

ASIAN DEVELOPMENT OUTLOOK 2018

HOW TECHNOLOGY AFFECTS JOBS

FUTURE OF SKILLS & JOBS

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Our report

- 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

Is automation anxiety exaggerated?

Automation is necessary for creating good jobs



Automatic fabric spreader

But, what about extreme automation?



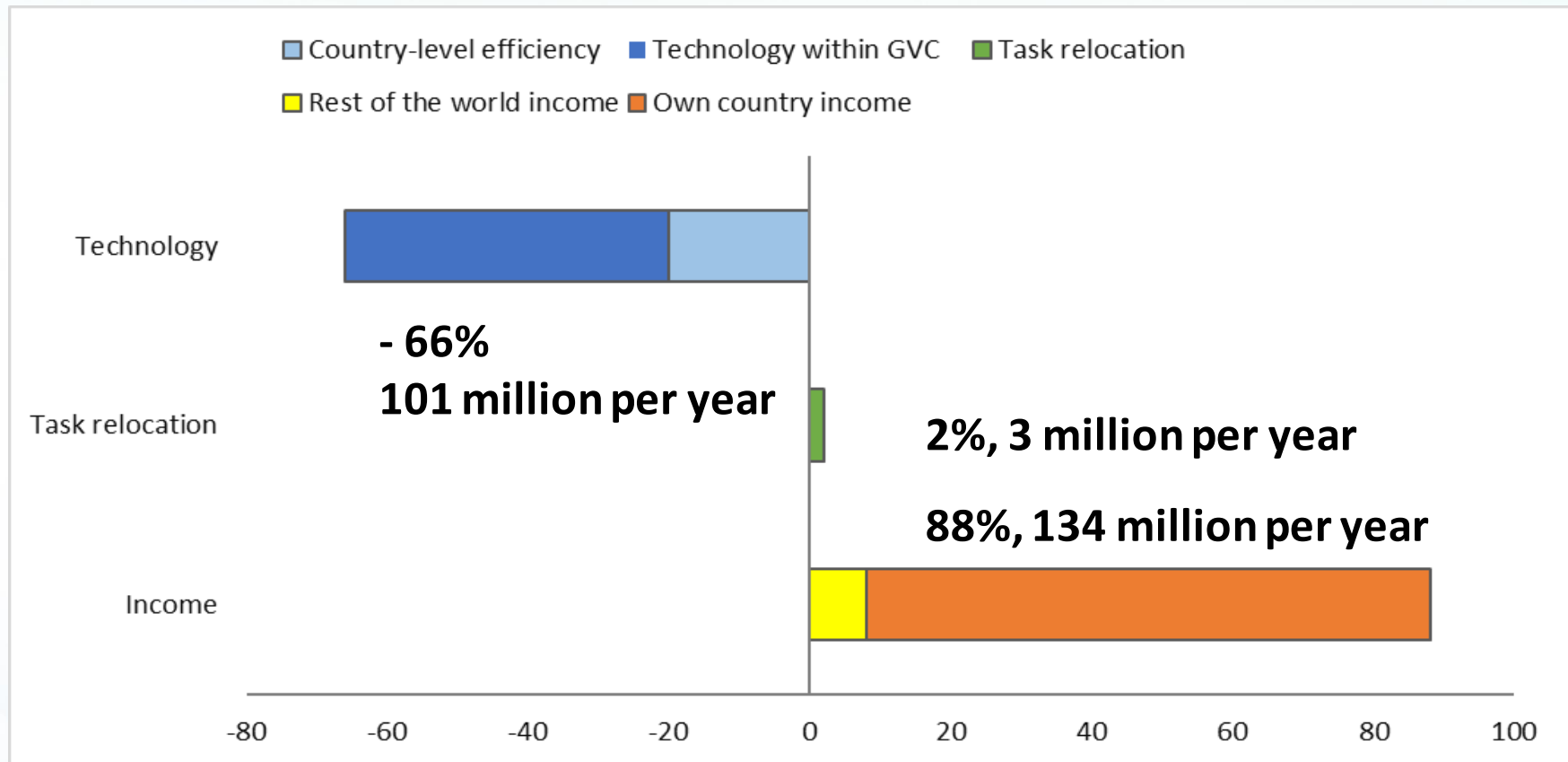
Adidas' fully automated factory

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.**

Rising demand offsets displacement driven by technological change

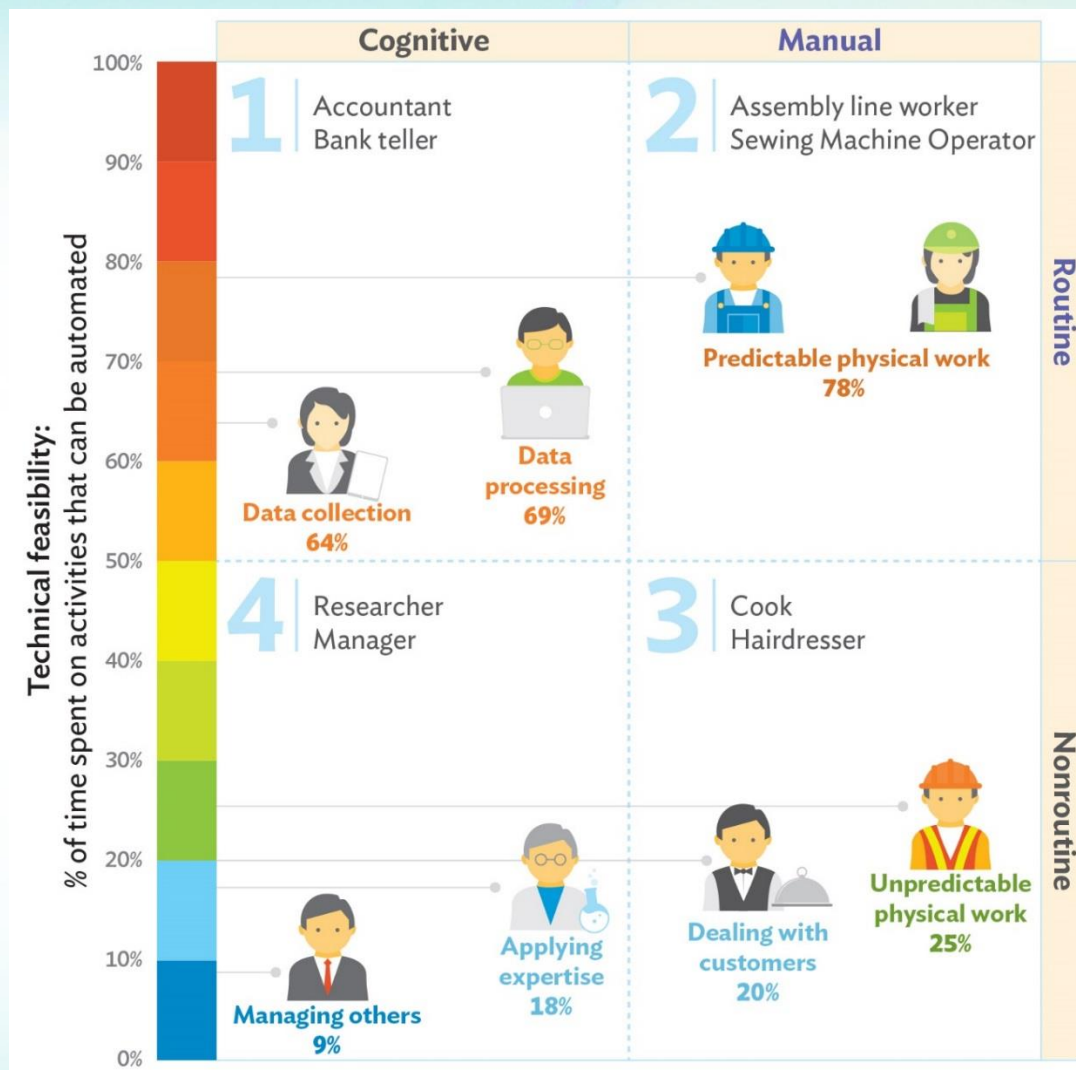
Decomposing change in employment, 2005-2015



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).

