educational attainment led to greater earnings inequality in the United Kingdom a multivariate decomposition analysis, in *European Sociological Review*, vol. 26, n. 2, pp. 143–157.
- Breen, R., Salazar, L., (2011), Educational Assortative Mating and Earnings Inequality in the United States, in *American Journal of Sociology*, vol. 117, n. 3, pp. 808–843.
- Burtless, G. (1999), Effects of growing wage disparities and changing family composition on the U . S . income distribution, in *European Economic Review*, vol. 43, pp. 853–865.
- Burtless, G. (2009), Demographic Transformation and Economic Inequality, in W. Salverda, B. Nolan, and T.M. Smeeding (eds), *The Oxford Handbook of Economic Inequality*, Oxford: Oxford University Press, pp. 435–454.
- Cancian, M., Reed, D. (1998), Assessing the Effects of Wives’ Earnings on Family Income Inequality, in *Review of Economics and Statistics*, vol. 80, n. 1, pp. 73–79.
- Chen, W.H., Forster, M., Llena-Nozal, A. (2014), Demographic or labour market trends: What determines the distribution of household earnings in OECD countries?, in *OECD Journal: Economic Studies*, vol. 2013, n. 1, pp. 179–207.
- Chiappori, P.A., Mechir, C. (2014), Intrahousehold Inequality, in A.B. Atkinson, F. Bourguignon (eds), *Handbook of Income Distribution, Volume 2b*, Amsterdam: Elsevier, pp. 1369-1418.
- Cohen, P., Bianchi, S.M. (1999), Marriage, Children and Women’s Employment: What Do We Know?, in *Monthly Labor Review*, vol. 122, pp. 22–31.
- Cowell, F.A. (2011), *Measuring Inequality. 3rd ed*, Oxford: Oxford University Press.
- Del Boca, D. Pasqua, S. (2003), Employment Patterns of Husbands and Wives and Family Income Distribution in Italy (1977-98), in *Review of Income and Wealth*, vol. 49, n. 2, pp. 221–245.
- Esping-Andersen, G. (1990), *The Three Worlds of Welfare Capitalism*, Cambridge: Polity Press.
- Esping-Andersen, G. (2007), Sociological Explanations of Changing Income Distributions, in *American Behavioral Scientist*, vol. 50, n. 5, pp. 639–658.
- Esping-Andersen, G. (2009), *The Incomplete Revolution: Adapting Welfare States to Women’s New Roles*, Cambridge: Polity Press.
- Esping-Andersen, G. Myles, J. (2009), Economic Inequality and the Welfare State, in W. Salverda, B. Nolan, and T.M. Smeeding (eds), *The Oxford Handbook of Economic Inequality*, Oxford: Oxford University Press, pp. 639–664.
- Eurostat (2015), *People in the EU: who are we and how do we live?*, European Union.
- Ferrera, M. (1996), The ‘Southern Model’ of Welfare in Social Europe, in *Journal of European Social Policy*, vol. 6, n. 1, pp. 17–37.
- Fiorio, C.V. (2011), Understanding Italian Inequality Trends, in *Oxford Bulletin of Economics and Statistics*, vol. 73, n. 2, pp. 255–275.
- Gornick, J. C., Jäntti, M. (2014), eds, *Income inequality: Economic disparities and the middle class in affluent countries*, Stanford University Press.
- Gottschalk, P., Smeeding, T.M. (1997), Cross-National Comparisons of Earnings and Income Inequality, in *Journal of Economic Literature*, vol. 3, pp. 633–687.

