

ASIAN DEVELOPMENT OUTLOOK 2018

HOW TECHNOLOGY AFFECTS JOBS

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Rana Hasan

Director, Development Economics and Indicators Division
Economic Research and Regional Cooperation Department
Asian Development Bank

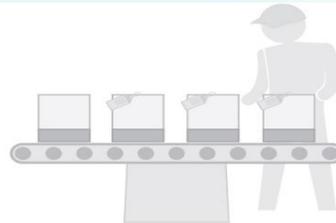
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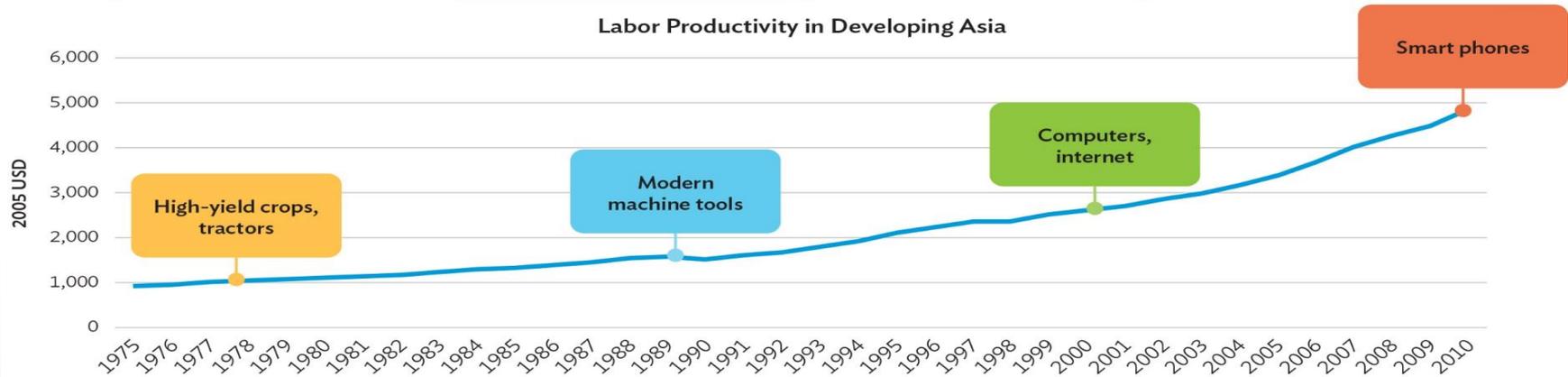
Outline

- Rising concern over technology displacing jobs
- Reasons for optimism on job prospects in Asia
- Negative consequences for some workers
- What government should do to harness technology for inclusive growth

Technological advancement drives higher productivity, the foundation for better-paid jobs and economic growth



Labor Productivity in Developing Asia



Automation anxiety

Automation is necessary for creating good jobs

But, what about extreme automation?



