

# ASIAN DEVELOPMENT OUTLOOK 2018

HOW TECHNOLOGY AFFECTS JOBS

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APRIL 2018

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# Asian Development Outlook 2018

## How Technology Affects Jobs

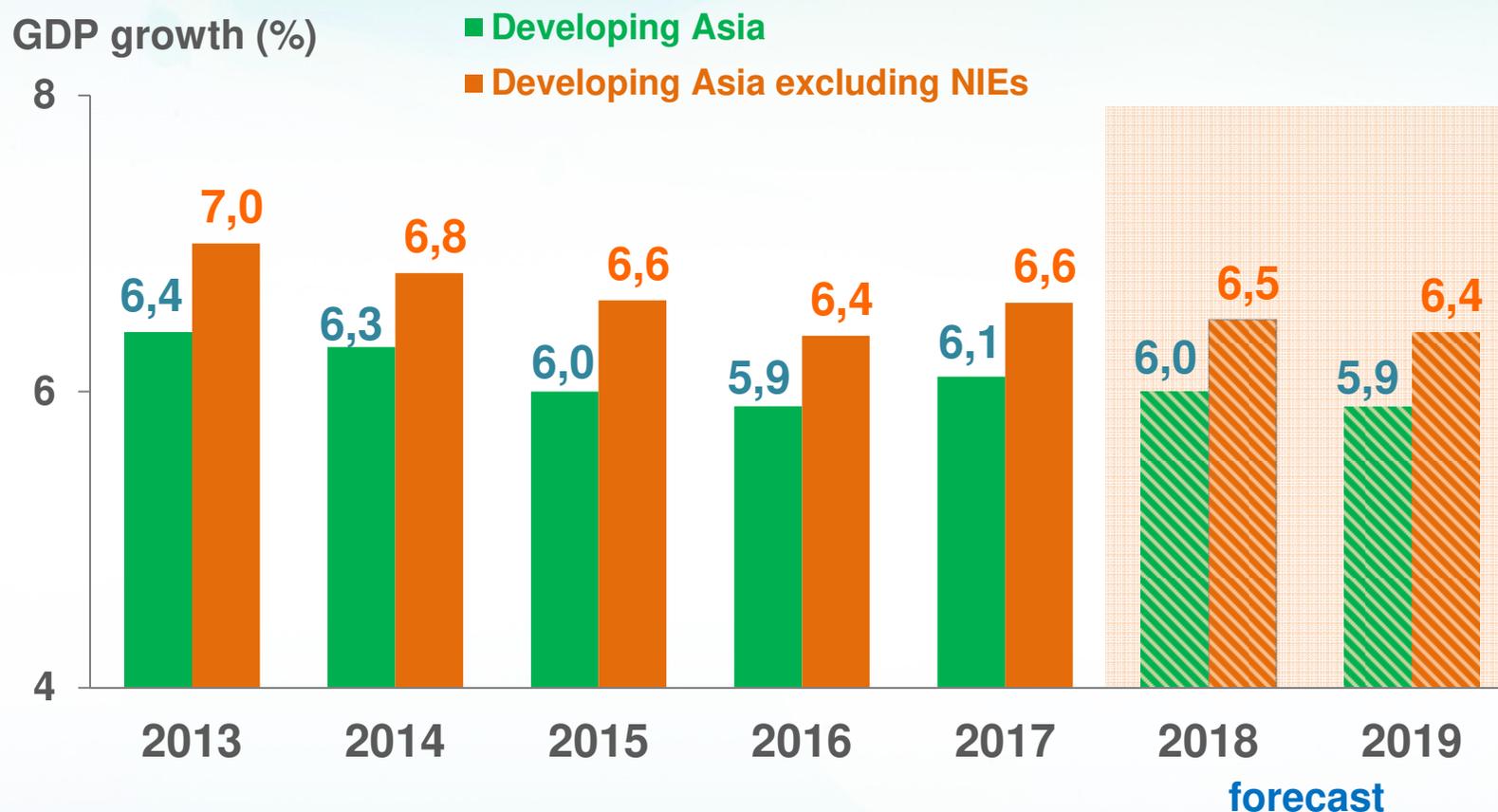
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Asian Development Bank

April 2018

# Key messages

- **Developing Asia to continue solid growth at 6.0% in 2018 and 5.9% in 2019 amidst the strong external and domestic demand**
- **PRC moderating with greater focus on financial stability; India rebounding from temporary reform related setbacks**
- **Firming commodity prices and consumer demand push inflation to 2.9% in 2018 and 2019—still below 10-year average**
- **Key risks stem from escalating trade tensions, rising US interest rates, and accumulating domestic private debt**
- **New technologies are not likely to cause widespread job losses in Asia. But policy action is needed for workers to overcome challenges posed by technological advance and harness its full benefits**

# Developing Asia continues its solid growth...



NIEs = newly industrialized economies of Hong Kong, China; Republic of Korea; Singapore; and Taipei, China

Source: Asian Development Outlook database.

# ...supported by robust growth in advanced economies

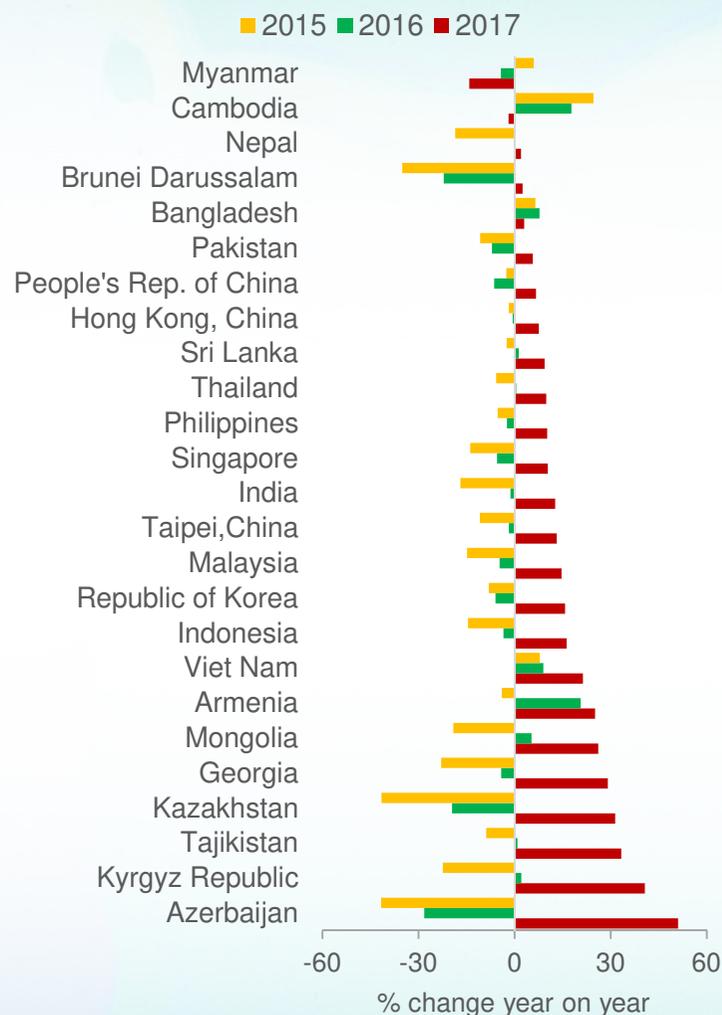
GDP growth (%)	2016 Actual	2017 Actual	2018 ADO 2018 projection	2019 ADO 2018 projection
<b>Major industrial economies <sup>a</sup></b>	<b>1.5</b>	<b>2.3</b>	<b>2.3</b>	<b>2.0</b>
United States	1.5	2.3	2.7	2.3
Euro area	1.8	2.5	2.2	1.9
Japan	0.9	1.7	1.4	1.0

<sup>a</sup> Average growth rates are weighed by gross national income, Atlas method.

