Inequality, poverty and the crisis in Greece

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the paper

- introduction: the 2010 austerity measures and the recession
- methodology: uprating EU-SILC; simulating with EUROMOD
- results: how is the burden of austerity and the recession shared?
- discussion: interpretation of results; limitations of our research
- conclusion: policy implications; further research
The paper

- **Introduction**: the 2010 austerity measures and the recession

- **Methodology**: uprating EU-SILC; simulating with EUROMOD

- **Results**: how is the burden of austerity and the recession shared?

- **Discussion**: interpretation of results; limitations of our research

- **Conclusion**: policy implications; further research
policy context

➢ a sovereign debt crisis

➢ March 2010: first package of austerity measures

➢ April 2010: new personal income tax legislation

➢ May 2010: €110 billion rescue package agreed with IMF-ECB-EC; second package of austerity measures announced
austerity measures

- **direct taxation**
  - new personal income tax schedule
  - pensioners’ solidarity contribution
  - lump-sum taxes on high incomes & highly profitable firms

- **indirect taxation**
  - VAT + tobacco, alcohol, fuel and luxury taxes raised

- **public sector pay**

- **pension benefits**
the wider recession

- **unemployment**
  - rate increased from 9.5% (2009) to 12.5% (2010)

- **private sector incomes**
  - wage cuts, reduced earnings, drop in retail sales, business failures

- **inflation**
  - harmonised CPI rose from 1.4% (2009) to 4.7% (2010)

- **public services**
  - fiscal squeeze undermines proper funding of the public sector
aim of paper

✓ to simulate the effects of the crisis on the income distribution

➢ (the crisis being defined as both the austerity measures and the recession)

✓ to estimate how the burden of austerity and the recession is shared across population groups
the paper

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estimating the effects of austerity and the recession: the options

- **option no. 1**
  - ✔ wait until data on 2010 incomes such as EU-SILC are available
    - 2011 survey not to be released before March 2013 (cross-sectional) and August 2013 (longitudinal)

- **option no. 2**
  - ✔ simulate the effects of policy changes now
    - using microsimulation

- we have opted for the latter
  - ✔ policy interest
  - ✔ access to European tax-benefit model EUROMOD
what is EUROMOD?

- static multi-country microsimulation model
  - all EU15 Member States + Estonia, Hungary, Poland and Slovenia
  - comparable across different countries / tax-benefit systems

- monetary incomes from input data
  - different national microdata (HBS, register data, ECHP)
    - Greece: EU-SILC
  - most direct taxes and non-contributory cash benefits simulated

- supported by the European Commission
  - Greek research team: AUEB
bringing EUROMOD up to date

- current state of model
  - data set: EU-SILC 2007 survey, reporting on 2006 incomes

- two tasks
  1. uprate income variables to 2010
     - market incomes & (non-simulated) social benefits
  2. update policies to 2010
     - taxes & social benefits & social insurance contributions

- comparison: 2009 (base year) vs. 2010 (reference year)
accounting for non take up

- standard assumption: full take up of benefits
- not all social benefits are claimed by those eligible
- non take up likely to be very extensive in Greece
  

- correction necessary!
- non take up accounted for through part-simulation

<table>
<thead>
<tr>
<th></th>
<th>number of recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>full take up</td>
</tr>
<tr>
<td>social pension</td>
<td>102,842</td>
</tr>
<tr>
<td>unemployment assistance for older workers</td>
<td>33,523</td>
</tr>
</tbody>
</table>
accounting for tax evasion

- standard assumption: full tax compliance
- tax evasion known to be very extensive in Greece
  - correction necessary
  - stylised rates of under-reporting from earlier work


<table>
<thead>
<tr>
<th>income source</th>
<th>rate of income under-reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>wages</td>
<td>1%</td>
</tr>
<tr>
<td>pensions</td>
<td>0%</td>
</tr>
<tr>
<td>farming income</td>
<td>55%</td>
</tr>
<tr>
<td>self-employment earnings</td>
<td>25%</td>
</tr>
</tbody>
</table>
accounting for indirect taxation

- standard assumption: only direct taxes simulated
- indirect taxes significant
  - correction necessary

- limitation: estimation of distributional impact of indirect taxes (a) is cumbersome and (b) requires use of expenditure data
- effect of changes in indirect taxes estimated separately on the basis of earlier findings (using data from HBS 2004-5)
adjusting for the rise in unemployment

