Economic Growth and Productivity Gaps in Asia: For Past Four Decades and the Next Two

アジア経済の成長と生産性格差―過去40年と将来見通し―

Koji NOMURA
Keio University, Tokyo

野村浩二
慶應義塾大学 産業研究所, 准教授
アジア生産性機構（APO）APO Productivity Databook Project, Project Manager

Research Institute of Capital Formation, Development Bank of Japan, January 9, 2015
日本政策投資銀行 設備投資研究所「中国・アジア研究会」
2015年1月9日（金） 14:00～16:00@東京金融ビレッジ

Contents

1. National Accounts, Revision in PPP, and Economic Growths in Asia
   - SNA implementation in Asian countries (as of the end of 2014)
   - PPP Revisions in 2011 ICP Round (published in April 2014)
   - Growth of Asian Economy
2. Productivity Gaps and its Sources, 1970–2012
   - Labor productivity: comparisons of level and growth
   - Capital deepening and GFCF
   - TFP growth
   - Industry origins
3. Economic Policies in some Asian countries
   - Policy challenges
4. Projection of Economic Growth until 2020/2030
   - Demographic dividend
   - Comparison with OECD/dev, 2014-18

1. National Accounts, Revision in PPP, and Economic Growths in Asia

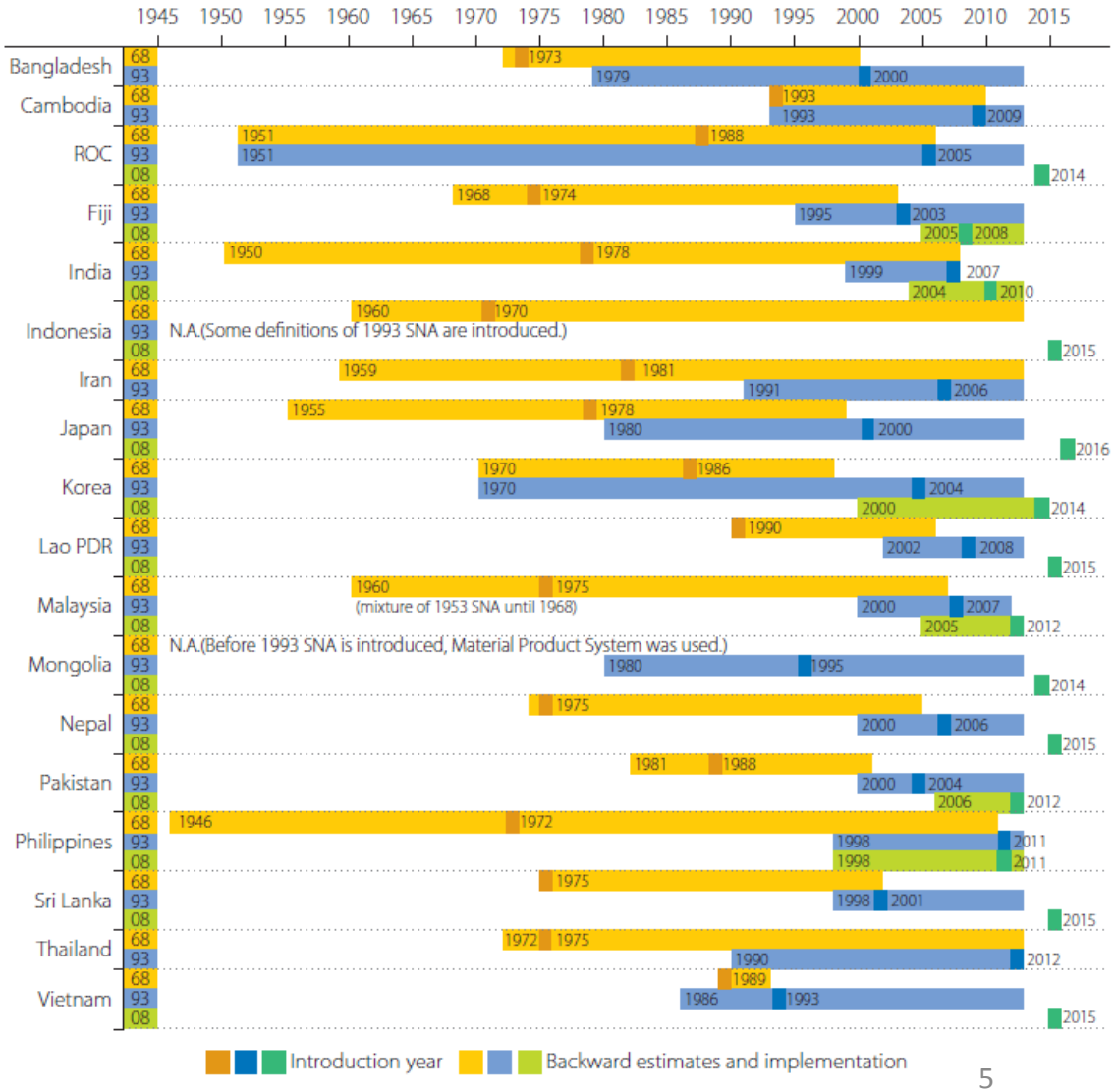
Map of countries covered

Source: APO(2014) *APO Productivity Databook 2014*.

System of National Accounts in Asian Countries

—SNA 2008 was introduced in 8 countries in Asia until 2014.

- Implementation of the 1968, the 1993, and the 2008 SNA
  - Most Asian countries are currently 1993 SNA compliant (partly or fully), but 6 economies (Fiji, Hong Kong, India, the Philippines, Malaysia, and Korea) introduced the 2008 SNA until the publication of Databook 2014. In 2014, it was introduced in ROC and Mongolia.
  - In the 2008 SNA compliant, the availability of the backward estimates are very limited in some countries.
  - To develop a long-term database covering the APO member countries, it is required to use the national accounts based on the 1968 SNA.
  - Thus, for the purpose of international comparisons with harmonized estimates, the national accounts variations should be reconciled.



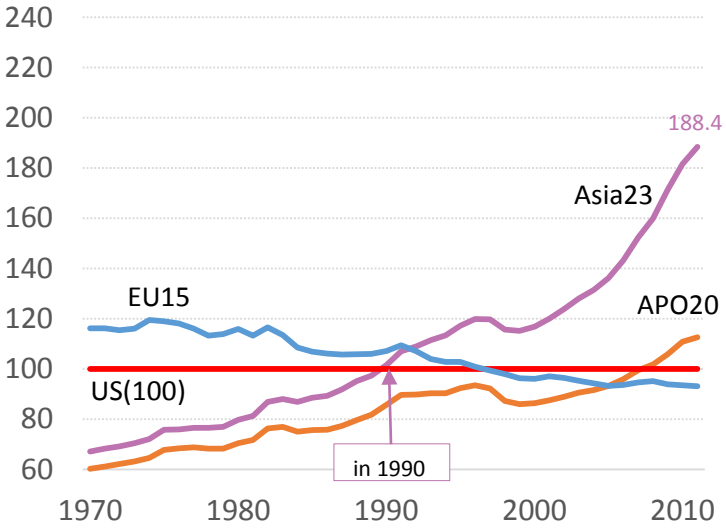
Source: APO(2014) *APO Productivity Databook 2014*.

Revision in Size of the Asian Economy

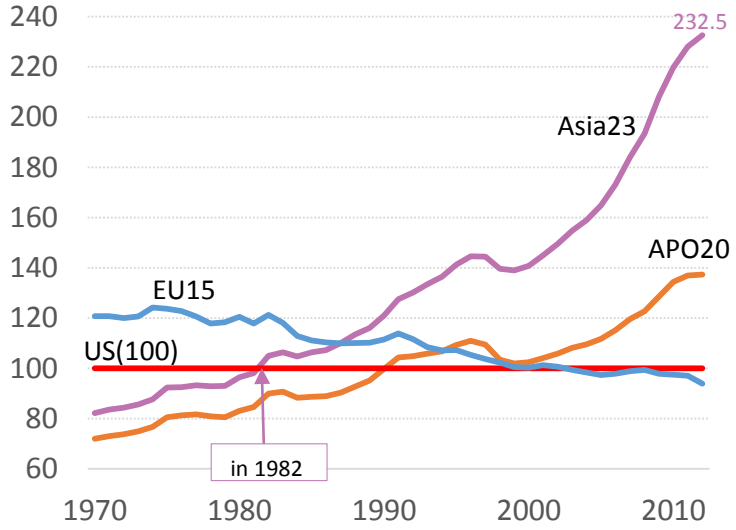
—New estimates of PPP revised the sizes of regional economies.

- Regional GDP Sizes of Asia, EU, and the US, 1970-2012
  - Regional GDP sizes are revised in the *Databook 2014*, mainly due to the revision of PPPs from the 2005 ICP Round to the 2011 ICP Round.
  - By this revision, the relative size of Asian23 economy increased by 21% in 2011.
  - The Asian economy overtaken the US economy in 1982 (revised from 1990 in the past estimates).
  - The Asian economy is 2.3 times larger than the US economy in 2012 (revised from 1.9 times in 2011).

Databook 2013 (based on the 2005 ICP Round)



Databook 2014 (based on the 2011 ICP Round)

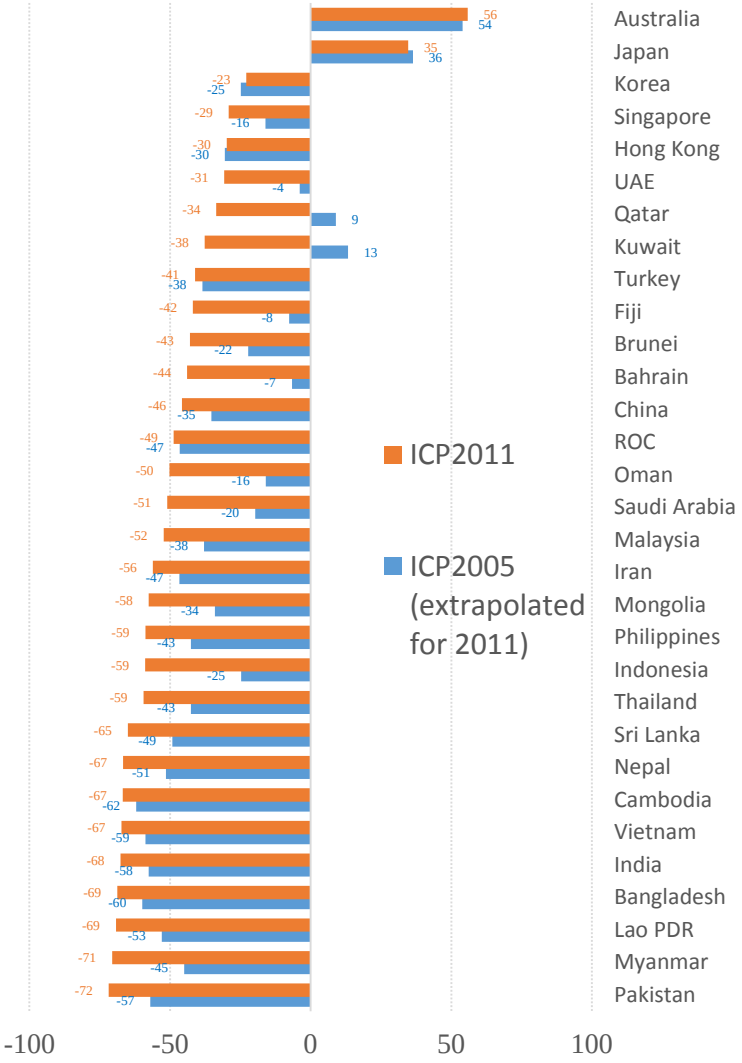


Source: APO(2014) *APO Productivity Databook 2014*.

Revision in Price Levels of Asian Countries

—The exchange rates under-represent the relative purchasing power.

- Price Level Indices in 2011
  - The new benchmark PPPs for most of the Asian countries are lower than the PPPs suggested by their extrapolated equivalents from the 2005 ICP.
  - This revision resulted in raising the relative sizes of the economy; e.g. Myanmar (47%), Indonesia (45%), Mongolia (36%), Lao PDR (35%), Pakistan (34%), Nepal (31%), Sri Lanka (31%), India (24%), China (16%), and so on.
  - Impact of the revisions in the mature Asian economies (Japan, Hong Kong, ROC, and Korea) are minor, except Singapore (increased by 16%).
  - → Per-capita GDP in Singapore overtook Japan in 1980 (revised from 1993 as estimated in the Databook 2013) and the U.S. in 1992 (revised from 2004)... Is this a true picture?



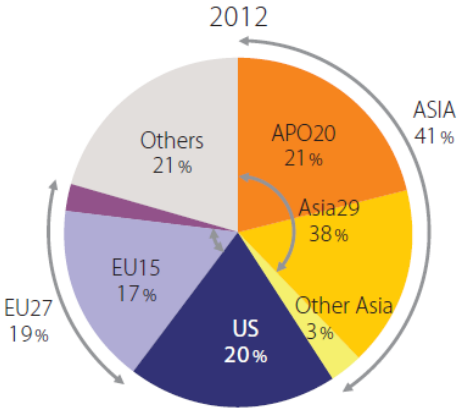
Price Level Indices of GDP, 2011

-Ratio of PPP to exchange rate (reference country=US)

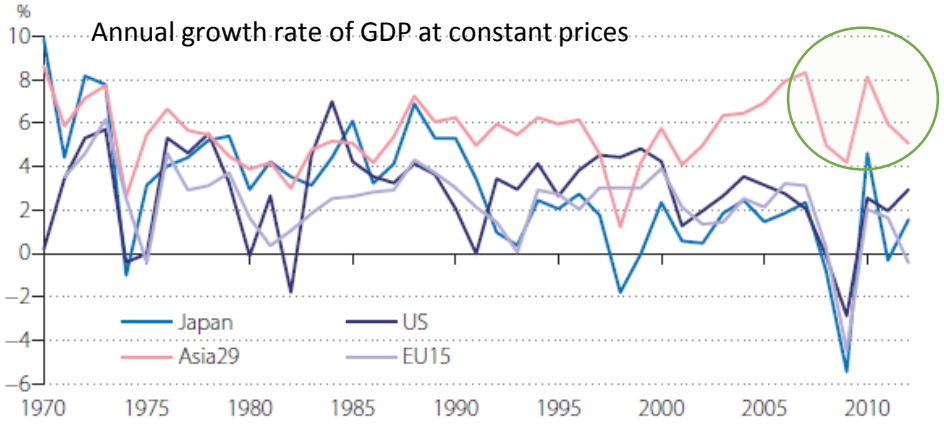
Source: APO(2014) *APO Productivity Databook 2014*.

Asia in the World Economy

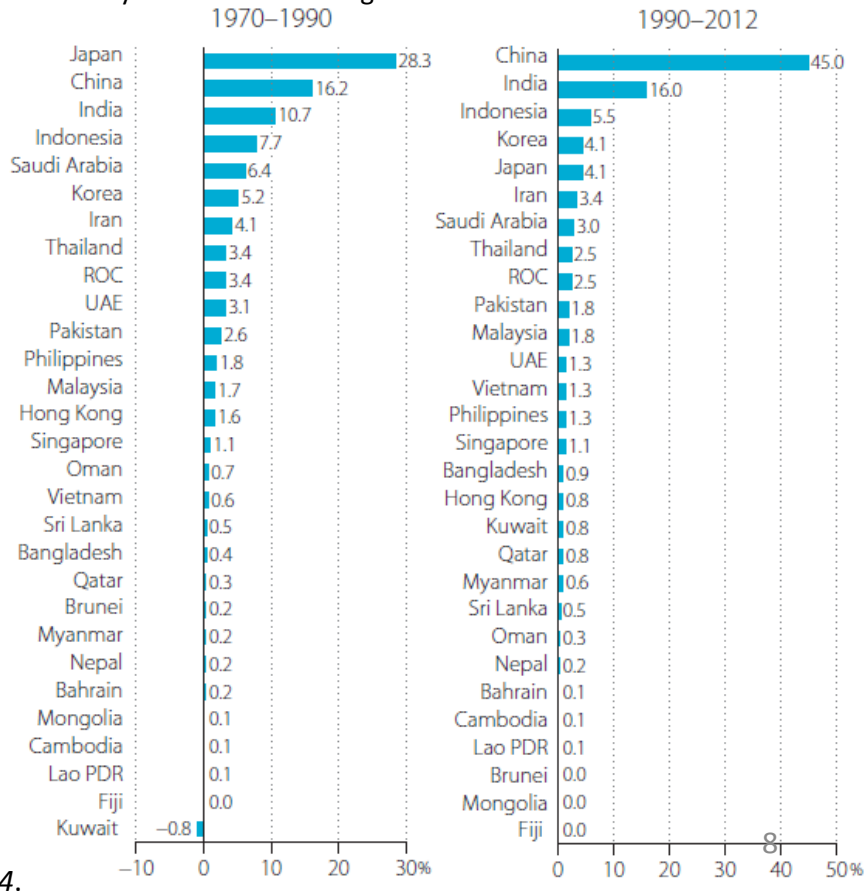
—Asia contribute 41% of world output in 2012.



- Economic growth and country contributions, 1970–90 and 1990–2012
  - Asian growth has been outperforming the West over the past two decades.
  - China and India have emerged as the driving force propelling Asia forward during 1990–2012, accounting for 45% and 16% of regional growth. Indonesia is at the 3rd position.
  - The disconnect between the 2008-2009 financial crisis and the emerging countries growths is new important feature of the global economy.