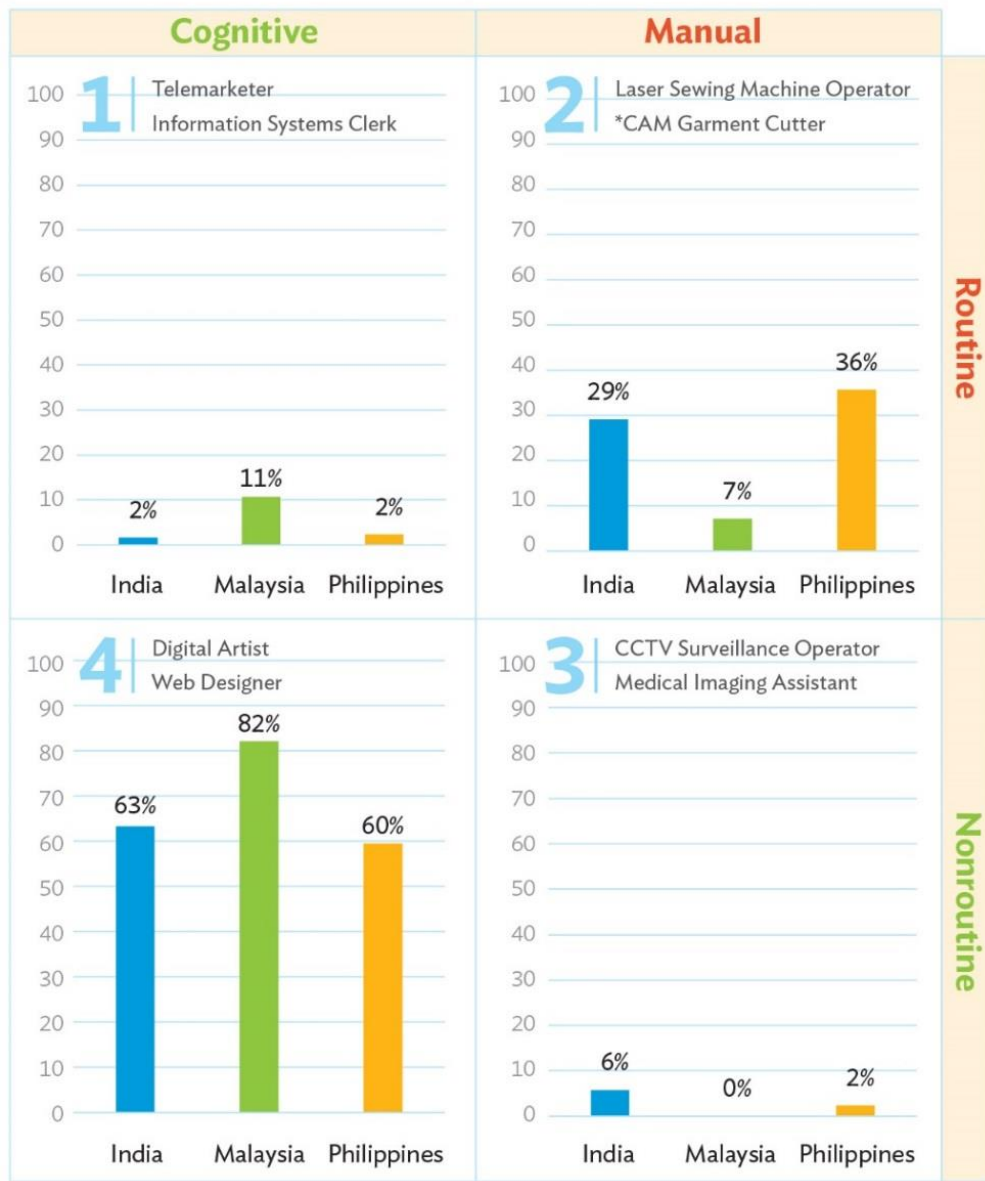
New technologies often involve automating specific tasks associated with a job, not the job in its entirety



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*.