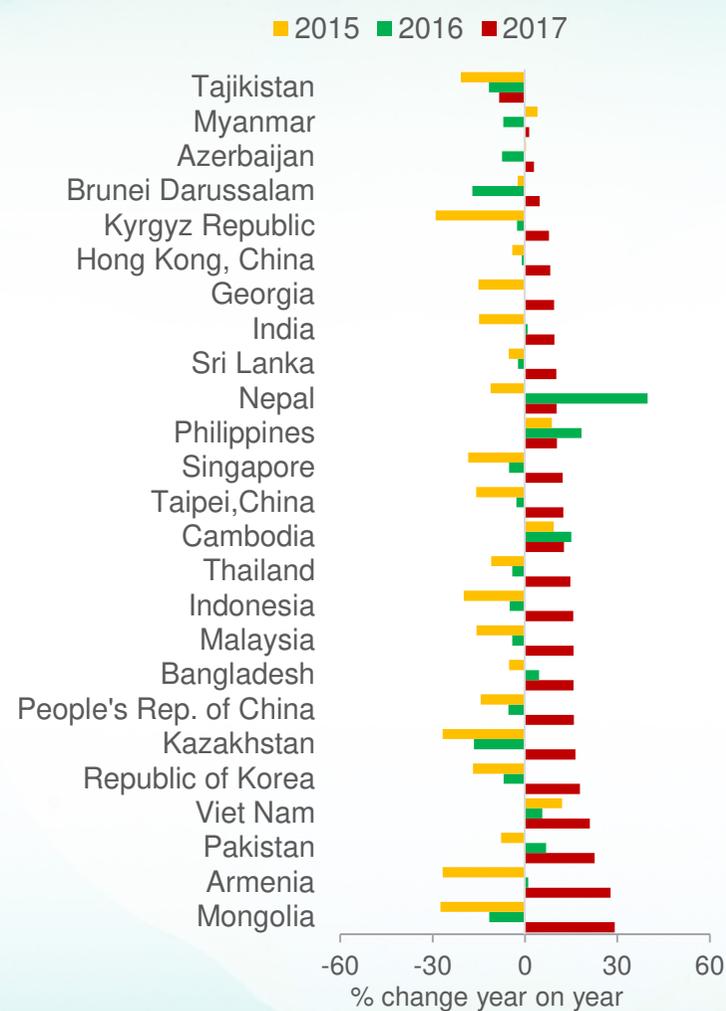
Sources: US Department of Commerce, Bureau of Economic Analysis, <http://www.bea.gov>; Eurostat, <http://epp.eurostat.ec.europa.eu>; Economic and Social Research Institute of Japan, <http://www.esri.cao.go.jp>; Consensus Forecasts; Bloomberg; CEIC Data Company; Haver Analytics; World Bank, Global Commodity Markets, <http://www.worldbank.org>; ADB estimates.

# Synchronized trade resurgence in 2017...

## Growth in nominal exports



## Growth in nominal imports



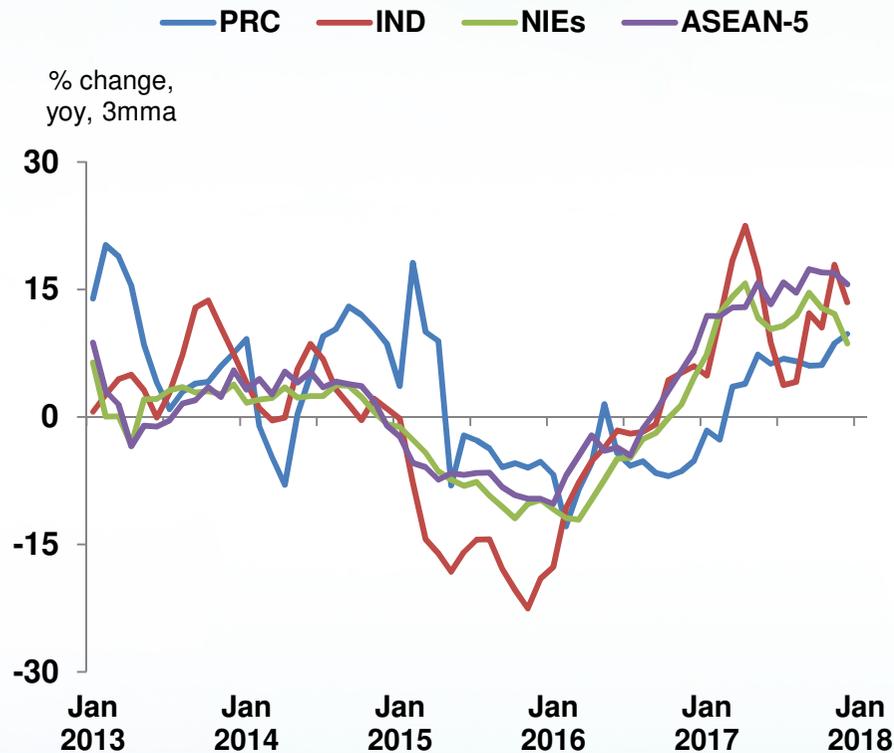
Note: For BRU, CAM, and MYA, 2017 refers to data as of November; and for KGZ, as of April.

Sources: CEIC Data Company and Haver Analytics (accessed 3 March 2018).



# ...to continue at a more modest pace

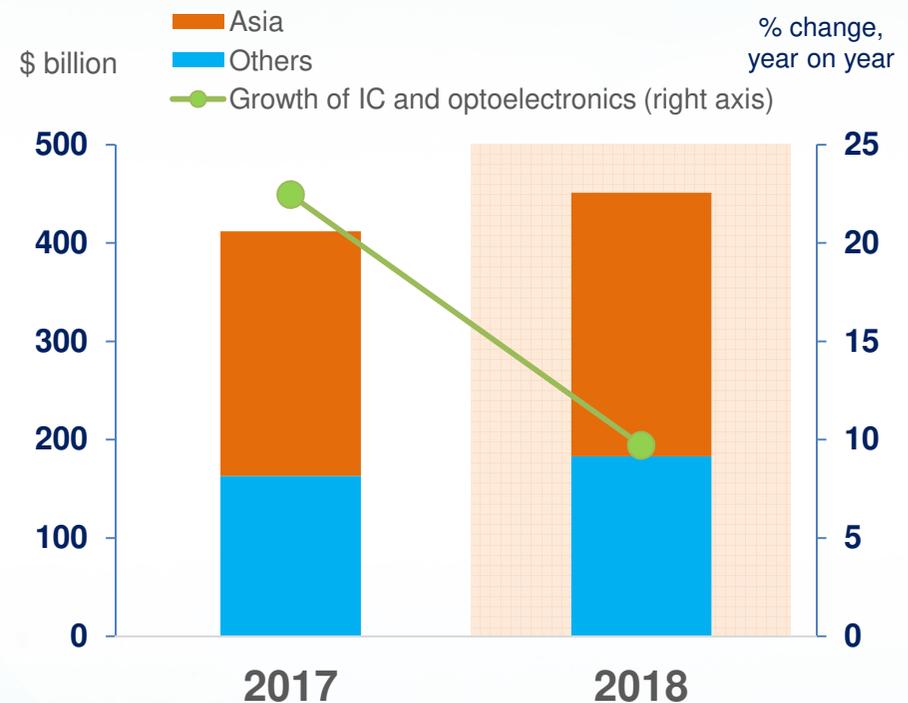
## Exports growth, selected economies



Source: CEIC Data Company (accessed 2 March 2018)

Notes: ASEAN-5 is composed of Indonesia, Malaysia, the Philippines, Thailand and Viet Nam; NIEs – are newly-industrialized economies composed of Hong Kong, China; Republic of Korea; Singapore; and Taipei, China

## Semiconductor shipments



IC = integrated circuits

Notes: Forecasts are as of 28 November 2017.