- unemployment rose sharply over the period under consideration
  - correction necessary

methodology

1. adjust dataset in the light of recent Labour Force Survey data
   - 2010 LFS unemployment rates by gender, age group and education
2. have the required number of workers within each category lose their job
   - make the dataset’s composition mirror the 2010 LFS
3. have eligible jobless workers draw unemployment benefit
   - UB simulated for those with employment history > 12 months

<table>
<thead>
<tr>
<th>aged 20-64</th>
<th>unemployment rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EU-SILC 2007 (unadjusted)</td>
</tr>
<tr>
<td>men</td>
<td>6.3</td>
</tr>
<tr>
<td>women</td>
<td>13.0</td>
</tr>
</tbody>
</table>
the paper

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Income loss is measured in real terms (i.e. adjusted for inflation), averaged for each decile.
results (2/10)
sharing the burden of austerity and the recession
results (3/10)
poverty indicators

- effects of austerity and the recession on poverty
  - by age group
  - by employment status

- indices
  - conventional poverty line
    - 60% of median equivalised disposable income
    - poverty threshold (single person): €570 pcm in 2009 vs. €543 pcm in 2010
  - poverty line anchored in pre-crisis terms
    - 60% of 2009 median equivalised disposable income adjusted for inflation
    - poverty threshold (single person): €570 pcm in 2009 vs. €597 pcm in 2010
results (4/10)
poverty by age: *conventional* poverty line

- effects of austerity and the recession on poverty by age group
  - poverty line set at 60% of median equivalised income

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>20.06</td>
<td>20.88</td>
<td>+0.82</td>
</tr>
<tr>
<td>men</td>
<td>19.04</td>
<td>20.01</td>
<td>+0.97</td>
</tr>
<tr>
<td>women</td>
<td>21.02</td>
<td>21.70</td>
<td>+0.68</td>
</tr>
<tr>
<td>0-15</td>
<td>21.41</td>
<td>22.31</td>
<td>+0.90</td>
</tr>
<tr>
<td>16-29</td>
<td>19.02</td>
<td>20.12</td>
<td>+1.10</td>
</tr>
<tr>
<td>30-44</td>
<td>16.44</td>
<td>17.93</td>
<td>+1.49</td>
</tr>
<tr>
<td>45-64</td>
<td>19.02</td>
<td>19.81</td>
<td>+0.79</td>
</tr>
<tr>
<td>65+</td>
<td>24.61</td>
<td>24.53</td>
<td>-0.08</td>
</tr>
</tbody>
</table>

- The poverty threshold for a person living alone was €570 per month in 2009 vs. €543 per month in 2010
results (5/10)

poverty by employment status: *conventional* poverty line

- effects of austerity and the recession on *poverty* by *employment status*
  - poverty line set at 60% of median equivalised income

<table>
<thead>
<tr>
<th>household head is:</th>
<th>2009</th>
<th>2010</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>unemployed</td>
<td>51.09</td>
<td>60.14</td>
<td>+9.05</td>
</tr>
<tr>
<td>in dependent employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>public sector, public enterprises, banking</td>
<td>0.31</td>
<td>0.42</td>
<td>+0.11</td>
</tr>
<tr>
<td>private sector excl. banking</td>
<td>12.69</td>
<td>12.31</td>
<td>-0.38</td>
</tr>
<tr>
<td>self-employed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>liberal professions</td>
<td>3.79</td>
<td>3.72</td>
<td>-0.07</td>
</tr>
<tr>
<td>own account workers, other self-employed</td>
<td>16.63</td>
<td>17.39</td>
<td>+0.76</td>
</tr>
<tr>
<td>farmers</td>
<td>46.88</td>
<td>45.56</td>
<td>-1.32</td>
</tr>
<tr>
<td>pensioner</td>
<td>24.74</td>
<td>24.72</td>
<td>-0.02</td>
</tr>
<tr>
<td>other</td>
<td>20.65</td>
<td>20.56</td>
<td>-0.09</td>
</tr>
</tbody>
</table>

- The poverty threshold for a person living alone was **€570** per month in 2009 vs. **€543** per month in 2010.
effects of austerity and the recession on poverty by age group