Automatic fabric spreader

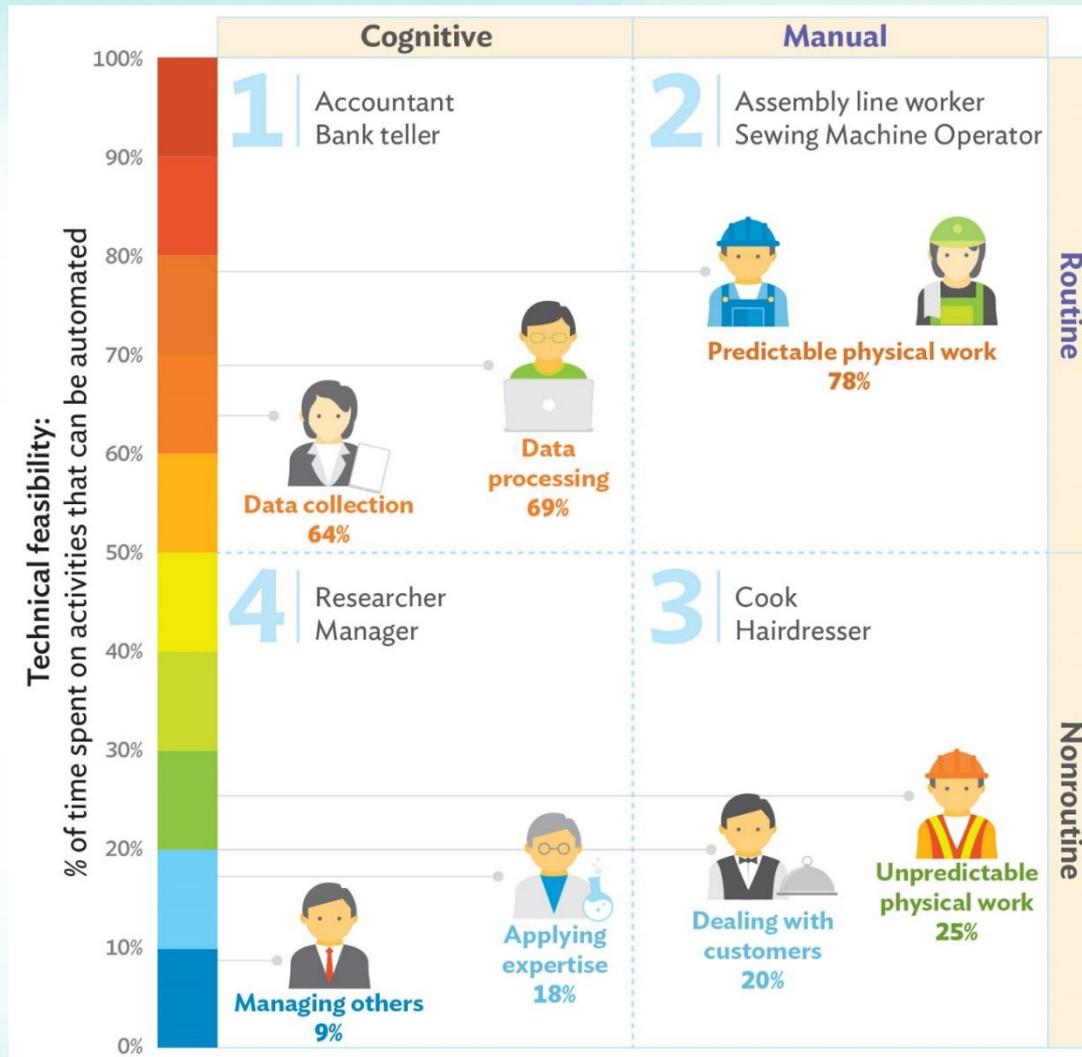


Adidas' fully automated factory

There are compelling reasons to remain optimistic about developing Asia's job prospects

- 1. New technologies often automate only some tasks of a job.**
- 2. Technical feasibility does not guarantee economic feasibility.**
- 3. Rising income and demand.**
- 4. New occupations and industries.**

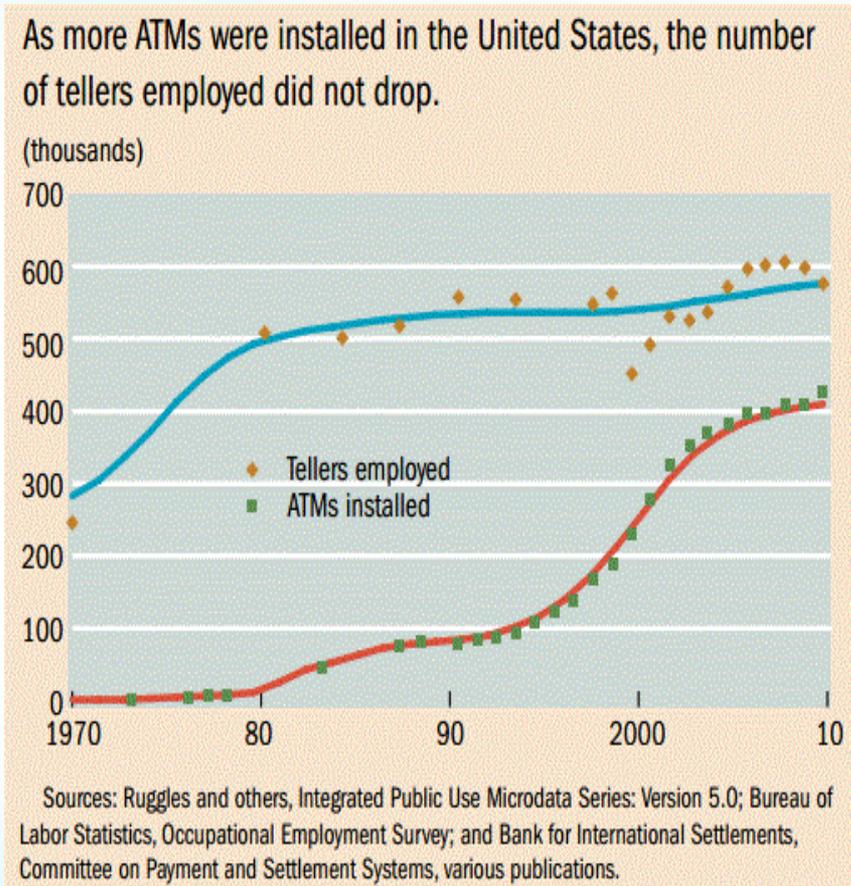
New technologies often involve automating specific tasks associated with a job, not the job in its entirety



