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# *Document de travail*

## **WORK, FAMILY OR STATE ? FROM WAGE INEQUALITIES TO STANDARD OF LIVING INEQUALITIES AND IN-WORK POVERTY IN A EUROPEAN CROSS-COUNTRY PERSPECTIVE**

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**Work, Family or State? From wage inequalities to standard of living inequalities and in-work poverty in a European cross-country perspective**

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**Abstract :**

Our aim is to explore how wages inequalities translate into standard of living inequalities in different European countries. Wage inequalities are measured at the individual level. They can be increased or reduced by two institutions: the household and the tax-benefit system. Standards of living are therefore defined at the intersection of three institutions: the labour market, the family and the state (through social transfers). We propose a new methodology to distinguish the impact of these three institutions on standard of living inequalities. An empirical application is conducted for the employed population in different European countries with a focus on France, Spain, the United Kingdom, Germany, Sweden and Poland. Results are in line with expectations except for Germany, which does not conform to expectations for a corporatist regime.

**Keywords:** Inequality, Poverty, Social Transfers, Working poor.

**JEL codes:** D31, H23, I32.

## **Introduction**

Our aim is to explore how wages inequalities translate into standard of living inequalities in different European countries. Wage inequalities are measured at the individual level. They can be increased or reduced by two institutions: the household and the tax-benefit system. Standards of living are therefore defined at the intersection of three institutions: the labour market, the family and the state (through social transfers). We propose a new methodology to distinguish the impact of these three institutions on standard of living inequalities. Publications on this subject usually describe how the tax-benefit systems reduce inequalities at the household level (see for example OECD, 2009 or Bargain and Callan, 2007). Bibi and Duclos, 2008 compare the impact of market income and transfers across five OECD countries. The link between individual and household inequalities is rare except in works about the polarization of work and revenues (see Gregg and Wadsworth, 1996). The decomposition of market, family and taxes and benefits impact on inequality and poverty is new to our knowledge. Literature on poverty and inequality decomposition focuses on the statistical aspect of decomposition (see Shorrocks, 1992) whereas we use an accountancy approach. To do so, we construct individual accounts explaining standard of living. We introduce intermediate income measures between wages and standards of living in order to distinguish the impact of the family and of the tax-benefit system. An empirical application is conducted for the employed population in different European countries with a focus on France, Spain, the United Kingdom, Germany, Sweden and Poland.

We use the EU-SILC (Community Statistics on Income and Living Conditions) survey for year 2007. EU-SILC collects comparable data on income poverty and social exclusion for the European Union member states plus Norway and Iceland (Eurostat, 2008). The sample includes 127 000 households and the allocation among countries aims to ensure minimum statistical precision for each of them. The field of the study is the employed population according to the

Eurostat definition of the working poor. We also exclude working individuals in households with more than 2 adults from the analysis (excluding children) and focus on households where adults live either alone or with a spouse. They represent 0.38% of workers in France, 1.71% in the United Kingdom, 3.40% in Sweden, 8.8% in Spain and 9.40% in Poland.

## **1. From wages to standards of living inequalities: an analysis for 6 European countries**

### *Defining standard of living, poverty and in-work poverty*

The standard of living is the concept usually used to measure income inequality and relative income poverty. For example, Eurostat's definition of poverty refers to individuals living in households where the equivalised income (or standard of living) is below 60% of the national equivalised median income. The rate of poverty of a population is the number of poor individuals divided by the total population. When the rate of poverty is calculated on an individual basis, poverty itself is measured at the household level: an individual is poor if he lives in a poor household. To define poverty at the household level, income coming from all the members of the household is pooled and compared to a poverty threshold that depends on income calculated at the household level in the population. This approach is justified by the fact that individuals living in the same household usually share their resources. The implicit hypothesis used when calculating a standard of living or equivalised income is that there is complete income pooling within the household. This simplifying hypothesis neglects intra-household inequality and, notably, inequalities between men and women. This illustrates a limit in the concept of standard of living that we use (and decompose) in this analysis. The comparison of income between households stems from the differences in the size and composition of households. Simply dividing the household income by the number of individuals would neglect the existence of economies of scale. These are apprehended by a system of units of consumption (UC). The

equivalence scale used by Eurostat to calculate equivalised income allocates 1 UC to the first adult, 0.5 for other members of the household aged 14 or over, 0.3 UC for children aged less than 14.

What income should be included in total household income used for comparison purposes? The traditional approach defined by the Canberra group (2001) defines the household monetary disposable income: it includes wages and replacement wages, capital income, private transfers from other households and social transfers. Taxes and transfers to households are then deducted from this income. When based on equivalised disposable income, standards of living exclude non-monetary income such as the use of a residence for owners or the home production of care for families with dependants. Standards of living of workers with children might then be overestimated if they need to pay for childcare services.

With these limits in mind, we decompose standards of living inequalities starting from individual wages.

### *From wage inequalities to standard of living inequalities*

Tables 11.1 to 11.6 show how inequalities on the labour market translate into inequalities of standard of living for six European countries. The six countries represent different social models: Sweden represents the social-democrat regime, which usually distinguish Scandinavian countries, the United Kingdom represents the liberal model generally associated with Anglo-Saxon countries, Germany and France represent the continental corporatist model whereas Spain represents the Mediterranean model typical in Southern European countries. The inclusion of Poland serves as an example of a new member state coming from Eastern Europe.

We use an individual approach to construct the tables: if a household has two workers, it will be represented twice. This is consistent with the fact that poverty rates and income inequality

indexes are calculated at the individual level even though poverty and income are determined at the household level. The equivalised labour income of adults in the household would be the standard of living of the individual if s/he did not have other sources of income (financial income, benefits and taxes) and if he did not have any dependants (hence if he lived either alone or with his spouse). The equivalised labour income of the household would be the standard of living of the individual if he did not have other sources of income. The difference between these two measures is the impact of children. Similarly the difference between pre-transfers and post transfers equivalised income is the impact of transfers.

Individual wage earnings include employee cash or near cash income, non cash employee income, cash benefits or losses from self-employment and the value of goods produced by the household for self-consumption. Wage replacement benefits include unemployment benefits, sickness benefits, disability benefits and old-age benefits. Labour income is the sum of wage earnings and wage replacement benefits. Tables 1 to 6 show the average labour income by quintiles of disposable income for the six countries under review. The interquintile (Q5/Q1) ratio is obtained by dividing average labour income of the richest (fifth) quintile by the one for the poorest (first) quintile. It is a measure of labour income inequality which is lowest in Sweden (2.9) partly because of the reduction of inequality by replacement wages. France (3.2) and Spain (3.4) also enjoy relatively low income inequality, contrary to the United Kingdom (4.5) and Poland (4.8). Germany is in an intermediary position (3.7). We also present the Gini index of the variable. Contrary to the interquintile ratio presented, the Gini depends only on the dispersion of

the variable for which it is calculated and not on its correlation to disposable income<sup>1</sup>. Hence, the interquintile ratio and the Gini coefficient do not always run in parallel. For example, a high gender wage gap will increase the dispersion of wages and therefore its Gini. However, it will have a lesser impact on the interquintile ratio because women can be found in all quintiles of standard of living (since most of them live with higher paid men).

