Comments to
Reclaiming Progress in the Digital Age

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Brookings-KDI Seminar on Digital Transformation and Artificial Intelligence: Implications for Inequality and Global Economic Convergence

Summary

1. Digital technology is expanding.
   - Rapid internet adoption
   - Increased development of new technologies (e.g., AI, automation)
2. Effects of digital technologies on labor market outcomes can be positive or negative:
   - Technology can improve economic outcomes (e.g., boost productivity, human capital, foster economic growth, and reduce poverty).
   - It can also disrupt the labor market. Risks of automation and labor substitution. Could lead to increased income inequality.
3. Effects are mediated by public policies.
   - Key areas: improve connectivity, upgrade skills, and strengthen institutions and regulations.
   - Enhanced competition in the telecommunications.

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Comments: focus on the role of **(1) workers**, **(2) firms**, and **(3) markets** when thinking about the labor market effects of digital technology and its policy implications.

Occupations, tasks, and technology

1. Occupations: sum of tasks that require different types of expertise. Autor and Thompson (2024) argue that tasks require:
   - Expertise that can be potentially automated.
   - Generic expertise: may require physical dexterity, multi-sensory skills, social interactions, empathy, common sense.

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   - Expertise that can be potentially automated.
   - Generic expertise: may require physical dexterity, multi-sensory skills, social interactions, empathy, common sense.
2. Types of tasks performed in each occupation can evolve endogenously (Acemoglu, Kong, and Restrepo 2024).
   - AI/automation/technology can complement (enhance) task completion (e.g., copyeditors) or substitute it (e.g., airline check in).
   - Technology can also create new tasks (e.g., answering emails); and eventually generate new occupations (e.g., social media management).
   - Workers can acquire expertise to do new tasks (e.g., learn to use ChatGPT)–depending on opportunities given by firms.

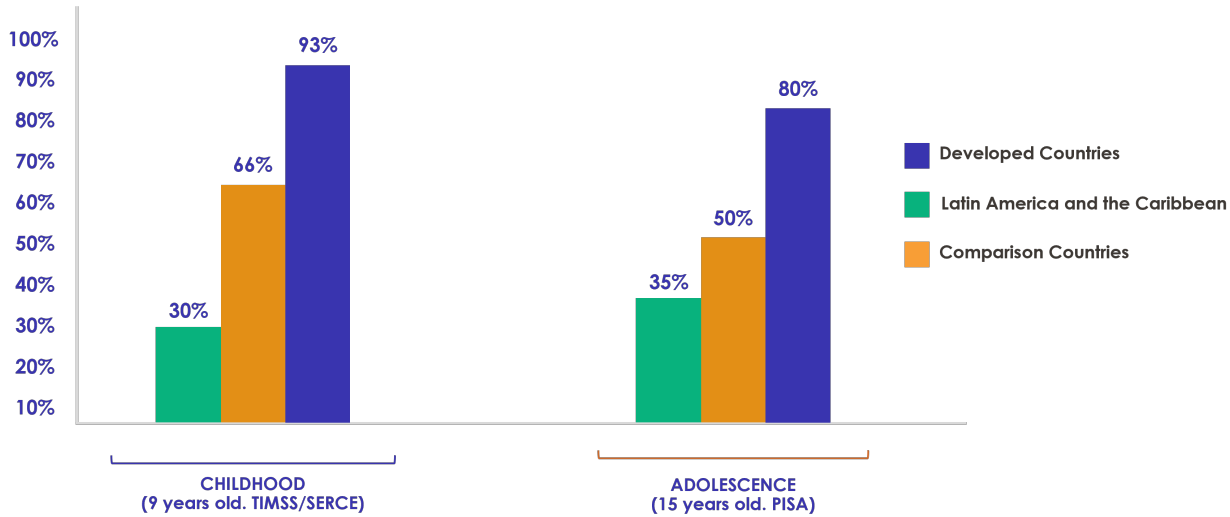
By changing tasks, digital technologies can affect wages (and wage inequality)

1. Acemoglu and Loebbing (2024): automation tends to replace middle-skill tasks, while low-skill and high-skill tasks remain human-dominated.
2. Autor and Thompson (2024): High-skill workers can do generic tasks, while low-skill workers cannot do tasks that require expertise $\rightarrow$ low-skilled workers will face more competition.
3. Digital technologies will tend to increase the skill premium for high-skill workers and decrease it for low-skill workers, driving wage inequality.