- poverty line set at **60%** of **2009** median income adjusted for inflation

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<th>2009</th>
<th>2010</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>all</td>
<td>20.06</td>
<td>25.45</td>
<td>+5.39</td>
</tr>
<tr>
<td>men</td>
<td>19.04</td>
<td>24.52</td>
<td>+5.48</td>
</tr>
<tr>
<td>women</td>
<td>21.02</td>
<td>26.34</td>
<td>+5.32</td>
</tr>
<tr>
<td>0-15</td>
<td>21.41</td>
<td>27.87</td>
<td>+6.46</td>
</tr>
<tr>
<td>16-29</td>
<td>19.02</td>
<td>25.27</td>
<td>+6.25</td>
</tr>
<tr>
<td>30-44</td>
<td>16.44</td>
<td>22.04</td>
<td>+5.60</td>
</tr>
<tr>
<td>45-64</td>
<td>19.02</td>
<td>23.53</td>
<td>+4.51</td>
</tr>
<tr>
<td>65+</td>
<td>24.61</td>
<td>29.39</td>
<td>+4.78</td>
</tr>
</tbody>
</table>

- The poverty threshold for a person living alone was €570 per month in 2009 vs. €597 per month in 2010
results (7/10)
poverty by employment status: anchored pre-crisis

- effects of austerity and the recession on poverty by employment status
  - poverty line set at 60% of 2009 median income adjusted for inflation

<table>
<thead>
<tr>
<th>household head is:</th>
<th>2009</th>
<th>2010</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>unemployed</td>
<td>51.09</td>
<td>63.71</td>
<td>+12.62</td>
</tr>
<tr>
<td>in dependent employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>public sector, public enterprises, banking</td>
<td>0.31</td>
<td>1.40</td>
<td>+1.09</td>
</tr>
<tr>
<td>private sector excl. banking</td>
<td>12.69</td>
<td>16.36</td>
<td>+3.67</td>
</tr>
<tr>
<td>self-employed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>liberal professions</td>
<td>3.79</td>
<td>3.72</td>
<td>-0.07</td>
</tr>
<tr>
<td>own account workers, other self-employed</td>
<td>16.63</td>
<td>21.32</td>
<td>+4.69</td>
</tr>
<tr>
<td>farmers</td>
<td>46.88</td>
<td>50.87</td>
<td>+3.99</td>
</tr>
<tr>
<td>pensioner</td>
<td>24.74</td>
<td>29.06</td>
<td>+4.32</td>
</tr>
<tr>
<td>other</td>
<td>20.65</td>
<td>28.57</td>
<td>+7.92</td>
</tr>
</tbody>
</table>

- The poverty threshold for a person living alone was €570 per month in 2009 vs. €597 per month in 2010
results (8/10)

inequality indicators

- effects of austerity and the recession on inequality

- indices

  - Gini coefficient
    - 0 (total equality) to 1 (max. inequality)

  - coefficient of variation
    - measure of income dispersion

  - S80/S20 income quintile share ratio
    - income received by the richest 20% of the population divided by income received by the poorest 20% of the population
results (9/10)
change in inequality indices

does not change in inequality

- (almost) no change in Gini
- post-crisis distribution of disposable income a little more compressed
- relative income share of richer 20% rose a little vis-à-vis poorest 20%

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gini coefficient</td>
<td>0.349</td>
<td>0.350</td>
<td>+0.05%</td>
</tr>
<tr>
<td>coefficient of variation</td>
<td>0.800</td>
<td>0.786</td>
<td>-1.68%</td>
</tr>
<tr>
<td>S80/S20</td>
<td>6.109</td>
<td>6.193</td>
<td>+1.39%</td>
</tr>
</tbody>
</table>
results (10/10)
change in income share by decile

The diagram illustrates the change in income share by decile. The x-axis represents the income deciles, from the poorest (1) to the richest (10). The y-axis shows the percentage of all income. The bars indicate the change in income share for each decile, with values ranging from -0.40 to 0.40.
the paper

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main findings (1/5)
effects of the crisis on poverty and inequality

- crisis raised poverty & inequality?

- on the whole, poverty rates (as measured conventionally) have changed less than might have expected: from 20.1% to 20.9%
  - but 60.1% for households whose head is unemployed!

- however, if anchored in pre-crisis terms poverty has risen to 25.1%
  - loss in purchasing power → perception of impoverishment

- changes in inequality seem to have been less significant
  - even their direction (+ or -) is not entirely clear
main findings (2/5)

austerity measures

- austerity measures regressive?
  
  - regressive effect of pension cuts and (especially) VAT changes
    - some effort to partly compensate lower pensions and public sector salaries for loss of 13th and 14th payments through flat-rate allowances
  
  - mildly progressive effect of changes in income tax
    - new income tax schedule clearly progressive - but:
      - austerity + the recession reduce incomes → tax receipts
      - tax evasion as widespread as ever?
main findings (3/5)

austerity measures (cont’d)

- austerity measures progressive?