One element of originality of this work is to open the household black box and analyse how the spouses and the inclusion of dependant children impact on inequality measures. What we name 'impact of the conjugal situation' refers to the change in equivalised income when going from an individual point of view to a "conjugal" point of view. The impact of the conjugal situation takes into account two opposite elements when taking into account the impact of living with a spouse on one's standard of living. On the one hand, the spouse might bring new income, but on the other hand, the needs of the household are increased. To calculate this impact, we add labour income of the spouse to individual labour income for people living in a couple and then we divide by the number of units of consumption of the household heads (1 for singles and 1.5 for couples). The impact of the conjugal situation is then considered to be the difference between individual labour income and the equivalised labour income at the conjugal level. Inequality at the conjugal level is higher than inequality at the individual level in all 6 countries except for Poland where the interquintile ratio is equal at both levels (4.8). The increase in inequality between the individual and the household levels is highest in Spain (+0.8).

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<sup>1</sup> The interquintile ratios we present here are constructed after sorting the households by standard of living. An income that is less correlated to disposable income will therefore appear less unequal than an income with the same variance but a higher correlation to disposable income.



In a third step, we calculate an impact of children and other dependants. It is calculated as the difference between total equivalised labour income at the household level and equivalised labour income at the conjugal level. It is in Poland that the impact of children on inequality measured by the interquintile ratio is highest (+1.1). The five other countries face a similar impact (between +0.5 and +0.6). It is not surprising that children seem to increase inequality when measured by interquintile ratio: it shows that the households with more children tend to have lower equivalised income.

In a fourth step, we calculate an impact of the tax-and-benefit system. Benefits include social exclusion, family and housing benefits. Taxes and other transfers include income and wealth taxes as well as transfers from and to other households. The numbers presented in the tables are equivalised. We add equivalised benefits and taxes to equivalised income before transfers to obtain equivalised disposable income at the household level. This represents the standard of living of the individuals living in this household. The United Kingdom is the country where tax and benefits have the highest absolute reducing impact on inequality as measured by the interquintile ratio (-1.4). Evidently, it is easier to reduce absolute inequalities by transfers when pre-transfers inequalities are high. In France, the interquintile ratio is reduced by 0.8 points, mostly through generous and progressive benefits. In Sweden, inequalities as measured by the interquintile ratio are reduced by a similar amount (0.7 points) even though pre-transfer inequalities are lower than in France. Whereas Poland is in an intermediate position (0.5), Spain (-0.1) and Germany (=) are characterized by low or no impact of the tax-benefit system. In Spain, this is due to very ungenerous benefits combined with a tax that is not really progressive. In Germany, the regressive nature of taxes compensates the progressivity introduced by benefits. This particularity should be further examined.

Out of the six countries under review, Sweden is the one which enjoys the lowest level of income inequalities among the employed population. Interquintile ratio of equivalised household income is equal to 3.2 and the Gini index is at a remarkable 22.2. This performance is due to very low inequalities of labour income, especially when replacement wages are taken into account.

Replacement wages in Sweden are very progressive. Whereas they represent 30% of initial income (pre-transfers equivalised income) for individuals in the first quintile, they only represent 4% of this amount for individuals in the fifth quintile. Family benefits are also very progressive: they represent 7.2% of initial income for the first quintile and 0.8% in the fifth quintile.

Inequalities are therefore significantly reduced by transfers in Sweden. With an interquintile ratio of 3.5, wage inequalities are also relatively low but higher than in France (3.3) and on par with Spain. The Swedish performance compared to its neighbours can therefore mainly be explained by generous and progressive transfers.

France ranks a close second when it comes to standard of living inequalities among workers (interquintile ratio of 3.4 and Gini equal to 24.5). This performance is explained by the lowest wage income inequalities among the six studied countries and a relatively high impact of the tax-benefit system on inequalities.

The United Kingdom has the third lowest level of inequality among the six studied countries.

With an interquintile ratio of 4.4 and a Gini index equal to 29.0, the UK is in fact a distant third.

The UK is characterised by high inequalities in the labour market: its wage interquintile ratio is equal to 4.6. These inequalities are partly compensated by an important reduction of inequalities among workers by the tax-benefit system. This might be considered as characteristic of the liberal model: the market produces a high level of inequalities which are partly reduced outside the market.

Germany does not conform as expected for a corporatist country. Wage inequalities on the labour market are relatively high: with a Gini of 41.4 and an interquintile ratio equal to 3.9, Germany stands closer to the United Kingdom than to France on this scale. Another characteristic that needs to be examined is the regressive nature of income tax at the bottom of the distribution: Households from the first quintile pay more taxes as a proportion of their income than in the upper quintiles. Overall, when measured by the interquintile ratio (sorted by disposable income), we find that transfers do not reduce inequalities among workers in Germany. However, the Gini is reduced by three points by transfers, which means that social transfers do reduce income inequalities globally, even though this inequality reduction does not benefit households of the first quintile of disposable income.

The level of standard of living inequalities among workers in Spain is relatively high despite low inequalities in the labour market. This is due to a strong negative impact of the family which is not compensated by the tax and benefit system. This is in line with expectations for a country that represents the Mediterranean model.

Poland is characterized by a high level of inequalities among workers. Wage inequalities are the highest among the six countries under review. Children have an important impact on inequalities as measured by the interquintile ratio which shows that households with children tend to have lower standards of living. These aspects resemble the Mediterranean model. However, contrary to Spain, Poland has generous family benefits that benefit mostly households from the first quintile of equalised income and therefore reduce income inequality among workers.