Distribution of New Occupations by Job Type



* Computer Aided Manufacturing

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

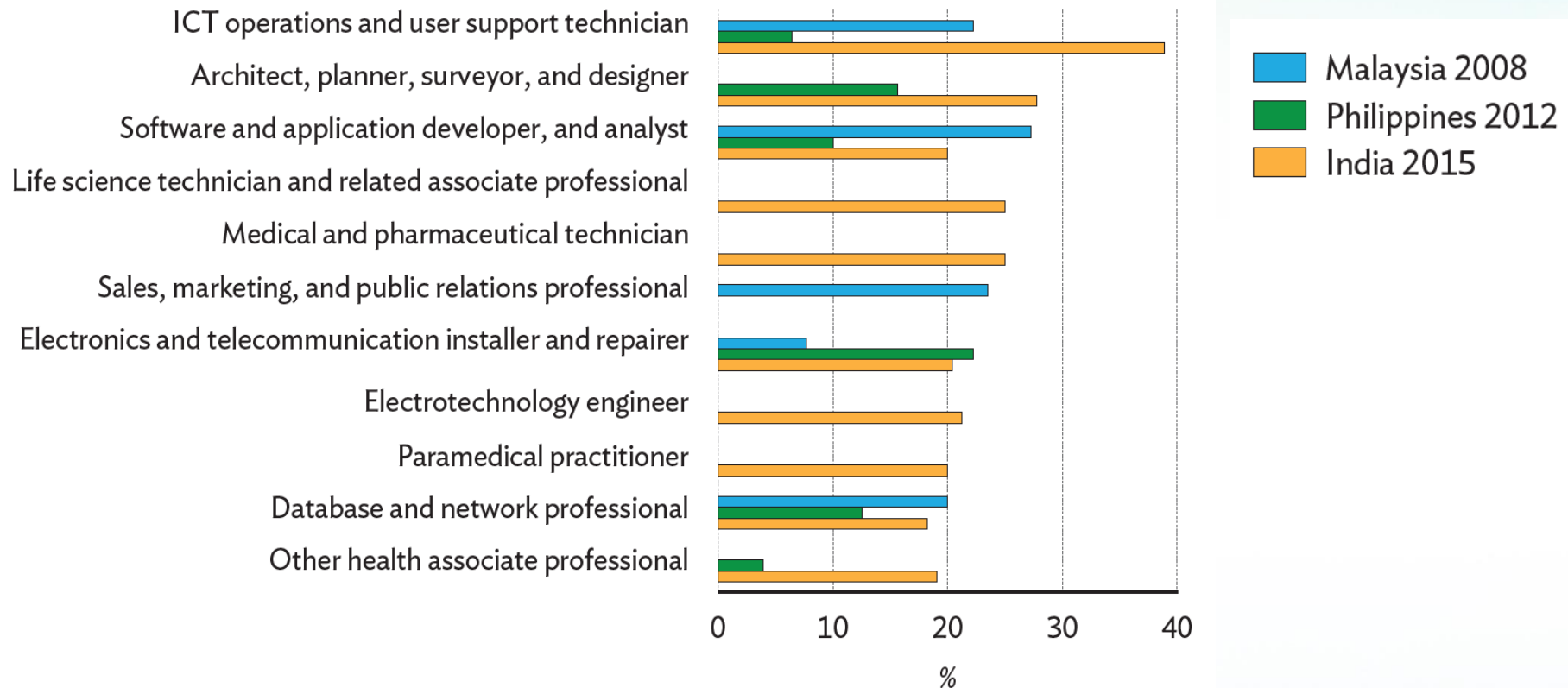
	Total No. of Job Titles (latest year)	No. of New Job Titles	Share of New Job Titles
India	3,600	120	3.33%
Malaysia	2,338	28	1.20%
Philippines	3,698	42	1.14%

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*

Technology creates new occupations and entire new industries

Occupational categories with the highest proportions of new job titles



ICT = information and communication technology.

Note: These are new occupation groups with the highest proportion of new job titles. Calculations are based on comparisons made between national classification of occupations (NCO) 2004 (based on International Standard Classification of Occupations 1988 [ISCO-88]) and NCO 2015 (ISCO-08) for India, PSOC 1990 (ISCO-88) and PSOC 2012 (ISCO-08) for the Philippines, and MASCO-1998 (ISCO-88) and MASCO-2008 (ISCO-08) for Malaysia. As a robustness check, the 1970 US Index of Occupations was used as proxy for a comprehensive list of occupations in the base year of the economies studied.

Source: Flaminiano et al. (forthcoming).

