

# Panel Discussion

# 54<sup>th</sup> ASEAN Symposium

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27 August 2021

As the country as well as ASEAN as a whole, technology and innovation is considered important to mitigate various types of inequality such as access to finance, access to education, access to business opportunities. You may want to comment on inequality as a result of globalization in terms of technology and innovation

# Increase in skill premium and wage inequality driven by increased demand for skilled workers

## **Demand for skilled workers increased due to**

- Increase in returns to occupations that are associated with a higher educational level like professionals, managers and administrators
- Shift of skill intensive intermediate goods production from developed to developing countries due to increase in trade in intermediate goods and global production sharing or outsourcing
- Skill-biased technological change explains a large part of rising skill premium, SBTC may take the form of increased imports of machines, office equipment and other capital goods that are complementary to skilled labor (Acemoglu, 2003)

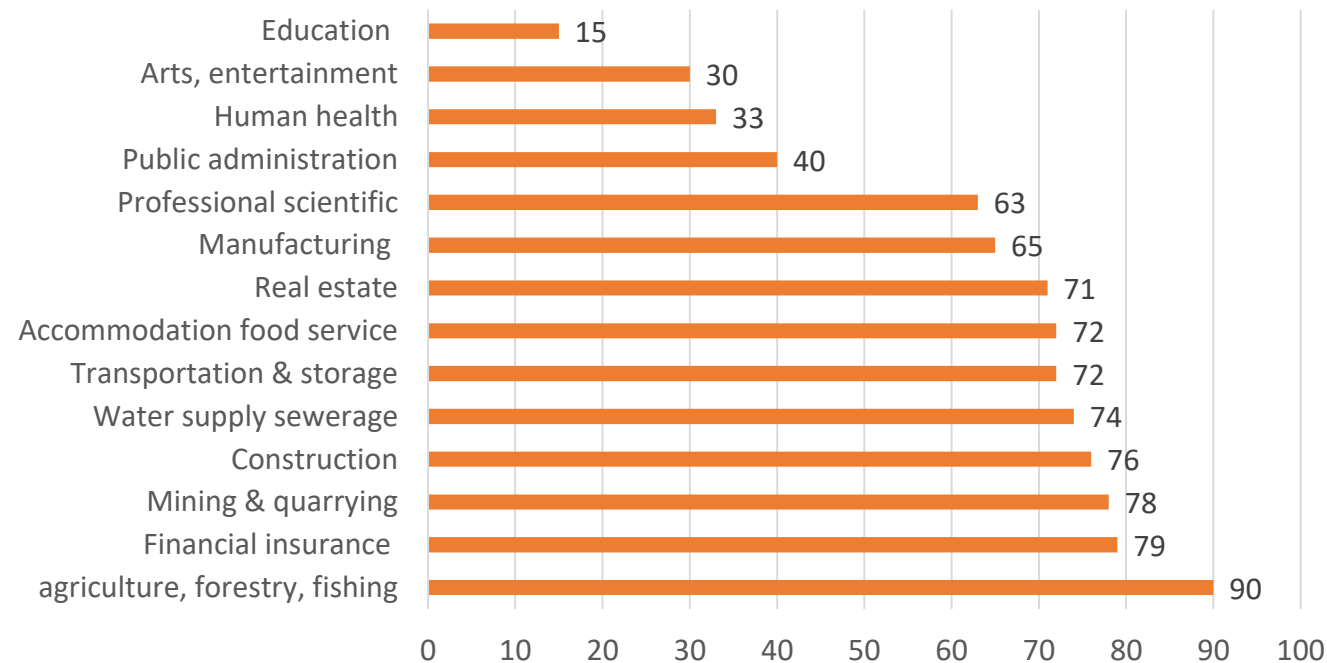
## **Factors blamed for rise in inequality**

- Globalization and technological change – digitization, robots, artificial intelligence – favor capital and higher-level skills at the expense of ordinary workers

# Low-skilled, low-educated, & routinized jobs are the most vulnerable to technological change

McKinsey Global Institute: 48% of activities in PH (18.2M jobs) could be automated  
Agriculture (6M Jobs), Retail (3.4M Jobs), Manufacturing (2.4M Jobs)

Average Probabilities of Jobs Being Automated, in %



Source: Francisco, J., S. Flores, Canare, Caboverde, Borja, & Monterola (2019)

- **Agriculture:** farmhands, farm laborers, fishermen
- **Mining & Construction:** manual laborers
- **Finance & Insurance:** bank tellers, counter clerks, debt collectors
- **Education & Health:** teachers, doctors, nurses

# Government policies and institutions to support labor-augmenting and productivity enhancing technologies

- **Displacement effect:** replace labor in tasks that are being automated, reduce labor demand, wages, and employment
- **Productivity effect:** automation reduces costs of production, technology increases productivity of machines in tasks that have been automated, capital accumulation
- **Creation of new tasks:** technology creates new tasks in which labor has a comparative advantage, increase demand for labor; new tasks require new skills
- If the rise in real incomes due to automation would end up in the hands of a narrow group of people, automation would tend to increase inequality
- Shortage of skills and wrong skill sets of workers would have negative consequences for inequality
- Government policies and institutions have a role to play in ensuring investments: labor-augmenting and productivity enhancing technologies, creation of new tasks, support for AI R&D, and mechanisms for creating shared prosperity from the productivity gains from AI