Note: Percentages refer to Frey and Osborne (2017) estimates on probability of automation. Framework is based on Acemoglu and Autor (2011).

Source: *Asian Development Outlook 2018: How Technology Affects Jobs.*

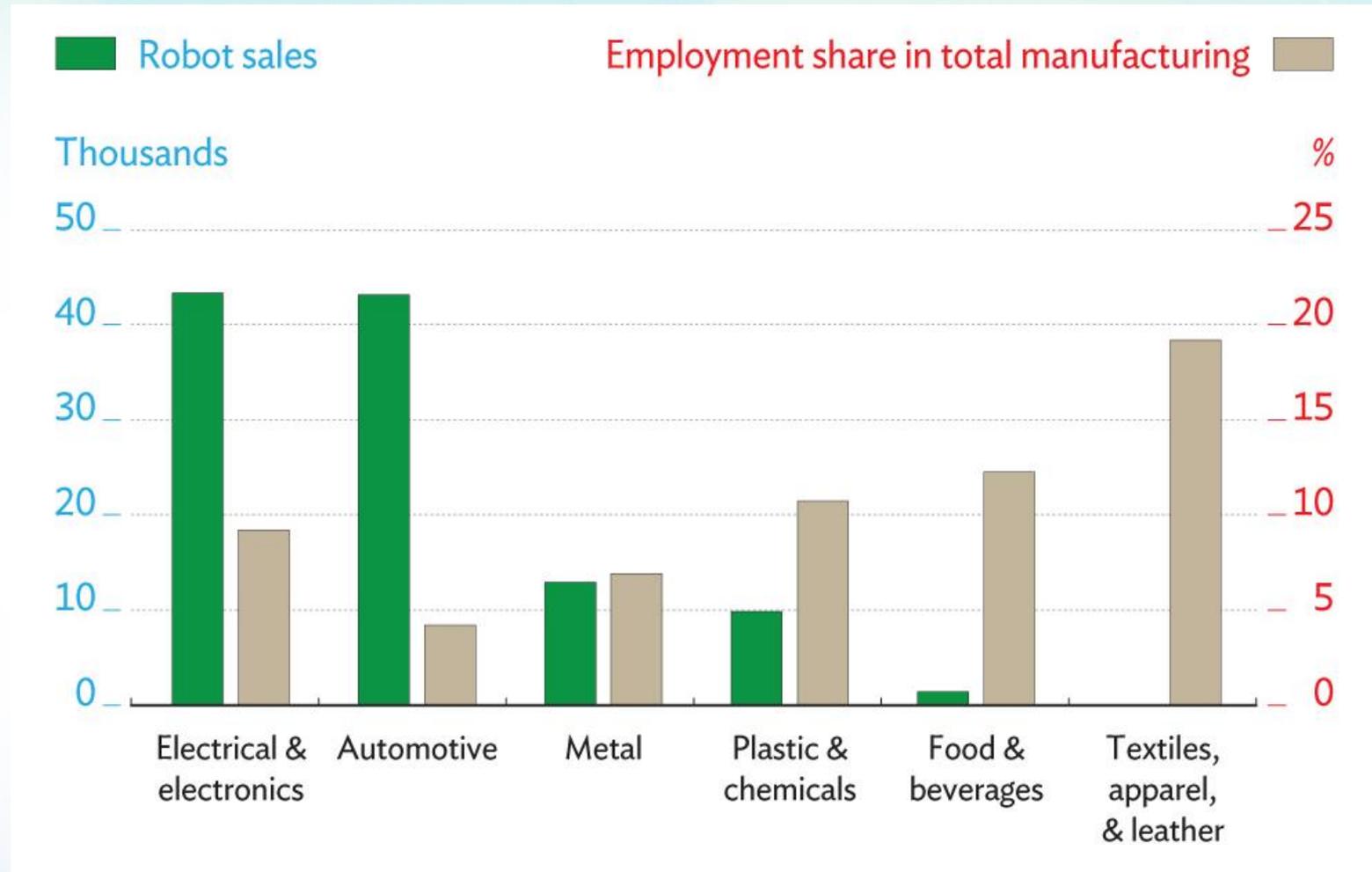
Popular example: ATMs and the changing structure of US bank teller tasks