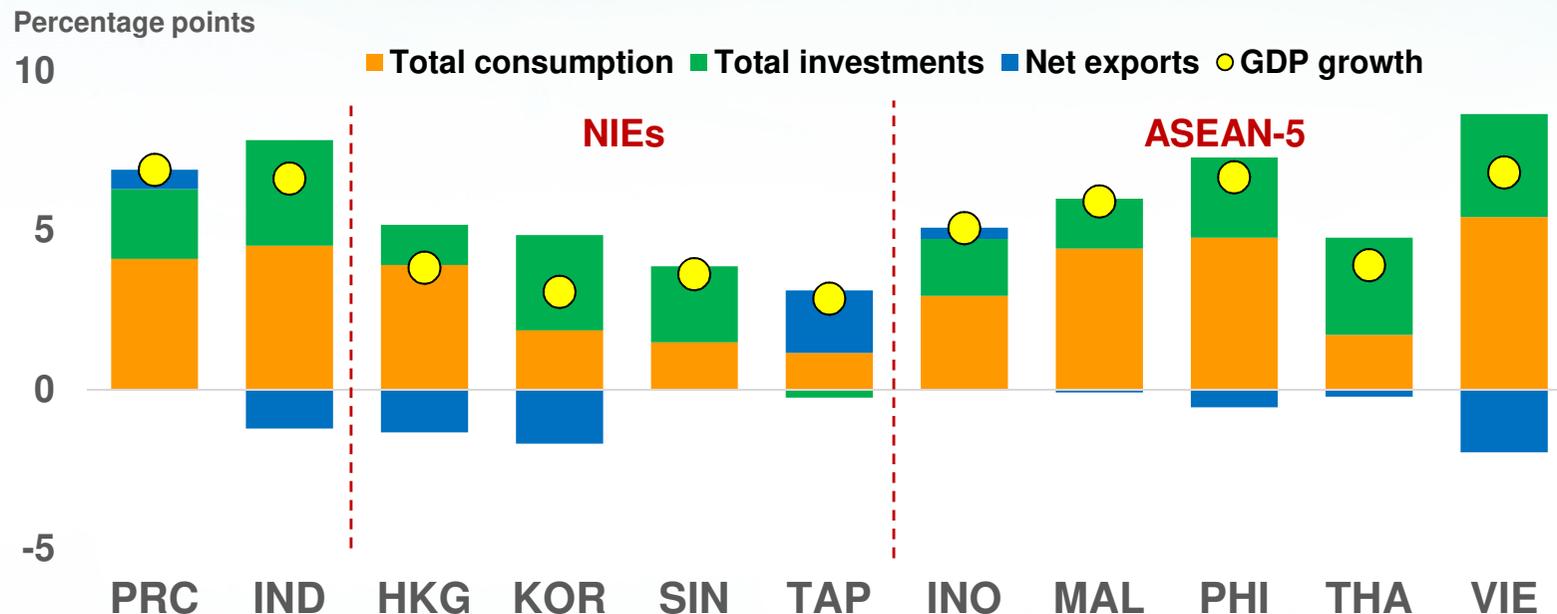
Numbers are rounded up.

Source: World Semiconductor Trade Statistics (<http://www.wsts.org>).



# Domestic demand still the main growth driver...

## Demand-side contributions to growth, selected economies, 2017



Notes: ASEAN = Association of Southeast Asian Nations; NIEs = newly industrialized economies; GDP = gross domestic product; HKG = Hong Kong, China; IND = India; INO = Indonesia; KOR = Republic of Korea; MAL = Malaysia; PHI = the Philippines; PRC = People's Republic of China; SIN = Singapore; TAP = Taipei, China; THA = Thailand. IND data refers to H1 FY2017. Components do not add up to total due to a statistical discrepancy.

Sources: Haver Analytics and CEIC Data Company (accessed 2 March 2018); *Asian Development Outlook* database.

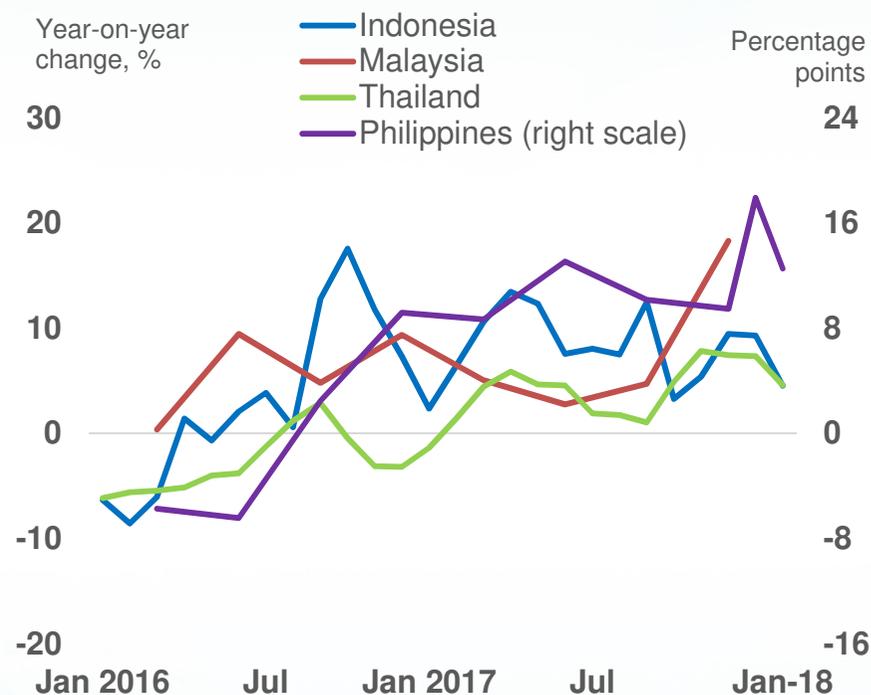
# ...and strong consumption set to continue

## Consumer confidence index, % change

### East Asia



### Southeast Asia



Notes: Data for Hong Kong, China; Malaysia and Philippines are on a quarterly basis. For the Philippines, the index refers to consumer expectations, computed as the percentage of households that answered in the affirmative less the percentage of households that answered in the negative. A positive (negative) CEI indicates a favorable (unfavorable) view.

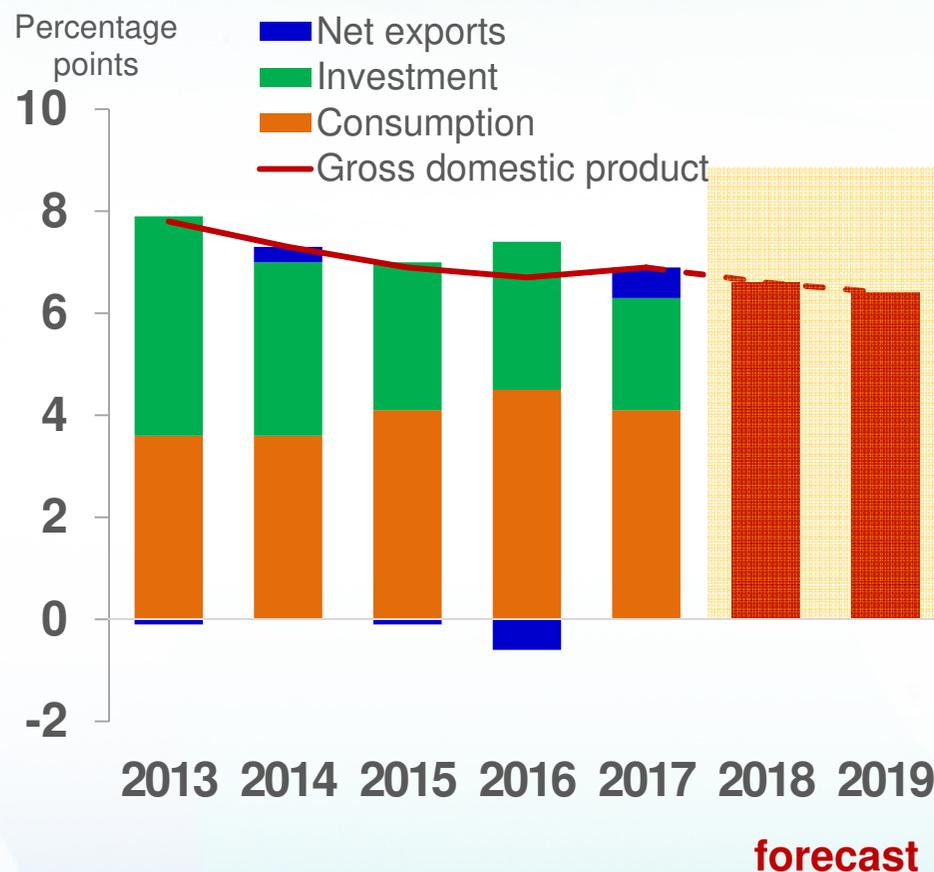
Source: Haver Analytics; CEIC Data Company (accessed 20 March 2018).