Urgent to invest in human capital

1. Low-skilled jobs may not necessarily be replaced, but their relative wages will likely decrease.

% of students that achieve a basic standard in Math



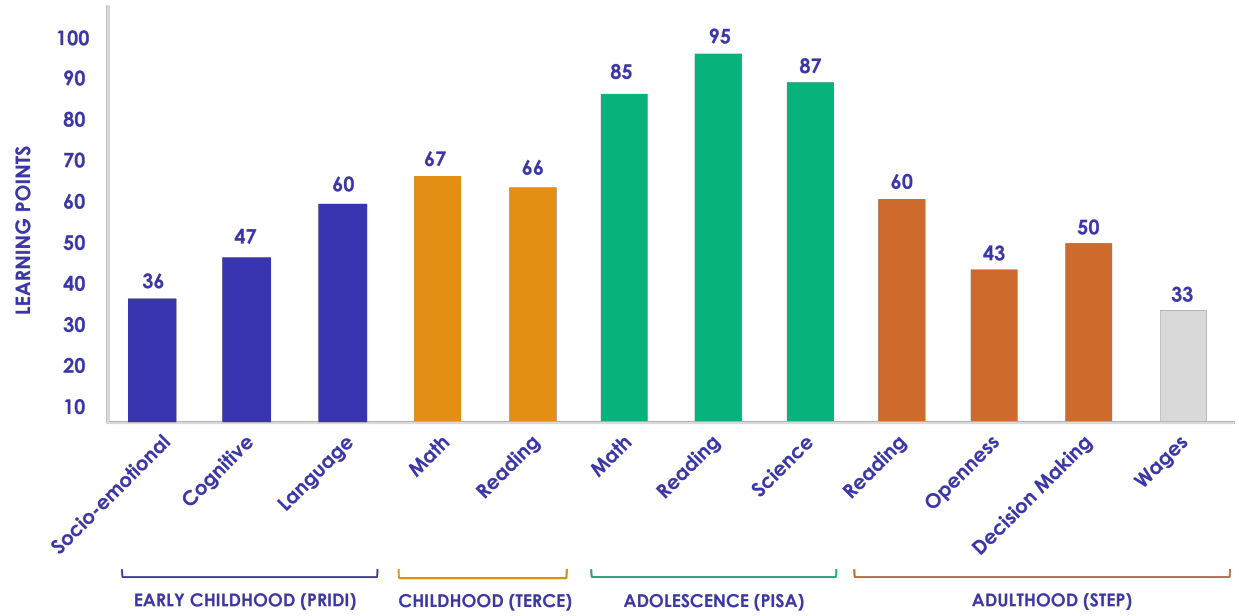
Source: Busso et al. (2017)

2. **Policy**. Investments in basic education are key to giving workers the ability to change task specialization within- and between-occupations.

Basic skills are unequally distributed within countries

1. If investments in human capital do not materialize, we will likely face increasing inequality of opportunities and decreasing mobility.