**Table 1: From wages to standards of living inequalities, France**

Workers

| France  | Quintiles of disposable income |               |               |               |                | Q5/Q1      | Gini        |
|---|--------------------------------|---------------|---------------|---------------|----------------|------------|-------------|
|   | Q1                             | Q2            | Q3            | Q4            | Q5             |            |             |
| <b>Wage Income</b>                                      | <b>12 607</b>                  | <b>17 663</b> | <b>20 961</b> | <b>25 849</b> | <b>41 370</b>  | <b>3.3</b> | <b>35.6</b> |
| <i>% of initial income</i>                              | 111%                           | 99%           | 92%           | 89%           | 86%            |            |             |
| <b>Labour Income including replacement wages</b>        | <b>13 350</b>                  | <b>18 424</b> | <b>21 838</b> | <b>26 721</b> | <b>42 876</b>  | <b>3.2</b> | <b>33.9</b> |
| <i>% of initial income</i>                              | 118%                           | 103%          | 96%           | 92%           | 90%            |            |             |
| Impact of the conjugal situation                        | 2 185                          | 4 843         | 7 179         | 9 178         | 12 512         |            |             |
| <i>% of initial income</i>                              | 19%                            | 27%           | 32%           | 32%           | 26%            |            |             |
| <b>Equivalised labour income of adults in household</b> | <b>15 536</b>                  | <b>23 267</b> | <b>29 017</b> | <b>35 900</b> | <b>55 388</b>  | <b>3.6</b> | <b>28.3</b> |
| <i>% of initial income</i>                              | 137%                           | 130%          | 128%          | 123%          | 116%           |            |             |
| Impact of other dependants                              | -4 415                         | -5 680        | -6 711        | -7 473        | -9 359         |            |             |
| <i>% of initial income</i>                              | -39%                           | -32%          | -30%          | -26%          | -20%           |            |             |
| <b>Equivalised labour income of household</b>           | <b>11 121</b>                  | <b>17 587</b> | <b>22 306</b> | <b>28 426</b> | <b>46 029</b>  | <b>4.1</b> | <b>28.7</b> |
| financial income  | 222                            | 294           | 435           | 692           | 1 854          |            |             |
| <b>Equivalised initial income</b>                       | <b>11 342</b>                  | <b>17 881</b> | <b>22 741</b> | <b>29 118</b> | <b>47 883</b>  | <b>4.2</b> | <b>29.0</b> |
| <i>% of initial income</i>                              | 100%                           | 100%          | 100%          | 100%          | 100%           |            |             |
| Social Exclusion Benefits                               | 162                            | 28            | 18            | 15            | 31             |            |             |
| <i>% of initial income</i>                              | 1.4%                           | 0.2%          | 0.1%          | 0.1%          | 0.1%           |            |             |
| Family Benefits   | 782                            | 636           | 584           | 457           | 318            |            |             |
| <i>% of initial income</i>                              | 6.9%                           | 3.6%          | 2.6%          | 1.6%          | 0.7%           |            |             |
| Housing Benefits  | 740                            | 284           | 146           | 74            | 95             |            |             |
| <i>% of initial income</i>                              | 6.5%                           | 1.6%          | 0.6%          | 0.3%          | 0.2%           |            |             |
| <b>Benefits</b>   | <b>1 684</b>                   | <b>948</b>    | <b>748</b>    | <b>546</b>    | <b>444</b>     |            |             |
| <i>% of initial income</i>                              | 15%                            | 5%            | 3%            | 2%            | 1%             |            |             |
| <b>Taxes &amp; other transfers</b>                      | <b>-2 778</b>                  | <b>-3 906</b> | <b>-5 060</b> | <b>-6 900</b> | <b>-13 056</b> |            |             |
| <i>% of initial income</i>                              | -24%                           | -22%          | -22%          | -24%          | -27%           |            |             |
| <b>Equivalised disposable income</b>                    | <b>10 248</b>                  | <b>14 923</b> | <b>18 429</b> | <b>22 764</b> | <b>35 271</b>  | <b>3.4</b> | <b>24.5</b> |
| <i>% of initial income</i>                              | 90%                            | 83%           | 81%           | 78%           | 74%            |            |             |

Source : Eu-Silc 2007; own calculations

**Table 2: From wages to standards of living inequalities, Germany**

Workers

| Germany  | Quintiles of disposable income |                       |                       |                        |                        | Q5/Q1      | Gini        |
|--|--------------------------------|-----------------------|-----------------------|------------------------|------------------------|------------|-------------|
|  | Q1                             | Q2                    | Q3                    | Q4                     | Q5                     |            |             |
| <b>Wage Income</b><br><i>% of initial income</i>                   | <b>13 944</b><br>101%          | <b>22 223</b><br>105% | <b>27 088</b><br>96%  | <b>33 601</b><br>91%   | <b>53 957</b><br>84%   | <b>3.9</b> | <b>41.4</b> |
| <b>Labour Income including replacement wages</b>                   | <b>14 830</b>                  | <b>22 795</b>         | <b>27 618</b>         | <b>34 033</b>          | <b>54 651</b>          | <b>3.7</b> | <b>40.1</b> |
| Impact of the conjugal situation<br><i>% of initial income</i>     | 2 640<br>19%                   | 5 112<br>24%          | 7 486<br>26%          | 10 332<br>28%          | 15 412<br>24%          |            |             |
| <b>Equivalised labour income of adults in household</b>            | <b>17 470</b>                  | <b>27 906</b>         | <b>35 104</b>         | <b>44 365</b>          | <b>70 063</b>          | <b>4.0</b> | <b>30.7</b> |
| Impact of other dependants<br><i>% of initial income</i>           | -3 932<br>-28%                 | -7 037<br>-33%        | -7 287<br>-26%        | -8 176<br>-22%         | -9 532<br>-15%         |            |             |
| <b>Equivalised labour income of household</b>                      | <b>13 538</b>                  | <b>20 869</b>         | <b>27 817</b>         | <b>36 189</b>          | <b>60 531</b>          | <b>4.5</b> | <b>32.0</b> |
| financial income   | 275                            | 329                   | 543                   | 822                    | 3 388                  |            |             |
| <b>Equivalised initial income</b>                                  | <b>13 813</b><br>100%          | <b>21 198</b><br>100% | <b>28 360</b><br>100% | <b>37 011</b><br>100%  | <b>63 919</b><br>100%  | <b>4.6</b> | <b>32.6</b> |
| Social Exclusion Benefits<br><i>% of initial income</i>            | 205<br>1.5%                    | 128<br>0.6%           | 100<br>0.4%           | 13<br>0.0%             | 25<br>0.0%             |            |             |
| Family Benefits<br><i>% of initial income</i>                      | 977<br>7.1%                    | 1 073<br>5.1%         | 794<br>2.8%           | 615<br>1.7%            | 489<br>0.8%            |            |             |
| Housing Benefits<br><i>% of initial income</i>                     | 52<br>0.4%                     | 7<br>0.0%             | 4<br>0.0%             | 1<br>0.0%              | 1<br>0.0%              |            |             |
| <b>Benefits</b><br><i>% of initial income</i>                      | <b>1 234</b><br>8.9%           | <b>1 208</b><br>5.7%  | <b>898</b><br>3.2%    | <b>629</b><br>1.7%     | <b>515</b><br>0.8%     |            |             |
| <b>Taxes &amp; other transfers</b><br><i>% of initial income</i>   | <b>-5 236</b><br>-38%          | <b>-5 821</b><br>-27% | <b>-8 367</b><br>-30% | <b>-11 516</b><br>-31% | <b>-19 684</b><br>-31% |            |             |
| <b>Equivalised disposable income</b><br><i>% of initial income</i> | <b>9 810</b><br>71%            | <b>16 585</b><br>78%  | <b>20 891</b><br>74%  | <b>26 124</b><br>71%   | <b>44 750</b><br>70%   | <b>4.6</b> | <b>29.3</b> |

