

## Revisiting the effects of skills on economic inequality:

### Within- and cross-country comparisons using PIAAC

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- Previous studies examining relationships between skills and economic distributions within and across countries found mixed results due to
  - variation in empirical methods
  - limited availabilities of consistent skill data separate from education histories
- Program for the International Assessment of Adult Competencies (PIAAC) data allows us to study how literacy, numeracy, and problem-solving skills relate to wage inequality in an international context characterized by
  - economic forces of demand and supply
  - institutions, customs, and culture
- Descriptive statistics suggest
  - substantial economic inequality across countries, levels and distributions of skill measures, and gender
  - more variability in the lower half of each country's skill distribution by all three skill measures
  - but, more variability in the upper halves of country-specific wage distributions
- Econometric decomposition modeling of several inequality measures allows for analysis of the relative importance of differences
  - in levels of skills and other observable determinants of wages across countries
  - in measured rates of return to these levels of skills and other wage determinants across countries
  - in unobservable (unmodeled) features (e.g., institutions, unobserved non-cognitive skill, etc.)
- The study reinforces previous findings that skills by themselves (even when measured in a comprehensive way as by PIAAC) are only a partial explanation for observed patterns of wage and earnings inequality across countries
  - Both demand and supply factors, and often to a much greater extent, unobservable characteristics of institutions and people matter for economic inequality
  - Addition of new digital problem solving skill measure does not substantially reduce the high importance of unobservable factors when compared to previous literature
  - Thus, this missing human capital variable in previous datasets is not a primary driver of the large unobservable factor contribution to wage inequality that is noted in the literature and reconfirmed here
- The specific demographic characteristic of gender is of particular interest given its importance as a determining factor of wages in the literature
  - Some results are found sensitive to gender since wage inequality is higher for women in some contexts
  - But, the importance of unobservables in the determination of inequality is unchanged

- Robustness tests show few notable differences across immigration status categories (another characteristic suggested in literature as important for wage determination)
  - Major results are also robust to
    - alternative measures of education (to include non-formal education)
    - the exclusion of age variables as independent variables in the baseline models
    - use of alternative earnings measures (hourly wages with bonuses, monthly wages, monthly wages with bonuses, and monthly wages of the self-employed)
- Results suggest limits in terms of the use of education and training opportunities that promote skills for the (additional) purpose of reducing wage inequality across subgroups
- Future work should further examine the contributions to economic inequality of specific differences in labor and product market regulations across countries
- Since certain countries are excluded in some specifications due to data limitations, the paper highlights the importance of greater international consistency in future releases of PIAAC variables for understanding the true causes of economic inequality within and across nations and for developing actionable plans