Shaping persistent earnings inequality: labour market policy and institutional factors

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Aim

- role of labour market policy and institutional factors in explaining cross-national differences in permanent earnings inequality in Europe
- neglected by the empirical literature
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Components of earnings inequality

\[ \text{ln(Earnings)} = \text{Permanent Component} + \text{Transitory Component} \]

Permanent Component:
- Personal Characteristics
- Education
- Training
- Ability

Transitory Component:
- Individual random factors (illness, accidents)
- Random changes in market conditions
- Measurement error
- Expected to average out over time

Earnings Inequality = I(Permanent) + I(Transitory)

Var(ln(Earnings)) = Var(Permanent) + Var(Transitory)
Digression: background on permanent earnings inequality

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- Identifying permanent inequality - useful in evaluating the welfare implications of the evolution in cross-sectional inequality
- Understanding the factors shaping persistent inequality - a step towards designing policies and labour market institutions that enable low-wage workers to escape low-wage jobs and improve their position in the distribution of lifetime earnings
- Relevant question given the economic reality of the 1990s in Europe:
  - reforms to increase labour market flexibility
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Data

  - Measure of earnings real log hourly wage
  - Male workers aged 20 to 57, born between 1940 and 1975
- Labour market institutions: OECD labour market indicators (Source: Bassanini and Duval (2006))
  - Employment protection legislation (EPL)
  - Union density
  - Degree of corporatism
  - Tax Wedge
  - Product market regulation (PMR)
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- **Permanent Inequality**
  - Estimated using error component models by Sologon and O’Donoghue (2010)
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The link between permanent inequality and labour market policy and institutional factors - non-linear least squares

- Systemic interactions
- Interactions between institutions and shocks
  - Interactions between institutions and common unobservable shocks
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\[ Y_{it} = \left[ \sum_{k=1}^{K} v_k X_{kit} + \sum_{k=1}^{K} \varphi_k (X_{kit} - \bar{X})(\sum_{k=1}^{K} v_k (X_{kit} - \bar{X}_k)) \right] + u_{it} \quad (1) \]

*i* - country index, *t* - period index, *k* - institution index.

- Partial derivative of *Y* wrt policy *X_k*, setting the others equal to the average, except *X_j* :
  \[ \frac{\partial Y}{\partial X_k} = f(v_k, \varphi_k, v_j, \varphi_j, X_j - \bar{X}_j) \quad (2) \]

- The cross-derivatives of *Y* wrt two policies/institutions *X_j* and *X_k*, setting the others equal to the average :
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Systemic interactions: Potential complements/substitutes in reducing persistent inequality

Two configurations emerge, assuming that $\frac{\partial Y}{\partial X_j} < 0$:

- $\frac{\partial Y}{\partial X_k} < 0$ (the increase in $X_k$ is the desired policy to decrease PV) and $\frac{\partial^2 Y}{\partial X_k \partial X_k} < 0$, $\Rightarrow$ $X_k$ and $X_j$ are policy complements in reducing persistent inequality.

- $\frac{\partial Y}{\partial X_k} < 0$ and $\frac{\partial^2 Y}{\partial X_k \partial X_k} > 0$ $\Rightarrow$ $X_j$ and $X_k$ are policy substitutes in reducing persistent inequality.
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Interactions between institutions and common unobservable shocks

\[ y_{it} = [\tau_t (1 + \sum_{k=1}^{K} \gamma_k (X_{kit} - \bar{X}_k))] + u_{it} \]  

\( \tau_t \) - time effect for period \( t \), \( \gamma_k \) - interaction effect between the institution/policy \( X_k \) and the overall unobserved shock \( \tau_t \)
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Interactions between institutions and country-specific shocks

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y_{it} = \sum_{s=1}^{S} \zeta_s Z_{sit} (1 + \sum_{k=1}^{K} \gamma_k (X_{kit} - \bar{X}_k)) + u_{it}
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\sum_{s=1}^{S} \zeta_s Z_{sit} - \text{set of observed macroeconomic shocks, } \zeta_s - \text{direct effects of shocks, } \gamma_k - \text{interaction effects between the institution/policy } X_k \text{ and aggregate macroeconomic shocks}
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Systemic interactions

Table: Persistent Inequality - Systemic interactions across institutions.

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Adjusted $R^2$: 0.977
Observations: 93

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## Results

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- For the average country, monotonic relationships
- Except for PMR and Corporatism, the effect of each institution depends on the institutional mix
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- Evaluated at the average, "piece-meal" reforms appear more effective at reducing permanent inequality than comprehensive policy packages: substitutes
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Systemic interactions: Sum up

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## Results

Interactions between institutions and common unobservable shocks

### Table: Permanent Inequality - Time effects interacted with institutions.

<table>
<thead>
<tr>
<th></th>
<th>[1] Estimates</th>
<th>[2] Range of institutions/policies</th>
<th>[3] Implied relative change in PV due to an adverse shock which increases PV by 1% for the average country (PV for mean institutions and shocks = 0,1229)</th>
</tr>
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<tbody>
<tr>
<td>Time effects*</td>
<td>-0.0058</td>
<td></td>
<td>Min: -13.91% Max: 12.72%</td>
</tr>
<tr>
<td>EPL</td>
<td>0.0810**</td>
<td>2.46</td>
<td>Min: 2.46 Max: -1.8217</td>
</tr>
<tr>
<td>Union density</td>
<td>-0.2524</td>
<td>-1.6</td>
<td>Min: -1.6 Max: -0.2763</td>
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<tr>
<td>High corporatism</td>
<td>-0.4067***</td>
<td>-8.8</td>
<td>Min: 0 Max: 1</td>
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<tr>
<td>Tax wedge</td>
<td>-1.4143***</td>
<td>-3.7</td>
<td>Min: -1.4143*** Max: 0.1232</td>
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<tr>
<td>PMR</td>
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<td>3.51</td>
<td>Min: 0.0923*** Max: 1.8403</td>
</tr>
<tr>
<td>ALMPs</td>
<td>0.2494</td>
<td>1.64</td>
<td>Min: 0.2494 Max: 0.9610</td>
</tr>
<tr>
<td>Average replacement rate</td>
<td>-0.7883***</td>
<td>-3.2</td>
<td>Min: -0.7883*** Max: 0.2892</td>
</tr>
<tr>
<td>Adj. $R^2$</td>
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<td></td>
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### Interactions between institutions and country-specific shocks

**Table: Persistent Inequality - Observed shocks interacted with institutions.**

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<th>Estimates</th>
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<td>EPL</td>
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<td>Union density</td>
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<td>LD shift</td>
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  - The "cost" of a strict EPL is augmented by adverse shocks
  - The "cost" of a strict EPL is mitigated in corporatist economies, by developed ALMPs and by low unemployment benefits

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- at the opposite pole we find Portugal with the highest persistent inequality and opposite institutions

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Results

Prediction

Figure: Actual vs Predicted Persistent Inequality - Models 1, 2, 3.