- Grotti, R., Scherer, S. (2016a), Does gender equality increase economic inequality? Evidence from five countries, in *Research in Social Stratification and Mobility*, vol. 45, pp. 13-26.
- Grotti, R., Scherer, S. (2016b), La disuguaglianza economica tra contesti: il ruolo di famiglia, stato e mercato, in *Sociologia del lavoro*, vol. 143, pp. 57-75.
- Gustafsson, B. Johansson, M. (1999), In Search of Smoking Guns: What Makes Income Inequality Vary over Time in Different Countries?, in *American Sociological Review*, vol. 64, n. 4, pp. 585-605.
- Harkness, S. (2013), Women's Employment and Household Income Inequality, in J.C. Gornick, M. Jantti (eds), *Income Inequality: Economic Disparities and the Middle Class in Affluent Countries*, Stanford: Stanford University Press, pp. 207–233.
- Himmelweit, S., Santos, C., Sevilla, A., Sofer, C. (2013), Sharing of Resources Within the Family and the Economics of Household Decision Making, in *Journal of Marriage and Family*, vol. 75, n. 3, pp. 625–639.
- Immervoll, H., Richardson, L. (2011), Redistribution Policy and Inequality Reduction in OECD Countries: What Has Changed in Two Decades?, in *OECD Social, Employment and Migration Working Papers*, n. 122.
- Jenkins, S.P. (1995), Accounting for Inequality Trends: Decomposition Analyses for the UK, 1971-86, in *Economica*, vol. 62, n. 245, pp. 29–63.
- Jenkins, S.P., Brandolini, A., Micklewright, J., Nolan, B. (2012), eds, *The Great Recession and the Distribution of Household Income*, Oxford: Oxford University Press.
- Kalleberg, A.L., Sorensen, A.B. (1979), The Sociology of Labour Markets, in *Annual Review of Sociology*, vol. 5, n. 1, pp. 351–379.
- Karoly, L., Burtless, G. (1995), Demographic change, rising earnings inequality, and the distribution of personal well-being, 1959-1989, in *Demography*, vol. 32, n. 3, pp. 379–405.
- Korpi, W., Palme, J. (1998), The Paradox of Redistribution and Strategies of Equality : Welfare State Institutions, Inequality, and Poverty in the Western Countries, in *American Sociological Review*, vol. 63, n. 5, pp. 661–687.
- Lundberg, S.J., Pollak, R.A., Wales, T.J. (1997), Do Husbands and Wives Pool Their Resources? Evidence from the United Kingdom Child Benefit, in *The Journal of Human Resources*, vol. 32, n. 3, pp. 463-480.
- Martin, M. (2006), Family structure and income inequality in families with children, 1976 to 2000, in *Demography*, vol. 43, n. 3, pp. 421–445.
- Milanovic, B. (2000), The median-voter hypothesis, income inequality, and income redistribution: an empirical test with the required data, in *European Journal of Political Economy*, vol. 16, n. 3, pp. 367–410.
- Morelli, S., Smeeding, T.M., Thompson, J. (2014), Post-1970 Trends in Within-Country Inequality and Poverty: Rich and Middle-Income countries, in A.B. Atkinson, F. Bourguignon (eds), *Handbook of Income Distribution, Volume 2a*, Amsterdam: Elsevier, pp. 593-696.
- OECD (2008), *Growing Unequal? Income Distribution and Poverty in OECD Countries*, Paris: OECD.
- OECD (2011a), *Divided we stand: why inequality keeps rising*, Paris: OECD.
- OECD (2011b), *Families are Changing. Doing Better For Families*, Paris: OECD.
- Oppenheimer, V.K. (1997), Women's employment and the gain to marriage: the specialization and trading model, in *Annual Review of Sociology*, vol. 23 n. 1, pp. 431–453.

- Piketty, T. (2014), *Capital in the Twenty-First Century*, Harvard University Press.
- Reed, D., Cancian, M. (2001), Sources of Inequality: Measuring the Contributions of Income Sources to Rising Family Income Inequality, in *Review of Income and Wealth*, vol. 47, n. 3, pp. 321–333.
- Salverda, W., Checchi, D. (2014), Labor Market Institutions and the Dispersion of Wage Earnings, in A.B. Atkinson, F. Bourguignon (eds), *Handbook of Income Distribution, Volume 2b*, Amsterdam: Elsevier, pp. 1535-1727.
- Salverda, W., Nolan, B., Smeeding, T.M. (2009), *The Oxford Handbook of Economic Inequality*, Oxford: Oxford University Press.
- Schwartz, C. (2010), Earnings Inequality and the Changing Association between Spouses' Earnings, in *American Journal of Sociology*, vol. 115, n. 5, pp. 1524–1557.
- Schwartz, C., Mare, R.D. (2005), Trends in Educational Assortative Marriage from 1940 to 2003, in *Demography*, vol. 42, n. 4, pp. 621–646.
- Western, B., Bloome, D., Percheski, C. (2008), Inequality among American Families with Children, 1975 to 2005, in *American Sociological Review*, vol. 73, n. 6, pp. 903–920.

