Income inequality in the EU: Decomposition by income sources

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6° European User Conference for EU-Microdata
Mannheim, Germany, March 7-8 2019
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Outline

• Motivation
• Alternative methods and limits
• Shorrocks’ decomposition
• Income sources
• EU-SILC: data and problems
• Empirical evidence
• Conclusion
Motivation

• Income inequality in EU relatively stable after 2008, *but* at higher level than before 2008

  \textit{WHY?}

• Need to understand underlying mechanisms:
  – Market vs. welfare redistribution
  – Role of taxes and transfers
Commonly used methods in policy-making contexts (1)

- Comparison of pre and post tax and transfers income inequality (JERs, ESDEs)
- EUROMOD simulations (Callan et al. 2018)

Key definition of counterfactual distribution
Commonly used methods in policy-making contexts (2)

Natural decomposition of the variance – proportionate contributions to income inequality

\[ S_k(\sigma^2) = \frac{S_k(\sigma^2)}{\sigma^2(Y)} = \frac{\text{cov}(Y^k, Y)}{\sigma^2(Y)} \]

- Independence of the ineq. measure chosen
- \( s_k \) is the proportionate contribution of income source \( k \) to inequality
- \( \sum_k s_k = 1 \)
Interpretation

• Ineq. which would be observed if component \( k \) was the only source of income inequality

• Amount by which ineq. would fall if ineq. in component \( k \) were eliminated
Decomposition method: drawbacks

1. Sensitivity to top outliers

2. No account of feedback effects → strength and weakness at the same time

Contributions depend on the rule selected (arbitrary)
## Income components

### Total disposable household income

- Labour income
- Self-employment income
- Capital income
- Private pensions*
- Public pensions*
- Unemployment benefits
- Other individual benefits
- Household benefits

### Market income

- Self-employment income

### Welfare components

- Public pensions*
- Unemployment benefits
- Other individual benefits
- Household benefits

- Taxes and social security contributions
Data source: EU-SILC

<table>
<thead>
<tr>
<th>Total disposable household income</th>
</tr>
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<tbody>
<tr>
<td>+ gross employee cash or near cash income</td>
</tr>
<tr>
<td>+ company car</td>
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<tr>
<td>+ gross cash benefits or losses from self-employment</td>
</tr>
<tr>
<td>+ income from rental of a property or land</td>
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<tr>
<td>+ interests, dividends, profit from capital investments</td>
</tr>
<tr>
<td>+ pensions received from individual private plans *</td>
</tr>
<tr>
<td>+ old-age benefits *</td>
</tr>
<tr>
<td>+ survivor' benefits *</td>
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<tr>
<td>+ unemployment benefits</td>
</tr>
<tr>
<td>+ sickness benefits</td>
</tr>
<tr>
<td>+ disability benefits</td>
</tr>
<tr>
<td>+ education-related allowances</td>
</tr>
<tr>
<td>+ family/children related allowances</td>
</tr>
<tr>
<td>+ social exclusion not elsewhere classified</td>
</tr>
<tr>
<td>+ housing allowances</td>
</tr>
<tr>
<td>- regular taxes on wealth</td>
</tr>
<tr>
<td>- tax on income and social insurance contributions</td>
</tr>
<tr>
<td>+ regular inter-household cash transfers received</td>
</tr>
<tr>
<td>- regular inter-household cash transfer paid</td>
</tr>
<tr>
<td>+ income received by people aged under 16</td>
</tr>
</tbody>
</table>
Problems (1)

• Shorrocks ineq. decomposition would require:
  ✓ Net income components
  
  *But*

✓ Only gross components available in most MS in EU-SILC

(See Goedemé & Zardo-Trinidade forthcoming)
Problems (2)

- Capital income more reliable with administrative data than surveys

but

✓ Register data used only by few MS in EU-SILC

(See Goedemé & Zardo-Trinidade forthcoming)
Empirical challenge

• In absence of net income components...
  – Only contributions of market sources and benefits
    – Contribution of taxes cannot be detected

• Decomposition of the variable HY010

  and

• Preliminary results for MS that record net income components
Gross income sources - contribution to inequality (%). 2016

Source: EU-SILC UDB
Gross income sources - contribution to inequality as a proportion of Gini (%)

Source: EU-SILC UDB
Self-employment income - contribution to inequality (%)
Unemployment benefits - contribution to inequality (%)
Preliminary results: net incomes (1)

Disposable income sources - contribution to inequality (%). 2017
Preliminary results: net incomes (2)

Disposable income sources - contribution to inequality (%). 2017
Preliminary results: net incomes (3)

Disposable income sources - contribution to inequality (%). 2017
Preliminary results: net incomes (4)

Disposable income sources - contribution to inequality (%). 2017
Open questions

• Net income components, reliable?
  – Pensions in IT, EL?
  – Earnings in BE?

• Is the decomposition informative in light of its pitfalls?
  – More reliable results for register MS (SE) and simple welfare state MS (BG, EE)

• Is the decomposition more useful within country over time or across countries at a point in time?
Conclusions

• Data gaps

• Method still in its infancy

  but

• New angle to assess redistributive impact of welfare component