Examining the Ways that Numeracy Skills and Soft Skills are Related to Occupational Status: The Case of U.S. Workers

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Why Numeracy and Soft Skills?

- Skills gap in the U.S. labor market
  - Lumina Foundation and The Economist Unit
  - Survey of nearly 350 business executives
- Employers want both foundational and soft skills
  - “Applied mathematics and reading”
  - Collaboration and teamwork
  - Communication
  - “Adaptability and managing of multiple priorities”
What Do We Mean by Soft Skills?

• Variously referred to as:
  • Noncognitive skills
  • Personality traits
  • Socialization
  • Social skills
• Human capital theory
  • Historically called “soft” because hard to measure
What Do We Know about Skills?

- Credentials are signals/proxies of skills
- Conflated foundational and soft skills
- **Foundational** skills are positively related to occupational outcomes
- **Soft** skills are positively related to occupational outcomes
- With PIAAC we try to tease these skills apart
How Do We Measure Skills?

In the current study

• Foundational skills
  • PIAAC numeracy scores

• Soft Skills
  • Index variables from background questionnaire items about work
    • Influence
    • Planning
    • Task discretion
    • Readiness to learn
How Do We Measure Occupational Outcomes?

• Coded occupational status based on two-digit occupation codes
  • Ganzeboom and Treiman’s (2010) International Stratification and Mobility File
  • More holistic measure than earnings or compensation
  • Measures the ways that human capital operates through occupations
Analysis and Findings

- After controlling for foundational skills as measured by PIAAC’s numeracy assessment are soft skills significantly related to workers’ occupational status?
  - Yes, positive relationships
  - Each of the four soft skills are independently related to occupational status
  - When all four soft skill are together, influence is still significant
Analysis and Findings

Low Numeracy | High Numeracy
---|---
Average influence | 2.162 | 2.488***

Low Numeracy | High Numeracy
---|---
Average planning skills | 2.051 | 2.409***
Analysis and Findings

• Are the relationships between soft skills and occupational status different at various levels of proficiency in numeracy?
• Yes, interaction effects between numeracy proficiency and two soft skill measures.
• It may be especially important to promote soft skill development among workers with lower levels of numeracy proficiency.
Implications

• Policymakers may need to promote soft skills, in addition to focusing on basic skills education in math
• May consider distinguishing different soft skill domains
  – Examine independent effects
  – Inform policy discussions about national efforts at soft skill formation
Ongoing Work

- Adding four-year college credential to the model
- Using different outcome: earnings
  - Workers with four-year degrees use soft skills more frequently at work
  - Statistically significant interaction between four-year degree and *task discretion*
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