Source : Eu-Silc 2007; own calculations

**Table 3: From wages to standards of living inequalities, Spain**

Workers

| Spain   | Quintiles of disposable income |               |               |               |               | Q5/Q1      | Gini        |
|---|--------------------------------|---------------|---------------|---------------|---------------|------------|-------------|
|   | Q1                             | Q2            | Q3            | Q4            | Q5            |            |             |
| <b>Wage Income</b>                                      | <b>8 928</b>                   | <b>13 005</b> | <b>15 682</b> | <b>19 595</b> | <b>31 228</b> | <b>3.5</b> | <b>37.2</b> |
| <i>% of initial income</i>                              | 119%                           | 103%          | 94%           | 89%           | 86%           |            |             |
| <b>Labour Income including replacement wages</b>        | <b>9 288</b>                   | <b>13 447</b> | <b>16 059</b> | <b>20 026</b> | <b>31 614</b> | <b>3.4</b> | <b>36.1</b> |
| Impact of the conjugal situation                        | 1 582                          | 4 673         | 7 927         | 10 783        | 13 896        |            |             |
| <i>% of initial income</i>                              | 21%                            | 37%           | 47%           | 49%           | 38%           |            |             |
| <b>Equivalised labour income of adults in household</b> | <b>10 871</b>                  | <b>18 119</b> | <b>23 986</b> | <b>30 809</b> | <b>45 511</b> | <b>4.2</b> | <b>30.4</b> |
| Impact of other dependants                              | -3 436                         | -5 635        | -7 370        | -8 989        | -10 222       |            |             |
| <i>% of initial income</i>                              |                                |               |               |               |               |            |             |
| <b>Equivalised labour income of household</b>           | <b>7 435</b>                   | <b>12 484</b> | <b>16 616</b> | <b>21 820</b> | <b>35 289</b> | <b>4.7</b> | <b>30.5</b> |
| financial income  | <b>95</b>                      | <b>92</b>     | <b>130</b>    | <b>235</b>    | <b>1 058</b>  |            |             |
| <b>Equivalised initial income</b>                       | <b>7 531</b>                   | <b>12 576</b> | <b>16 746</b> | <b>22 056</b> | <b>36 347</b> | <b>4.8</b> | <b>30.8</b> |
| <i>% of initial income</i>                              | 100%                           | 100%          | 100%          | 100%          | 100%          |            |             |
| Social Exclusion Benefits                               | 5                              | 4             | 4             | 7             | 6             |            |             |
| <i>% of initial income</i>                              | 0.1%                           | 0.0%          | 0.0%          | 0.0%          | 0.0%          |            |             |
| Family Benefits   | 22                             | 37            | 45            | 74            | 77            |            |             |
| <i>% of initial income</i>                              | 0.3%                           | 0.3%          | 0.3%          | 0.3%          | 0.2%          |            |             |
| Housing Benefits  | 5                              | 5             | 17            | 33            | 21            |            |             |
| <i>% of initial income</i>                              | 0.1%                           | 0.0%          | 0.1%          | 0.1%          | 0.1%          |            |             |
| <b>Benefits</b>   | <b>32</b>                      | <b>46</b>     | <b>66</b>     | <b>114</b>    | <b>104</b>    |            |             |
| <i>% of initial income</i>                              | 0.4%                           | 0.4%          | 0.4%          | 0.5%          | 0.3%          |            |             |
| <b>Taxes &amp; other transfers</b>                      | <b>-1 259</b>                  | <b>-1 779</b> | <b>-2 482</b> | <b>-3 688</b> | <b>-6 975</b> |            |             |
| <i>% of initial income</i>                              | -17%                           | -14%          | -15%          | -17%          | -19%          |            |             |
| <b>Equivalised disposable income</b>                    | <b>6 303</b>                   | <b>10 844</b> | <b>14 330</b> | <b>18 481</b> | <b>29 476</b> | <b>4.7</b> | <b>29.1</b> |
| <i>% of initial income</i>                              | 84%                            | 86%           | 86%           | 84%           | 81%           |            |             |

Source : Eu-Silc 2007; own calculations

**Table 4: From wages to standard of living inequalities, United Kingdom**

Workers

| United Kingdom   | Quintiles of disposable income |                        |                        |                        |                        | Q5/Q1      | Gini        |
|--|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------|-------------|
|  | Q1                             | Q2                     | Q3                     | Q4                     | Q5                     |            |             |
| <b>Wage Income</b><br><i>% of initial income</i>                   | <b>14 164</b><br>105.3%        | <b>23 403</b><br>95.3% | <b>28 943</b><br>88.1% | <b>36 477</b><br>84.3% | <b>65 484</b><br>86.6% | <b>4.6</b> | <b>43.4</b> |
| <b>Labour Income including replacement wages</b>                   | <b>15 057</b>                  | <b>24 375</b>          | <b>29 993</b>          | <b>37 502</b>          | <b>67 126</b>          | <b>4.5</b> | <b>41.8</b> |
| Impact of the conjugal situation<br><i>% of initial income</i>     | 3 650                          | 8 702                  | 13 833                 | 17 693                 | 21 987                 |            |             |
| <b>Equivalised labour income of adults in household</b>            | <b>18 706</b><br>136%          | <b>33 077</b><br>133%  | <b>43 825</b><br>131%  | <b>55 195</b><br>125%  | <b>89 113</b><br>112%  | <b>4.8</b> | <b>32.8</b> |
| Impact of other dependants<br><i>% of initial income</i>           | -5 257                         | -8 507                 | -10 971                | -11 904                | -13 510                |            |             |
| <b>Equivalised labour income of household</b>                      | <b>13 449</b><br>98%           | <b>24 570</b><br>99%   | <b>32 854</b><br>98%   | <b>43 291</b><br>98%   | <b>75 603</b><br>95%   | <b>5.6</b> | <b>33.7</b> |
| financial income   | <b>283</b>                     | <b>358</b>             | <b>595</b>             | <b>967</b>             | <b>4 050</b>           |            |             |
| <b>Equivalised initial income</b>                                  | <b>13 732</b><br>100%          | <b>24 927</b><br>100%  | <b>33 449</b><br>100%  | <b>44 257</b><br>100%  | <b>79 653</b><br>100%  | <b>5.8</b> | <b>34.1</b> |
| Social Exclusion Benefits<br><i>% of initial income</i>            | 439<br>3.2%                    | 213<br>0.9%            | 78<br>0.2%             | 35<br>0.1%             | 37<br>0.0%             |            |             |
| Family Benefits<br><i>% of initial income</i>                      | 922<br>6.7%                    | 677<br>2.7%            | 484<br>1.4%            | 381<br>0.9%            | 299<br>0.4%            |            |             |
| Housing Benefits<br><i>% of initial income</i>                     | 378<br>2.7%                    | 75<br>0.3%             | 44<br>0.1%             | 5<br>0.0%              | 2<br>0.0%              |            |             |
| <b>Benefits</b><br><i>% of initial income</i>                      | <b>1 738</b><br>13%            | <b>965</b><br>4%       | <b>606</b><br>2%       | <b>421</b><br>1%       | <b>338</b><br>0%       |            |             |
| <b>Taxes &amp; other transfers</b><br><i>% of initial income</i>   | <b>-3 104</b><br>-23%          | <b>-6 116</b><br>-25%  | <b>-8 679</b><br>-26%  | <b>-12 147</b><br>-27% | <b>-25 414</b><br>-32% |            |             |
| <b>Equivalised disposable income</b><br><i>% of initial income</i> | <b>12 366</b><br>90%           | <b>19 777</b><br>79%   | <b>25 376</b><br>76%   | <b>32 532</b><br>74%   | <b>54 577</b><br>69%   | <b>4.4</b> | <b>29.0</b> |