Country Contributions o Regional GDP Growth

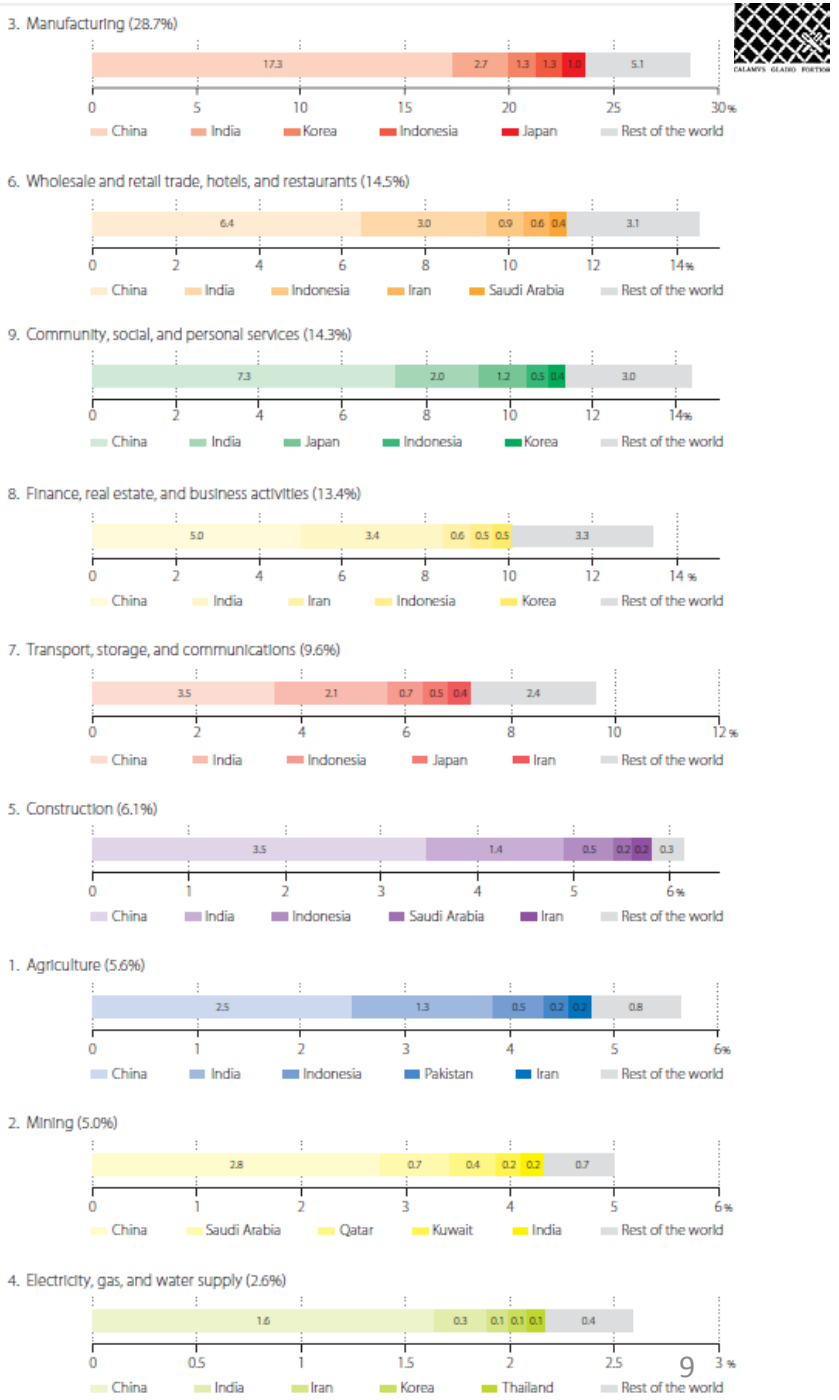


Source: APO(2014) *APO Productivity Databook 2014*.

Industry Origins of Asian Growth

—Expansions of manufacturing and the derivative services are significant.

- Industry contributions to Asian economic growth, 2000–2012.
  - Asian economy grew by 6.0% annually in 2000–2012, compared to 1.7% and 1.1% in the U.S. and EU27.
  - A total of 29% of Asian economic growth originated from the expansion of its manufacturing sector, two-thirds of which was accounted for by China.
  - The top four industries in terms of contributions to regional growth were manufacturing (29%), wholesale and retail trade (15%), community, social, and personal services (14%), and finance, real estate, and business activities (13%).
  - Roughly, half of the economic growth was originated to the expansion of manufacturing.



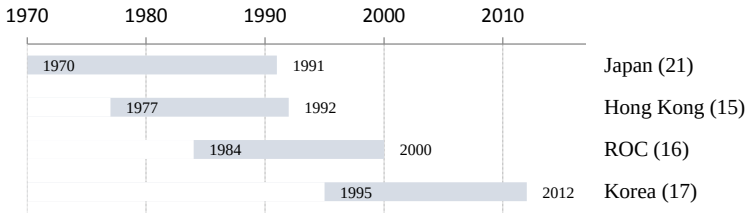
Source: APO(2014) *APO Productivity Databook 2014*.

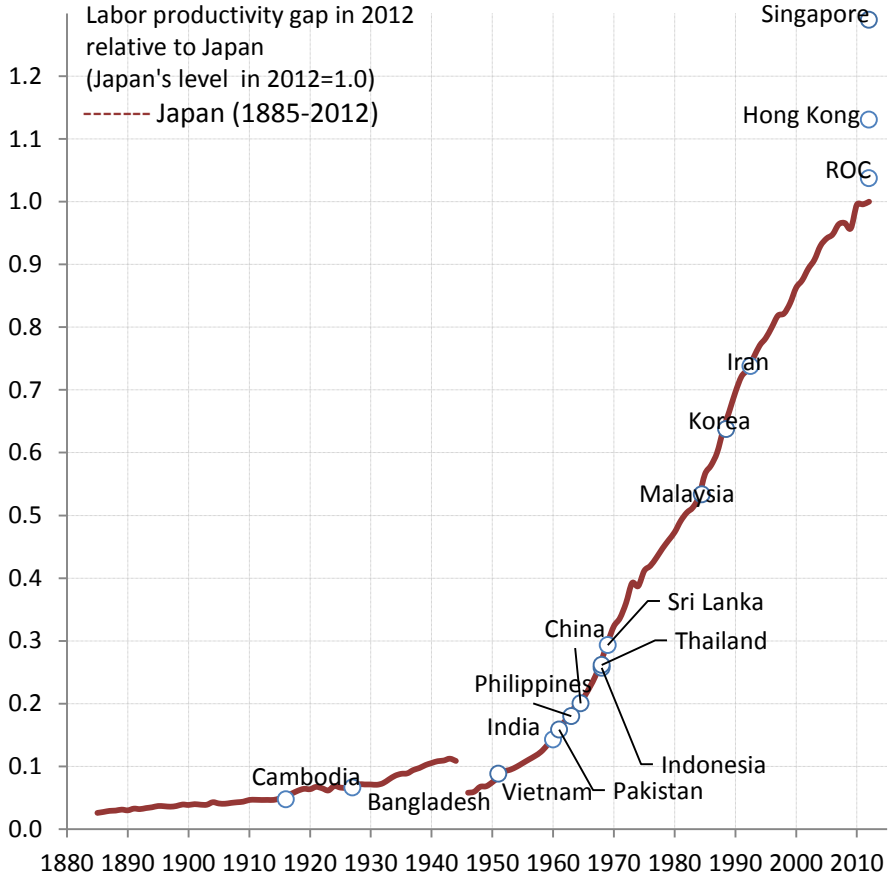
2. Productivity Gaps and its Sources, 1970–2012

Labor Productivity Gap of Asian Countries

—There is ample room for catch-up for developing Asian countries.

- Per-Hour Labor Productivity Gap in 2012
  - Most Asian countries are clustered around Japan's level in the 1950s and early 1970s (10%–30% of Japan's level today)
  - There is ample room for catch-up and sound policies may enable them to increase a speed to catch up.
  - What Japan had achieved in the 21 years from 1970 to 1991 (30–70% of Japan's level today), Hong Kong, the ROC, and Korea managed to achieve in 15, 16, and 17 years, respectively.





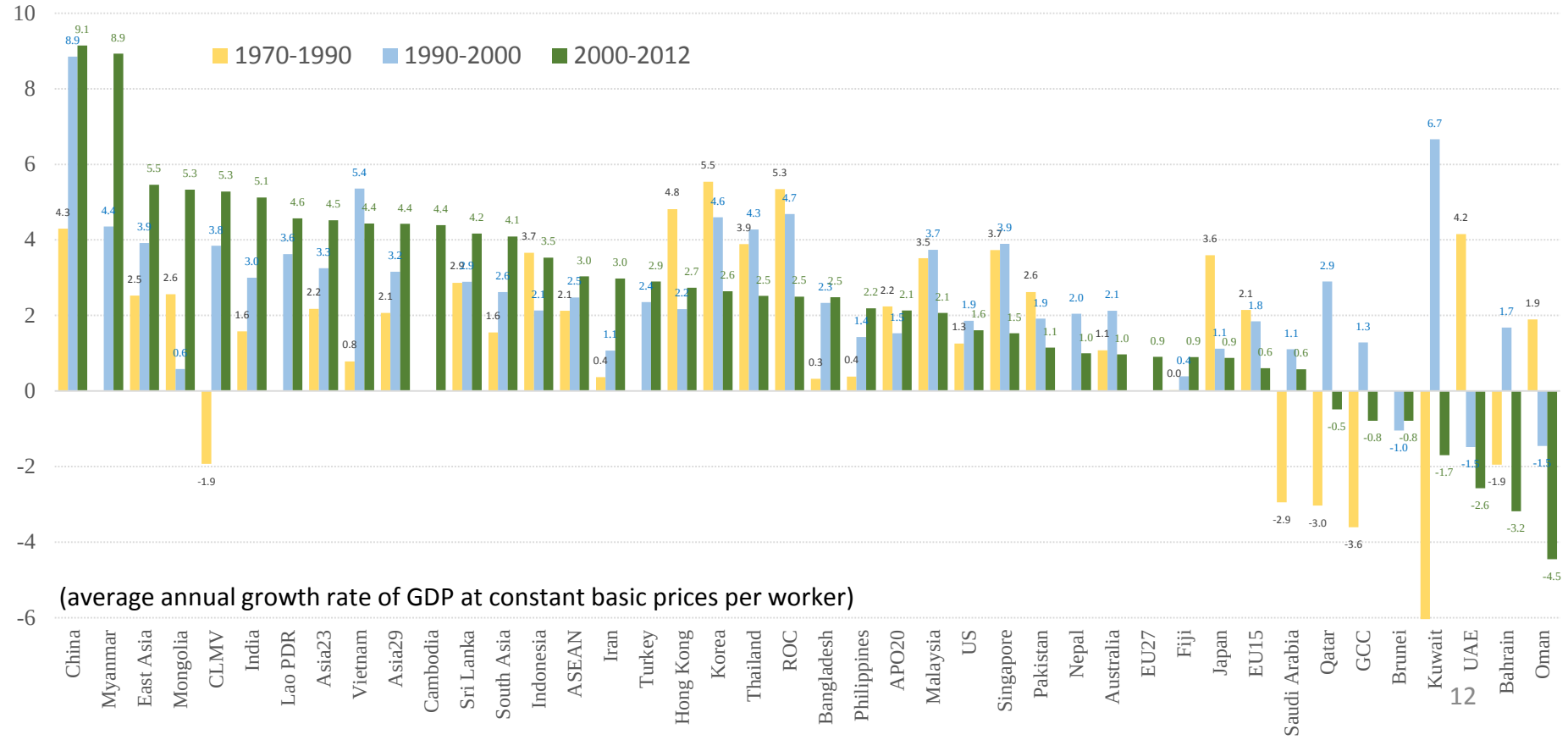
Sources: For historical data of Japan, the sources of GDP are Long-Term Economic Statistics by Ohkawa et al. (1974) during 1885–1954 and the JSNA by ESRI, Cabinet Office of Japan, during 1955–2012 (including author adjustments). Hours worked data is based on KEO Database during 1955–2012. During 1885–1954, the average hours worked per worker are assumed to be constant. For the labor productivity level of Asian countries in 2012, it is based on the APO Productivity Database2014 (ver.01).

Source: APO(2014) *APO Productivity Databook 2014*.

Labor Productivity Performances: Past Four Decades

—Asia's productivity growth has been accelerated in the 1990s and the 2000s.

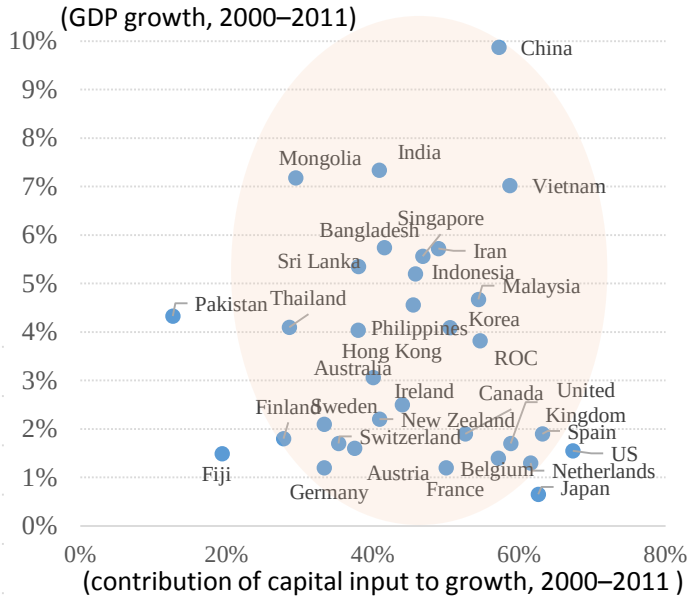
- Per-Worker Labor Productivity Growths, 1970–1990, 1990–2000, and 2000–2012
  - ALP growths in ROC, Korea, and Hong Kong peaked in 1970–1990, then slowed down.
  - ALP growths in Malaysia, Thailand, and Singapore peaked in the 1990s and were slowed down in 2000–12.
  - Myanmar, Mongolia, Iran, and India changed gears in 2000–12.
  - Asia23's ALP growth records 4.5% annually in 2000–12, compared to 3.3% in 90–2000 and 2.2% in 1970–90.

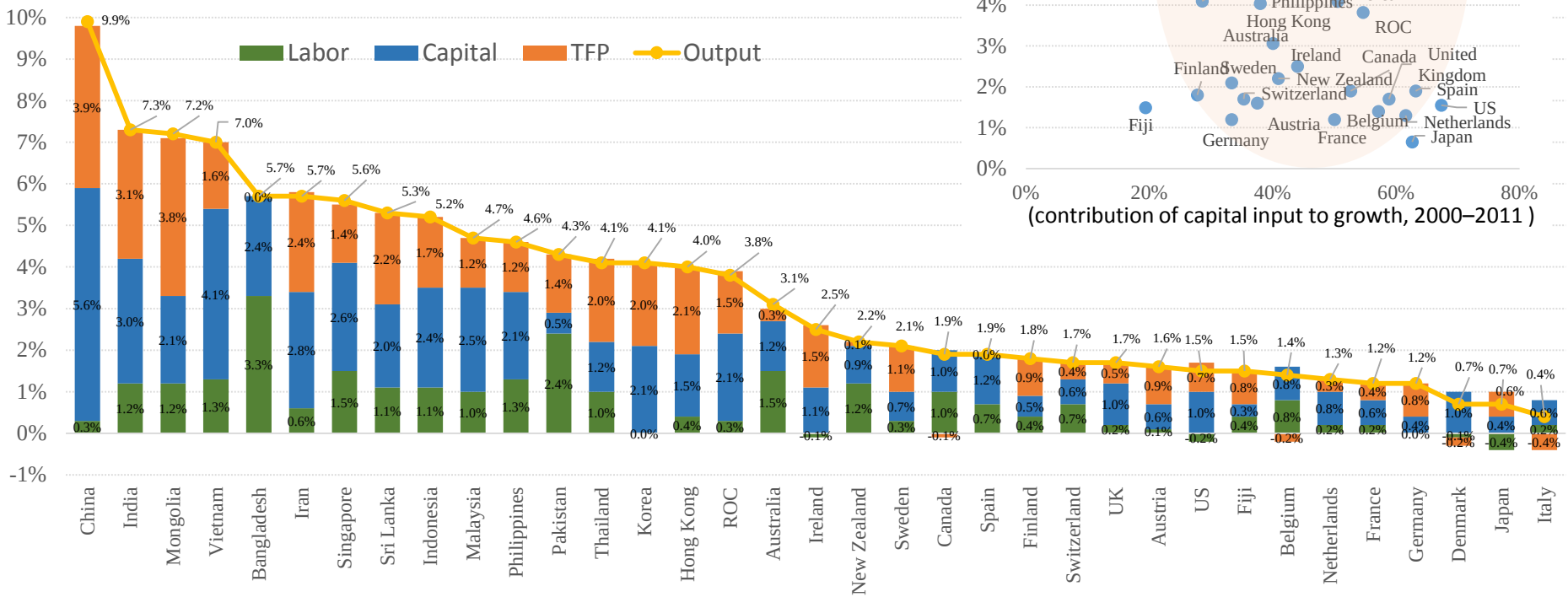


Capital Input and Economic Growth

—Main engine of the economic growth is capital input.

- Sources of Economic Growths in Asia and OECD Countries, 2000–2011
  - ➢ Contributions of capital input are the most significant not only in developing Asian economies, but also in mature Asian and OECD countries. (see the right figure)
  - ➢ A key to improve labor productivity is an accumulation of assets, which embody the past technological changes.