# 2018 and 2019 should consolidate gains

	2017 Actual	2018 Forecast	2019 Forecast		2017 Actual	2018 Forecast	2019 Forecast
<b>East Asia</b>	<b>6.3</b>	<b>6.0</b>	<b>5.8</b>	<b>South Asia</b>	<b>6.4</b>	<b>7.0</b>	<b>7.2</b>
China, People's Rep. of	6.9	6.6	6.4	Bangladesh	7.3	7.0	7.2
Hong Kong, China	3.8	3.2	3.0	India	6.6	7.3	7.6
Korea, Rep. of	3.1	3.0	2.9	Pakistan	5.3	5.6	5.1
Taipei, China	2.9	2.9	2.8				
<b>Southeast Asia</b>	<b>5.2</b>	<b>5.2</b>	<b>5.2</b>	<b>Central Asia</b>	<b>4.3</b>	<b>4.0</b>	<b>4.2</b>
Indonesia	5.1	5.3	5.3	Azerbaijan	0.1	1.7	2.0
Malaysia	5.9	5.3	5.0	Kazakhstan	4.0	3.2	3.5
Philippines	6.7	6.8	6.9				
Singapore	3.6	3.1	2.9	<b>The Pacific</b>	<b>2.2</b>	<b>2.2</b>	<b>3.0</b>
Thailand	3.9	4.0	4.1	Fiji	3.9	3.6	3.3
Viet Nam	6.8	7.1	6.8	Papua New Guinea	2.2	1.8	2.7
<b>Developing Asia</b>	<b>6.1</b>	<b>6.0</b>	<b>5.9</b>	<b>Excluding NIEs</b>	<b>6.6</b>	<b>6.5</b>	<b>6.4</b>

# PRC growth will sustain moderation in favor of reforms

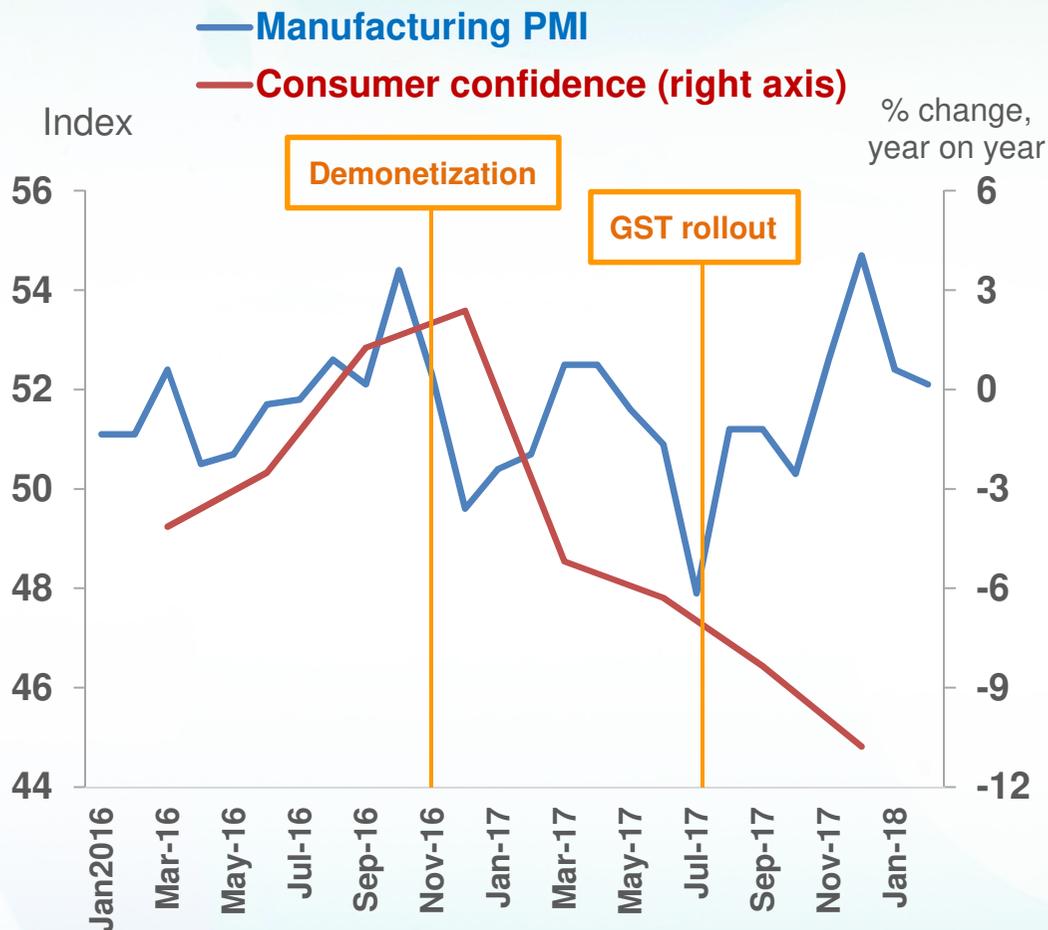
## Demand-side contributions to growth



- **Growth will moderate over 2018–2019**
- **Government priorities to improve quality of growth:**
  - 1 Heading off financial risks
  - 2 Controlling environmental pollution
  - 3 Targeted intervention to eliminate poverty

Sources: Bloomberg; Haver Analytics; and CEIC Data Company (accessed 19 February 2018).

# India growth picks up as headwinds fade

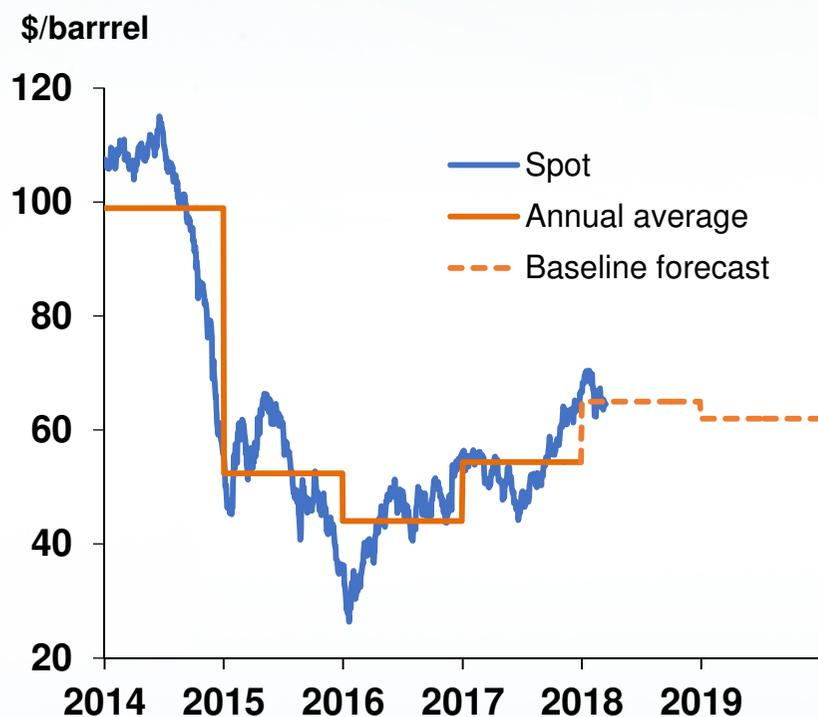


GST=goods and services tax, PMI=purchasing managers index

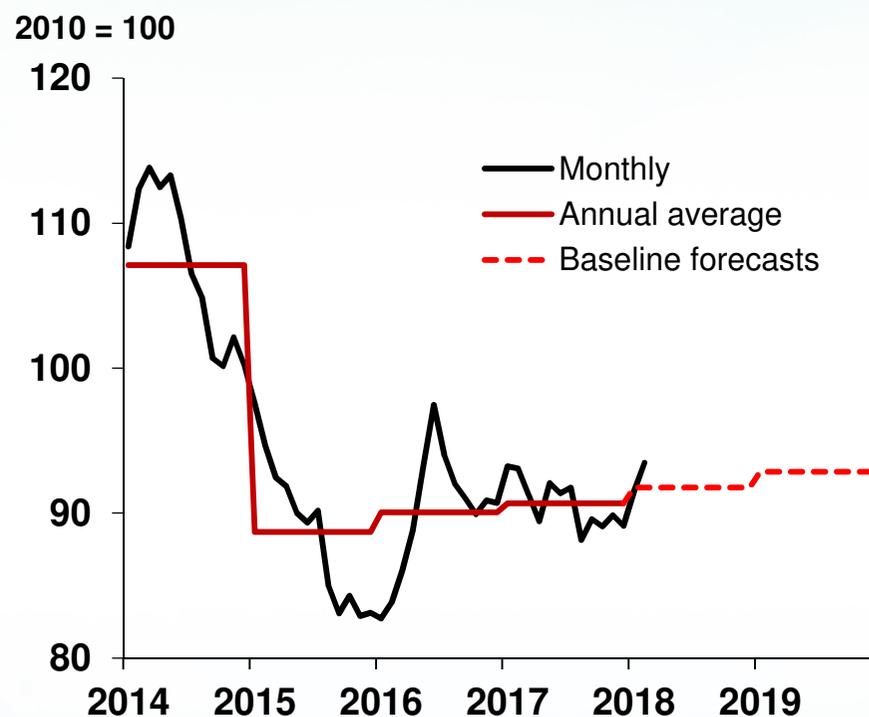
- Temporary effects from demonetization and GST rollout easing
- Growth to accelerate in FY2018 and FY2019
- India forecast to be the fastest growing large economy