Source : Eu-Silc 2007; own calculations

**Table 5: From wages to standards of living inequalities, Sweden**

Workers

| Sweden  | Quintiles of disposable income |               |               |                |                | Q5/Q1      | Gini        |
|---|--------------------------------|---------------|---------------|----------------|----------------|------------|-------------|
|   | Q1                             | Q2            | Q3            | Q4             | Q5             |            |             |
| <b>Wage Income</b>                                      | <b>12 501</b>                  | <b>20 804</b> | <b>25 821</b> | <b>30 067</b>  | <b>43 161</b>  | <b>3.5</b> | <b>34.7</b> |
| <i>% of initial income</i>                              | 88%                            | 90%           | 90%           | 84%            | 77%            |            |             |
| <b>Labour Income including replacement wages</b>        | <b>15 501</b>                  | <b>23 622</b> | <b>27 811</b> | <b>31 759</b>  | <b>45 006</b>  | <b>2.9</b> | <b>29.2</b> |
| <i>% of initial income</i>                              | 110%                           | 103%          | 97%           | 89%            | 81%            |            |             |
| Impact of the conjugal situation                        | 3 093                          | 6 373         | 8 509         | 9 912          | 13 980         |            |             |
| <i>% of initial income</i>                              | 22%                            | 28%           | 30%           | 28%            | 25%            |            |             |
| <b>Equivalised labour income of adults in household</b> | <b>18 594</b>                  | <b>29 994</b> | <b>36 321</b> | <b>41 672</b>  | <b>58 987</b>  | <b>3.2</b> | <b>25.1</b> |
| <i>% of initial income</i>                              | 132%                           | 130%          | 127%          | 117%           | 106%           |            |             |
| Impact of other dependants                              | -4 459                         | -7 408        | -7 972        | -6 520         | -6 639         |            |             |
| <i>% of initial income</i>                              |                                |               |               |                |                |            |             |
| <b>Equivalised labour income of household</b>           | <b>14 135</b>                  | <b>22 586</b> | <b>28 349</b> | <b>35 152</b>  | <b>52 347</b>  | <b>3.7</b> | <b>26.0</b> |
| <i>% of initial income</i>                              |                                |               |               |                |                |            |             |
| financial income  | -4                             | 404           | 329           | 543            | 3 391          |            |             |
| <i>% of initial income</i>                              |                                |               |               |                |                |            |             |
| <b>Equivalised initial income</b>                       | <b>14 131</b>                  | <b>22 990</b> | <b>28 678</b> | <b>35 695</b>  | <b>55 738</b>  | <b>3.9</b> | <b>26.9</b> |
| <i>% of initial income</i>                              |                                |               |               |                |                |            |             |
| Social Exclusion Benefits                               | 160                            | 28            | 26            | 8              | 3              |            |             |
| <i>% of initial income</i>                              | 1.1%                           | 0.1%          | 0.1%          | 0.0%           | 0.0%           |            |             |
| Family Benefits   | 1 023                          | 1 216         | 984           | 651            | 450            |            |             |
| <i>% of initial income</i>                              | 7.2%                           | 5.3%          | 3.4%          | 1.8%           | 0.8%           |            |             |
| Housing Benefits  | 138                            | 34            | 18            | 11             | 6              |            |             |
| <i>% of initial income</i>                              | 1.0%                           | 0.1%          | 0.1%          | 0.0%           | 0.0%           |            |             |
| <b>Benefits</b>   | <b>1 321</b>                   | <b>1 278</b>  | <b>1 029</b>  | <b>671</b>     | <b>458</b>     |            |             |
| <i>% of initial income</i>                              | 9.3%                           | 5.6%          | 3.6%          | 1.9%           | 0.8%           |            |             |
| <b>Taxes &amp; other transfers</b>                      | <b>-4 209</b>                  | <b>-6 786</b> | <b>-8 727</b> | <b>-11 217</b> | <b>-20 181</b> |            |             |
| <i>% of initial income</i>                              | -30%                           | -30%          | -30%          | -31%           | -36%           |            |             |
| <b>Equivalised disposable income</b>                    | <b>11 243</b>                  | <b>17 483</b> | <b>20 980</b> | <b>25 149</b>  | <b>36 016</b>  | <b>3.2</b> | <b>22.2</b> |
| <i>% of initial income</i>                              | 80%                            | 76%           | 73%           | 70%            | 65%            |            |             |

