The Distributional Impact of Structural Reforms: an empirical analysis

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Structural policies are primarily targeting growth
But income distribution is no longer at the periphery of policymaking
...rather increasingly so at the core of policymaking
The challenge is then how to boost growth and make it (more) inclusive
This requires shedding light on the distributional effects of structural reforms
This requires going granular: i) what are the mechanisms that go from pro-growth policies to income distribution? ii) how are households at different points of the distribution affected?
Background & Motivation

• Shedding new light on policy synergies and trade-offs across the growth & equity objectives:

1. Building on a **combined macro-micro approach**

2. Considering the **sources of macroeconomic growth**, by decomposing GDP between labour utilisation and labour productivity

3. Considering income distribution from bottom to top... thanks to this granularity, delivering policy results on income inequality allowing for **different levels of inequality aversion**
The framework

- A combined macro-micro approach for evaluation of distributional impact of policy reforms:
- **Going granular on income distribution & inequality: the generalized means approach**
- Inequality can be tracked using *income standards* built upon the *generalized mean* concept (cf. Foster & Szekely, IER, 2008)
- What is a generalized mean?
  - Income distribution: \( x = (x_1, \ldots, x_n) \)
  - Class of generalized means:
    \[
    \mu_\alpha (x) = \left[ \left( x_1^\alpha + \ldots + x_n^\alpha \right)/n \right]^{1/\alpha} \quad \text{for all } \alpha \neq 0
    \]
    \[
    \mu_\alpha (x) = \left( x_1 \ldots x_n \right)^{1/n} \quad \text{for } \alpha = 0
    \]
- \( \alpha \) substantiates the notion of social preferences in terms of e.g. aversion to inequality
- How to read?

- The generalized mean reduces to the **standard mean** when $\alpha = 1$ thus providing a natural dividing line
- When $\alpha \to -\infty$ the generalized mean is equal to the **minimum income** in the society
- When $\alpha \to +\infty$ the generalized mean is equal to the **top income** in the society
The dynamics of inequality (mid-1990s to early 2010s):

- Denmark has been **growing more unequal**
- Incomes in the upper part grew around the same rate as in UK
- While incomes at the bottom grew similar to the Netherlands
What we have for GDP, we don’t have for inequality:

“here’s the thing: we really don’t know how to model personal income distribution — at best we have some semi-plausible ad hoc stories.” (Paul Krugman, 2016)

**Safest minimal starting point:** household income is affected by GDP

**Specification:** in the long run the level of household income across the distribution is mainly driven by the level of GDP per capita, which “transmits” to households
Empirical model of household income (1)

\[ \Delta \ln \mu_\alpha (x_{it}) = \theta_{0,\alpha} - \theta_{1,\alpha} \ln \mu_\alpha (x_{it-1}) + \theta_{2,\alpha} \Delta \ln L P_{it} + \theta_{3,\alpha} \ln L P_{it-1} + \theta_{4,\alpha} \Delta \ln L U_{it} + \theta_{5,\alpha} \ln L U_{it-1} + \theta_{6,\alpha} Z_{it-1} + \theta_{7,\alpha} N X_{it} + \gamma_t + \eta_i + \epsilon_{it} \]

- Repeated estimation for \( \alpha \) from -4 to 6 allows for tracking incomes across the distribution
Econometric strategy:

- Convergence term + LP and LU = endogeneity
- Ideal solution: external instruments
- Our reality: internal instruments
- Estimation by System-GMM across the full range of aversion to inequality (in practice $\alpha$ from -4 to 6)
- Data: OECD Income Distribution Database, OECD National Accounts, Structural Policy Indicator Database

259 country/year observations

Results have to be interpreted on average across OECD countries over the last 30 years
“Calibrating” the total policy effect

- Decomposing the total policy effect:

\[ E_{\mu,\alpha,Z} = \frac{d\ln \mu_\alpha}{d\ln Z} = \frac{d\ln \mu_\alpha}{d\ln LP} \frac{d\ln LP}{d\ln Z} + \frac{d\ln \mu_\alpha}{d\ln LU} \frac{d\ln LU}{d\ln Z} + \frac{\partial \ln \mu_\alpha}{\partial \ln Z} \]

- Plugging in estimated elasticities:

\[ E_{\mu,\alpha,Z} = \pi_{LP,\alpha,Z} \cdot \varepsilon_{LP,Z} + \pi_{LP,\alpha,Z} \cdot \varepsilon_{LP,Z} + D_{\mu,\alpha,Z} \]

- and external elasticities

Egert (2016)  
Gal & Theising (2015)
Macro and Micro effect

- **Macro + Micro = TOTAL:**
- **Macro effects:**
  - Reform-driven changes in labour productivity and/or labour utilisation which flow to household incomes
  - Effect depending on where the household is in the distribution
  - Include distribution-neutral macro effects taken from recent OECD estimates (Gal and Theising, 2015; Egert, 2016)
- **Micro effects:**
  - Reform-driven changes in household incomes not channelled through macroeconomic effects
  - Effects operating on top of the macro effects (ex: mechanical impact of taxes).
- **Total effects**
- **Reduction in unemployment benefits:**

  The poor

  The lower-middle class

  The upper-middle class

  The rich

  Mean income

  General mean parameter $\alpha$
Increase in government spending on education:

- **Micro-level effects**
- **Macro-level effects through productivity**
- **Total effects**

Graph showing the effects on different income groups (The poor, The lower-middle class, Mean income, The upper-middle class, The rich) and the general mean parameter $\alpha$. The graph illustrates how increases in government spending on education impact different income brackets and the overall economic productivity.
Reduction of regulation in network industries ("PMR"):

- Micro-level effects
- Macro-level effects through productivity
- Macro-level effects through labour utilisation
- Total effects

The poor
- The lower-middle class
- Mean income
- The upper-middle class
- The rich

General mean parameter $\alpha$
Results: synergies and tradeoffs

- **Key result:** pro-growth policies can be inclusive... ...depending on the degree of inequality aversion

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<td>Reducing barriers to competition</td>
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Conclusions

- Structural reforms are generally **good for the middle class**
- **Trade-offs** appear when the **focus is on the poorest section** of the population
- Social protection and labour market reforms are the **sources of most of the trade-offs** between growth and equity objectives
- Reforms of wage-setting institutions may be good or bad for equity, **depending on reform design**
- Minimum wage reductions are not found to trigger a rise in income inequality
- **Easing barriers** to firm entry and competition in product markets produces strong macroeconomic gains **without raising trade-offs**
Some references