# The pickup in global commodity prices...

## Brent crude prices

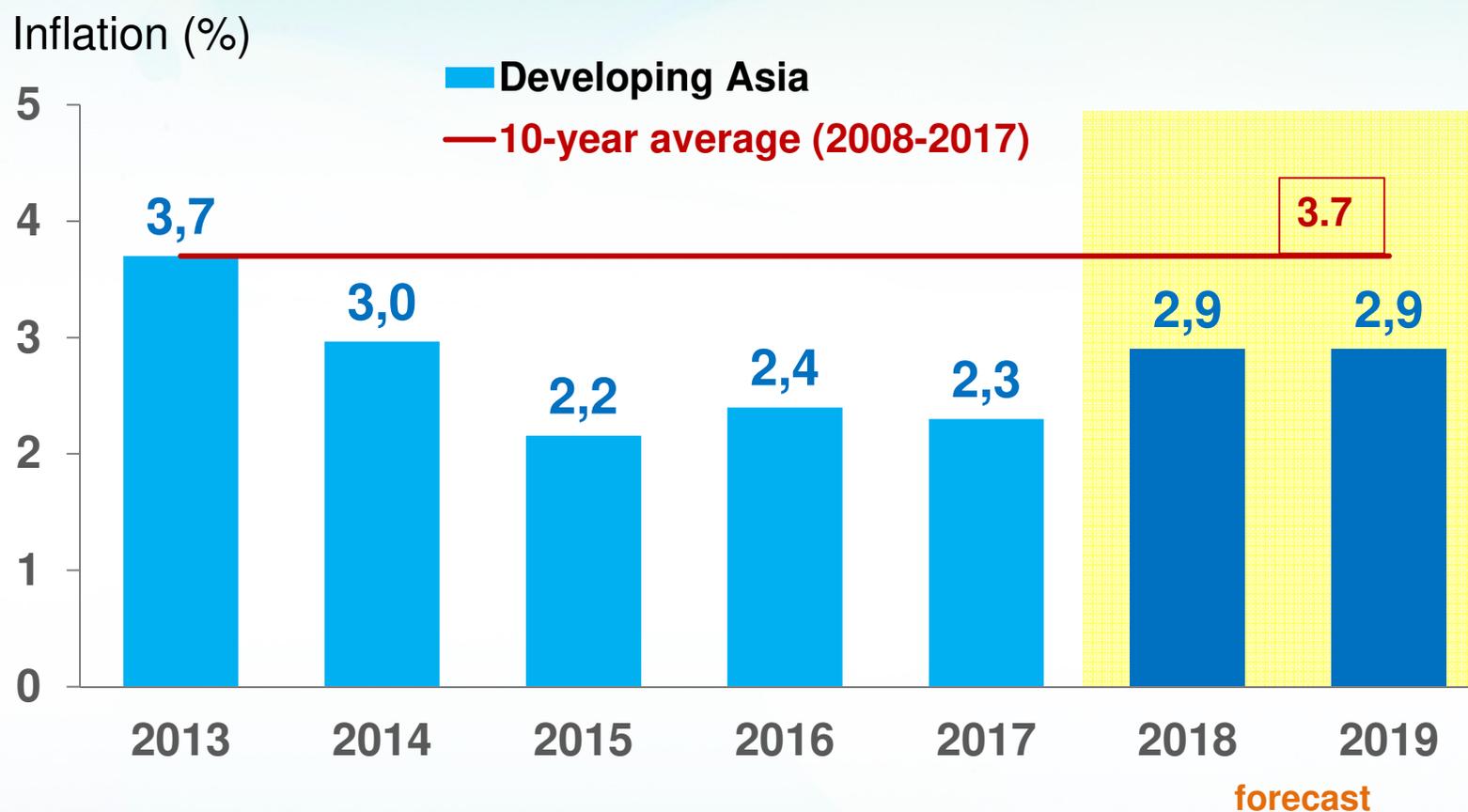


## Food price index



Sources: Bloomberg; World Bank. Commodity Price Data (Pink Sheet). <http://www.worldbank.org> (accessed 16 March 2018).

# ...will give a modest boost to inflation



Source: Asian Development Outlook database.

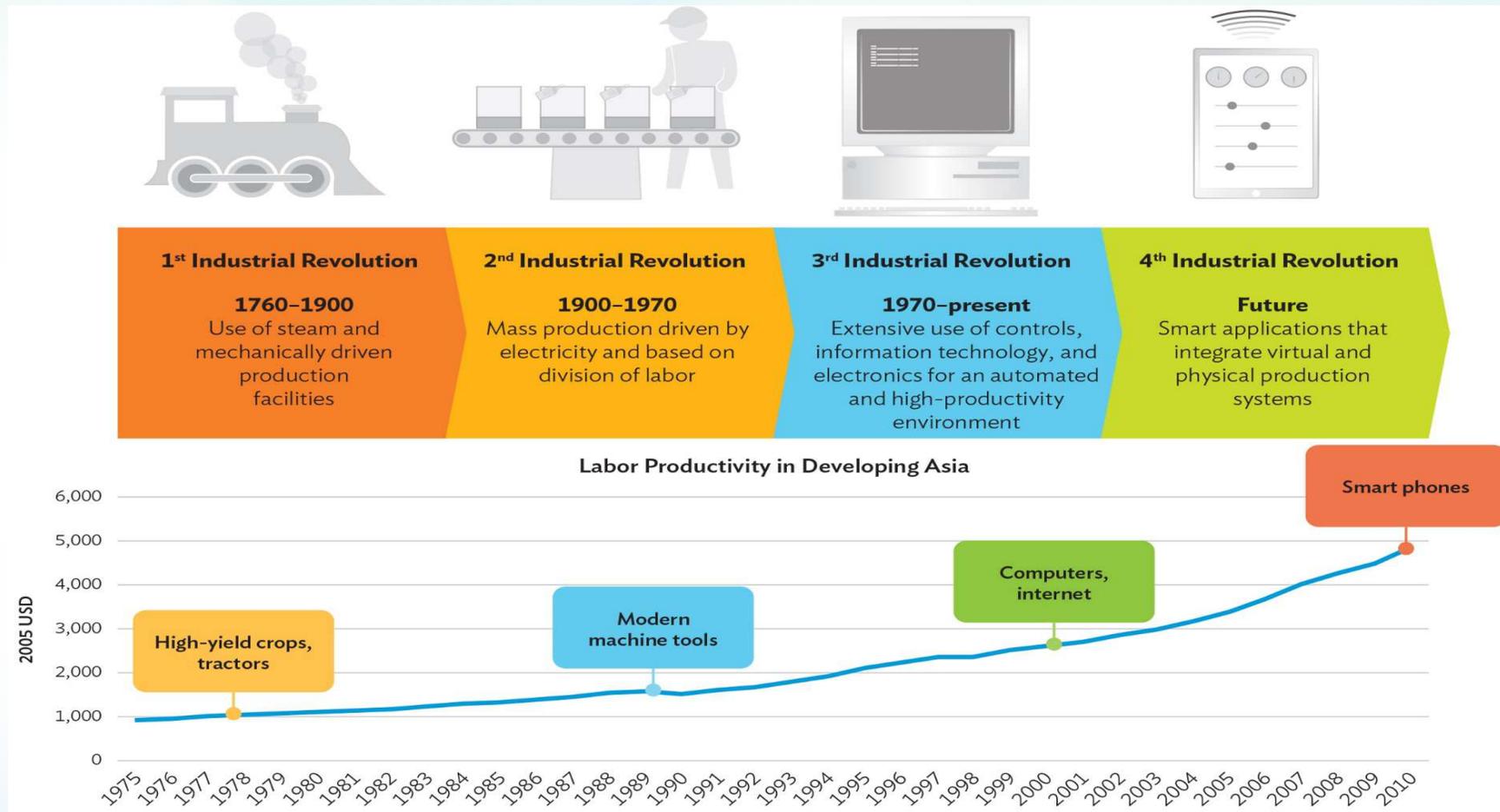
# Risks to the outlook are on the downside

- **Escalation of trade tensions**
  - Limited impact of US tariffs so far
  - Further US tariffs or responses to them could tip the balance
- **Interest-rate induced capital flow shifts**
  - Baseline assumes rising path of US Fed interest rates
  - A more aggressive stance could reverse Asia's capital flows
- **Impact of rising private debt on growth**
  - Quality of debt should be pushed, need to closely monitor debt trends and build more efficient financial systems