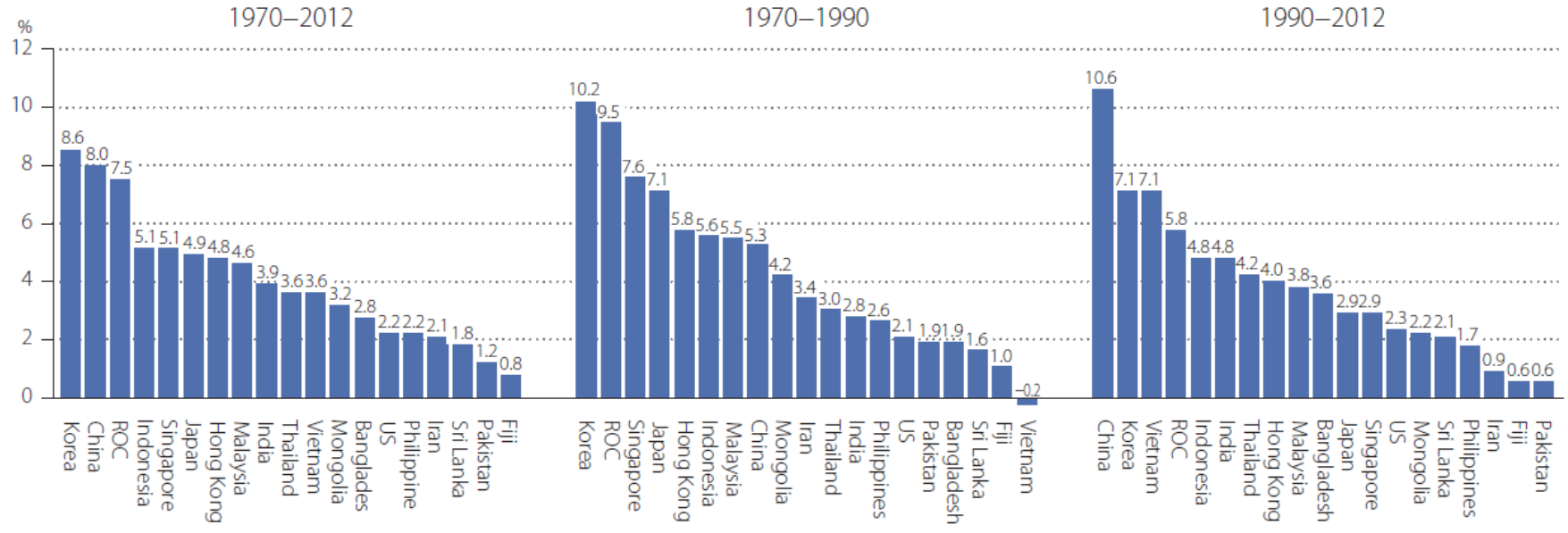


Sources: APO Productivity Database 2014 (ver01) for APO member countries and China and the US; OECD Stat for OECD countries (except Japan and Korea).
The ending years are different: Australia and Portugal are until 2010 and the UK is until 2009.

Capital Deepening

—Economic growths has involved capital deepening in all countries.

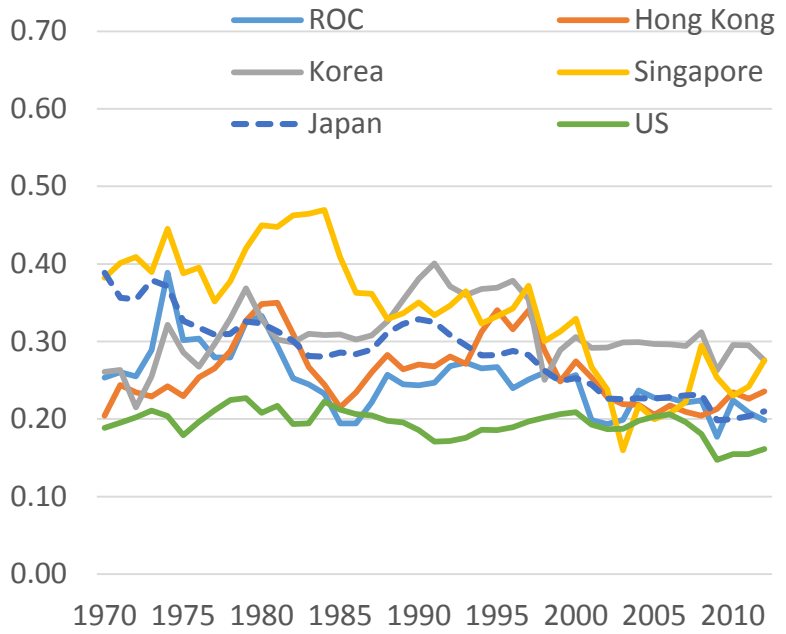
- Capital Deepening, 1970–2012, 1970–1990, and 1990–2012
  - "Capital deepening" is an increasing in capital intensity (defined as the capital stock available per hour worked; Z/H).
  - In 1990–2012, China, Vietnam, India, Indonesia, and Thailand moved up to occupy the top spots, while Singapore and Japan stepped down in the rankings.
  - The capital deepening is still very moderate in Pakistan, Fiji, Iran, the Philippines, and Sri Lanka.

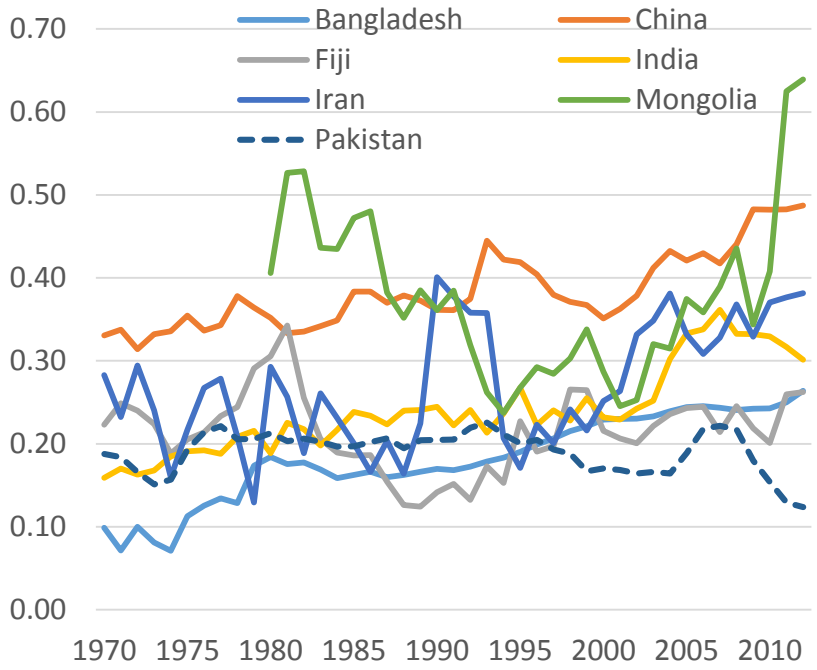


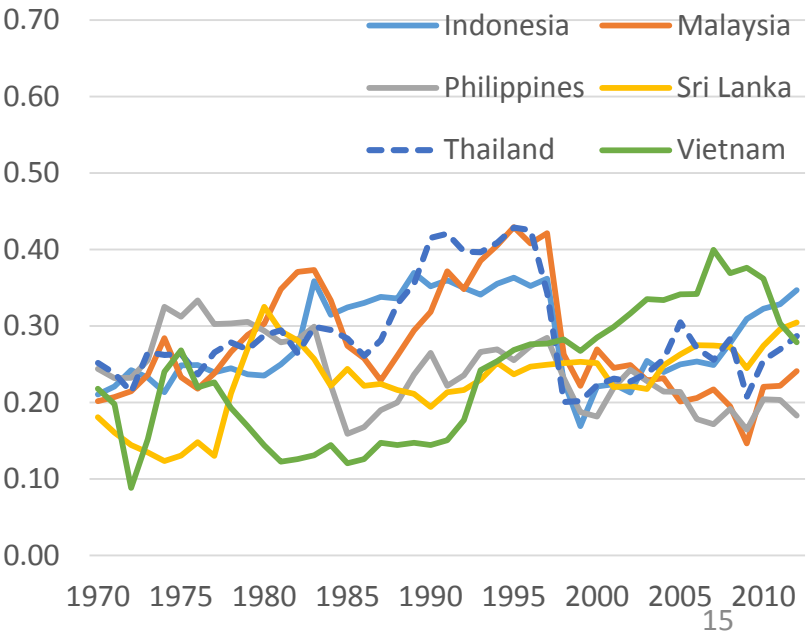
Source: APO(2014) *APO Productivity Databook 2014*.

Gross Fixed Capital Formation

- Investment Share in GDP, 1970–2012
  - Investment share has decreased in Japan and Asian Tigers. At present they are 20-30%.
  - China invest half of GDP and Mongolia invest more than 60% recently.
  - Indonesia could recovery the level before the Asian financial crisis, although Malaysia and Thailand could not.
  - Pakistan, Fiji, Bangladesh and the Philippines invest less than 20% of GDP.



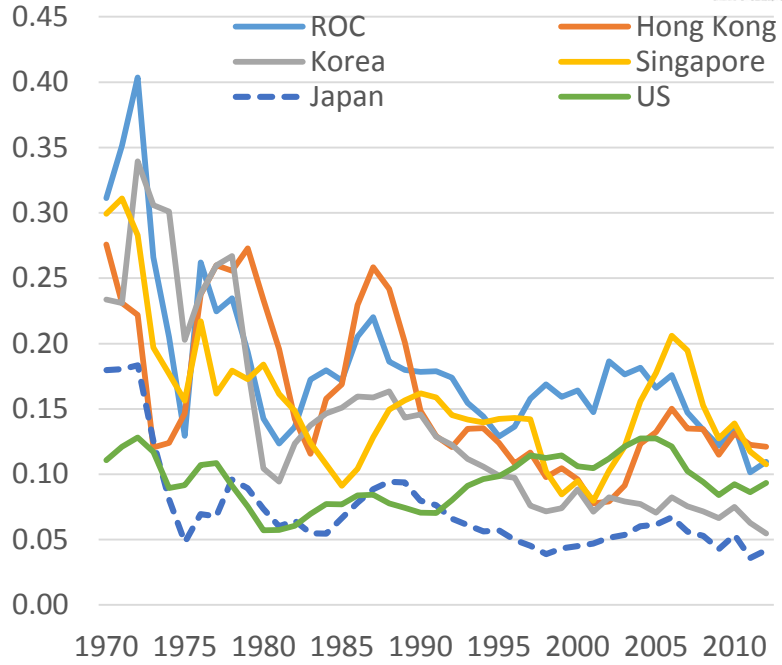


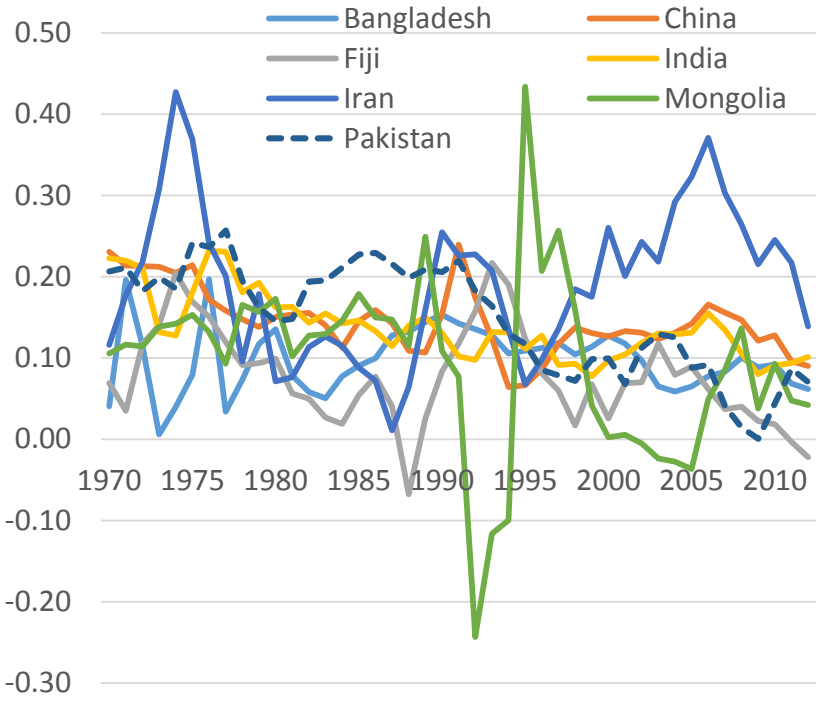


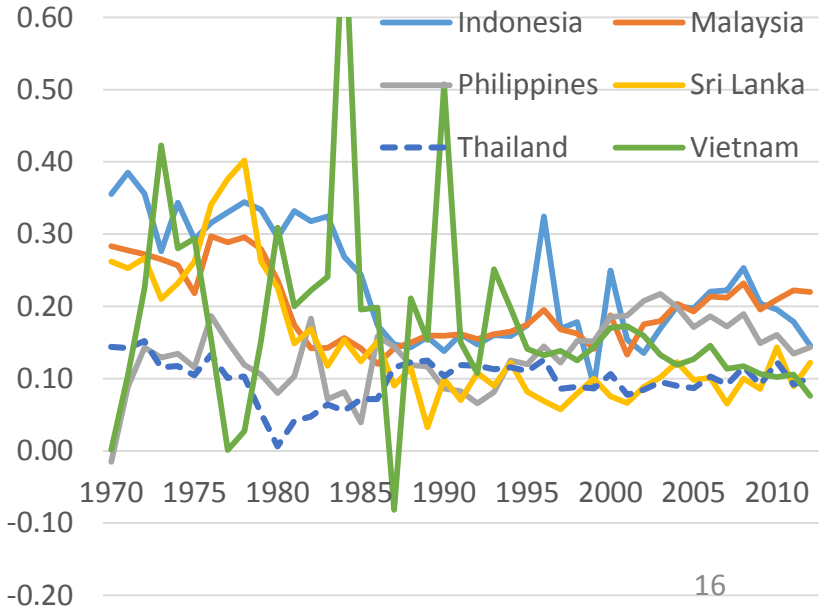
Source: APO(2014) *APO Productivity Databook 2014*.

Decreasing Rate of Return

- Ex Post Real Rate of Return, 1970–2012
  - The real rate of return has been considerably decreased in ROC and Korea.
  - At present, higher rate of return may be expected in Malaysia, Indonesia, the Philippines, Iran, Sri Lanka, Thailand, and Vietnam.
  - Still small rate of return in Fiji and Pakistan.







Source: APO(2014) *APO Productivity Databook 2014*.

Business Environment in Asia

- Business Environment Ranking, 2014–18
  - Based on the Economist Intelligence Unit's ranking (covering 82 countries), Bangladesh (69th), Pakistan (74th), and Iran (81th) are in the bottom 10 percent.

Country	Global ranking 2014-2018	Change from ranking 2009-2013
Singapore	1	(←1)
(Switzerland)	2	(←2)
Hong Kong	3	(←3)
(Canada)	4	(↖7)
Australia	5	(←5)
(Sweden)	6	(↙4)
USA	7	(↖8)
(New Zealand)	8	(↖11)
(Finland)	9	(↙6)
(Denmark)	10	(↙9)
(Germany)	12	(↙10)
ROC	14	(↖16)
(Netherlands)	16	(↙12)
Malaysia	19	(↖24)
Qatar	21	(←21)
(France)	23	(↙18)
(Spain)	25	(↖26)
Korea	26	(↙25)
Japan	27	(←27)
UAE	30	(↙29)
(Mexico)	32	(←32)
Thailand	34	(↖38)
Bahrain	35	(↙33)

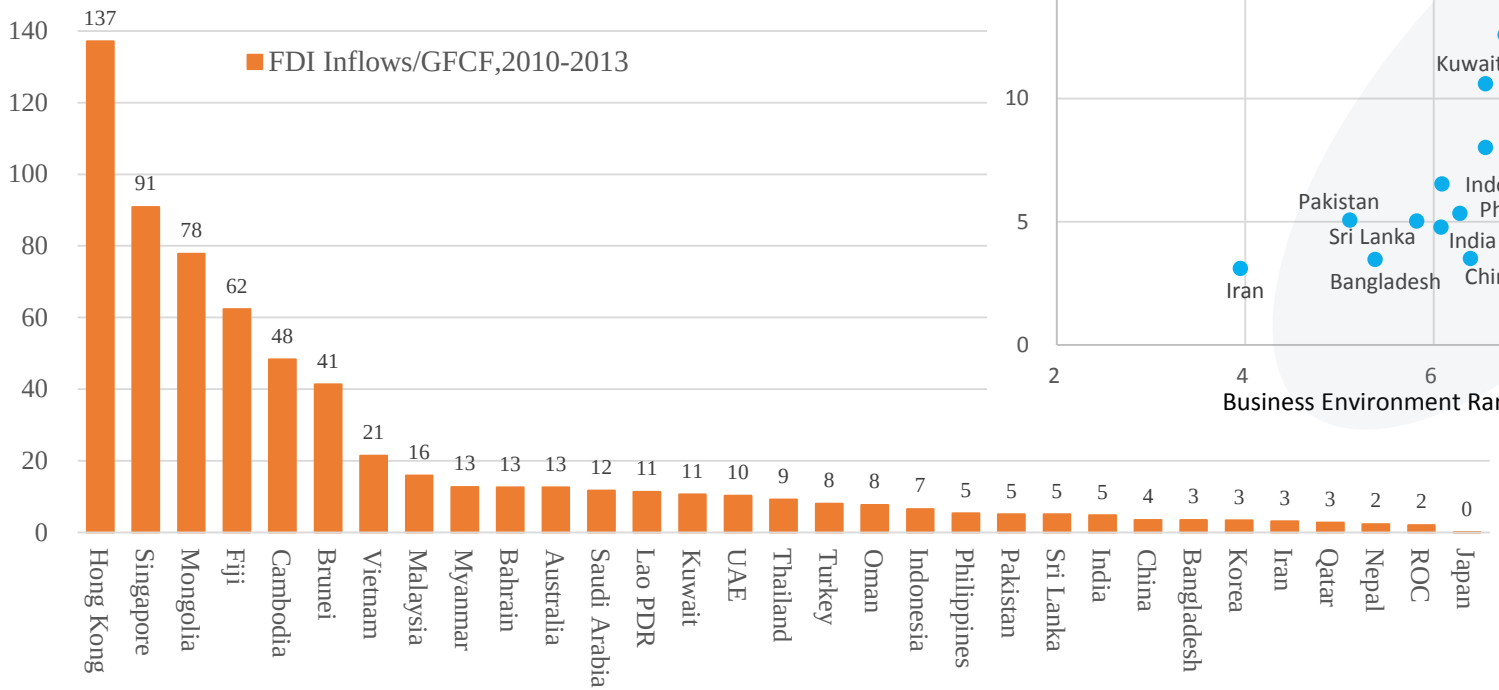
Country	Global ranking 2014-2018	Change from ranking 2009-2013
Saude Arabia	41	(↖45)
(Brazil)	43	(↙41)
Turkey	44	(↖48)
Kuwait	45	(↙39)
(Bulgaria)	46	(↖47)
(Italy)	48	(↙42)
China	50	(↙49)
Philippines	53	(↙51)
(South Africa)	54	(↙52)
Indonesia	56	(↖58)
India	57	(↖61)
Vietnam	59	(↖60)
(Russia)	60	(↙59)
Sri Lanka	61	(↖65)
(Greece)	62	(↙53)
(Egypt)	68	(↙62)
Bangladesh	69	(↖71)
(Argentina)	70	(↙63)
Pakistan	74	(↙72)
(Nigeria)	76	(←76)
Iran	81	(←81)
(Venezela)	82	(↙74)