### **Household changes and the distribution of income. A comparison across welfare regimes**

This comparative article contributes to the still open debate on the consequences of changes in households for income inequality, and proposes to distinguish the household's role in terms of its capacity to *stratify* and *redistribute* economic resources. The empirical contribution of the article is threefold. First, it analyses the extent to which demographic and economic characteristics of households stratify income inequality levels over time in different European countries (Denmark, Germany, Italy, and the United Kingdom) and in the US. Second, it studies how institutions – market, family, and state – redistribute income and shape the stratification produced by household's characteristics. Third, it assesses to which extent changes in the composition of households and their members' economic behavior account for trends in inequality. Analyses are based on the subgroups decomposition of the Theil index and its counterfactuals using Luxembourg Income Study data. Results show that that household types can be considered as a relevant dimension of inequality clustering, similarly to other classical lines of stratification. The household, however, also contributes to redistribute income, as well as the state does. Institutions play a relevant role. Indeed, while changes in households are strictly associated with changes in market income inequality, their impact is limited on family income and almost absent on disposable income.

*JEL Classification:* I32 – Measurement and Analysis of Poverty; I38 – Government Policy; Provision and Effects of Welfare Programs; J11 – Demographic Trends, Macroeconomic Effects, and Forecasts; J31 – Wage Level and Structure; Wage Differentials.

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Tables

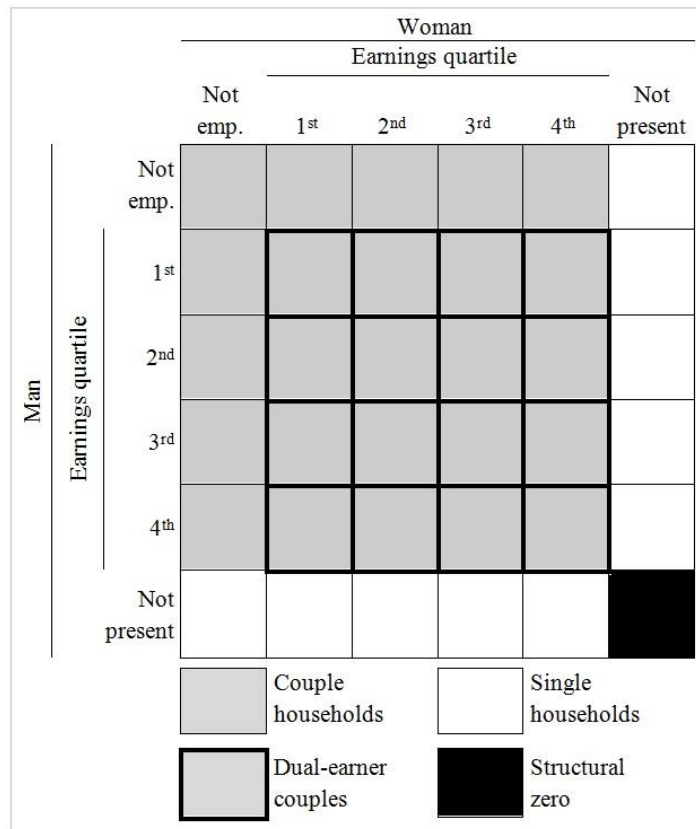
**Table 1.** Observed and Predicted inequality due to changes in the distribution of household types.

	Denmark	Germany	Italy	United Kingdom	United States
<i>Panel A. Heads' labour income</i>					
Observed mid-'80s	0.2761	0.1930	0.4070	0.4309	0.2876
Predicted change '80-'90	0.2902	0.2164	0.4521	0.5165	0.2947
Observed mid-'90s	0.2819	0.2212	0.4657	0.5067	0.3365
Predicted change '90-'00	0.2815	0.2425	0.2748	0.3894	0.3447
Observed mid-'00s	0.2862	0.2797	0.2349	0.3783	0.3507
<i>Panel B. Equivalent household market income plus private transfers</i>					
Observed mid-'80s	0.1690	0.1657	0.2045	0.2996	0.2671
Predicted change '80-'90	0.2018	0.1753	0.2372	0.3700	0.2706
Observed mid-'90s	0.2023	0.1938	0.2182	0.3732	0.3058
Predicted change '90-'00	0.1975	0.2065	0.1777	0.3118	0.3041
Observed mid-'00s	0.1982	0.2412	0.2354	0.3403	0.3021
<i>Panel C. Equivalent disposable household income</i>					
Observed mid-'80s	0.0808	0.0985	0.1790	0.1503	0.1700
Predicted change '80-'90	0.0836	0.1017	0.1777	0.1508	0.1730
Observed mid-'90s	0.0572	0.1092	0.1755	0.1884	0.1916
Predicted change '90-'00	0.0579	0.1150	0.1467	0.1623	0.1915
Observed mid-'00s	0.0629	0.1067	0.1921	0.1814	0.1875

