Why obtaining digital skills is important? Theory to practice
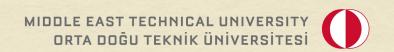
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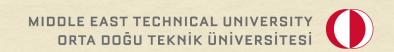
outline

- Why obtaining digital skills are important?
  - Theoretical discussion
    - Education, skills and tasks
    - Skill-biased technical change
    - The task-occupation framework
  - What policy?
  - Problems

education, skills and tasks

- Education gives you formal information that you can use in your job
  - Codified information vs. tacit knowledge
- Skill is the ability to perform certain activities
  - It involves practically applying knowledge
  - Complements education
  - Can be obtained in various ways: formal education, training, learning by doing, naturally inherited
- Tasks are mostly well-defined small portions of your job
  - Things that you have to complete to do your job
  - Example: I teach, interact with people, manage people, do research, do administrative tasks
  - So each job has a different task composition

skill biased technical change

- The effect of technology on the labour market is not homogenous
  - Why do demand for skilled people rise?
  - Technology complements skilled people
  - e.g. The rise for demand for computer and computerised equipment skills
- Findings
  - There is a skill premium for using computers
  - Skilled people benefit more from technical change

skill biased technical change

- Mechanism
  - Skills and new technology is complementary
  - New technology substitutes unskilled
  - Increased offshoring due to globalization and technology development
    - Most unskilled jobs are offshored to other destinations
  - New technology increase the demand for complementary skills such as problem solving, analysing which are also present in skilled people
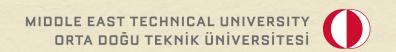
task-occupation framework

- According to skill biased technical change we should be seeing increased demand for skilled and decreased demand for unskilled occupations
  - But the data shows polarization
    - Both demand for both skilled and unskilled work is increasing
    - e.g., the demand for engineers, managers as well as care takers, kindergarden teacher, personal services increase
- Technology complements tasks rather than skills
  - Some tasks are complemented by new technology and some are substituted
  - Non-routine tasks are complemented, routine tasks are substituted
  - Depending on task composition in a job you can estimate how bad the impact of technological advances be

task-occupation framework

- Findings
  - The impact of a technology shock depends on the task composition
    - <u>Non-Routine Cognitive Tasks</u>: Developing a new marketing strategy, designing a new product, conducting research
    - <u>Routine Cognitive Tasks</u>: Data entry, basic arithmetic calculations, following a set of instructions for a repetitive task.
    - <u>Routine Manual Tasks</u>: Operating a machine, packing items into boxes, cleaning a specific area following a standard procedure.
    - <u>Non-Routine Manual Tasks</u>: Carpentry work that requires custom fitting, plumbing work that involves diagnosing and fixing complex issues, electrical work that involves designing and implementing a new wiring layout.
  - Job-polarization, wage-polarization

what policy?

- How to cope with inequality?
- How to obtain skills?
  - Formal education (forced)
    - Shifting from information-based to skill-based
  - Training and on-the-job training
    - Forced, voluntary
    - Who pays to cost?
      - Person, firm, government, shared

problems

- Learning how to learn rather than learning a certain skill
  - Task composition mismatch between occupations
  - Specialised or generalised task-composition
  - Fast moving industrial robots, AI and embedded AI
  - New forms of digital training replacing formal education
- Digital skills are good but can they be substituted?

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