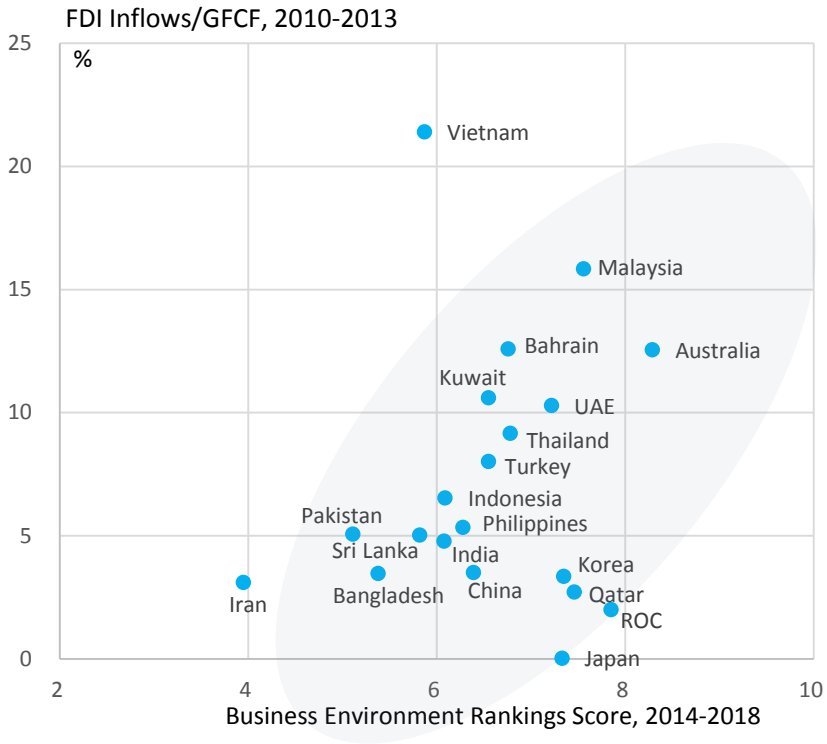
Source: The Economist Intelligence Unit (2014) *Business Environment Rankings – Which country is best to do business in?*.

Note: The EIU's business rankings model examines ten separate criteria or categories, covering the political environment, the macroeconomic environment, market opportunities, policy towards free enterprise and competition, policy towards foreign investment, foreign trade and exchange controls, taxes, financing, the labor market and infrastructure. Each category contains a number of indicators that are assessed by the EIU for the last five years and the next five years. The number of indicators in each category varies from 5 (foreign trade and exchange regimes) to 16 (infrastructure), and there are 91 indicators in total. Each of the 91 indicators is scored on a scale from 1 (very bad for business) to 5 (very good for business).

FDI inflows in Asian countries
—Improvement of Business Environment attracts FDI.

- FDI inflows to GFCF, average of 2010–2013
  - FDI Inflows to GFCF are high in Hong Kong (137%), Singapore (91%), Mongolia (78%).
  - For further development, improvement of business environment is required especially in South Asian countries and Iran.



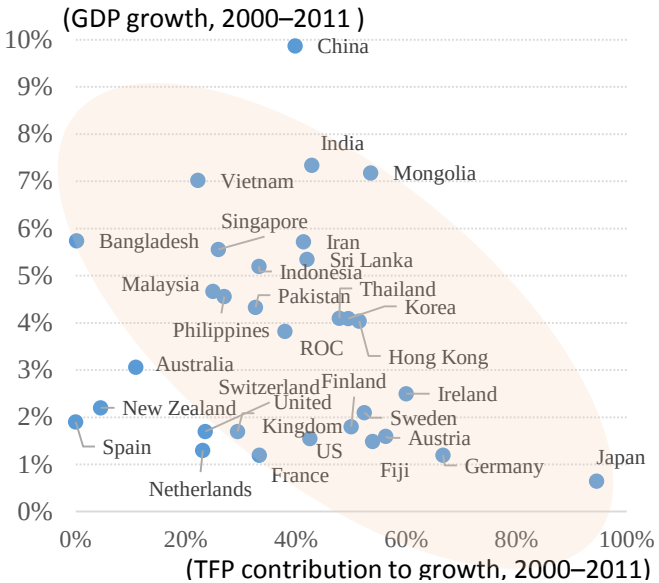


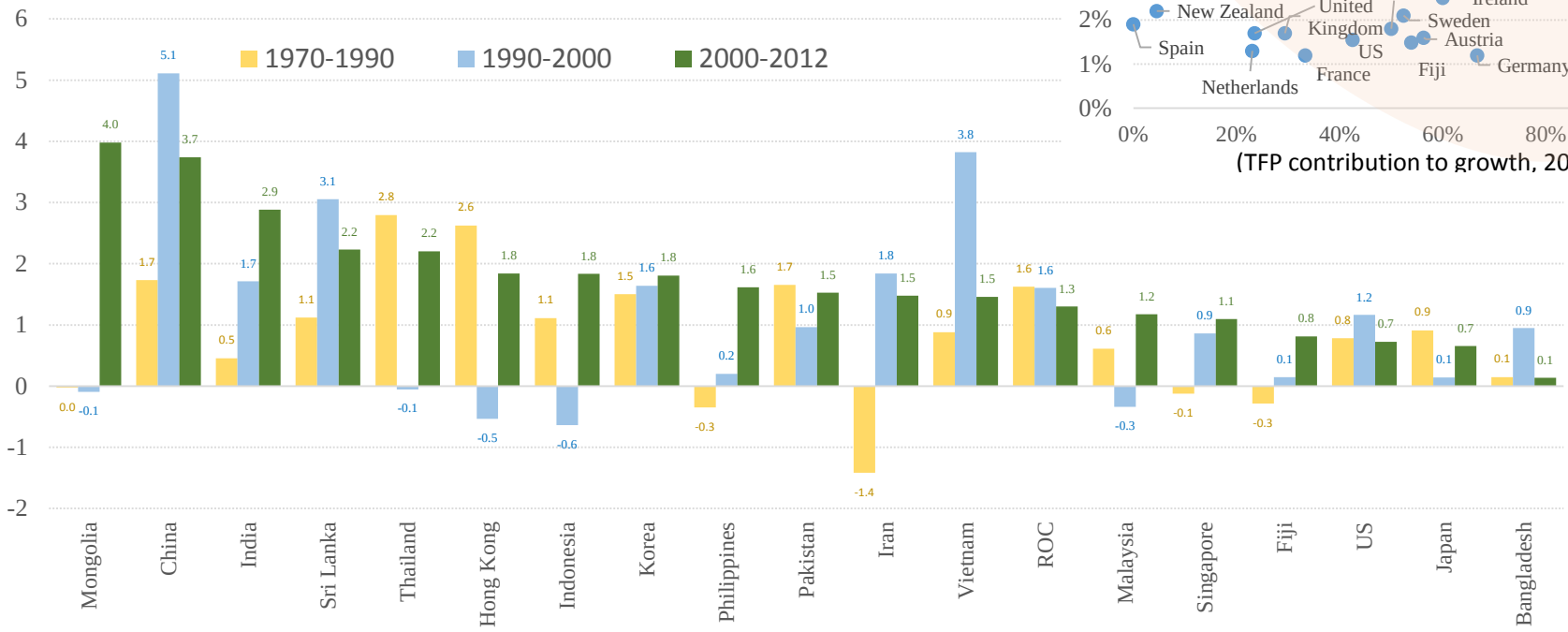
Sources: United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2014*; The Economist Intelligence Unit (2014) *Business Environment Rankings – Which country is best to do business in?*.

TFP growth

—Asian countries could gain a large backwardness advantage.

- TFP growths, 1970–1990, 1990–2000, and 2000–2012
  - ➢ Role of TFP growth is more important in the growths of more economically developed countries. (right figure)
  - ➢ Asian countries could gain much higher TFP growths: 4.0% in Mongolia, 3.7% in China, 2.9% in India, 2.2% in Sri Lanka and Thailand.
  - ➢ Improved in 12 countries from the 1990s to the 2000s: e.g. Mongolia(-0.1%→4.0%), India(1.7%→2.9%), Thailand(-0.1%→2.2%) , Indonesia(-0.6%→1.8%)
  - ➢ Deteriorated: China(5.1%→3.7%), Vietnam(3.8% →1.5%), Sri Lanka(3.1% →2.2%)



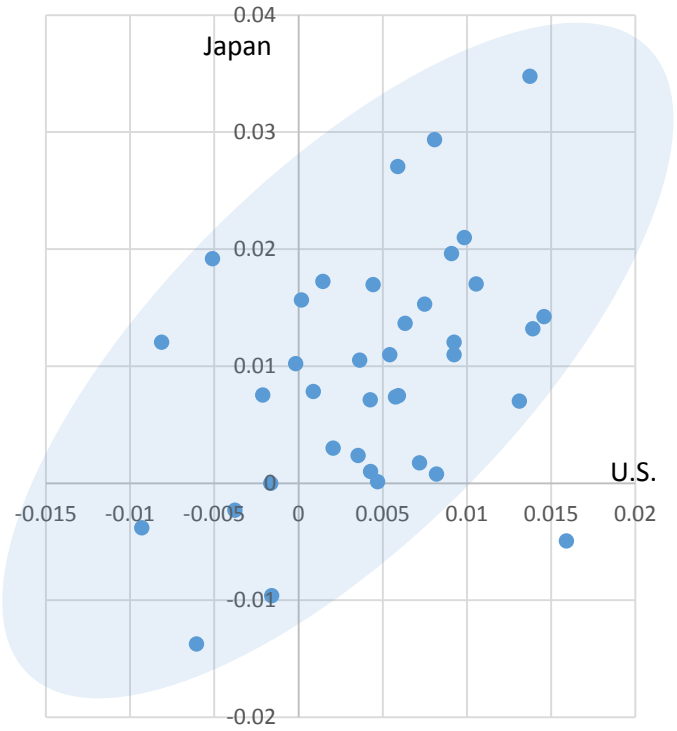


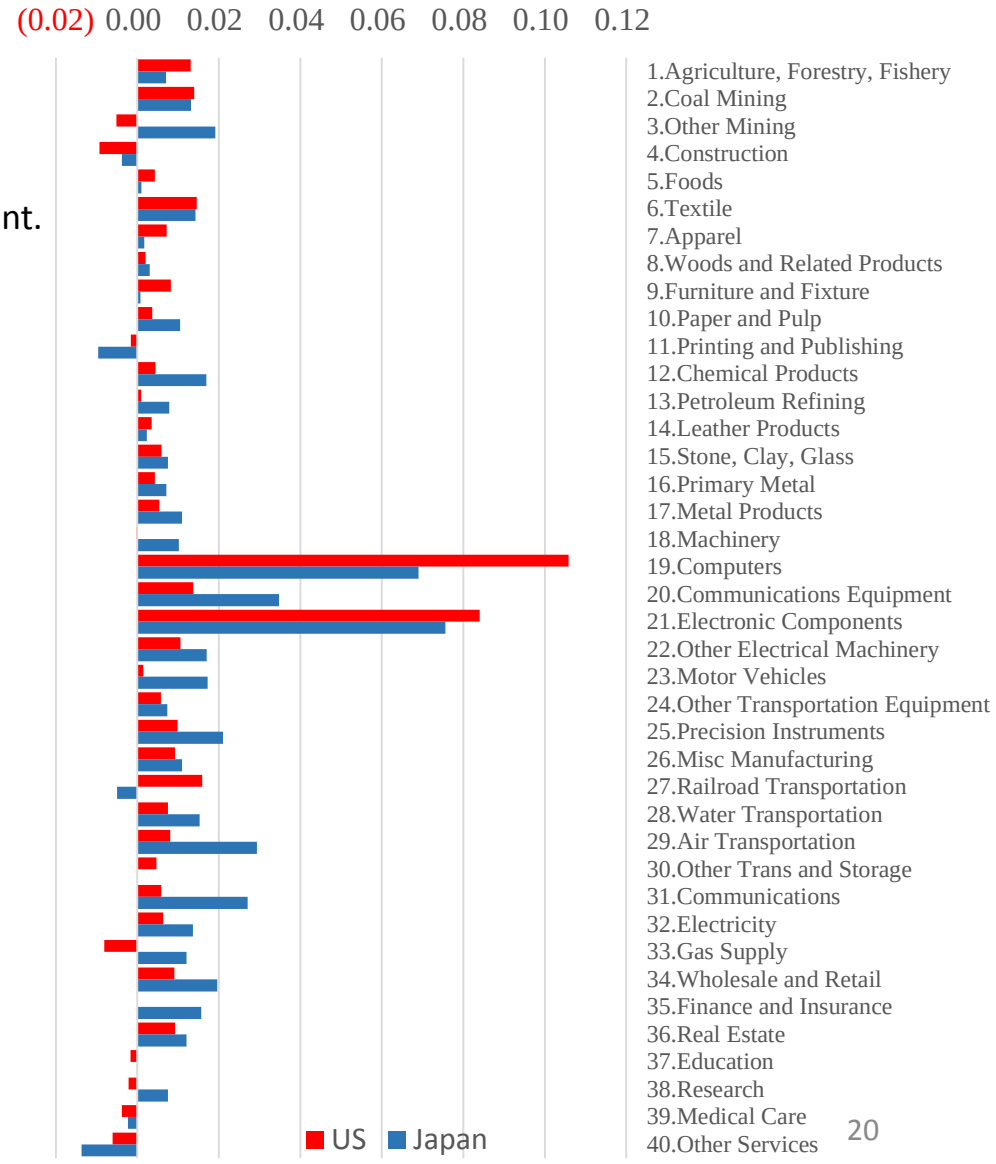
Source: APO(2014) *APO Productivity Databook 2014*.

Similarity in Industry-Level TFP Growths

—Positive correlations of TFP growth rates between the US and Japan in the long run.

- TFP growths by Industry during 1960–2000 in the U.S. and Japan
  - ➢ A TFP growth seems industry specific.
  - ➢ To foster TFP, the industry structure is important.



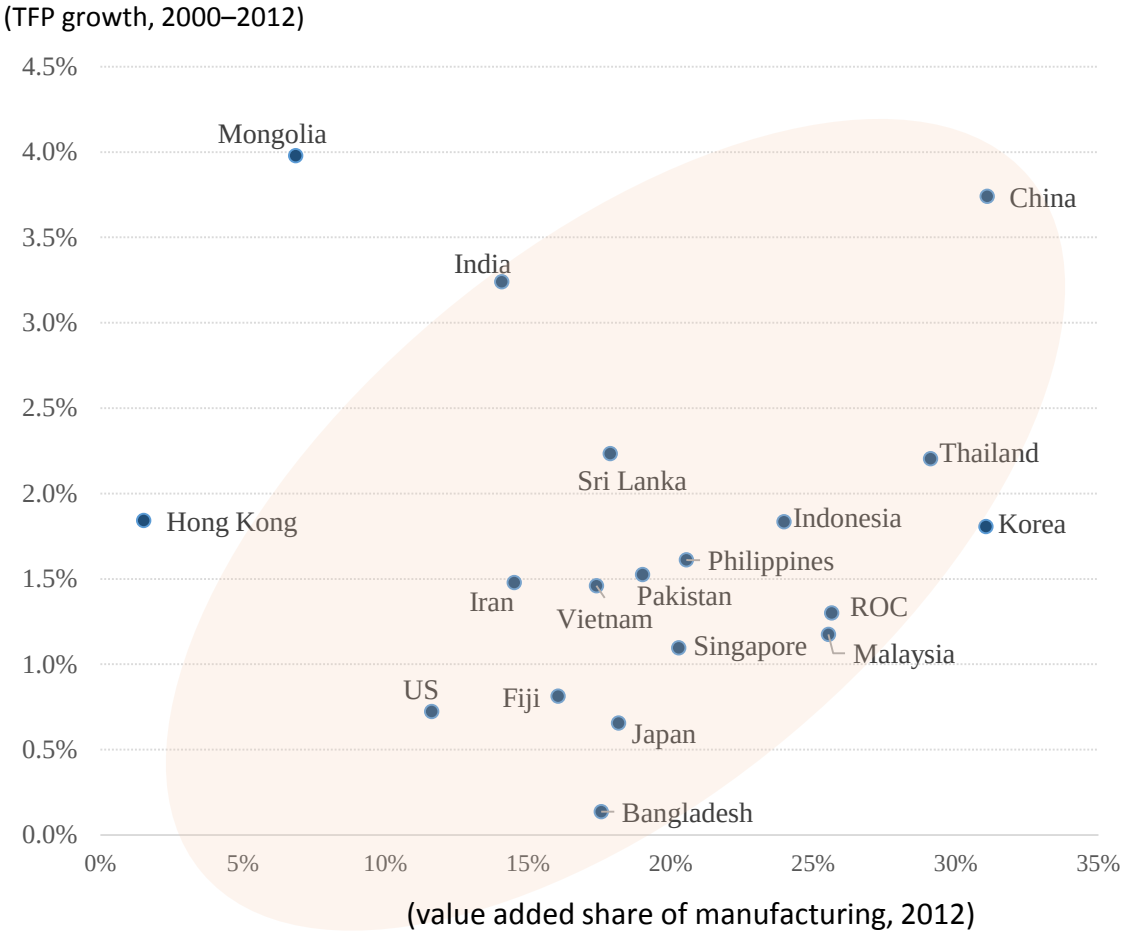


Source: Jorgenson and Nomura (2007) Industry Origins of the U.S.-Japan Productivity Gap, *Economic Systems Research,* 19.

