Differences in educational mismatches across countries and labour market segments: What are the underlying mechanisms?

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Educational and skill mismatch

- Literature on educational mismatch
  - Prior work focusses on **vertical mismatch**: ‘overeducation’ (and ‘undereducation’)
  - Recent work also focusses on **horizontal mismatch**: ‘field-of-study mismatch’

- Educational versus skill mismatch
  - **Educational mismatch**: mismatch between one’s educational qualifications and the qualification most appropriate to do one’s job
  - **Skill mismatch**: mismatch between one’s skills and the skills most appropriate to do one’s job
  - Research reported in this presentation focusses on educational mismatch
  - Educational mismatch is assumed to be a source of skill mismatch
Major findings in the literature

• Mismatches may be harmful for wages, job satisfaction, training opportunities, job duration,…

• Large differences in incidence across
  o Individuals (micro level)
    • Human capital endowments
    • Males versus females
    • Migrants versus natives
    • Social background
    • …
  
  o Field-of-study segments (meso level): Humanities and Social Sciences versus Medicine and STEM
Subjective overeducation (%) in first job after graduation in Flanders (Belgium)

- Education
- Sciences, technology and mathematics
- Health care and Medicine
- Psychology, Sociology and Social Work
- Economics, Business and Law
- Arts and Humanities

Data Source: SONAR data, cohorts born in 1916, 1978 & 1980, own calculations
Major findings in the literature

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    • …
  o Field-of-study segments *(meso level)*: Humanities and Social Sciences versus Medicine and STEM
  o Countries *(macro level)*
Overqualification (educational level higher than the level required to get the job) among the working population (PIAAC)

Numeracy overskilling among the working population (PIAAC)

Mechanisms explaining mismatch

• Individual level:
  o Combination of factors seems responsible
    • Poor quality of human capital
    • Job search constraints
    • Discrimination
    • ...

• More aggregate levels:
  o Often suggested cause: imbalances between demand and supply?
    • Meso level: too many humanities graduates and too few graduates in health care and STEM?
    • Macro level: general ‘over’ investments in education?
  o But: evidence remains scant
Differences in educational mismatches across countries: prior evidence

- Groot and Maassen van den Brink (2000)
  - Higher labour force growth results in more overeducation
  - Educational composition of the labour force
  - Employment protection legislation
  - Level of R&D investments
- Croce and Ghighnoni (2012)
  - Structural imbalances (demand and supply of skilled labour)
  - Cyclical imbalances (business cycle)
- Davia, McGuinness and O’Connell (2010)
  - Structural imbalances
  - Selectivity of the educational system
  - Union-density rate
Research for European graduates

• What explains differences in educational mismatches among graduates across countries and fields of study?

• Research findings reported in:
  o Verhaest and van der Velden (2013)
  o Verhaest, Sellami and van der Velden (2013)

• Research based on the Reflex and Hegesco survey data
  o Representative samples of individuals graduating in 2000 (Reflex) or 2003 (Hegesco)
  o Survey in 2005 (REFLEX) or 2008 (HEGESCO)
  o 17 European Countries and Japan
  o Focus on first job and job five years after graduation

• Statistical approach: multi-level analysis
Measurement of educational mismatches

• Vertical educational mismatch
  o Survey question: ‘What type of education do you feel was most appropriate for this work?’
  o Overeducated if educational level exceeds the appropriate level

• Horizontal educational mismatch
  o Survey question: ‘What field of study do you feel was most appropriate for this work?’
  o Possible answers: (1) exclusively own field, (2) own or related field, (3) a completely different field, or (4) no particular field
  o When (3) or (4): horizontal mismatch

• Four categories: Pure match, mere vertical mismatch (VMM), mere horizontal mismatch (HMM), pure mismatch
Educational mismatch five years after graduation

Source: Verhaest et al., 2013, based on Reflex and HEGESCO
Investigated mechanisms: macro level

• Demand and supply context
  o Structural imbalance demand and supply of skilled workers
  o Business cycle

• Educational institutions
  o Quality and Selectivity of educational system
  o Degree of general (as opposed to vocational) orientation of the educational system