**Improved fiscal and financial positions bolster developing Asia's resilience to shocks**

# **Theme chapter:** **How Technology Affects Jobs**

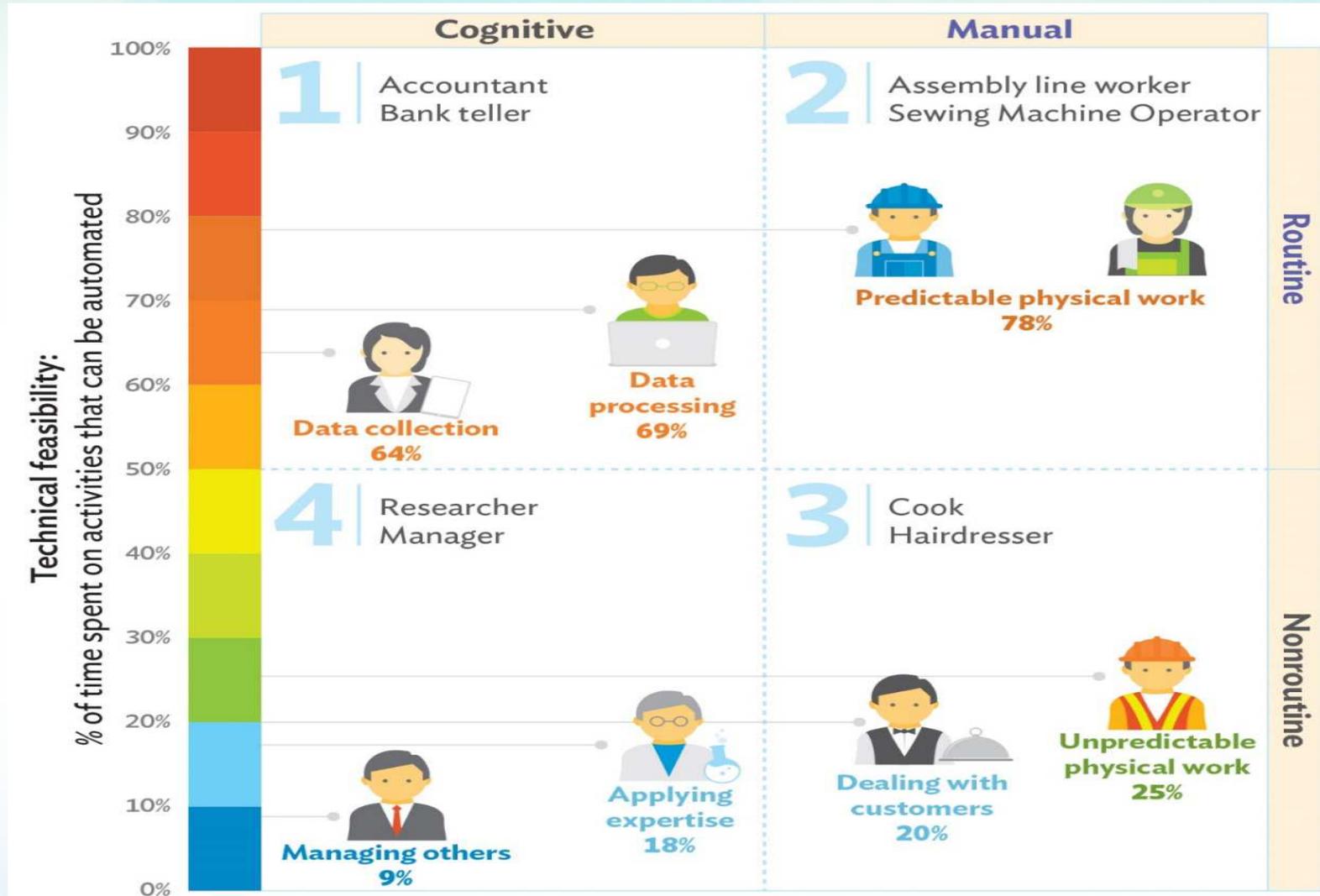
# Technological advancement drives higher productivity, the foundation for better-paid jobs and economic growth



# **There are compelling reasons for optimism 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.**

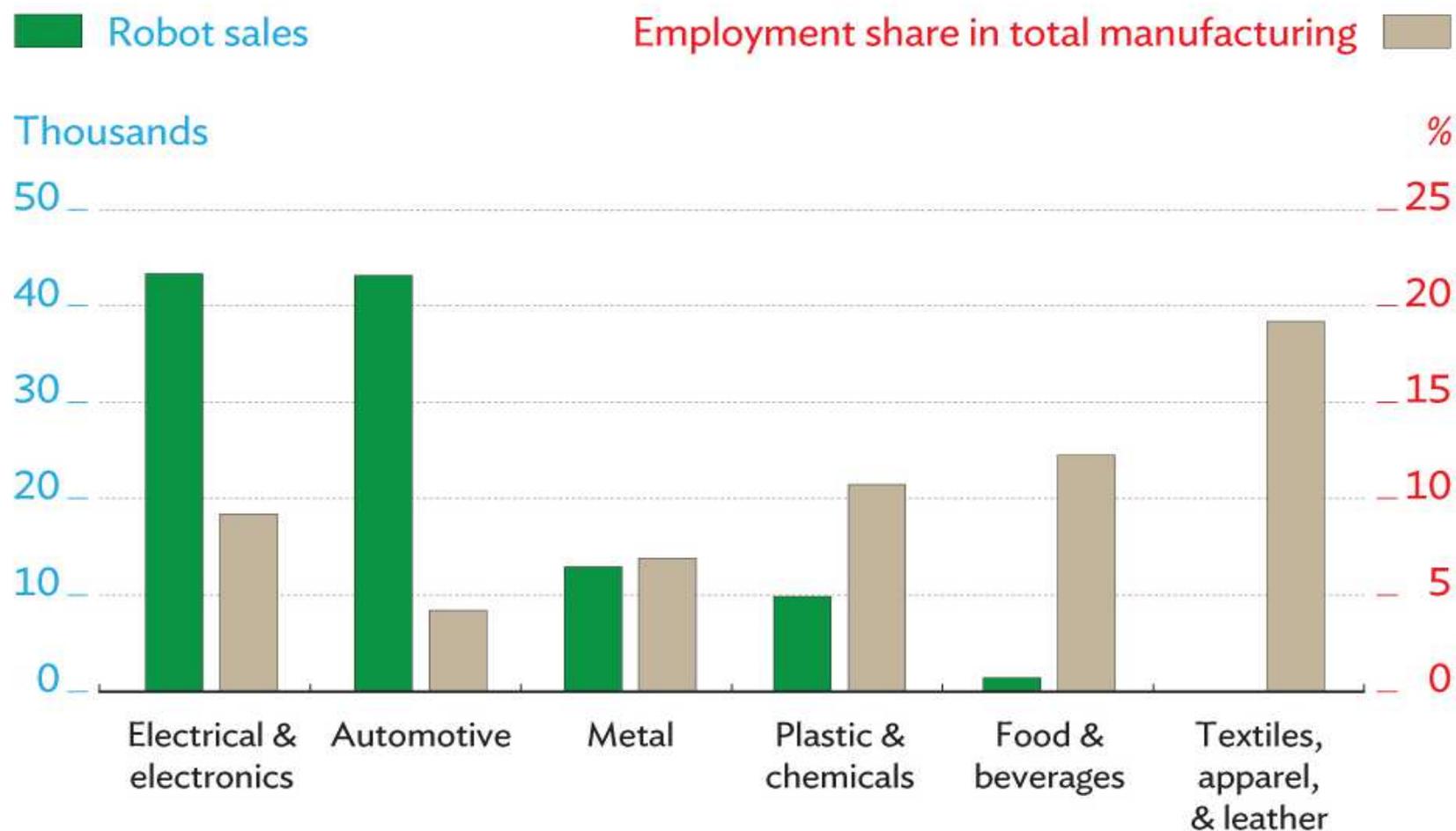
# New technologies often involve automating specific tasks associated with a job, not the job in its entirety



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*.