Role of Manufacturing in TFP Growth

—Positive correlation between TFP growth and manufacturing's share in GDP.

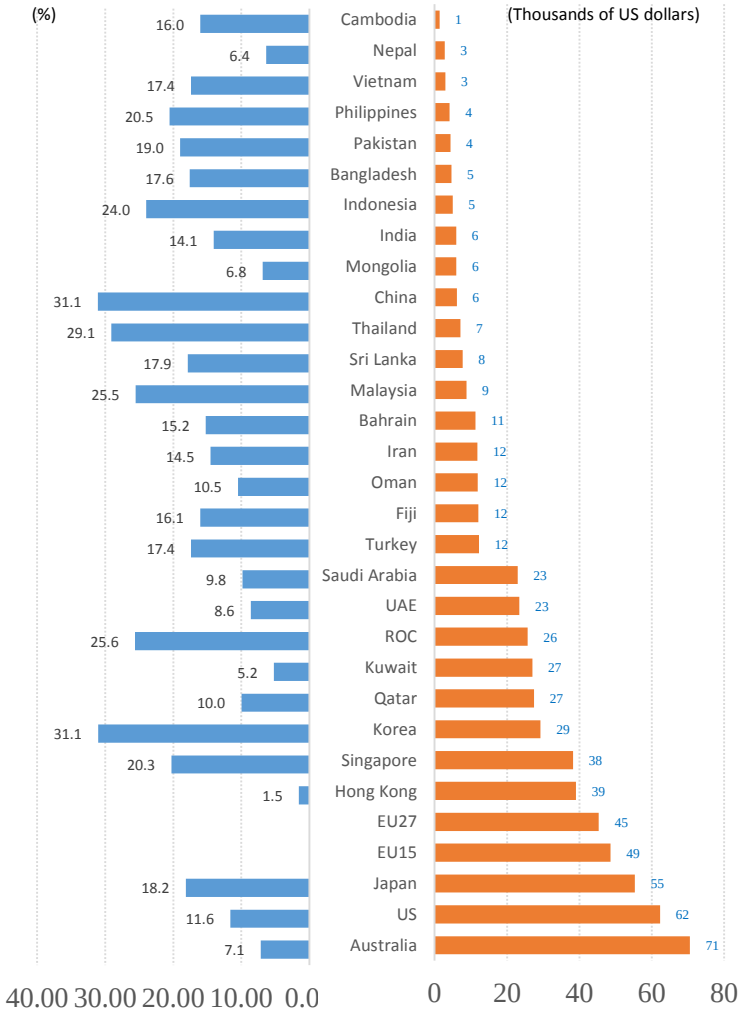
- TFP growth during 2000–2012 and the value-added share of manufacturing in 2012.
  - ➢ Mnf-share in most Asian countries ranges 15–30% in 2012.
  - ➢ Higher share of manufacturing caused higher TFP growth.
  - ➢ Large potential to take TFP's benefit in lower wage countries.



Source: APO(2014) *APO Productivity Databook 2014*.

Large Diversity in Wage Differentials

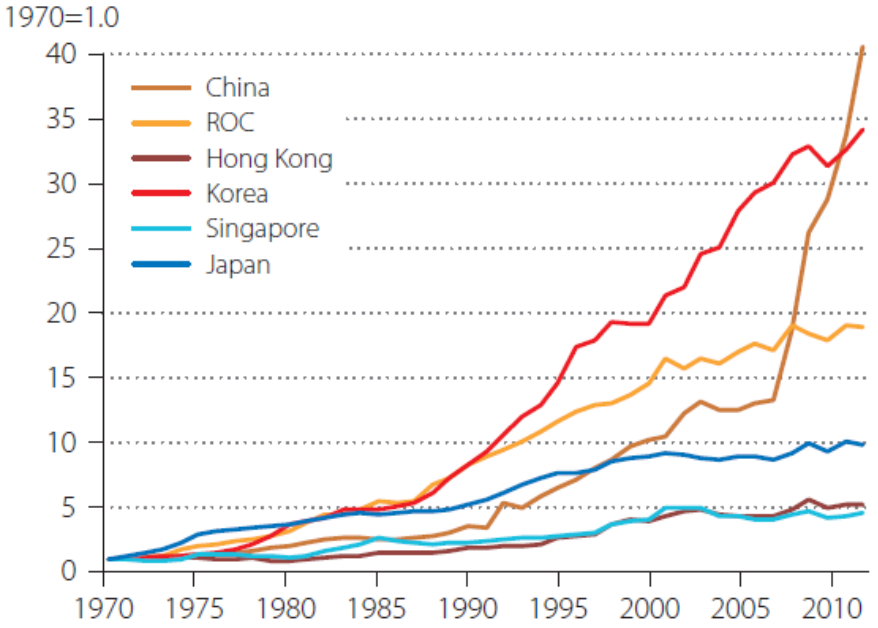
—The labor cost (relative to capital) in China increased rapidly since 2008.



Value added share of mnf, 2012

Average Wage per Worker (Employees), using average exchange rate, 2012

- Average wage per worker (employees) and value added share of manufacturing in 2012.
  - ➢ The wages in less developed countries are still 10–20% of those in Asian Tigers.
  - ➢ Companies increasingly shift production to countries with lower wage from China, in which the wage rate increased rapidly since 2008.



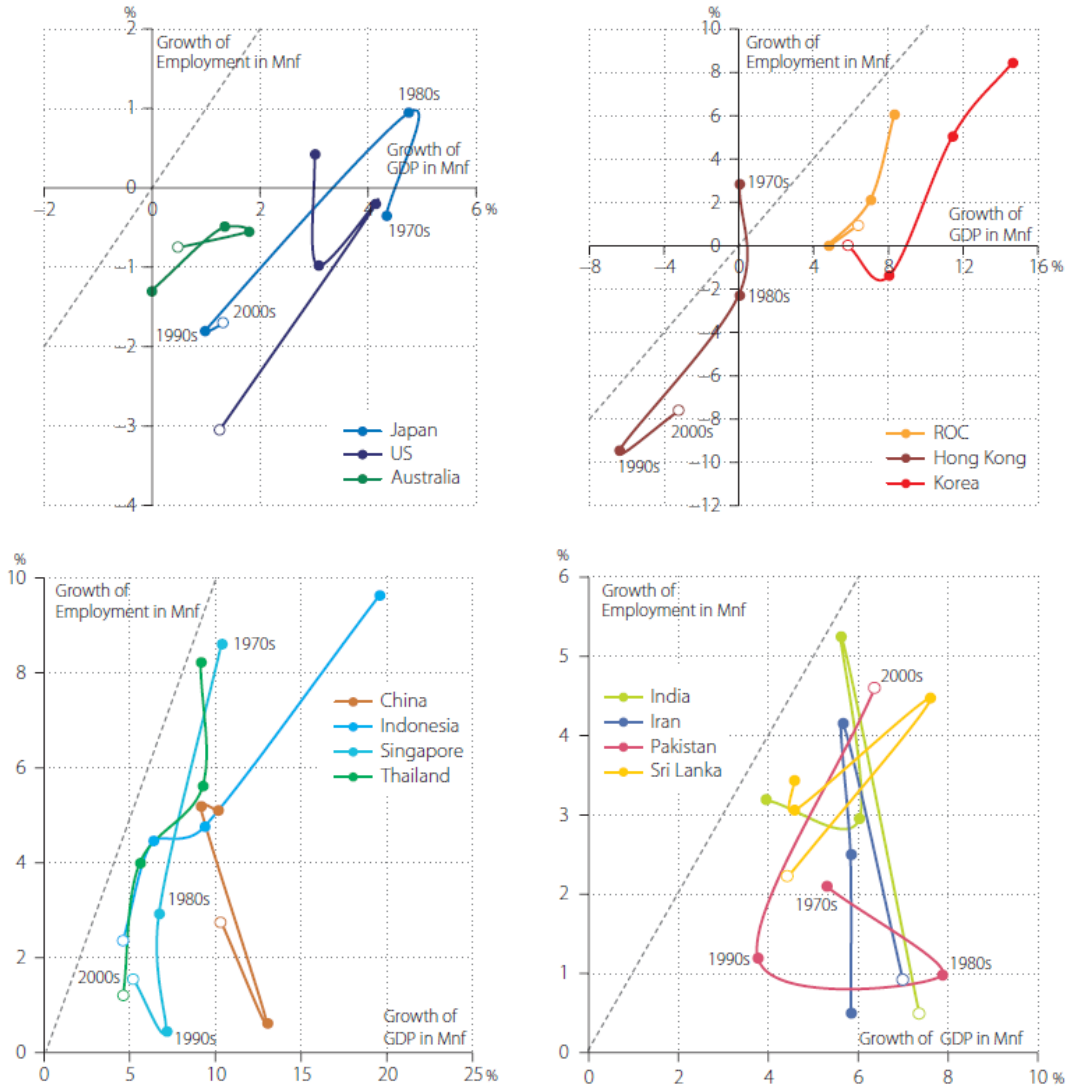
Price of Labor Relative to Capital (pL/pK) in China, Japan, and the Asian Tigers, 1970–2012

Source: APO(2014) *APO Productivity Databook 2014*.

Job Creation in Manufacturing

—Expansion of manufacturing creates jobs only in less developed countries.

- Growths of Output and Employment in Manufacturing, 1970–2012.
  - Japan and US already moved from the 1st dimension (output growth with job creation) to 4th dimension (output growth with lesser jobs)
  - Korea and ROC are going to move to the 4th dimension.
  - Hong Kong belonged to the 3rd dimension, for higher growth.
  - China, Indonesia, Singapore, and Thailand still in the 1st dimension.
  - In South Asian countries, expansion of manufacturing may induce job creation and TFP gain.



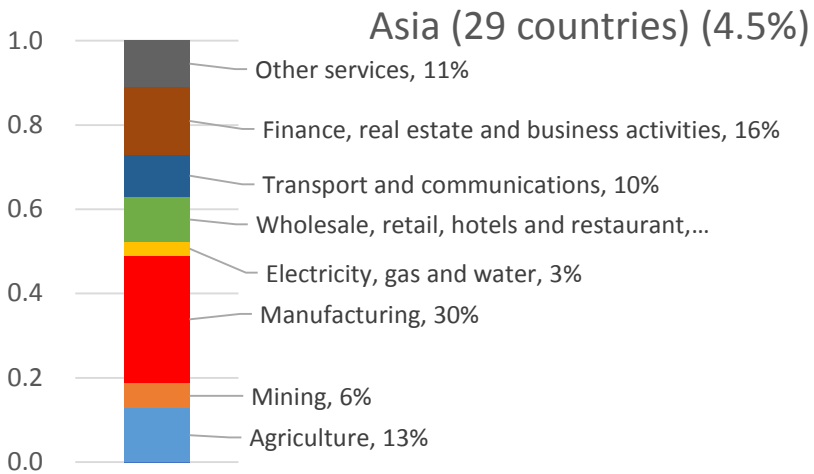
Average annual growth rates of GDP at constant prices and number of employment

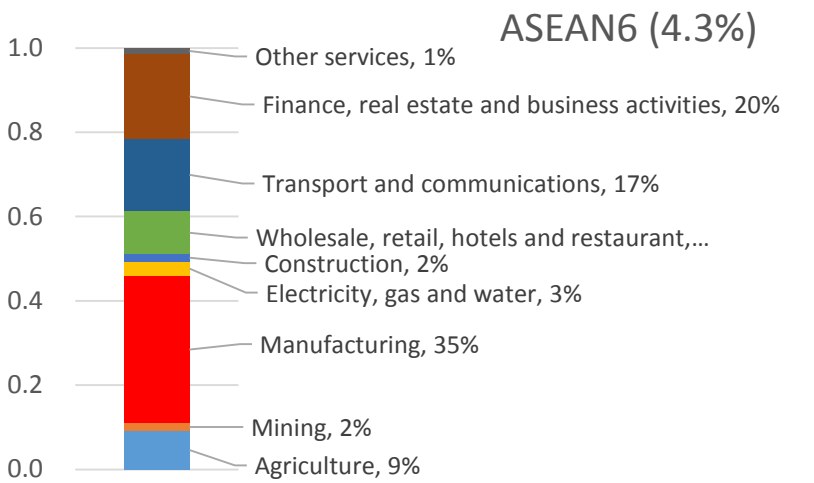
Source: APO(2014) *APO Productivity Databook 2014*.

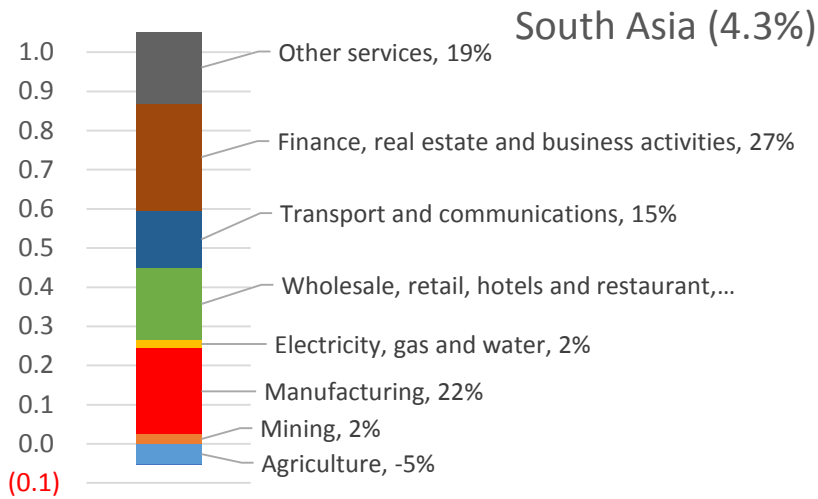
Industry Origins of Labor Productivity Improvement

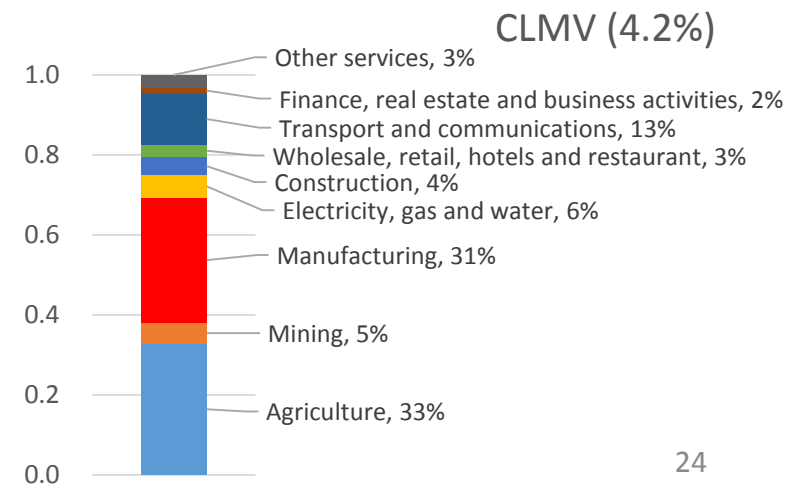
—Mnf has a main role, but industry contributions differ among regions.

- Industry contributions to labor productivity improvement in Asia, 2000–2012.
  - ➢ Less contributes may illuminate structural problems. (wholesale, retail, hotels, and restaurant in CLMV; other services in CLMV and ASEAN6; Agriculture in South Asia)









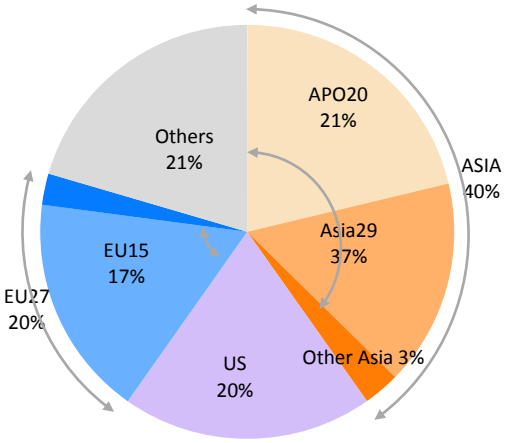
Source: APO(2014) *APO Productivity Databook 2014*.