   Skills gaps between people born to low and high income households

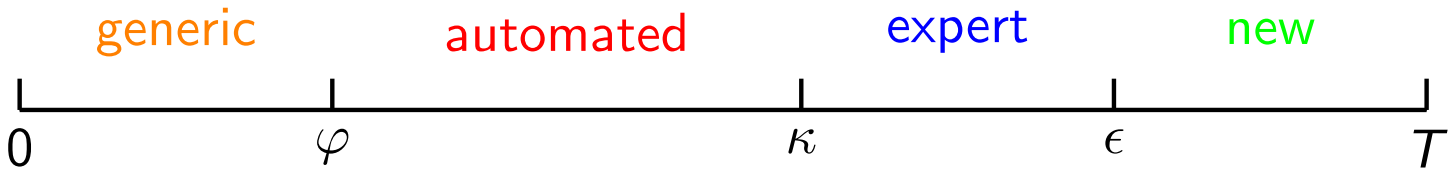


Source: Busso et al. (2017)

2. Workers born to high-income households will likely see increasing wage returns.

We probably have some time: Firm's cost of adoption matter

1. Costs. Progress in digital technology and relative costs of inputs will determine adoption $(\varphi, \kappa, \epsilon)$ and the speed at which economies adjust.

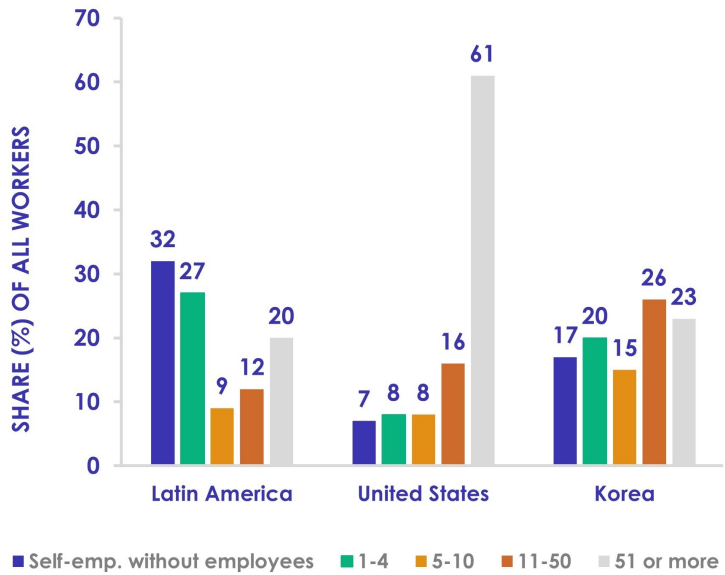


2. Lower labor costs, fewer incentives to adopt labor-saving technologies.
3. Macro-level. Labor is relatively less costly in developing countries. $\rightarrow$ limited technology adoption.
   - Small effects on employment and no effect on wages and labor share (Brambilla et al. 2021).
   - No effects on job polarization (Martins-Neto et al. 2023).

Digital technology adoption, distortions, and firm size

1. Micro-level. Size-dependent policies that favor small/unproductive firms (e.g., stricter policy-enforcement at the top) $\rightarrow$ cost of labor is higher for larger firms (Busso et al. 2012)$\rightarrow$ more likely to adopt labor-saving technologies.

Business size distribution



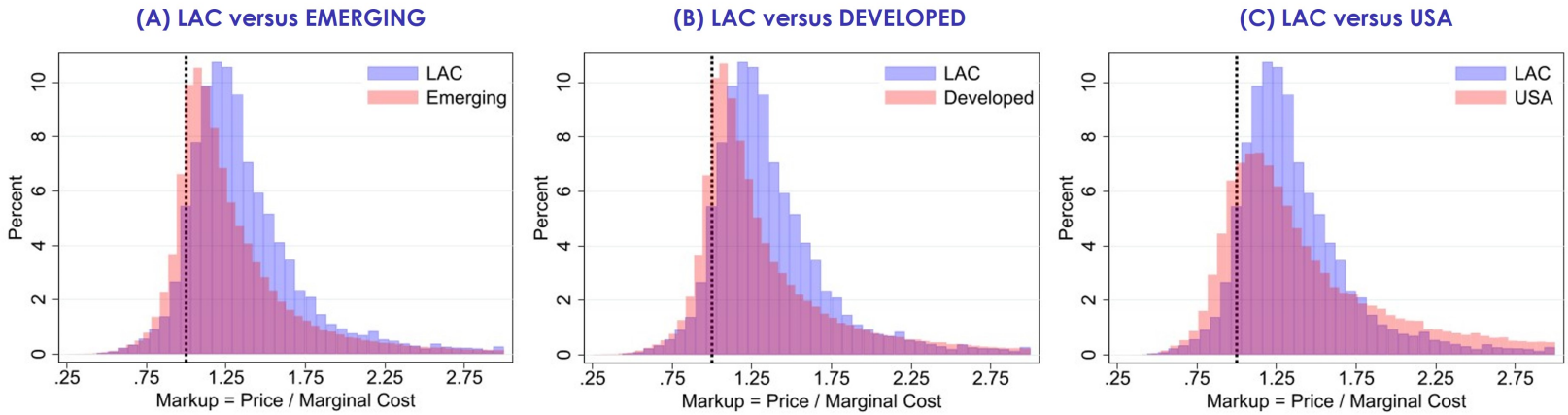
Source: Eslava et al. (2023)