Source : EU-SILC 2007 ; author's calculations



**Table 6: From wages to standards of living inequalities, Poland**

Workers

| Poland   | Quintiles of disposable income |                       |                       |                       |                       | Q5/Q1      | Gini        |
|--|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------|-------------|
|  | Q1                             | Q2                    | Q3                    | Q4                    | Q5                    |            |             |
| <b>Wage Income</b><br><i>% of initial income</i>                   | <b>2 463</b><br>107%           | <b>4 006</b><br>100%  | <b>4 952</b><br>90%   | <b>6 564</b><br>87%   | <b>12 021</b><br>87%  | <b>4.9</b> | <b>46.1</b> |
| <b>Labour Income including replacement wages</b>                   | <b>2 604</b>                   | <b>4 228</b>          | <b>5 211</b>          | <b>6 922</b>          | <b>12 517</b>         | <b>4.8</b> | <b>43.5</b> |
| Impact of the conjugal situation<br><i>% of initial income</i>     | 1 137<br>49%                   | 2 164<br>54%          | 3 236<br>59%          | 4 117<br>55%          | 5 438<br>39%          |            |             |
| <b>Equivalised labour income of adults in household</b>            | <b>3 742</b><br>163%           | <b>6 392</b><br>159%  | <b>8 446</b><br>154%  | <b>11 039</b><br>147% | <b>17 955</b><br>130% | <b>4.8</b> | <b>33.3</b> |
| Impact of other dependants<br><i>% of initial income</i>           | -1 446<br>-63%                 | -2 378<br>-59%        | -2 971<br>-54%        | -3 557<br>-47%        | -4 387<br>-32%        |            |             |
| <b>Equivalised labour income of household</b>                      | <b>2 296</b><br>100%           | <b>4 014</b><br>100%  | <b>5 475</b><br>100%  | <b>7 482</b><br>100%  | <b>13 568</b><br>99%  | <b>5.9</b> | <b>34.9</b> |
| financial income   | 5                              | 6                     | 15                    | 27                    | 204                   |            |             |
| <b>Equivalised initial income</b>                                  | <b>2 301</b><br>100%           | <b>4 020</b><br>100%  | <b>5 490</b><br>100%  | <b>7 509</b><br>100%  | <b>13 771</b><br>100% | <b>6.0</b> | <b>35.2</b> |
| Social Exclusion Benefits<br><i>% of initial income</i>            | 20<br>0.9%                     | 8<br>0.2%             | 1<br>0.0%             | 1<br>0.0%             | 1<br>0.0%             |            |             |
| Family Benefits<br><i>% of initial income</i>                      | 121<br>5.3%                    | 81<br>2.0%            | 54<br>1.0%            | 43<br>0.6%            | 22<br>0.2%            |            |             |
| Housing Benefits<br><i>% of initial income</i>                     | 21<br>0.9%                     | 13<br>0.3%            | 4<br>0.1%             | 2<br>0.0%             | 0<br>0.0%             |            |             |
| <b>Benefits</b><br><i>% of initial income</i>                      | <b>162</b><br>7.1%             | <b>102</b><br>2.5%    | <b>59</b><br>1.1%     | <b>46</b><br>0.6%     | <b>23</b><br>0.2%     |            |             |
| <b>Taxes &amp; other transfers</b><br><i>% of initial income</i>   | <b>-645</b><br>-28%            | <b>-1 059</b><br>-26% | <b>-1 482</b><br>-27% | <b>-2 087</b><br>-28% | <b>-3 857</b><br>-28% |            |             |
| <b>Equivalised disposable income</b><br><i>% of initial income</i> | <b>1 818</b><br>79%            | <b>3 062</b><br>76%   | <b>4 067</b><br>74%   | <b>5 468</b><br>73%   | <b>9 937</b><br>72%   | <b>5.5</b> | <b>33.0</b> |

Source : Eu-Silc 2007; own calculations

## *2. Household & transfers impacts on inequality: a European cross-country analysis*

In this section, we compare how households and transfers impact on inequalities in European countries using the same methodology as in the previous section. The analysis was conducted for a larger group of countries: Belgium, Denmark, France, Germany, Greece, Ireland, Poland, Portugal, Spain, Sweden, and the United Kingdom.

Table 7 and Figure 1 show Gini coefficients of individual labour income, standards of living and intermediate variables as calculated in the previous section. Gini coefficients calculated here measure inequalities (or dispersion) among workers. It is a different concept than in-work poverty but relates to it. In an economy, greater income inequalities translate into higher poverty rates. However, when we focus on one subgroup (here workers), poverty will not only depend on income dispersion within this subgroup but also on the relative position of this subgroup in the total population. A high dispersion of income within a subgroup can translate into low poverty of this subgroup if the subgroup is well-off (or if dispersion of income is greater at the top of the distribution than at the bottom).

We can classify the countries in several groups: First, Greece, Portugal and Poland have high levels of labour income inequalities which translate into high levels of standard of living inequalities. It is interesting to notice that Spain is not in this group. On the other side, Sweden and Denmark enjoy low levels of inequalities from individual wages through standards of living. Notably, they reduce inequalities substantially through replacement wages. France and Belgium are close to this group: labour income inequalities are higher in these two countries than in Sweden and Denmark but inequalities are reduced when taking a couples perspective. Similarly, the Anglo-Saxon countries, Ireland and the United Kingdom have high wage inequalities but these are reduced when adopting a couples' perspective and taking into account the tax-benefit system: these two countries finally have moderate standard of living inequalities.