Energy Consumption and CO2 Emission

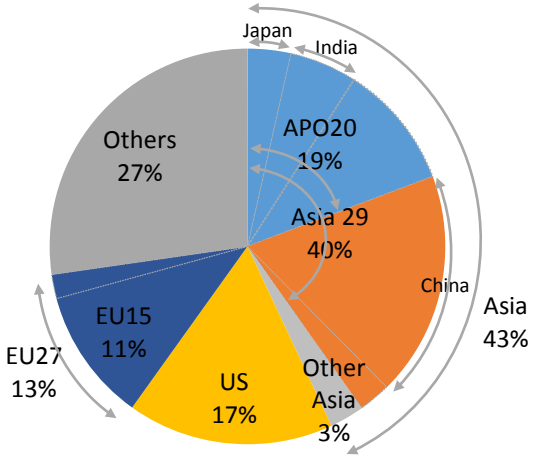
—To produce 40%, more than half of World CO2 is emitted in Asia.

- Shares of Asia in the World Production, Energy Consumption, and CO2 Emission, 2011.
  - In Asia, 40% of production, 43% of energy consumption, and 51% of CO2 emission.
  - In US, 20% of production, 17% of energy consumption, and 16% of CO2 emission.
  - In EU, 20% of production, 13% of energy consumption, and 11% of CO2 emission.

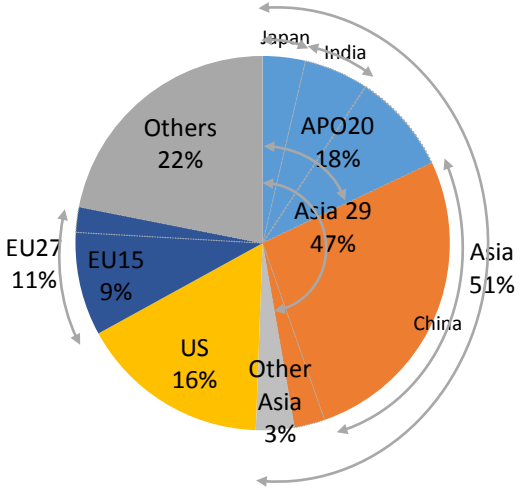
World Production (2011)



World Energy Consumption (2011)



World CO2 Emission (2011)

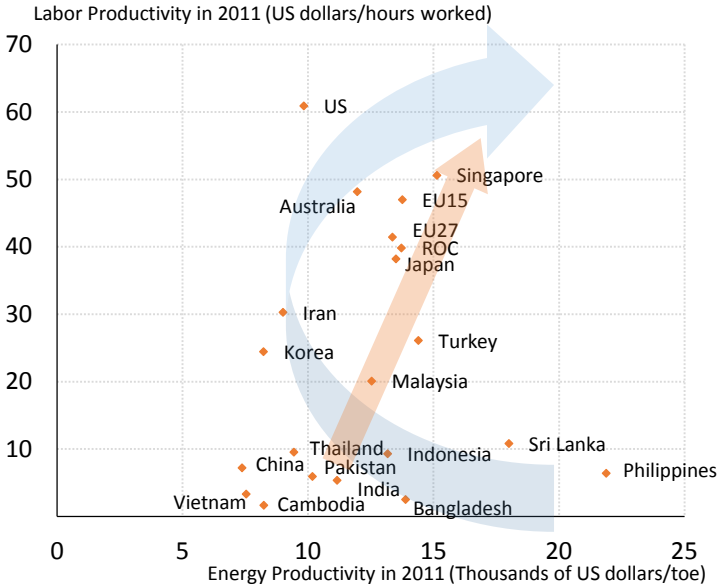


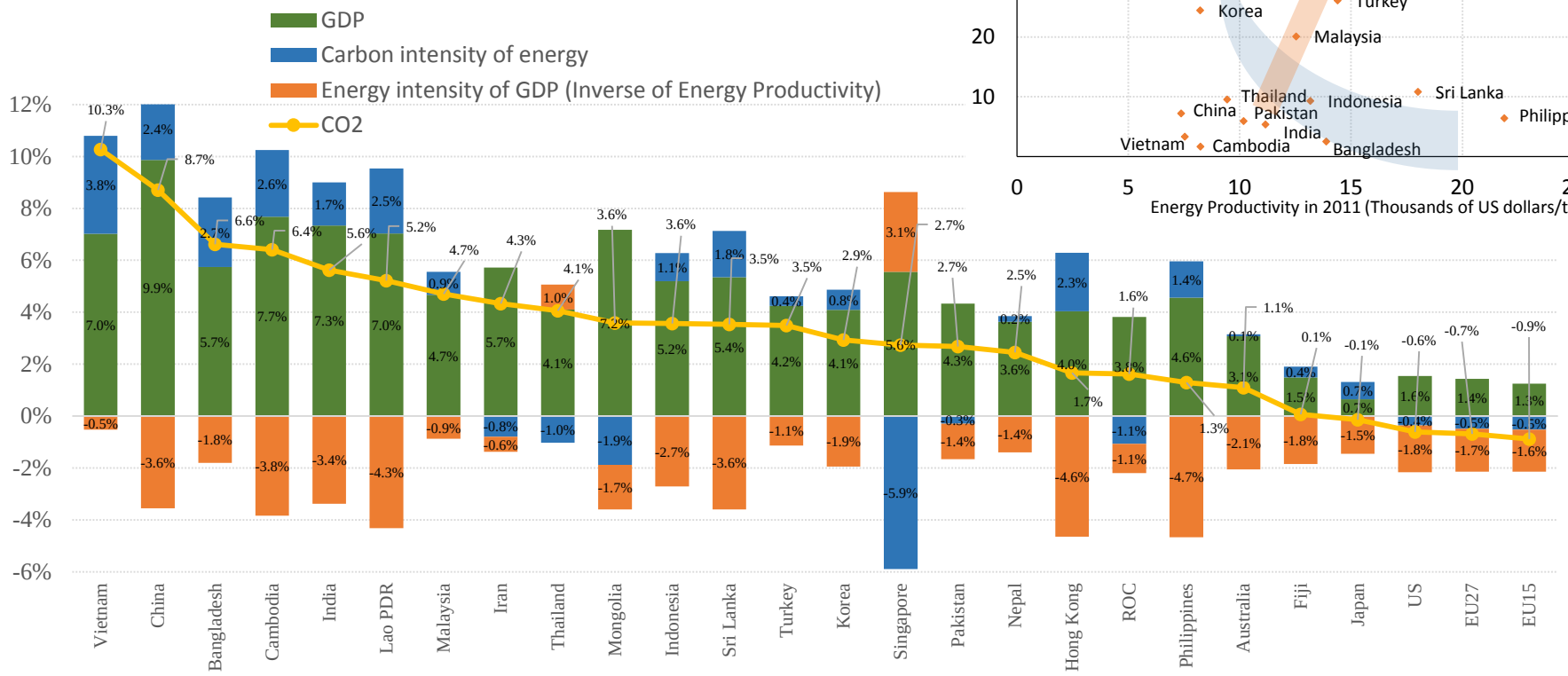
Sources: IMF, World Economic Outlook Database, April 2014; IEA, CO2 Emissions from Fuel Combustion 2013; IEA, Energy Balances of OECD Countries 2013; IEA, Energy Balances of non-OECD Countries 2013; APO, APO Productivity Databook 2014.

Energy Productivity

—Improving energy productivity is required for sustainably expanding economy in Asia.

- Sources of CO2 emission growth in 2000–2011.
  - Output expansion is a main cause of expansion of CO2 emission, but many countries could improve energy productivity (energy saving).
  - However, increases in carbon intensity of energy were worsened in Vietnam, Bangladesh, Cambodia, Lao PDR, China..
  - It is required to promote diffusion of energy-saving and low-carbon technologies, with improving labor productivity.





Sources: IEA, CO2 Emissions from Fuel Combustion 2013; IEA, Energy Balances of OECD Countries 2013; IEA, Energy Balances of non-OECD Countries 2013; APO, APO Productivity Databook 2014.

3. Economic Policies in some Asian countries

GDP Level and Policy Challenges

- Country Group based on the Per-capita GDP in 2012 and the Catch-up Rate in 1970–2012

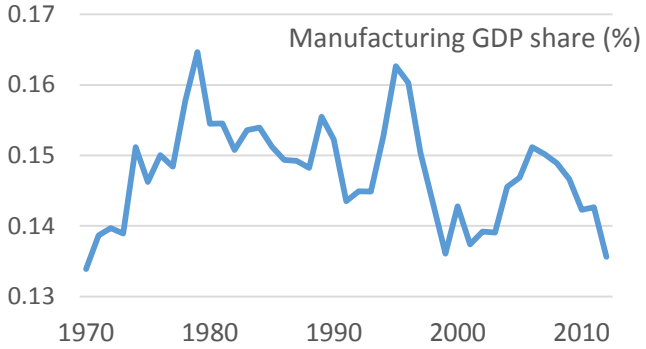
Per capita GDP level to the US in 2012	Annual rate to catch-up to the US				Policy Challenges
	(C1) >3%	(C2) 1% <–< 3%	(C3) 0% <–< 1%	(C4) < 0%	
(L1) 60% <	ROC, Korea, Singapore	Hong Kong	Japan, EU15, Oman	Bahrain, Brunei, Kuwait, Qatar, Saudi Arabia, UAE, Australia	• Improve efficiency in resource allocations • Make well-coordinated assistance program to raise SME productivity (e.g., collective procurement assistance) • Develop cultural recreation infrastructure • Strengthen lifelong learning to increase flexibility
(L2) 30% <–< 60%		Malaysia, Thailand	Turkey	Iran	• Increase high-skilled labor • Improve the quality of education • Improve productivity in SMEs (e.g., micro-finance) • Develop social infrastructure (health, higher education)
(L3) 10% <–< 30%	China	India, Indonesia, Mongolia, Sri Lanka, Vietnam		Fiji, Philippines	• Foster Productivity in manufacturing • Create Jobs for sustainable poverty reduction • Improve livelihood infrastructure and environment (e.g., air pollution, water supply, sewage, waste) • Protection of worker's rights (e.g., pension system for informal workers, labor law)
(L4) < 10%	Cambodia	Lao PDR, Myanmar	Bangladesh, Nepal Pakistan		• Foster productivity in agriculture (e.g., capital deepening) • Develop industry Infrastructure (e.g., transportation, logistics, energy generation, electricity distribution) • Create a business-enabling environment (e.g., inflowing FDI)

Note: Per capita GDP is measured in GDP at constant market prices, using 2011 PPP. The annual catch-up rates are based on the data during 1970–2012. The starting year for some countries are different due to data availability: Cambodia (1987–), the Lao PDS (1984–), and Nepal (1974–). Source: Table 14, APO (2014) *APO Productivity Databook 2014*.

Policy Challenges in India

◆National Manufacturing Competitiveness Programme (NMCP)

- The National Manufacturing Competitiveness Council (NMCC) was set up in September 2004. (http://nmcc.nic.in/)
- The main roles are 1) Enhance Government focus on manufacturing competitiveness ; 2) Creating conditions for investment in and growth of the manufacturing sector ; 3) Lowering the cost of manufacturing ; 4) Investing in innovations ; 5) Strengthening education and training at all levels; 6) Adoption of global best practices in manufacturing; 7) Right market framework, competition and regulation ; 8) Issues relating to competitiveness in small and medium industries; 9) Competitiveness of public sector manufacturing industries ; and 10) Infrastructure development.



Source: APO Productivity Database 2014.v1,

Source: http://www.makeinindia.com/

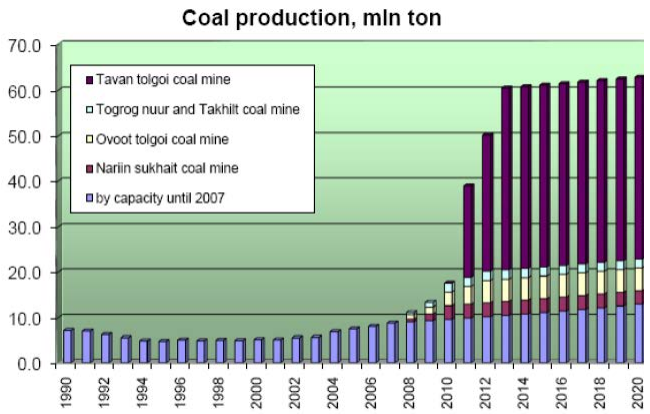
◆“Make in India”

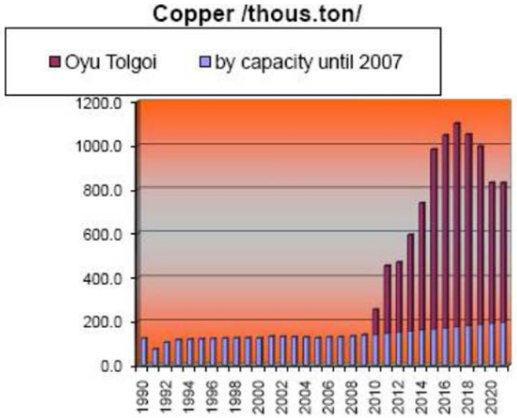
- The Prime Minister, Shri Narendra Modi, launched the Make in India initiative with an aim to give the Indian economy global recognition in September 2014.
- Designed to facilitate investment（直接投資外資上限を49%へ引き上げなど）. Foster innovation. Enhance skill development (“Skill India”). Protect IP. And build best-in-class manufacturing infrastructure. ⇒“THERE'S NEVER BEEN A BETTER TIME TO MAKE IN INDIA.”
- 補償金増や代替居住地手配の義務化などを求める2013年土地収用法（“Right to Fair Compensation And Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013”）や労働法などが障害にならないか懸念。

Policy Challenges in Mongolia

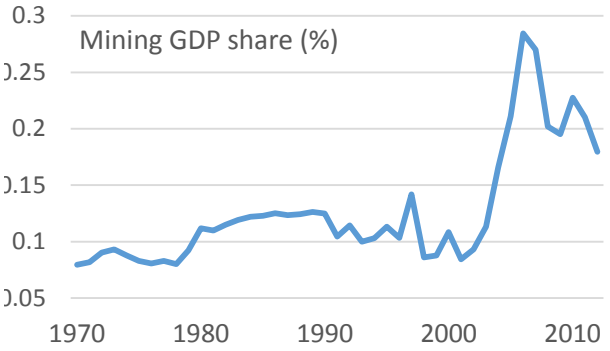
◆Major Mining Projects in Mongolia

- Tavan Tolgoi Project (Coal Mine) タワントルゴイ炭鉱（世界最大級）
- Oyu Tolgoi Project (Copper Mine) オユトルゴイ銅鉱山（世界最大級）



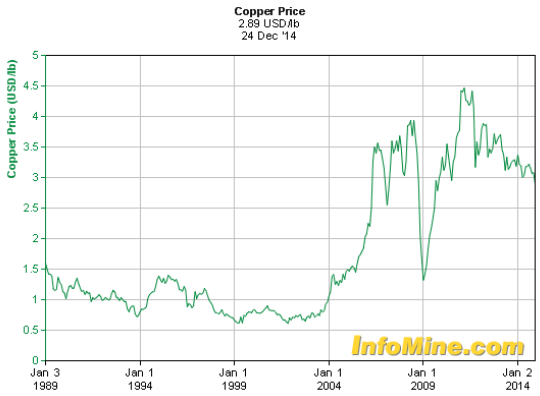


Source: Bayarmaa.B and Baasansuren.M (2014)



Source: APO Productivity Database 2014.v1,

◆From enthusiasm to crisis



・（ポピュリズム）2008年国民へ配当金, 2010年タワントルゴイ炭鉱の15億株を全国民へ配当

・（資源ナショナリズム）2012年投資規制法

・（国際市況下落）輸出の80%以上が資源；石炭43%、銅19%, 鉄鋼石12%, 石油8%, 2012年）

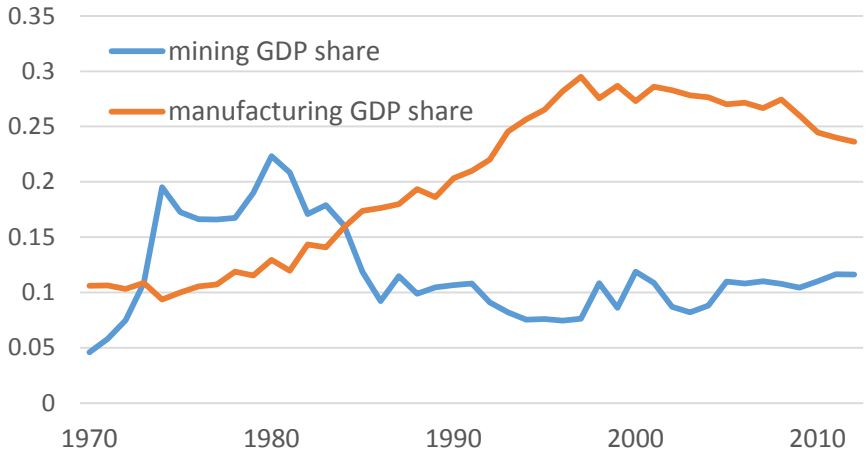
⇒Nov. 2014, Prime Minister Saikhanbileg（サイハンビレグ新首相）による経済再建へ

Policy Challenges in Indonesia

◆"Nawa Cita" (Nine Priorities Agenda by President Jokowi (Joko widodo), 2014)

1. (国防)To renew the state's obligation to protect all people and provide security to all citizens through the free and active foreign policy, national security and the development of reliable national defense based on integrated national interests and strengthening national identity as a maritime nation.
2. (民主)The presence of the government through a clean, effective, democratic, and reliable governance, by giving priority and efforts to restore public confidence in democratic institutions and continue the consolidation of democracy through reform of the political party system, electoral and representative institutions.
3. (地域社会)To build Indonesia from its periphery; to strengthening the rural areas within the framework of a unitary state of Indonesia.
4. (法の確立)To reject a weak state by reforming the system through corruption-free dignified, and reliable law enforcement.
5. (生活の質改善)To improve the quality of Indonesians by improving the quality of education and training through "Smart Indonesia" program and increasing Indonesia's social welfare and health through the "Healthy Indonesia" and "Prosperous Indonesia" programs. To encourage land reform and land ownership for the people in Indonesia by 2019.
6. (生産性改善)To improve people's productivity and competitiveness in the international market so that Indonesian can move forward and stand up with other Asian nations.
7. (経済的自立)To achieve economic independence by moving the strategic sectors to domestic economy.
8. (国民マインド)To revolutionise the nation's character through a policy of restructuring the national education curriculum with advanced civic education; to teach the history of the nation, the values of patriotism and to love the country, as well as to build the passion and character to defend the state through national education.
9. (多様性)To strengthen diversity and social restoration of Indonesia by highlighting the policy of education for diversity and creating spaces of dialogue among citizens.