2. **Policies** that reduce distortions can help populating the firms' missing middle: key to increasing labor demand (to compensate for job losses at the top).

Digital technology and wages: the role of markets

1. Product markets seem to be less competitive in LAC than in other regions. Markups = price/marginal cost.

Markups: LAC versus other regions

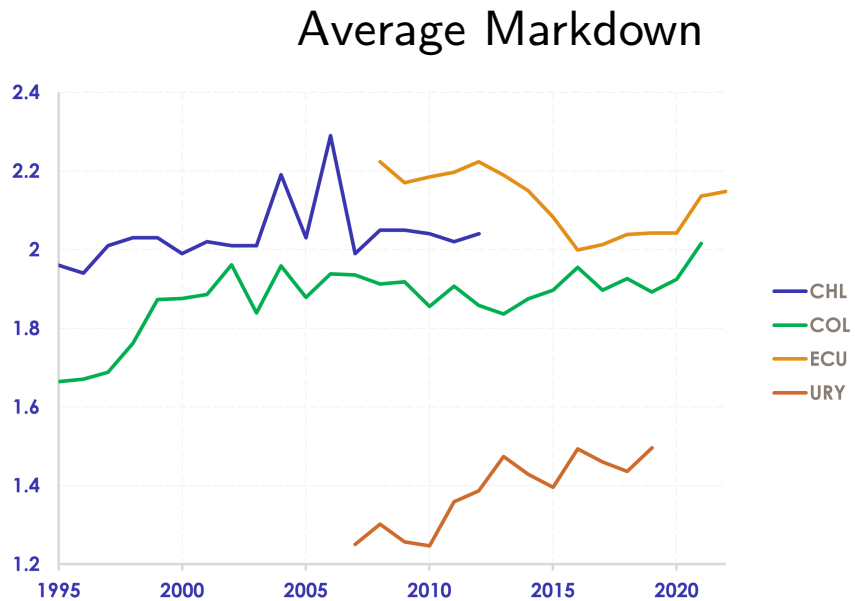


Source: IDB staff calculations using Refinitiv.

2. If digital technologies lead to firm productivity gains in noncompetitive markets, they will increase profits and not wages (De Loecker, Eeckhout and Unger, 2020)

Technology and wages: the role of labor markets

1. Labor markets also seem to be not fully competitive. Markdowns = value of marginal productivity of labor/wages



Source: IDB staff calculations using economic censuses.

2. If digital technologies lead to firm productivity gains in noncompetitive labor markets, they will increase profits and not wages (Deb et al., 2024).
3. **Policies** that foster competition in the product and the labor market might help translate productivity gains into wage growth.

Conclusion

Helping developing economies unlocking the benefits of digital technology would require:

- Closing human capital gaps with developed economies (and between groups within countries).
- Tackling distortions so that small productive firms can grow and increase labor demand.
- Markets to work properly so that productivity gains benefit all workers.

Thank you!

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The tasks involved in preparing these slides were aided by the use of ChatGPT.
The returns to those tasks is yet unknown.