**Table 7 : Gini coefficients: Individual wages, standard of living and intermediate variables**

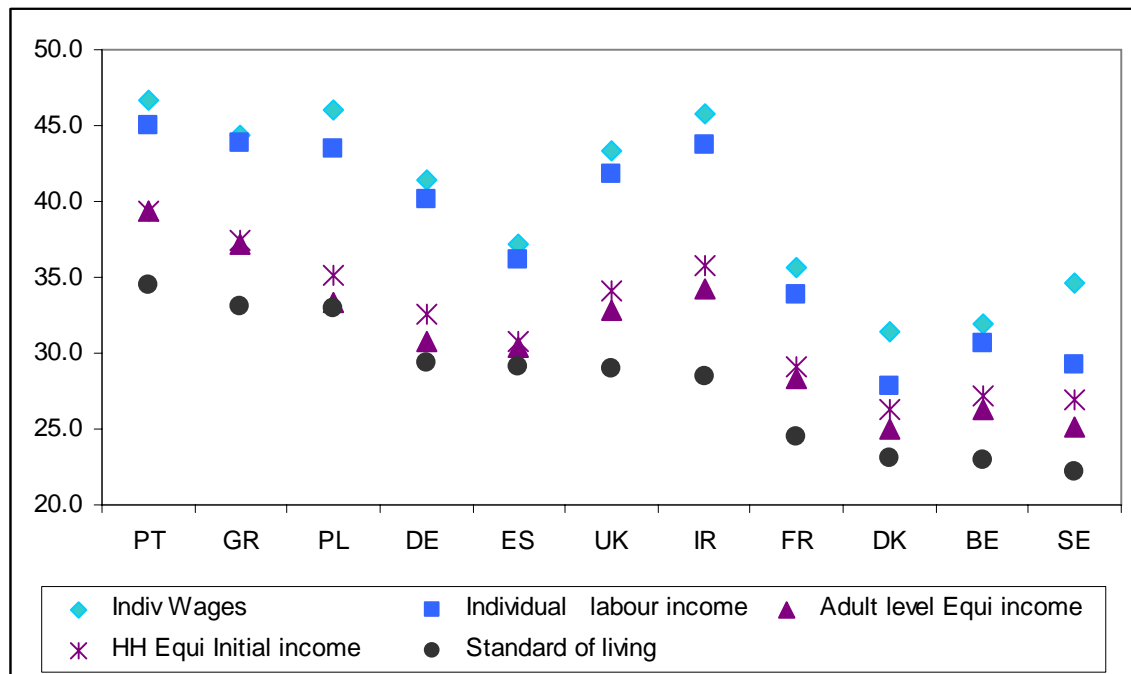
Workers

|    | Indiv Wages | Individual labour income | Adult level Equi income | HH Equi Initial income | Standard of living |
|----|-------------|--------------------------|-------------------------|------------------------|--------------------|
| BE | 32.0        | 30.6                     | <b>26.3</b>             | 27.2                   | <b>22.9</b>        |
| DE | 41.4        | 40.1                     | 30.7                    | 32.6                   | 29.3               |
| DK | 31.4        | <b>27.8</b>              | <b>25.0</b>             | 26.3                   | <b>23.1</b>        |
| ES | 37.2        | 36.1                     | 30.4                    | 30.8                   | 29.1               |
| FR | 35.6        | 33.9                     | <b>28.3</b>             | 29.0                   | <b>24.5</b>        |
| GR | <b>44.3</b> | <b>43.8</b>              | 37.2                    | 37.4                   | <b>33.1</b>        |
| IR | <b>45.8</b> | <b>43.7</b>              | 34.2                    | 35.7                   | 28.4               |
| PL | <b>46.1</b> | <b>43.5</b>              | 33.3                    | 35.2                   | <b>33.0</b>        |
| PT | <b>46.7</b> | <b>45.0</b>              | 39.3                    | 39.3                   | <b>34.5</b>        |
| SE | 34.7        | <b>29.2</b>              | <b>25.1</b>             | 26.9                   | <b>22.2</b>        |
| UK | <b>43.4</b> | <b>41.8</b>              | 32.8                    | 34.1                   | 29.0               |

Source : EU-SILC 2007 ; author's calculation

**Figure 1: Gini coefficients: individual wages, standards of living and intermediate variables**

Workers



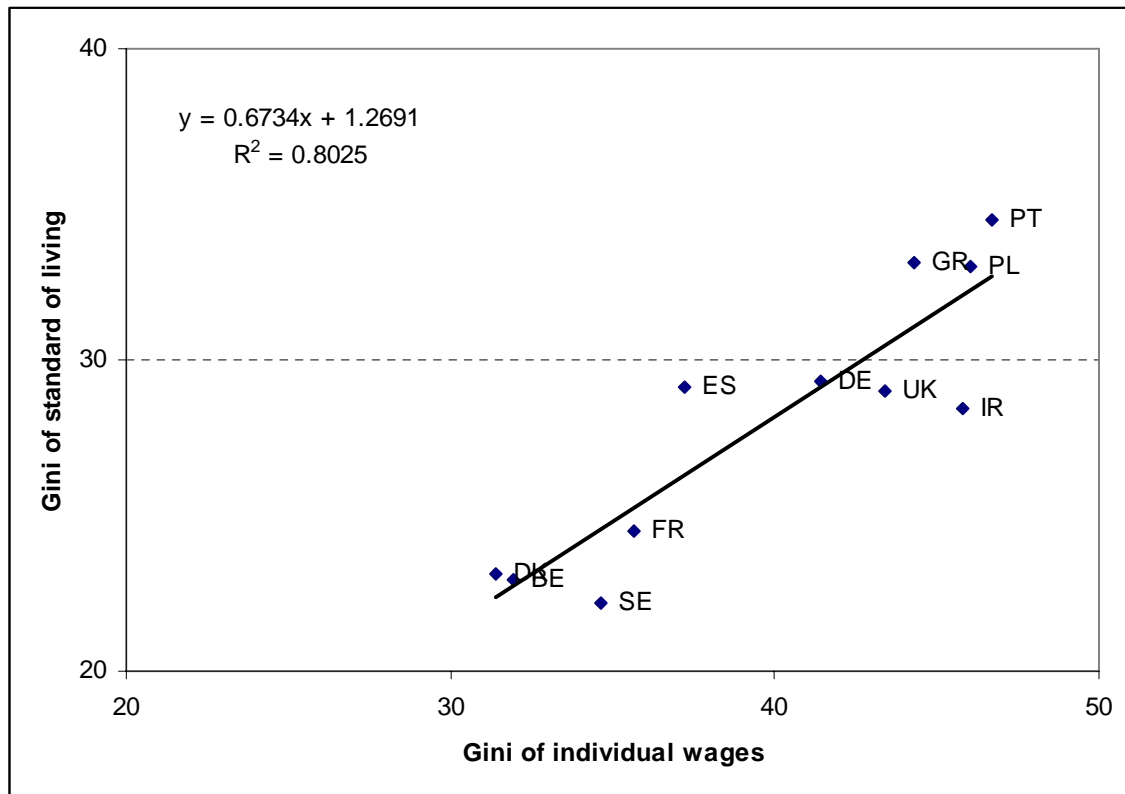
Source: EU-SILC 2007 ; author's calculations

Inequality reduction when going from an individual to a couple perspective can be due to several factors. First, high inequality between men and women will increase wage inequalities but does not impact on inequalities between couples. However, it could still be a factor of inequality between households in countries where there are a lot of individuals living without a spouse (singles). Second, risk sharing, specialization and heterogamy at the household level will also translate into inequality reduction when going from an individual to a household perspective: if low-wage workers tend to be in couples with high-wage workers, then inequalities between households will be reduced. This can be due to specialization on the labour market (where one spouse reduces working hours, investment, or effort to focus on taking care of children while the other spouse increases them) ; risk sharing (where one spouse increases working hours when the other falls into unemployment) ; and disassortive mating (which is usually linked to specialization).

Figure 2 shows that for workers, standard of living inequalities are greatly correlated to individual wage inequalities. Ireland does better on the standard of living scale mainly through reduction of inequality when taking a couple perspective. Sweden also does better, through replacement wages. Spain does relatively worst: reduction of inequality at the household level is low.