Bessen (2015)



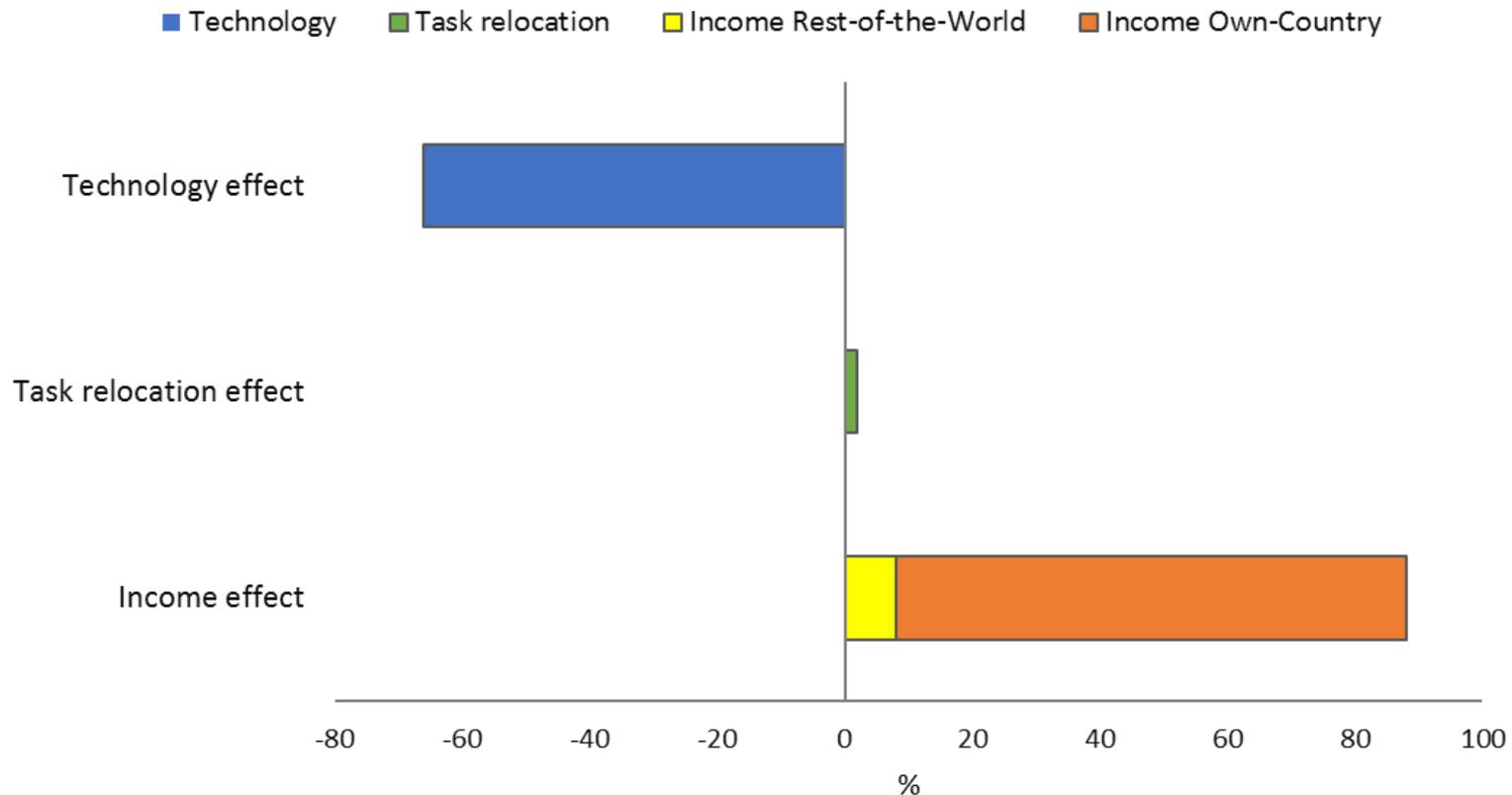
Industrial robots are concentrated in capital intensive sectors where employment shares are relatively small