• Labour market institutions
  o Employment protection legislation
  o Generosity of Unemployment benefits (measured by replacement ratio)
  o Collective bargaining coverage
Investigated mechanisms: meso level

• Meso level: field of study within a country
• Differences in mismatches between fields of study may result from
  o Differences in average study program characteristics
    • Average quality and selectivity
    • Average degree of general (as opposed to vocational) orientation
  o Pure quantitative imbalances in demand for and supply of graduates within each field of study
Results country level:
Demand and supply context

• Structural imbalance between demand and supply of skilled workers
  o Countries with high investments in higher education do not necessarily face more mismatches, but
  o But, a relative imbalance between demand and supply is associated with higher incidence of overeducation

• Business cycle
  o Business cycle at labour market entry affects both incidence of overeducation
    • in the first job
    • five years after graduation
  o No evidence on impact of business cycle five years after graduation
Results country level: Demand and supply context

• Interpretation: a structural or cyclical oversupply of highly educated workers
  o Reduce job opportunities and increase one’s willingness to accept jobs at lower job levels
  o Result in more stringent selection criteria by employers in terms of the level of one’s qualification
Results country level: Educational Institutions

- Quality and selectivity of educational system
  - The higher the quality and selectivity of the educational system, the lower the incidence of mere HMM and pure MM in a country five years after graduation
  - Interpretation: A lower quality and selectivity
    - reduces the value of formal education as selection criterion
    - induces employers to rely more on additional training rather than formal education
Results country level: Educational Institutions

• Orientation (general versus vocational) of the educational system
  o Countries with a general system face more overeducation among graduates in their first job
  o But: general systems are associated with lower overeducation persistence
  o But: incidence of pure MM remains higher in countries with a general system five years after graduation

• Interpretation: Vocationally educated individuals
  o become immediately productive after graduation
  o are less employable in jobs that not fit with their qualification
Results country level: Labour Market Institutions

• Employment Protection Legislation
  o Mixed evidence: some results suggest more employment protection to be associated with less educational mismatches
  o Interpretation: hiring mismatched individuals may be perceived to be more risky when firing costs are high

• Unemployment benefits
  o Higher benefits are associated with less mere HMM five years after graduation
  o Interpretation: allows job seekers to be more selective
Results country level: Labour Market Institutions

• Collective Bargaining Coverage
  o A higher degree of collective bargaining coverage seems to be associated with a higher incidence of full mismatches
  o Interpretation:
    • Wage compression reduces the opportunity cost of employment at lower job levels
    • Rigid wages impede labour market clearing, resulting in more mismatches
Results field-of-study level

• Within countries, fields of study with, on average,
  o More **qualitative and selective study programs** are associated with lower mismatch incidences
  o More **general educational programs** are associated with more merely horizontal mismatch incidences

• Holding the quality and orientation of the study program constant
  o Graduates with a **humanities degree** are more likely to have any type of mismatch
  o Graduates with a **technical degree** are less likely to have a field-of-study mismatch, but more likely to have a mere vertical mismatch
Discussion and conclusions

• Differences in mismatches across countries and fields of study are driven by broad range of mechanisms

• Challenge for policy makers: a combination of economic, education, and labor market policies may be needed to reduce mismatches among young workers

• Some policies may be rather uncontroversial
  o Improving the quality of the study programs
  o Providing study-choice guidance
  o Supporting R&D investments
Discussion and conclusions

• Other policy measures may conflict with other priorities
  o Unemployment benefits and employment protection: trade-off between reducing unemployment and reducing mismatches
  o Wage formation: trade-off between reducing unemployment and mismatches and reducing wage inequality
  o Participation in higher education
    • Reducing overeducation versus reducing inequality of opportunity
    • Short run versus long run
Discussion and conclusions

• Shortages of STEM graduates seem concentrated rather at intermediate and undergraduate levels, not at the master level

• Business cycle at labour market entry determines mismatch five years after graduation
  o Persistent effects of the recent global crisis?
  o Importance of early intervention
Thank you for your attention
References