# People should be at the center of Industry 4.0 transformation strategy

- Use of new technologies is a crucial step to upgrade our industries toward a more inclusive and sustainable industrial development
- **Harness technology to reduce inequalities in access to jobs**, remove systemic barriers that prevent people from participating in good quality work
- Ensure that people are enabled to take part in building innovative industries, have access to skills and career information
- Many have limited digital involvement due to inadequate connectivity, limited awareness of the benefits of digitalization, skills gaps
  - Build infrastructure to improve internet connectivity, broadband access, computerization, data quality and governance
  - Adjust education and training systems to reskill/upskill workforce, deliver digital and transversal skills required
  - Address regulatory constraints like privacy protection, data sharing restrictions, on-premise storage requirements
- National and regional levels: concerted effort to ensure that the shift towards Industry 4.0 does not leave any person behind and not worsen the digital divide

How can the Philippines stop the increasing poverty under the pandemic? What observations have you made in the Philippines with respect to technology and innovation during the pandemic? Does globalization add more dangers to inequality?

# Philippines: addressing poverty under the pandemic

- **Social Protection Programs:** cash transfers & food packs to poor families, wage subsidies for workers, loans to MSMEs, cash for work
- **Manufacturing Repurposing Program :** PPE (\$35M, employed 7,450 workers), ventilators, ethyl alcohol
- **National Employment Strategy :** policy environment to create employment & entrepreneurship opportunities – restart economic activities, workforce upgrading, restore business confidence, labor market access facilitation
- **Skills Development Framework:** a framework of skills which describes the skills, knowledge and competencies required in different jobs (8 priority sectors)
  - on-going pandemic-related global recession and increased automation has led to disruption of jobs and skills landscape; accelerated the need for reskilling, upskilling
- **Philippine Artificial Intelligence Roadmap :** National Center for AI Research to be driven by the private sector
- **Manufacturing Industrial Transformation Journey :** technology assessment of manufacturing companies through the deployment of the Smart Industry Readiness Index (20 pilot companies)



# Response of innovative startups to Covid-19 tech solutions to address health, supply chain, logistics, agriculture, education, finance issues



a **real-time reverse transcription polymerase chain reaction (rRT-PCR) test** intended for the qualitative detection of SARS-CoV-2

**RT-PCR TEST KITS**



mobile app that uses wireless, geo-location and sensory capabilities of mobile phones to **trace contact events between people**

**RC 143**



a **free web and mobile-based platform** that provides information on open establishments, shuttle routes, donation centers, hospitals and more.

**DASHBOARD PHILIPPINES**



combination of two AI detections - for the detection of a person and a thermal camera for the **recognition of heat signatures.**

**DRONES**



a technology-based supply chain and logistics monitoring system that **help address issues in the movement of goods experienced in this crisis.**

**Supply Chain Analytics (SCAN) Dashboard**



provide maps and other information for **disaster risk reduction applications** using Geographic Information Systems (GIS), Remote Sensing (RS), AI, and Data Science

**DATOS**



a **clinical data and e-consultation platform** for medical specialists

**MEDCHECK**



a **home healthcare platform**, connects patients and medical professionals straight from their smartphones.

**AIDE**



a software company based in the Philippines that specializes in **healthcare management software**

**HYBRAIN**

# Benefits from digital technologies are transformative but would require industrial and regulatory policy to manage inequality and digital divide

- Digital Technologies & innovation played a crucial role in ensuring a quick reaction to the crisis, business continuity, recovery & protecting workers
- Agile production & supply system set-ups enabled by advanced technology - workforce development is vital to engaging agile working modes
- Artificial intelligence (AI) adoption is still in its infancy in Southeast Asia; Investments in AI solutions in SE Asia lag behind more advanced countries: US US\$155/capita, China US\$21/capita, Singapore US\$68, MAL, TH, PH, INDO <US\$1/capita
- AI could boost SE Asian GDP up to US\$1T by 2030 (EDBI and Kearney 2020)
- PH is embracing Industry 4.0: AI strategy to uplift lives of people, improve productivity of enterprises, enhance competitiveness, use AI to solve business and societal problems & deliver economic value (agri tech, health services, smart manufacturing, resilient technologies, E-government, transport, supply chain & logistics, education, AI-powered business process outsourcing)
- Role of Government: train, reskill/upskill our workforce & prepare them for Industry 4.0, promote data literacy and digital literacy for all; enabling environment, competition, hard & soft infrastructure, inclusive technologies – labor augmenting & productivity enhancing, regulatory & governance framework – data governance & infrastructure, privacy protection, data sharing restrictions, on premise storage requirements, AI model transparency, cross-border data flows