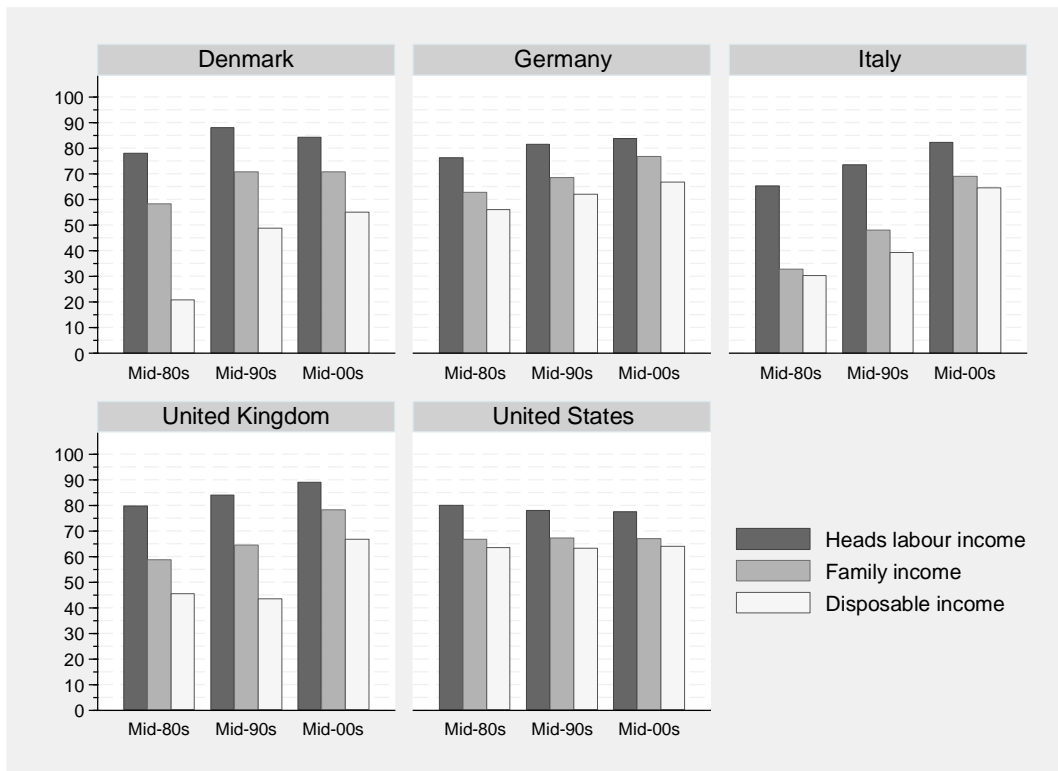
**Table 2.** Predicted inequality due to decomposed changes in household types.

	Denmark	Germany	Italy	United Kingdom	United States
<i>Panel A. Inequality changes due to changes in the distribution of singles only</i>					
Observed mid-‘80s	0.0808	0.0985	0.1790	0.1503	0.1700
Predicted change ‘80-‘90	0.0838	0.1015	0.1803	0.1525	0.1701
Observed mid-‘90s	0.0572	0.1092	0.1755	0.1884	0.1916
Predicted change ‘90-‘00	0.0581	0.1167	0.1746	0.1910	0.1922
Observed mid-‘00s	0.0629	0.1067	0.1921	0.1814	0.1875
<i>Panel B. Inequality changes due to changes in female employment only</i>					
Observed mid-‘80s	0.0808	0.0985	0.1790	0.1503	0.1700
Predicted change ‘80-‘90	0.0845	0.0997	0.1758	0.1523	0.1712
Observed mid-‘90s	0.0572	0.1092	0.1755	0.1884	0.1916
Predicted change ‘90-‘00	0.0568	0.1120	0.1582	0.1805	0.1870
Observed mid-‘00s	0.0629	0.1067	0.1921	0.1814	0.1875

Figures



**Figure 1.** Household types according to demographic and economic characteristics.



**Figure 2.** Between-group component of the Theil index for different income concepts.