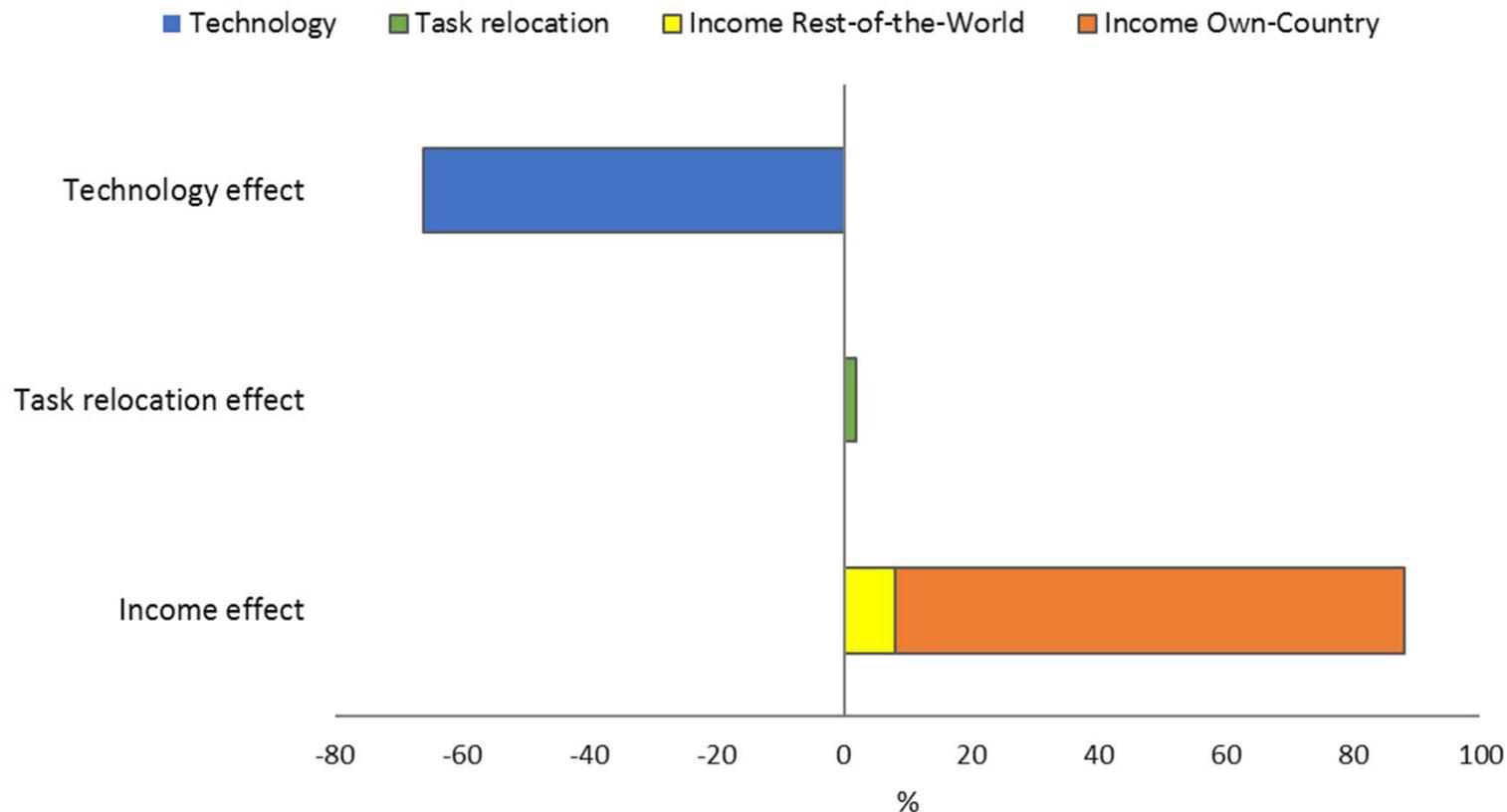
## Industrial robots are concentrated in capital intensive sectors where employment shares are relatively small



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

# Rising demand offsets displacement driven by automation

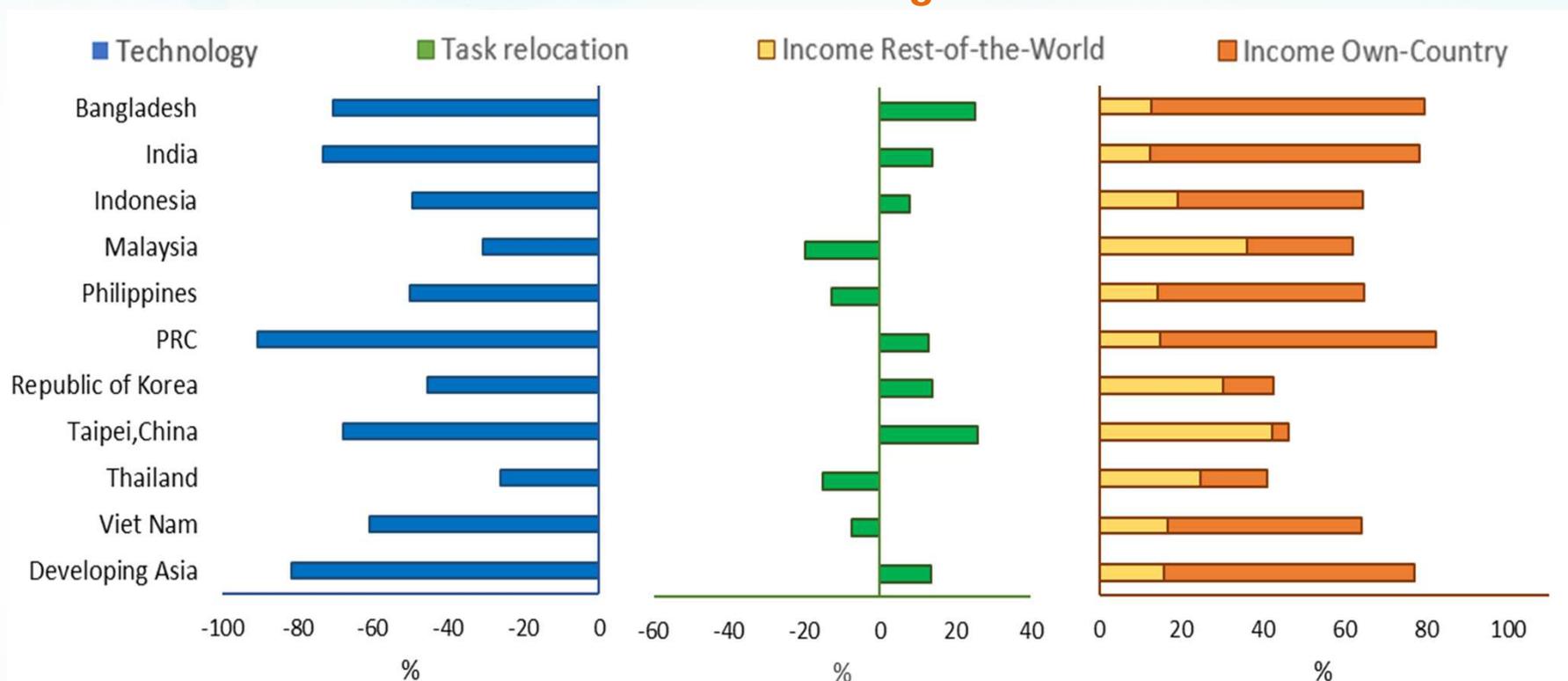
## Decomposing the percentage change in employment, 2005-2015