The world's largest archipelago, a name which aptly represents its 17,000 or so islands which span more than 5000 km.



Source: APO Productivity Database 2014.v1,

Policy Challenges in Vietnam

◆National program on "improving productivity and quality of products of Vietnamese enterprises to 2020" (approved by Prime Minister's decision No 712/QĐ-TTg) in May 21, 2010

- Objectives: a) Develop and apply a system of standards, technical regulations, management systems, models and tools to improve productivity and quality, development of essential human resources to improve productivity and quality of products and commodities; b) To create a marked improvement in productivity and quality of key products and commodities of the enterprises to contribute positively to socio-economic growth of the country.
- Specific objectives (Period 2016–2020): e.g. To contribute to raise the proportion of the productivity to general factors (TFP) in gross domestic product growth (GDP) to at least 35% by 2020.

	Population	Low scenarios		High scenarios	
		CPI	GDP	CPI	GDP
2011	1,04	18,58	6,24	18,58	6,24
2012	1,06	9,21	5,25	9,21	5,25
2013	1,05	6,04	5,42	6,04	5,42
2014	1,03	6,24	5,60	6,92	6,10
2015	1,02	6,36	5,82	6,80	6,32
2016	1,01	6,67	6,20	7,03	6,67
2017	0,98	6,83	6,35	7,00	6,83
2018	0,98	7,12	6,75	7,23	7,62
2019	0,97	7,10	7,02	7,10	7,56
2020	0,97	7,07	6,80	7,12	7,45

Source: General Statistical Office of Vietnam. (from Nguyen Thi Le Hoa and Le Truong (2014))

◆National program on "Increasing Productivity and Efficiency" under the No 712/QĐ-TTg (approved by Prime Minister's decision No 225/QD-TTg) in February 22, 2012

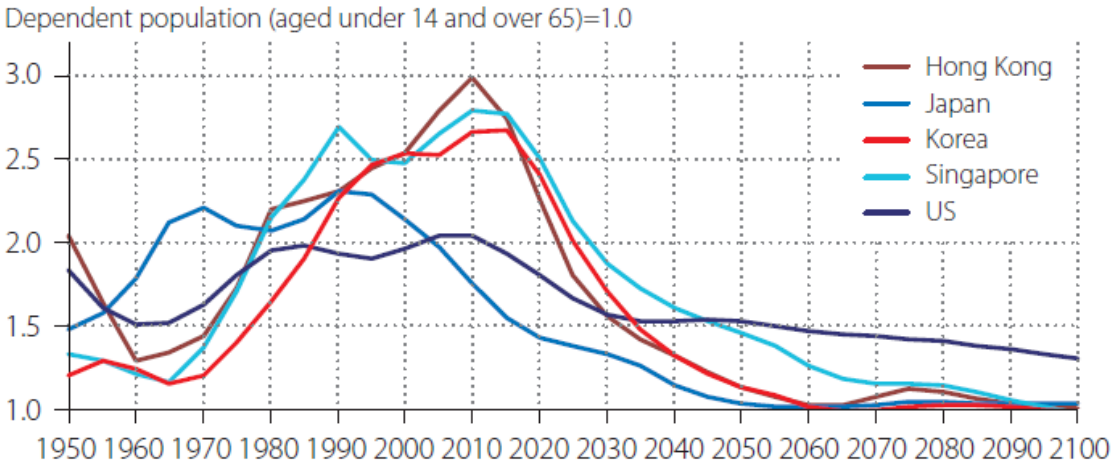
- the Project has carried out following five sorts of work: (1) disseminating knowledge about quality and productivity, paying respect to organizations and persons those have merit in quality and productivity improvement; (2) setting up a human source those are specialized in quality and productivity; (3) familiarizing the system of advanced managerial measures and technologies in production and management; (4) making assessment on product quality; and (5) measuring productivity of each production branch and enterprise, as well as the whole economy through TFP.

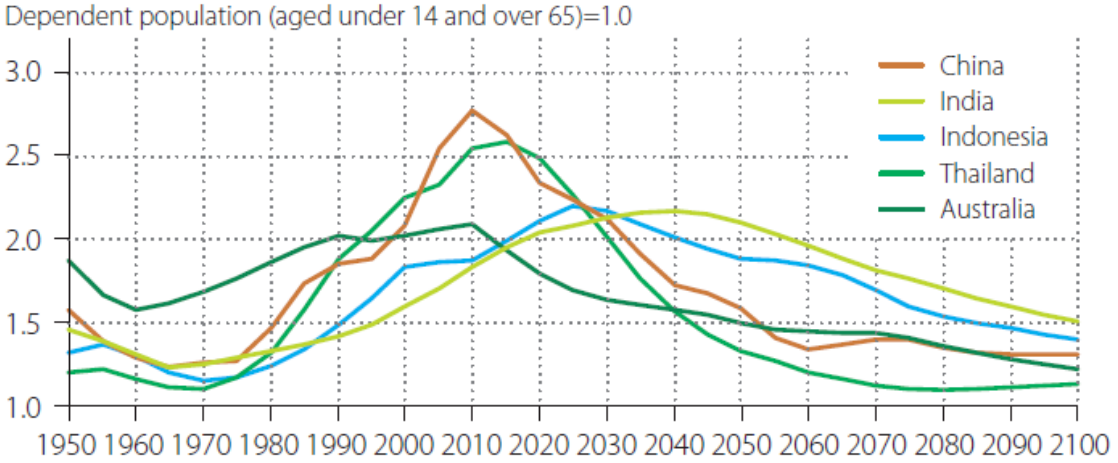
4. 2020/2030年までの成長見通し

Demographic Dividend

—Some countries can capitalize the dividend in the 2020s and 2030s.

- Ratio of working population (aged 15–64) to dependent population (–15 and 65–), 1950–2100.
  - Japan could have capitalized the demographic dividend in the 1960s, when its GDP growth was over 10% on average per year for ten years.
  - Similarly, China, Hong Kong, Korea, Singapore, and Thailand are poised for the prospect of such dividend in the 2000s and 2010s.
  - Based on the UN projections, Indonesia will have to wait for such opportunity until the 2020s and 2030s, and India until the 2040s.
  - However, the reaping of this dividend is far from automatic. A favorable demography can work wonders to produce a virtuous cycle of wealth creation only if it is combined with appropriate business environment, health, labor, financial, human capital, and growth enhancing economic policies.

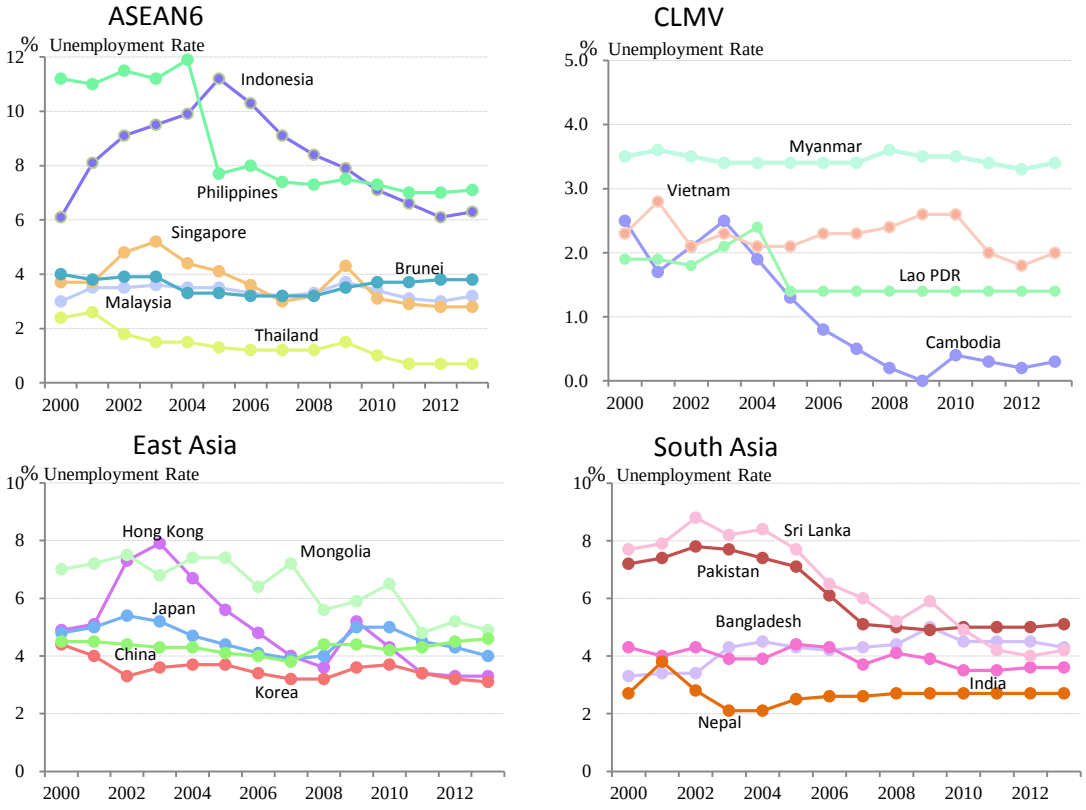


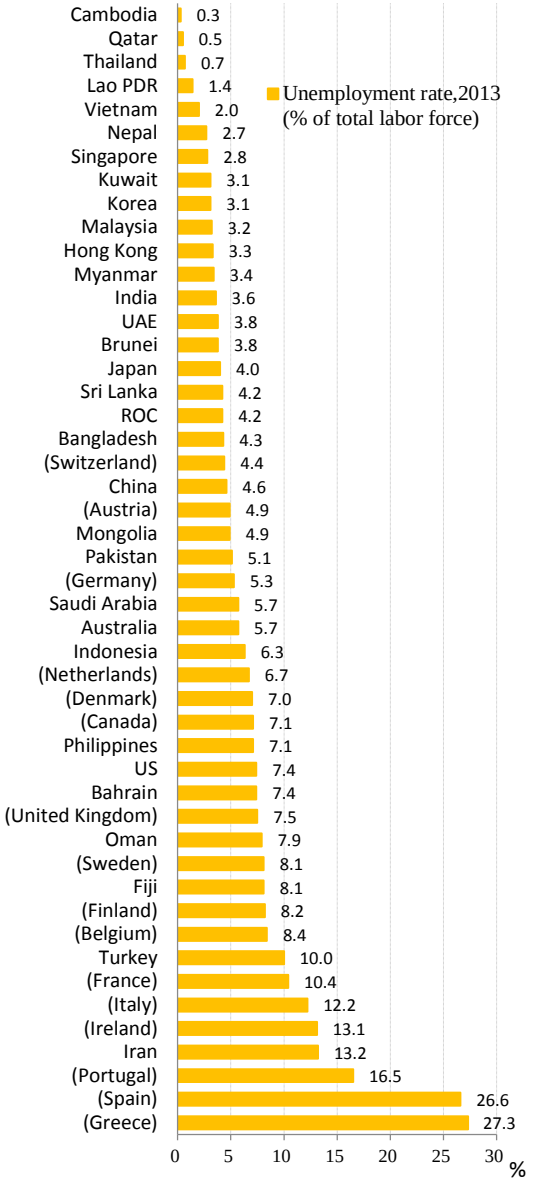


Source: Source: UN (Department of Economic and Social Affairs), World Population Prospects : The 2012 Revision. (Figure B2.4 in APO(2014) *APO Productivity Databook 2014*)

Unemployment Rates

- Rate of unemployment, 2000–2013
  - Many Asian countries have lower rates of unemployment, compared to EU countries. Exceptions are Iran, Fiji, the Philippines and Indonesia with over 6%. (right figure)
  - Since 2006, the unemployment rates are relatively stable in Asian countries.



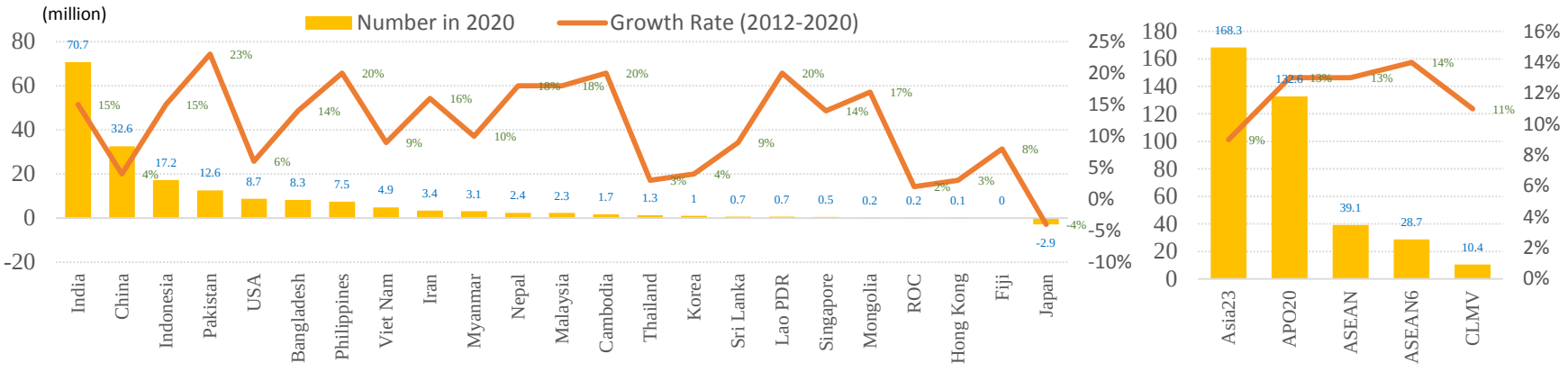


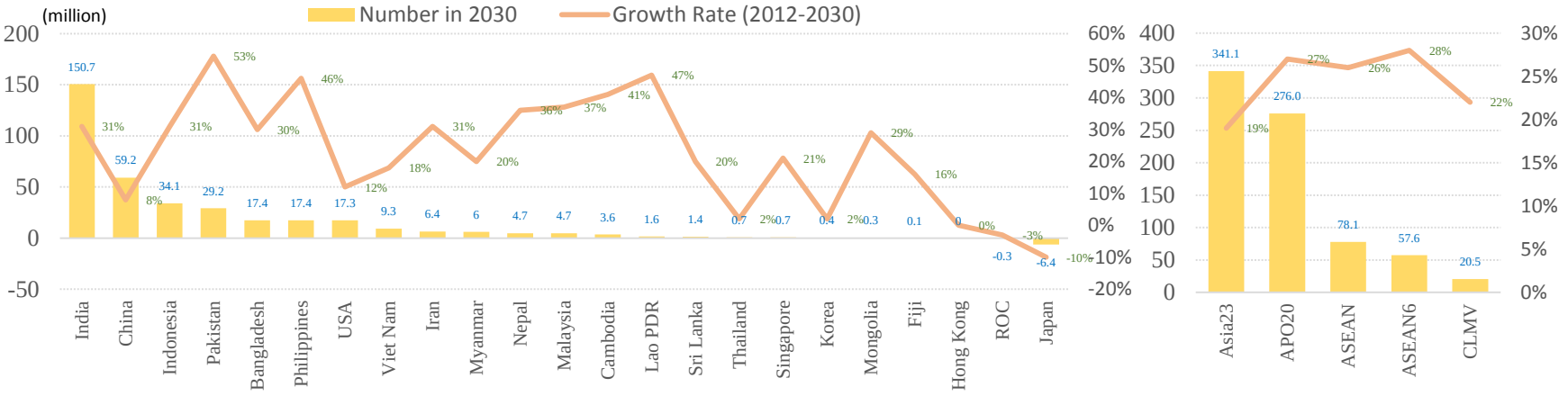
Sources: ILO (2013) Key Indicators of the Labour Market (KILM 8th Edition).

Forecast: Number of Employment

—Workers are expected to be increased by 168 million until 2020 in Asia.

- Forecasted Number of Employment in 2020 and 2030
  - ➢ 42% of 168 million will be expanded in India, 10% in Indonesia, and 7.5% in Pakistan in 2020.
  - ➢ 341 million workers are expected to be increased until 2030 in Asia.