Source: *Asian Development Outlook 2018: How Technology Affects Jobs*.

Rising demand offsets displacement driven by automation

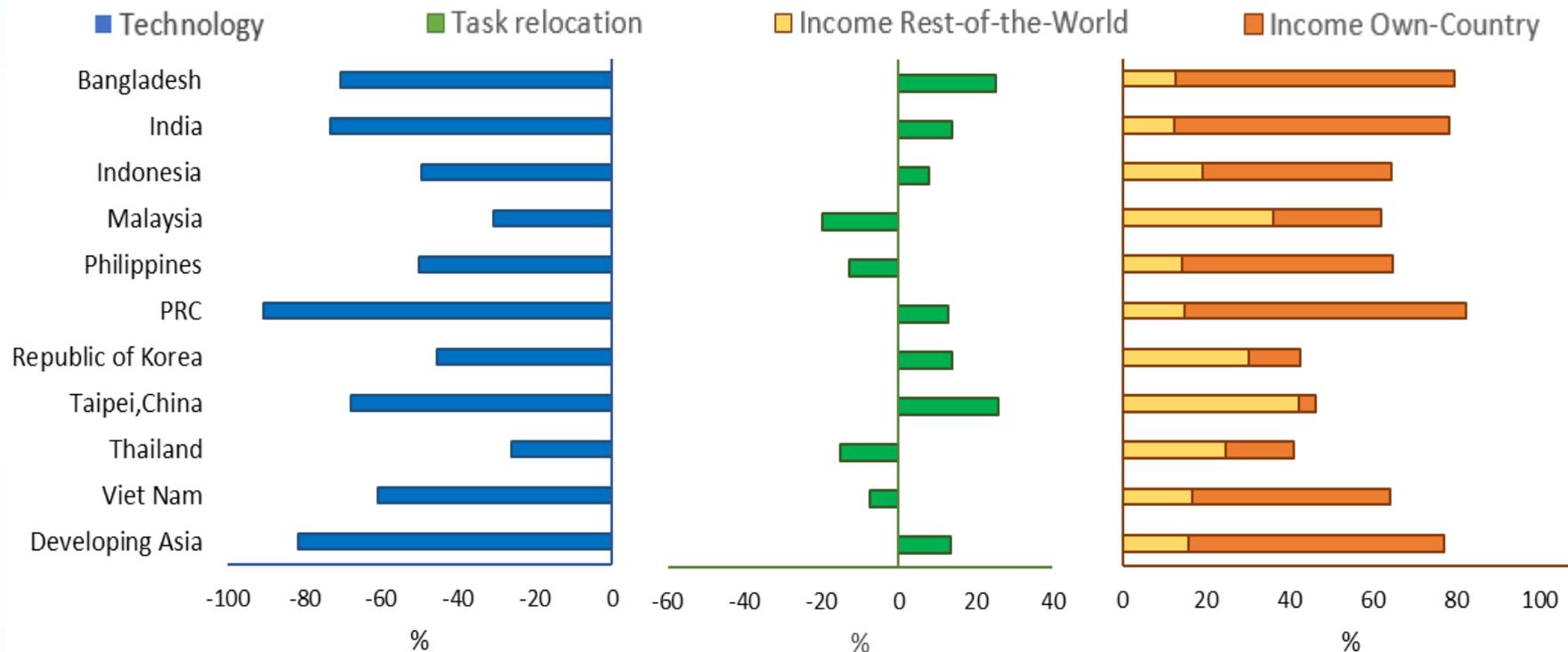
Decomposing the percentage change in employment, 2005-2015