  - clearly progressive effect of public sector pay cuts and pensioners’ solidarity contribution
    - policy package quite carefully designed; high earners more affected

  - much depends on the income position of those affected
    - most public sector workers tend to be located towards the top of the income distribution
    - the unemployed (especially the long-term unemployed) tend to move towards the bottom of the income distribution
### background material

**income position by occupational group**

<table>
<thead>
<tr>
<th></th>
<th>low income</th>
<th>middle income</th>
<th>high income</th>
</tr>
</thead>
<tbody>
<tr>
<td>unemployed</td>
<td>47</td>
<td>40</td>
<td>13</td>
</tr>
<tr>
<td>civil servants</td>
<td>2</td>
<td>24</td>
<td>74</td>
</tr>
<tr>
<td>public enterprises</td>
<td>1</td>
<td>34</td>
<td>65</td>
</tr>
<tr>
<td>banking employees</td>
<td>0</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>private sector excl. banking</td>
<td>18</td>
<td>45</td>
<td>37</td>
</tr>
<tr>
<td>liberal professions</td>
<td>4</td>
<td>11</td>
<td>85</td>
</tr>
<tr>
<td>own-account workers</td>
<td>20</td>
<td>37</td>
<td>43</td>
</tr>
<tr>
<td>farmers</td>
<td>50</td>
<td>38</td>
<td>12</td>
</tr>
<tr>
<td>pensioners</td>
<td>31</td>
<td>48</td>
<td>21</td>
</tr>
</tbody>
</table>

- public sector workers typically found in higher income deciles
- unemployment pushes workers towards the bottom of the income distribution

**Note:** low income: deciles 1-3; middle income: deciles 4-7; high income: deciles 8-10
main findings (4/5)
formal assessment of progressivity

- The Reynolds-Smolensky index of income redistribution
  - provides a numerical estimate of the degree to which a policy measure is progressive (i.e. reduces inequality) or regressive (i.e. increases inequality)

<table>
<thead>
<tr>
<th>Policy Measure</th>
<th>R-S index</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>income tax changes</td>
<td>+0.00045</td>
<td>mildly progressive</td>
</tr>
<tr>
<td>pension benefit cuts</td>
<td>-0.00003</td>
<td>weakly regressive</td>
</tr>
<tr>
<td>public sector pay cuts</td>
<td>+0.00288</td>
<td>strongly progressive</td>
</tr>
<tr>
<td>pensioners’ solidarity contribution</td>
<td>+0.00059</td>
<td>mildly progressive</td>
</tr>
<tr>
<td>VAT hike</td>
<td>?</td>
<td>(strongly regressive)</td>
</tr>
</tbody>
</table>

Note: The Reynolds-Smolensky index shows the difference between the actual value of the Gini coefficient and its counterfactual value in the absence of changes in the policy being assessed, keeping all other effects constant.
main findings (5/5)
decomposing distributional effects

- distinguishing the effects of austerity from those of the recession
  - exercise somewhat artificial
    - austerity contributed to the recession ...
  - ... but useful all the same
    - recession has deeper, longer-established causes

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>austerity alone</td>
</tr>
<tr>
<td>poverty rate - conventional (%)</td>
<td>20.06</td>
<td>20.19</td>
</tr>
<tr>
<td>poverty rate - anchored (%)</td>
<td></td>
<td>22.72</td>
</tr>
<tr>
<td>Gini coefficient</td>
<td>0.349</td>
<td>0.346</td>
</tr>
<tr>
<td>coefficient of variation</td>
<td>0.800</td>
<td>0.781</td>
</tr>
<tr>
<td>S80/S20</td>
<td>6.109</td>
<td>6.004</td>
</tr>
</tbody>
</table>
reasons for caution

- original database imperfect
- uprating imperfect
- simulations imperfect
- impact of recession not fully captured
the paper

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policy implications

- fight tax evasion
  - fiscally important
    - reduce budget deficits by improving tax receipts
  - politically crucial
    - restore distributional justice
    - make loss in disposable income proportional to one’s ability to pay

- tighten the social safety net
  - the current system of social protection unfit for the crisis
    - strengthen unemployment protection + income support
    - minimise adverse effects of the crisis on the weakest groups
Further research

- will attempt to integrate simulation of indirect taxation
- update estimate on income under-reporting and tax evasion
- update estimates of distributional effects as more data come in
  - wages and salaries, self-employed earnings, liberal professions’ earnings, property incomes etc.
- update simulated policies to 2011 (and later years ...)

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