A lesson from history

- Even if jobs are there, no guarantee that wage growth will be robust for average worker
- Engel's Pause: Decades of slow wage growth despite rapid productivity increases in textiles factories in UK and US in 19th century

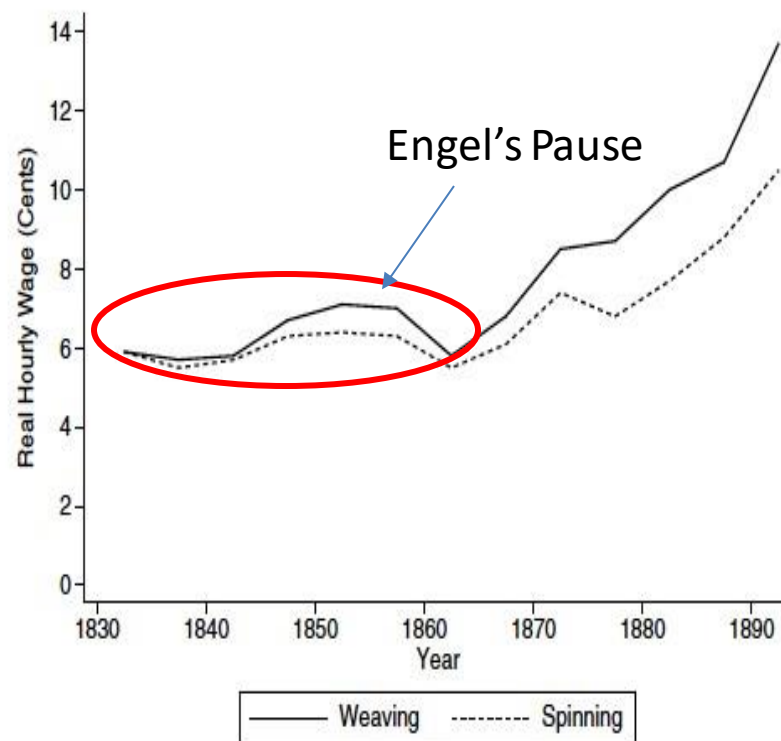
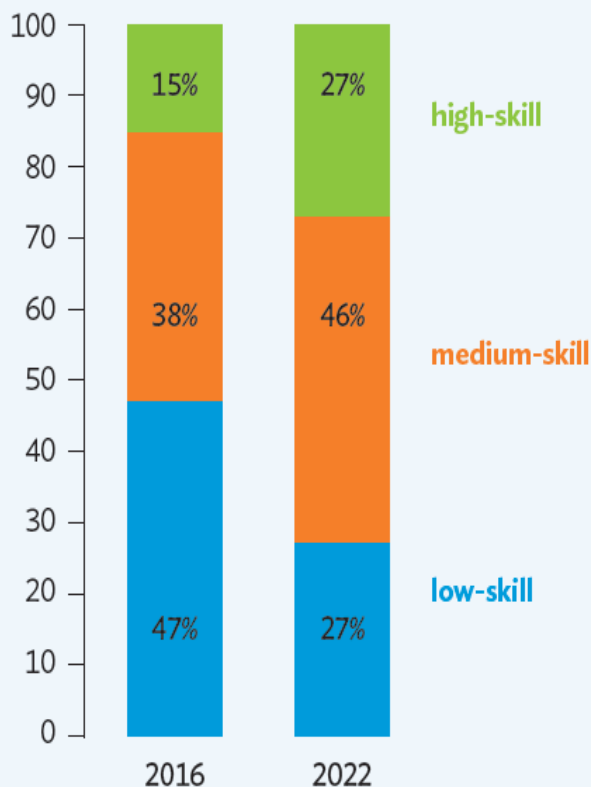


Figure 6.1. Weavers' pay rises sharply after a long delay: Real hourly wages for weavers and spinners in Lowell (in 1860 dollars). (Bessen, "Was Mechanization De-Skilling?")

BPO sector in the Philippines illustrates the shift towards medium and high skill jobs

Skills composition of the workforce as IT-BPO adjusts to automation (%)



Tasks

Complicated tasks that require specialized expertise, abstract thinking and autonomy

Complicated tasks that require experience, abstract thinking and situational response

Simple entry-level, process driven tasks that require little abstract thinking and autonomy

Jobs

Computer programmer, computer engineer, health professional (nurse), financial expert, design professional

Accounting and bookkeeping clerk, computer assistant (animation, data analysis, digital production), health assistant

Customer support clerk, data entry assistant, medical transcriptionist

IT-BPO = information technology-business process outsourcing.

Critical to use and test out technology solutions

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

The new industrial revolution and the role of government



Thank you!

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