Note: Developing Asia in the decomposition analysis includes Bangladesh, India, Indonesia, Malaysia, Mongolia, the People's Republic of China, the Philippines, the Republic of Korea, Sri Lanka, Taipei, China, Thailand, and Viet Nam. Sources: Decomposition result using ADB Multiregional Input-Output Database (accessed 20 November 2017); Labor force surveys, various countries; World Input-Output Database—Socioeconomic Accounts (Timmer et al. 2015).

This countervailing force is at work across the region

Manufacturing

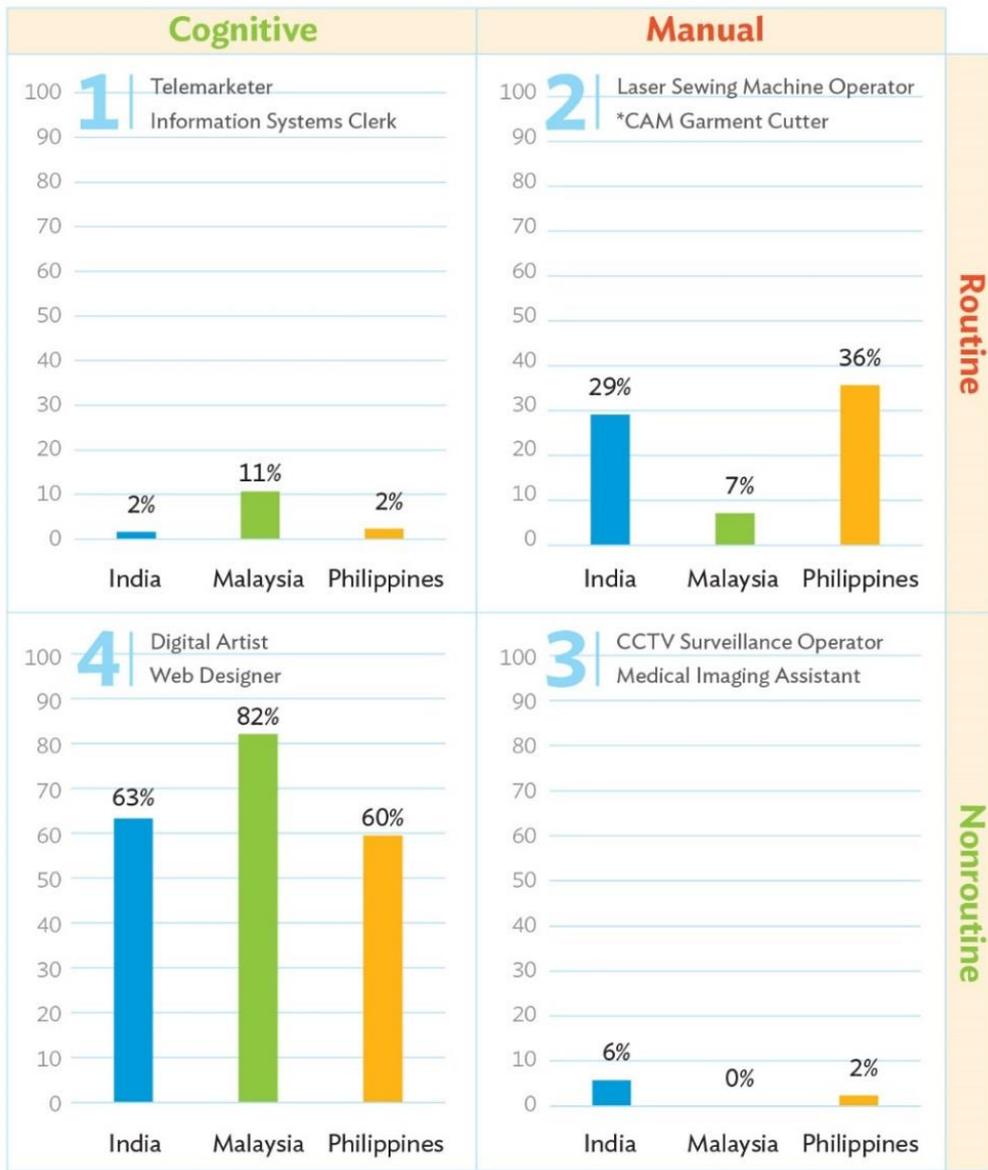


GVC = global value chain, PRC = People's Republic of China.