**Figure 2: Correlation between Gini of individual wages and Gini of standards of living.**

Employed population



Source : EU-SILC 2007, authors' calculations

### 3. From wages to standards of living to in-work poverty: the use of poverty indicators.

In this section, we use thresholds to define relative poverty indicators. By 'poverty indicator', we mean an indicator that measures the proportion of the population which is below 60% of the median of an income variable (not necessarily the standard of living). The problem with this measure lies in its sensitivity to an arbitrary threshold (here 60% of median): marginal changes in thresholds can lead to a modification in the ranking of countries depending on the distribution of income around the threshold. However, relative poverty is widely used because it is a simple

description of the extent of inequalities at the bottom of the distribution whereas the Gini index is a measure of global inequality (representative of the entire population).

Table 8 and Figure 3 show the results for the 11 countries under study. Medians for each level of income are calculated among workers. The difference between the percentage of population below 60% of standard of living and in-work poverty risk (last two columns in Table 8) is due to the difference in the population used to calculate the median income: workers for the former and the general population for the in-work poverty measure. The difference between the two percentages is therefore a measure of the impact of the relative position of workers in the general population on the in-work poverty indicator. In-work poverty risks are lower in all countries, which means that median standard of living for workers is higher than the median standard of living of non-workers in all studied countries. We can see in the table that Ireland's low in-work poverty risk is in fact mostly due to a good relative position of workers: Ireland does not fare particularly well when we use a poverty threshold calculated among workers only.

**Table 8: From wages to standards of living: Percentage of population below 60% of median and in-work poverty risk**

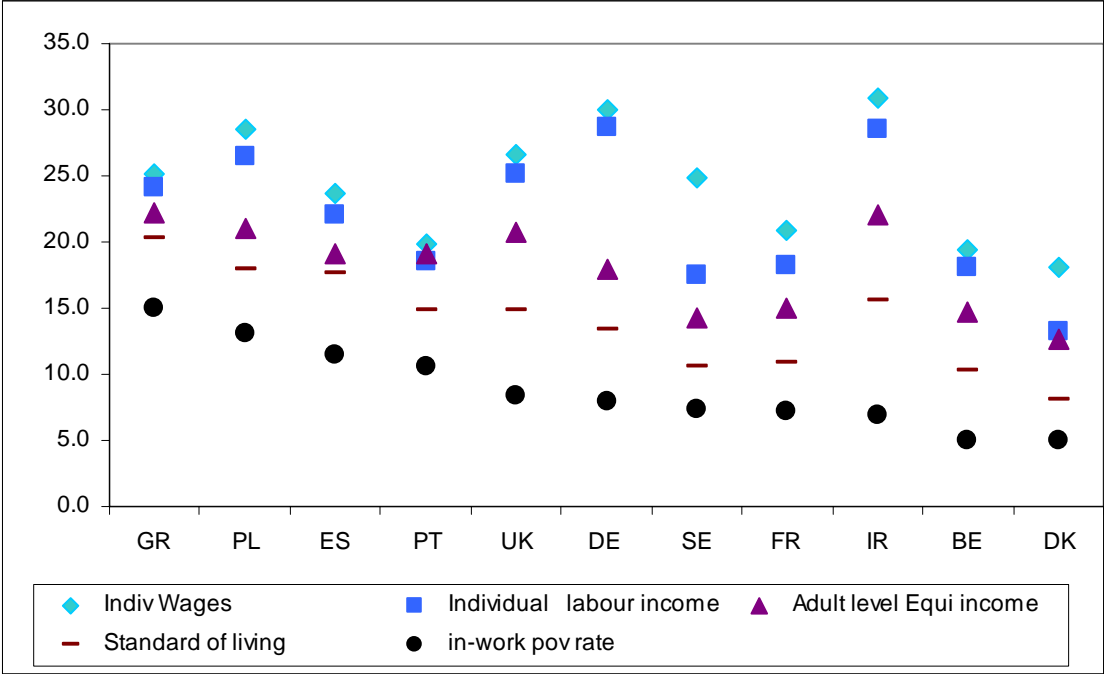
Workers

|           | <b>Indiv. Wages</b> | <b>Indiv. Labour income</b> | <b>Adult level equi. income</b> | <b>HH equi. initial income</b> | <b>Standard of living</b> | <b>in-work pov rate</b> |
|-----------|---------------------|-----------------------------|---------------------------------|--------------------------------|---------------------------|-------------------------|
| <b>BE</b> | 19.5                | 18.1                        | 14.8                            | 28.7                           | 10.3                      | 5.0                     |
| <b>DE</b> | 30.1                | 28.7                        | 17.9                            | 31.7                           | 13.4                      | 8.0                     |
| <b>DK</b> | 18.2                | 13.3                        | 12.7                            | 38.0                           | 8.1                       | 5.0                     |
| <b>ES</b> | 23.6                | 22.1                        | 19.2                            | 25.5                           | 17.7                      | 11.5                    |
| <b>FR</b> | 21.0                | 18.2                        | 15.0                            | 16.0                           | 10.9                      | 7.2                     |
| <b>GR</b> | 25.2                | 24.1                        | 22.2                            | 33.7                           | 20.2                      | 15.0                    |
| <b>IR</b> | 30.9                | 28.6                        | 22.1                            | 21.8                           | 15.5                      | 7.0                     |
| <b>PL</b> | 28.6                | 26.4                        | 21.0                            | 34.3                           | 17.9                      | 13.0                    |
| <b>PT</b> | 19.9                | 18.5                        | 19.1                            | 26.0                           | 14.9                      | 10.6                    |
| <b>SE</b> | 24.8                | 17.5                        | 14.3                            | 28.8                           | 10.6                      | 7.3                     |
| <b>UK</b> | 26.6                | 25.2                        | 20.7                            | 30.9                           | 14.9                      | 8.3                     |

*Sources: EU-SILC 2007, authors' calculations*

Figure 2 : From wages to standards of living: Percentage of population below 60% of median.

Workers



Sources: EU-SILC 2007, author's calculation



## **Conclusion**

We propose a new methodology to decompose the impact of wage, family and social transfers on income inequality. We use an accountancy approach based on the reconstruction of the standard of living for each individual (in our case workers). The introduction of intermediate variables such as ‘equivalised labour income of adults in the household’ and ‘equivalised labour income of household’ permits us to distinguish the impact on income inequality of the conjugal situation and of children. Traditional statistical decompositions of inequalities by factors usually do not tackle the problem of household composition. We apply our methodology to six different European countries and draw conclusions that are in line with expectations except for Germany, which does not conform to expectations for a corporatist regime. We then extend our methodology to eleven countries using two kinds of indicator (Gini and poverty). We show that conclusions might be sensitive to the type of indicator used. This decomposition of income inequality gives further insight into in-work poverty, an indicator that combines an individual and a household dimension.

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