Global Trends in Income Intergenerational Inequalities?

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Why Income Inter-generational Inequalities

- **Inter-generational Income (IGI) inequality**: hot topic for media, policymakers
  - Surge in media coverage since 2010s
  - Official reports on IG inequalities/“fairness” (UK, EU, Australia, ...)
  - Age-targeted policies (minimum wage exemptions, benefits, help-to-buy)

- Many dimensions **under-investigated**:
  1. No objective measures that compare the magnitude across countries
  2. Unclear if different countries share same trends
  3. Conventionally, focus only labor income: what about employment, transfer, taxes?
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We propose...

...a *Global, Coherent, In-Depth* analysis:

- Evidence on IGI inequality in the last 20 years from 27 countries

- What income components drive changes in IGI inequalities?
We propose...

...a Global, Coherent, In-Depth analysis:

- **Evidence on IGI inequality in the last 20 years from 27 countries**
  - **Result 1:** Diverging trends in rich and developing countries
  - **Result 2:** Richer countries: Income has increased substantially for old and much less (or not all) for young. Poorer countries: large income growth for young

- **What income components drive changes in IGI inequalities?**
We propose...

...a Global, Coherent, In-Depth analysis:

- **Evidence on IGI inequality in the last 20 years from 27 countries**
  - **Result 1:** Diverging trends in rich and developing countries
  - **Result 2:** Richer countries: Income has increased substantially for old and much less (or not all) for young. Poorer countries: large income growth for young

- **What income components drive changes in IGI inequalities?**
  - **Result 3:** Rise (rich countries) driven by employment rate divergence
  - **Result 4:** Fall (developing countries) driven by faster young’s labor income growth
Take away and Open Research Questions

Take-away:

- **Rise IGI in high-income country**: structural changes at late/final stage

- **Decline IGI in low-income**: structural changes at earlier stage and fast transformation of the economy

- **Tackling IGI needs public policy**: future reduction in rich country unlikely
Data: Luxembourg Income Study

- Luxembourg Income Study (LIS) dataset
- Harmonised income microdata

Sample selection:
- Data at individual level
- Available between 2004 and 2006, and between 2016 and 2018
- At least 5 waves (3 years window)
- Reports only gross figures or only net figures

27 countries for main analysis

We observe:
- Individual total income, and its sub-components (labour, pension, subsidies, taxes)
- Employment, unemployment, inactivity status
### Snapshot Data

<table>
<thead>
<tr>
<th>Country</th>
<th>Observations</th>
<th>Cleaned Obs.</th>
<th>GRD sample</th>
<th>Datasets</th>
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<td>2,187,365</td>
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<td>1,455,840</td>
<td>129,096</td>
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</table>
Disposable income

Ideal measure of disposable income

\[ \hat{y}_q \equiv y^g_q + y^K_q + \Theta^g_q - \hat{\tau}_q, \]

Available measure of disposable income

\[ y_q = y^g_q + \Theta^g_q - \tau_q, \]

Not a problem: capital income [0.4%-5.2%] (median 1.0) for young; [0.5%-10%] (median 3.2) for old.
Intergenerational Income Ratio

- **Inter-Generational Income Ratio** ($\text{IGIR}$)

For two age groups $j$ (old), $j'$ (young), the ratio is:

$$y_{j,t} = \frac{1}{N_{j,t}} \sum_{q \in Q_{j,t}} y_{q,t}$$

$$R_{j'} = \frac{y_j}{y_{j'}}$$

- Five Age-groups:
  1. 16-24, young adults
  2. 25-34, early career
  3. 35-49, mid-career
  4. 50-64, late-career
  5. 65+, old adults
IGIR: late-career (50-64) vs early-career (25-34)
Stylized facts of global inter-generational inequality (IGIR) in late-career (50-64) vs early-career (25-34) workers.

In richer countries, the IGIR has steadily risen in the last 20 years by around 20 percent. In poorer countries, it has been declining by around 15 percent.

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Stylized fact 1. In richer countries, the IGIR has steadily risen in the last 20 years by around 20 percent. In poorer countries it has been declining by around 15 percent.
## IGIR trends

<table>
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<tr>
<th></th>
<th>Waves (2)</th>
<th>Years (5)</th>
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<td>[1] trend</td>
<td>-0.024*</td>
<td>0.013*</td>
<td>0.018</td>
<td>-0.009***</td>
<td>0.003**</td>
<td>0.008</td>
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<td></td>
<td>(0.012)</td>
<td>(0.007)</td>
<td>(0.026)</td>
<td>(0.003)</td>
<td>(0.001)</td>
<td>(0.006)</td>
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<td>[2] trend * Richer</td>
<td>0.061***</td>
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<td></td>
<td>0.021***</td>
<td>(0.003)</td>
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<tr>
<td></td>
<td>(0.015)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>[3] Richer</td>
<td>-0.053</td>
<td></td>
<td></td>
<td>-0.058**</td>
<td>(0.027)</td>
<td></td>
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<tr>
<td></td>
<td>(0.039)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>[4] trend * Initial log GDP (dev mean)</td>
<td>0.042***</td>
<td>0.042***</td>
<td></td>
<td>0.013***</td>
<td>0.013***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
<td>(0.011)</td>
<td></td>
<td>(0.002)</td>
<td>(0.002)</td>
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<tr>
<td>[5] Initial log GDP (dev mean)</td>
<td>-0.030</td>
<td>-0.003</td>
<td></td>
<td>-0.035*</td>
<td>-0.012</td>
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<tr>
<td></td>
<td>(0.029)</td>
<td>(0.032)</td>
<td></td>
<td>(0.023)</td>
<td>(0.022)</td>
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<tr>
<td>[6] Constant</td>
<td>0.165***</td>
<td>0.442</td>
<td>0.134</td>
<td>0.174***</td>
<td>0.499**</td>
<td>0.23</td>
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<tr>
<td></td>
<td>(0.031)</td>
<td>(0.302)</td>
<td>(0.335)</td>
<td>(0.021)</td>
<td>(0.204)</td>
<td>(0.23)</td>
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</table>