Note: Developing Asia in the decomposition analysis includes Bangladesh, India, Indonesia, Malaysia, Mongolia, the People's Republic of China, the Philippines, the Republic of Korea, Sri Lanka, Taipei,China, Thailand, and Viet Nam.

Source: ADB estimates using the ADB Multiregional Input–Output Database (accessed 20 November 2017); Labor force surveys, various countries; World Input–Output Database—Socioeconomic Accounts (Timmer et al. 2015).

Distribution of New Occupations by Job Type



Technology leads to new occupations... but these tend to be in non-routine cognitive category

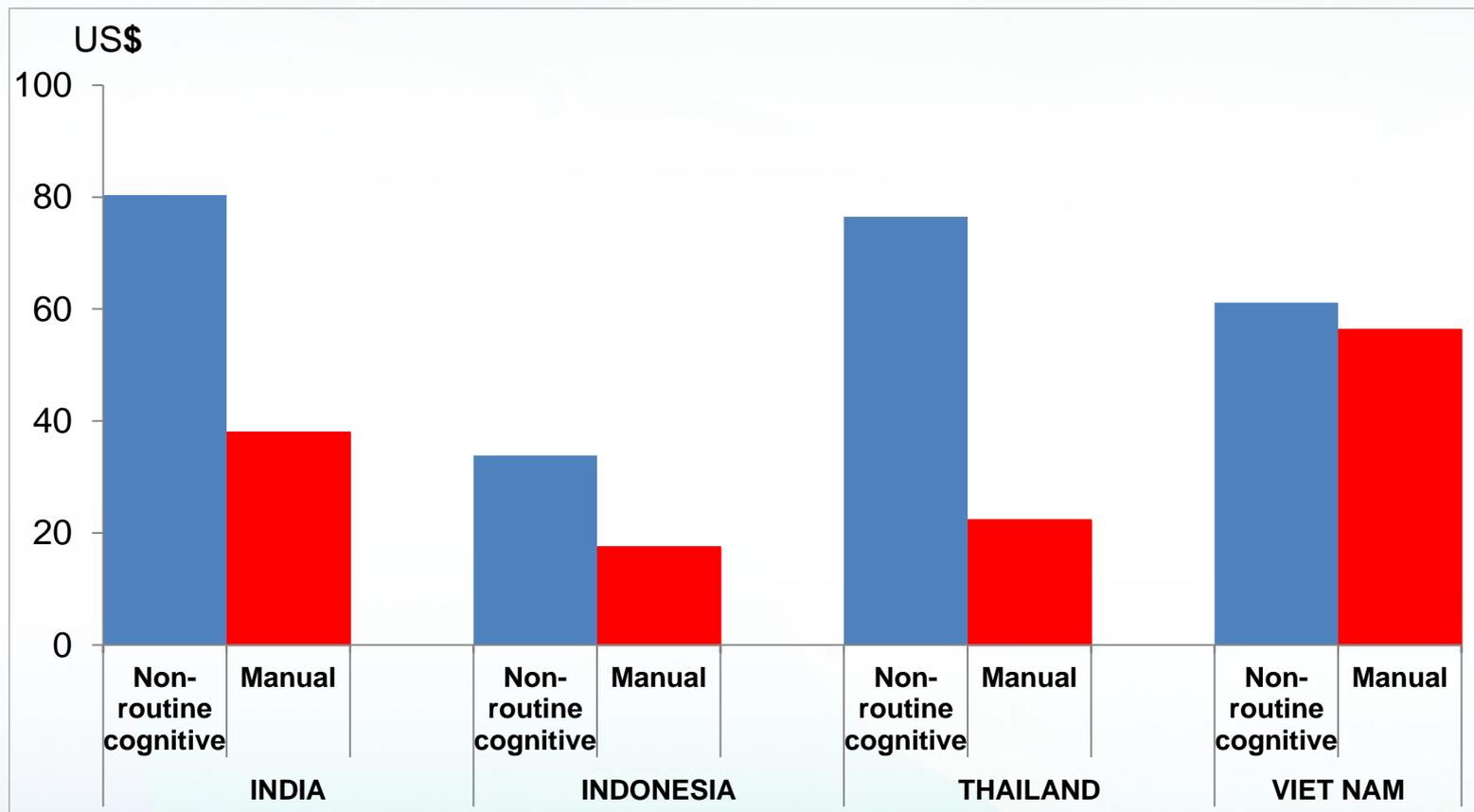
	Total No. of Job Titles (latest year)	No. of New Job Titles	Share of New Job Titles
India	3,600	120	3.33%
Malaysia	2,338	28	1.20%
Philippines	3,698	42	1.14%