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

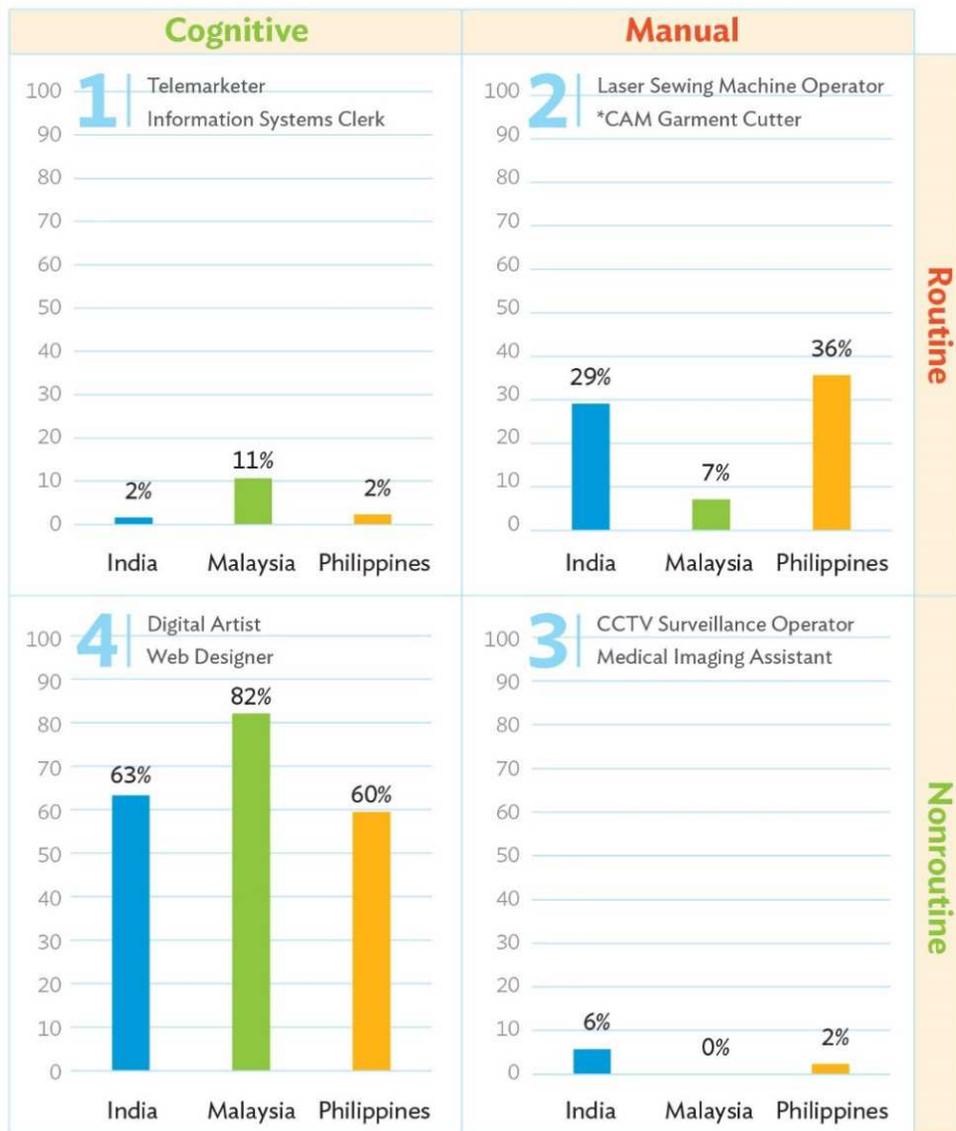


GVC = global value chain, PRC = People's Republic of China.

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



\* Computer Aided Manufacturing

% refers to share of new job titles

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

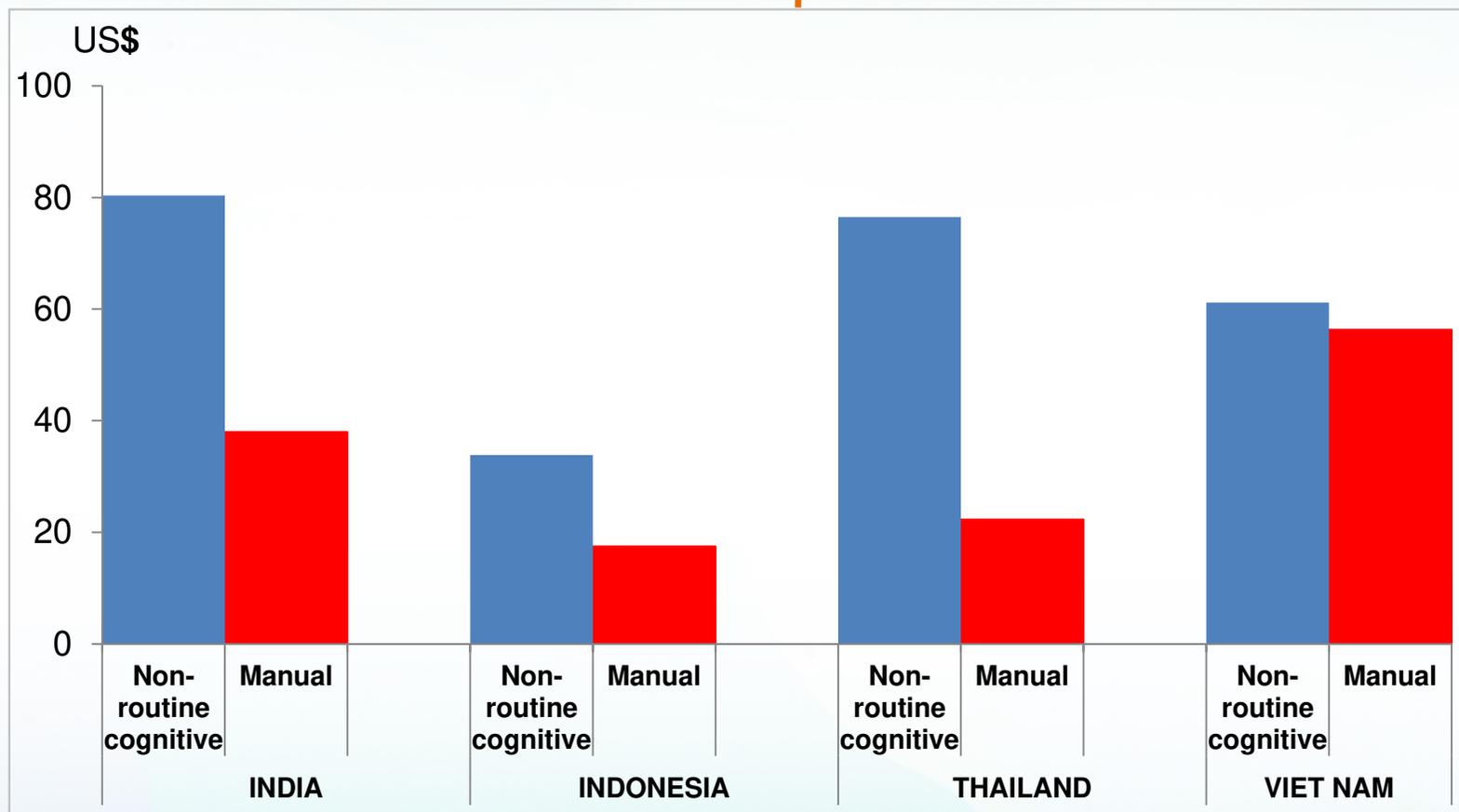
New job titles, various time periods

	Total No. of Job Titles (latest year)	No. of New Job Titles	Share of New Job Titles
India 2004-2015	3,600	120	3.33%
Malaysia 1998-2008	2,338	28	1.20%
Philippines 1990-2012	3,698	42	1.14%

Notes: The figures are based on a comparison of National Classification of Occupations (NCO) for each country. Source: Asian Development Outlook 2018: How Technology Affects Jobs

# Wages grew more for non-routine cognitive workers, leaving low-skill workers behind

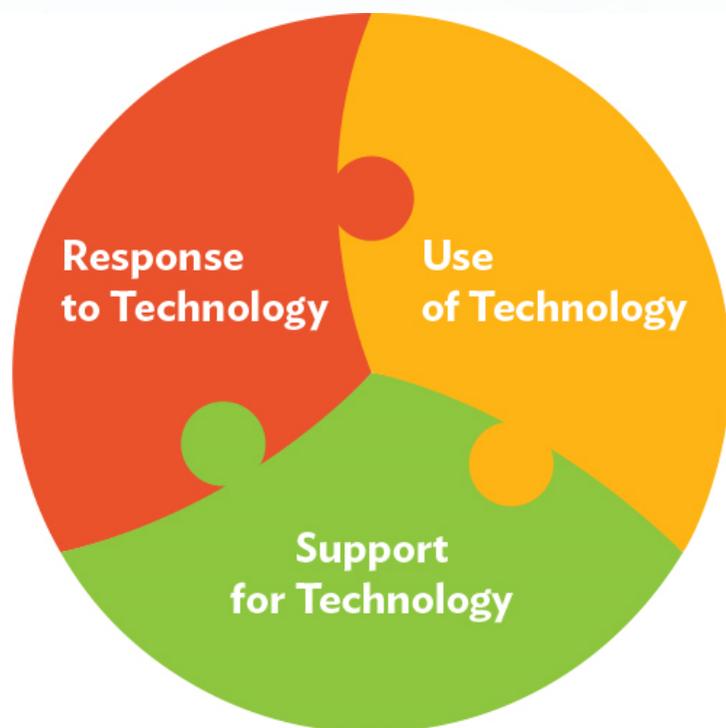
Changes in average monthly wages, constant US dollar, various time periods\*



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

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