### Second order terms

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<td>R²</td>
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<td>0.19</td>
<td>0.21</td>
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<td>F-Test: [1]= [2] or [1]= [4]</td>
<td>10.24***</td>
<td>4.07**</td>
<td></td>
<td>13.1***</td>
<td>12.3***</td>
<td>0.21</td>
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<tr>
<td>Trend effect at min GDP</td>
<td>-0.024*</td>
<td>-0.044**</td>
<td>-0.042**</td>
<td>-0.009 ***</td>
<td>-0.015 ***</td>
<td>-0.015***</td>
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<td>Trend effect at 25% GDP</td>
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<td>-0.004</td>
<td>-0.009 ***</td>
<td>-0.002</td>
<td>-0.002*</td>
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<td>Trend effect at 75% GDP</td>
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<td>0.034***</td>
<td>0.035***</td>
<td>0.012 ***</td>
<td>0.010 ***</td>
<td>0.010***</td>
</tr>
<tr>
<td>Trend effect at max GDP</td>
<td>0.037***</td>
<td>0.046***</td>
<td>0.047***</td>
<td>0.012***</td>
<td>0.014 ***</td>
<td>0.014***</td>
</tr>
</tbody>
</table>
Growth Rate Differential

- Age-group income growth rate:

\[ g_i(y_j) = \frac{1}{h_i} \left( \frac{y_{j,T_i+h_i}}{y_j,T_i} - 1 \right) \]

- Growth Rate Differential, (GRD):

\[ GRD \equiv g(y_j) - g(y_{j'}) \approx \frac{\Delta R_{j'}}{R_{j'}(T)} \]
Young and Old Growth Rates

Figure: Growth Rate Differentials, 50-64 vs 24-35
Figure: Growth Rate Differentials, 50-64 vs 24-35

- Norway
- Switzerland
- Ireland
- United States
- Denmark
- Austria
- Belgium
- Italy
- Finland
- Germany
- United Kingdom
- Australia
- France
- Canada
- Israel
- Slovenia
- Slovakia
- Poland
- Chile
- Mexico
- Uruguay
- Serbia
- Brazil
- Colombia
- Paraguay
- Peru

pvalue ≤ 0.05
*

pvalue ≤ 0.01
**

pvalue ≤ 0.001
***
GRDs and Economic Development

Figure: GRD and country income level and growth

- OLS fit: corr = 0.743 (p < 0.001)
- Spearman: ρ = 0.579

(a) GRD vs GDP level

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Income Decomposition

- Where did these differences in GRD originate from?
- Define income as:

\[ y_j \equiv e_j y^l_j + p_j \Theta_j - \tau_j \quad (1) \]

- \( e_j \) employment share in age group \( j \)
- \( y^l_j \) labour income conditional on being employed
- \( p_j \) population share receiving benefits in age group \( j \) (includes pensions)
- \( \Theta_j \) amount of benefits, conditional on receiving them
- \( \tau_j \) taxes

- Decompose its variation as:

\[
\Delta(y_j) = \frac{e_j, T+H \Delta y^l_j}{y_j, T} + \frac{y^l_j, T \Delta e_j}{y_j, T} + \frac{p_j, T+H \Delta \Theta_j}{y_j, T} + \frac{\Theta_j, T+h \Delta p_j}{y_j, T} - \frac{\Delta \tau_j}{y_j, T}.
\]

- Gross Labour Income
- Employment
- Transfer Income
- Transfer Share
- Taxes
Income Decomposition

Figure: Recall the Growth Rate Differential...
Income Decomposition

Figure: Contribution to GRD of net income, by income components. 50-64 against 25-34
Income Decomposition - Employment

**Figure:** Contribution to GRD of net income, by income components. 50-64 against 25-34

- Main contributor in rich countries and Eastern Europe: employment
Main contributor in lower-income countries: labour income
What is the role of the pensions?
GDR components and Economic Development

Figure: Employment and Labor Income Contribution to $GRD$ vs GDP level

(a) Employment Contribution

(b) Labor Income Contribution
GDR components and Economic Development

Figure: Employment and Labor Income Contribution to \( GRD \) vs GDP level

(a) Employment Contribution

(b) Labor Income Contribution

Stylized fact 3. Rich countries: main contributor to positive \( GRD \) is \( O/Y \) divergence in employment rates. Lower-income countries: main contributor to negative \( GRD \) is faster increase in labor income, conditional on being employed, of the young with respect to the old.
Conclusions

- Intergenerational Income Inequality:
  - Increasing in *all* rich countries
  - However, not a global trend

- Mainly explained by:
  - Increasing employment rates among old
  - Change in relative wages of old and young workers

- Two important questions to be answered:
  - Any reason beyond equality/fairness to care about IGI inequality?
  - What future trends to expect in developing countries?
    Are governments shaping their pension schemes and borrowing accordingly?