Notes: The figures are based on a comparison of National Classification of Occupations (NCO) for each country. Job titles presented in the 4 quadrants are actual new titles.

Source: *Asian Development Outlook 2018: How Technology Affects Jobs*

Wages have also grown more for these workers, leaving low-skill workers behind

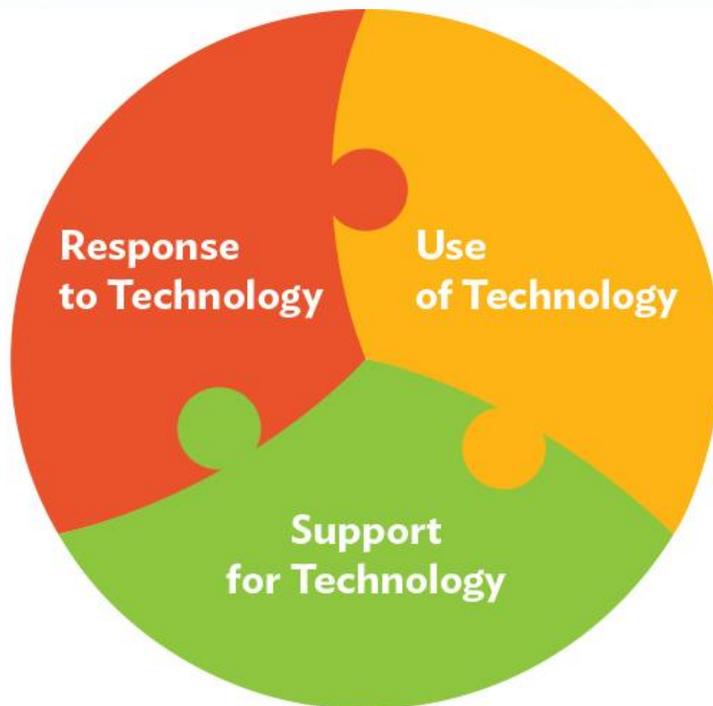
Change in average monthly wages, constant prices (in US\$)



Note: The time frames vary across countries, with Viet Nam the shortest (2007–2015), followed by Thailand (2000–2010), India (2000–2012), and Indonesia (2000–2014). Developing Asia refers to the five countries included in this analysis. Source: *Asian Development Outlook 2018: How Technology Affects Jobs*

Government has an important role to play in leveraging technological advances for inclusive growth

The new industrial revolution and the role of government



- Education and training
 - Favorable labor regulation
 - Social protection
 - Tax policies
- Facilitate skills development and job-matching
 - Provision of public goods and services
- Investments in ICT infrastructure
 - Antitrust and consumer protection
 - Innovation and technology adoption

Key messages

- **New technologies drive higher productivity, the foundation for better-paid jobs and economic growth.**
- **Despite concern about technology induced job losses, there is good reason to be optimistic about Asia's job prospects**
- **New technologies will alter skills requirements and may cause unemployment as some firms downsize or close.**
- **Government has an important role to play in leveraging technological advances for inclusive growth**

Thank you!

Link for our report:

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