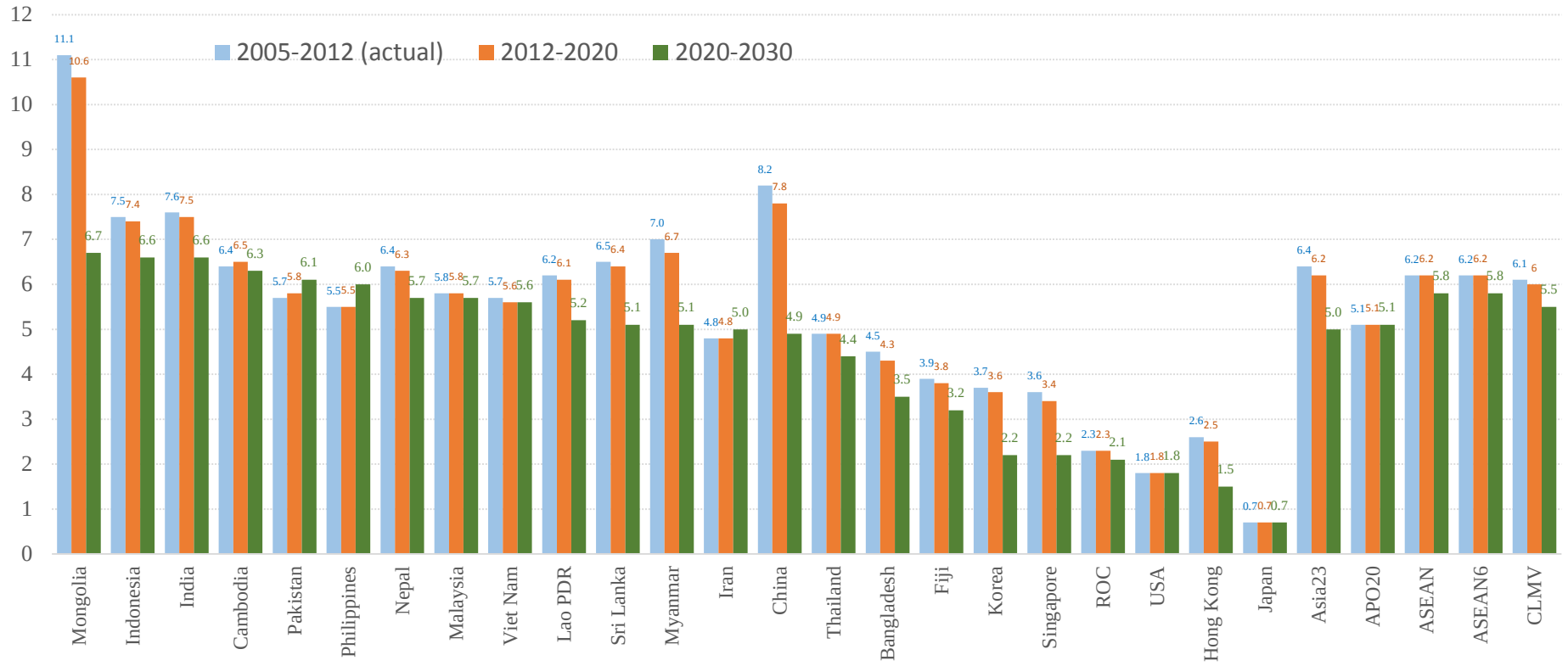


Sources: Author's estimates (based on UN, *World Population Prospects: The 2012 Revision*; ROC National Development Council, *Population Projections for ROC 2014-2060*; APO , *APO Productivity Databook 2014*; Asia-QALI Database 2014 (under construction)).

Forecast: Real GDP Growth

— The Asian economy is expected to continue to expand for the next two decades.

- Forecasted Economic Growths, 2012–2020 and 2020–2030
  - The growth rate will be slightly decreased from 6.4% in 2005–12 to 6.2% in 2012–20. (compared to 3.6% growth projection of the world economy in 2010–20 by Jorgenson and Vu (2013))
  - In 2020–30, it is expected to be slowed down to 5.0%, mainly reflecting the slowdown of China's growth.
  - Pakistan, Philippines, and Iran are expected to accelerate their growths in 2012–20 and 2020–30.

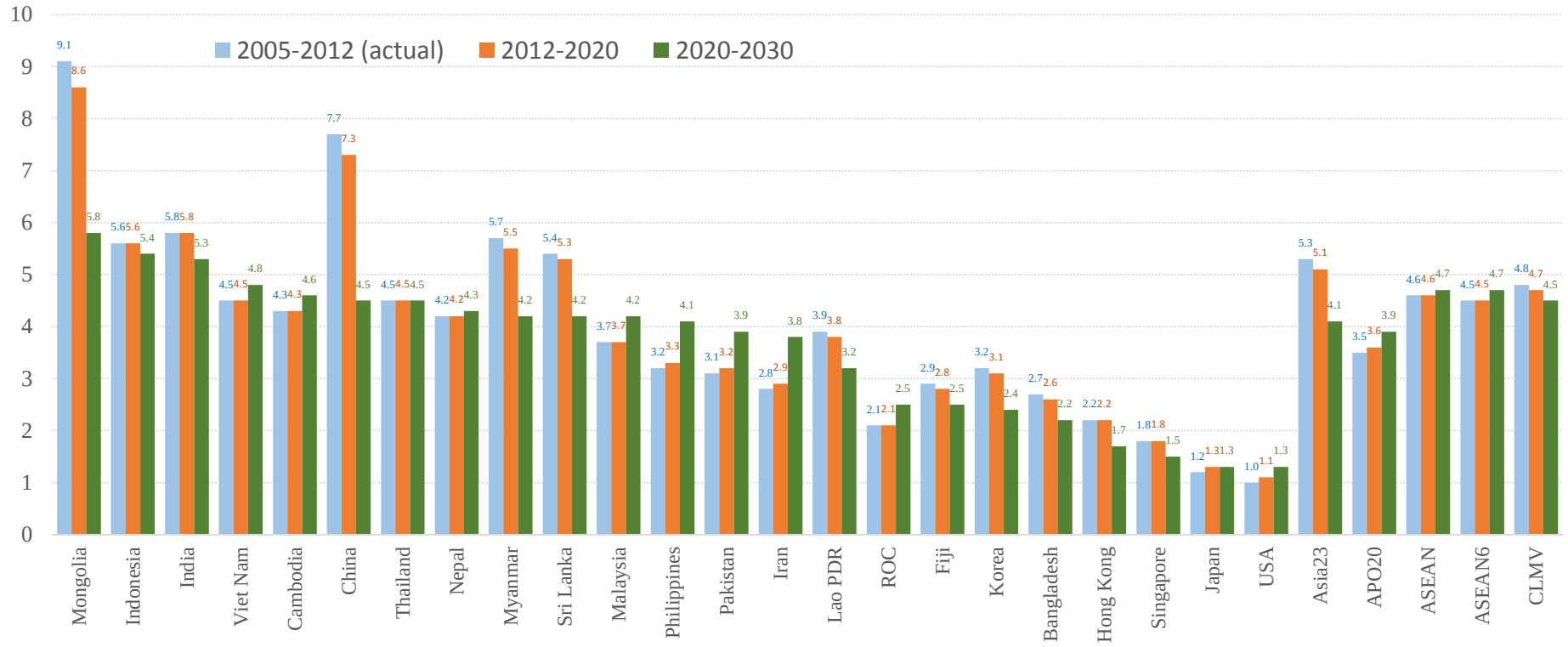


Sources: Author's estimates (based on UN, *World Population Prospects: The 2012 Revision*; ROC National Development Council, *Population Projections for ROC 2014-2060*; APO , *APO Productivity Databook 2014*; Asia-QALI Database 2014 (under construction)).

Forecast: Labor Productivity Growth

—Strong improvement in labor productivity is expected to be sustained.

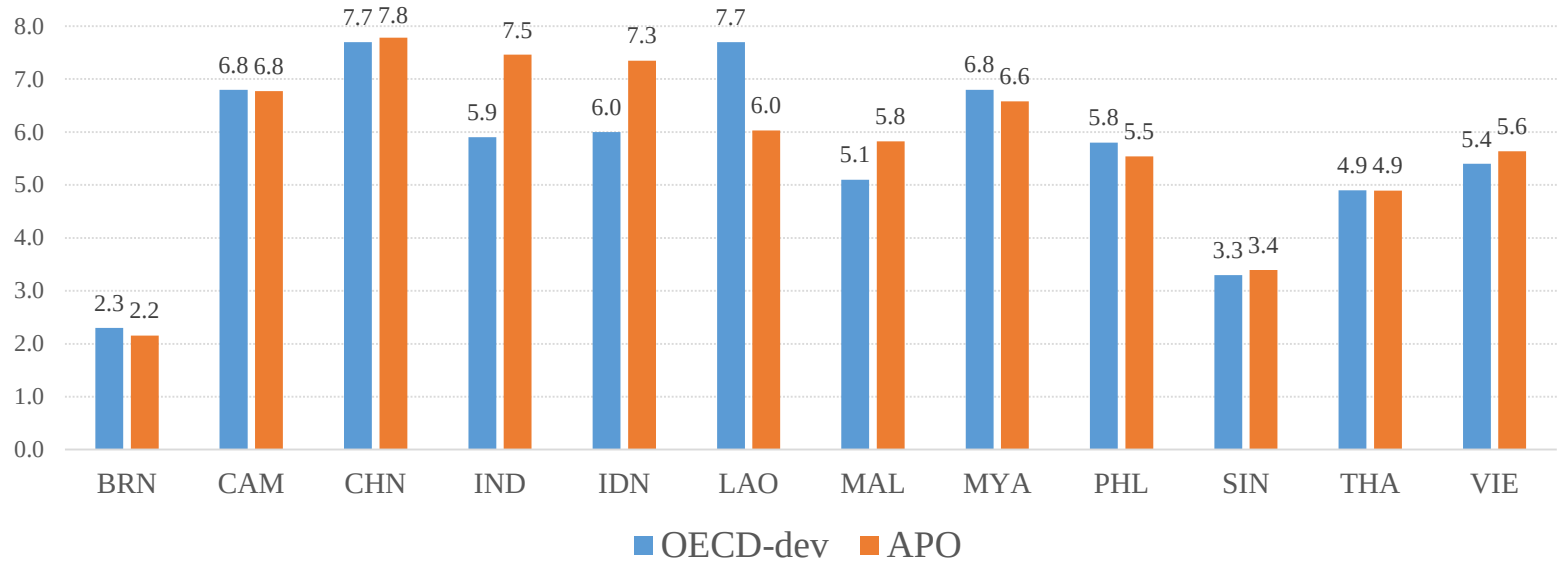
- Forecasted Growth Rate of Labor Productivity, 2012–2020 and 2020–2030
  - Asia's ALP will keep a similar speed of ALP growth (5.1%) in 2012–20, compared to 5.3% in 2005–12.
  - In 2020–30, it is expected to be somewhat slowed down to 4.1%, from 5.1% in 2012–20.
  - ASEAN is expected to sustain a sound growth of ALP even in 2020–30.



Sources: Author's estimates (based on UN, *World Population Prospects: The 2012 Revision*; ROC National Development Council, *Population Projections for ROC 2014-2060*; APO , *APO Productivity Databook 2014*; Asia-QALI Database 2014 (under construction)).

Comparison with the OECD/dev Projection 2013
—The results of two projections seems almost consistent.

- Forecasted Economic Growths, 2014–2018
  - The results of two projections are almost consistent, although the methodologies are rather different.
  - OECD/dev's projection is somewhat lower in India, Indonesia and Malaysia and higher in Lao PDR.

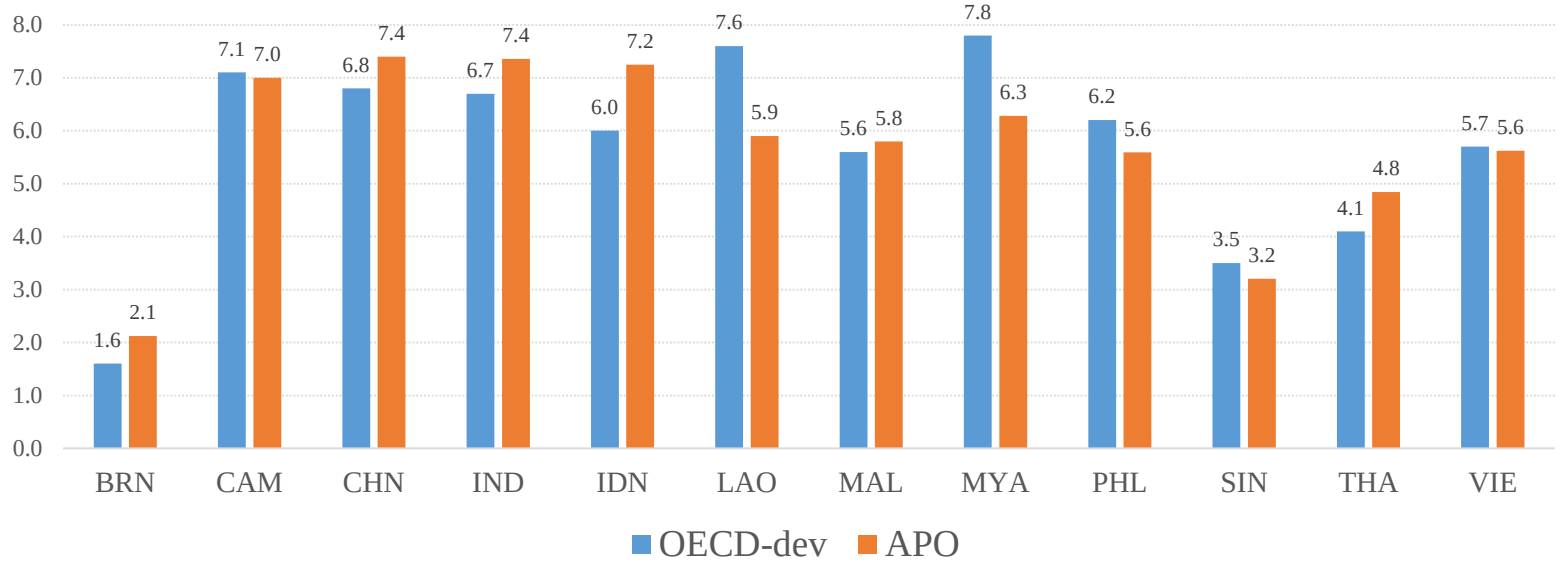


Sources: Author's estimates (based on UN, *World Population Prospects: The 2012 Revision*; ROC National Development Council, *Population Projections for ROC 2014-2060*; APO , *APO Productivity Databook 2014*; Asia-QALI Database 2014 (under construction)).
OECD dev (2013) *Economic Outlook for Southeast Asia, China and India, 2014.*
Unit: Average annual growth rate.

Comparison with the OECD/dev Projection 2014

—For some countries, the growth projections were revised in OECD/dev.

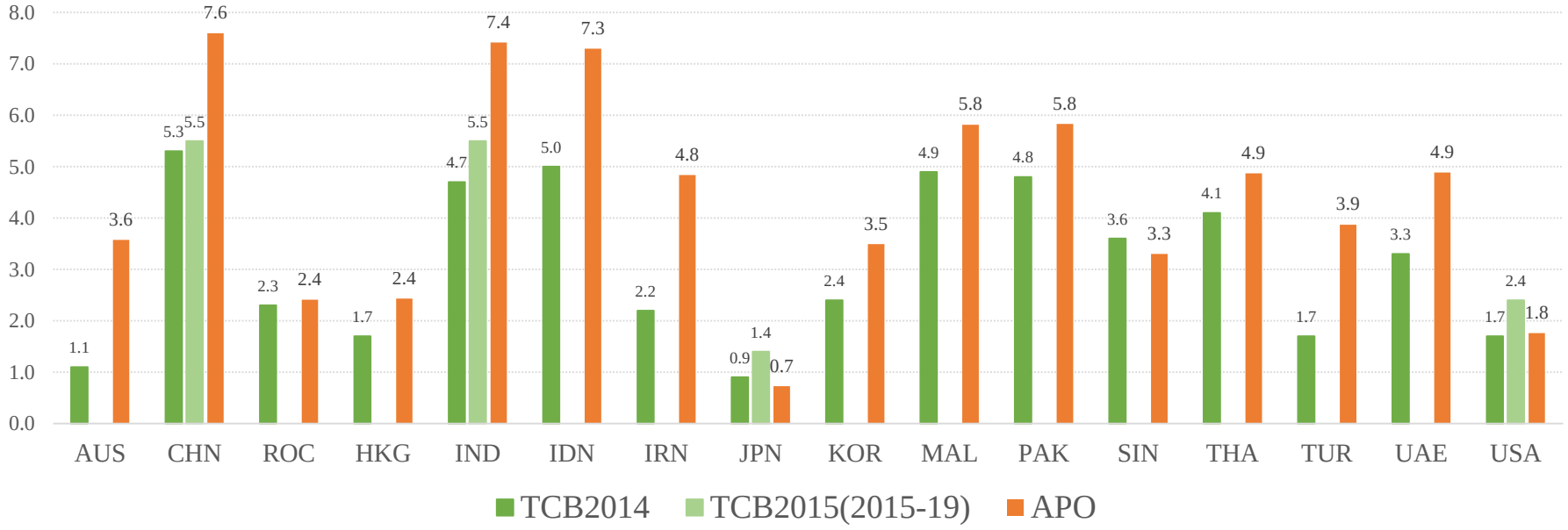
- Forecasted Economic Growths, 2015–2019
  - Downward revisions: China (7.7% →6.8%), Thailand (4.9% →4.1%)
  - Upward revisions: India (5.9% →6.7%), Malaysia (5.1% →5.6%), Myanmar (6.8% →7.8%)



Sources: Author's estimates (based on UN, *World Population Prospects: The 2012 Revision*; ROC National Development Council, *Population Projections for ROC 2014-2060*; APO , *APO Productivity Databook 2014*; Asia-QALI Database 2014 (under construction)).
OECD dev (2014) *Economic Outlook for Southeast Asia, China and India, 2015.*
Unit: Average annual growth rate.

Comparison with The Conference Board Estimates 2014/2015(1)
—Their estimates are more pessimistic, even in Asian countries.

- Projected Growths, 2014–2019
  - TCE has a pessimistic view of 3.1% growth projection of the word economy (revised to 3.3%, in Nov 2014).
  - In 2014–19, China 5.3% (revised to 5.5 during 2015–19, in Nov 2014), India 4.7% (revised to 5.5%), Japan 0.9% (revised to 1.4%), and the U.S. 1.7% (revised to 2.4%).

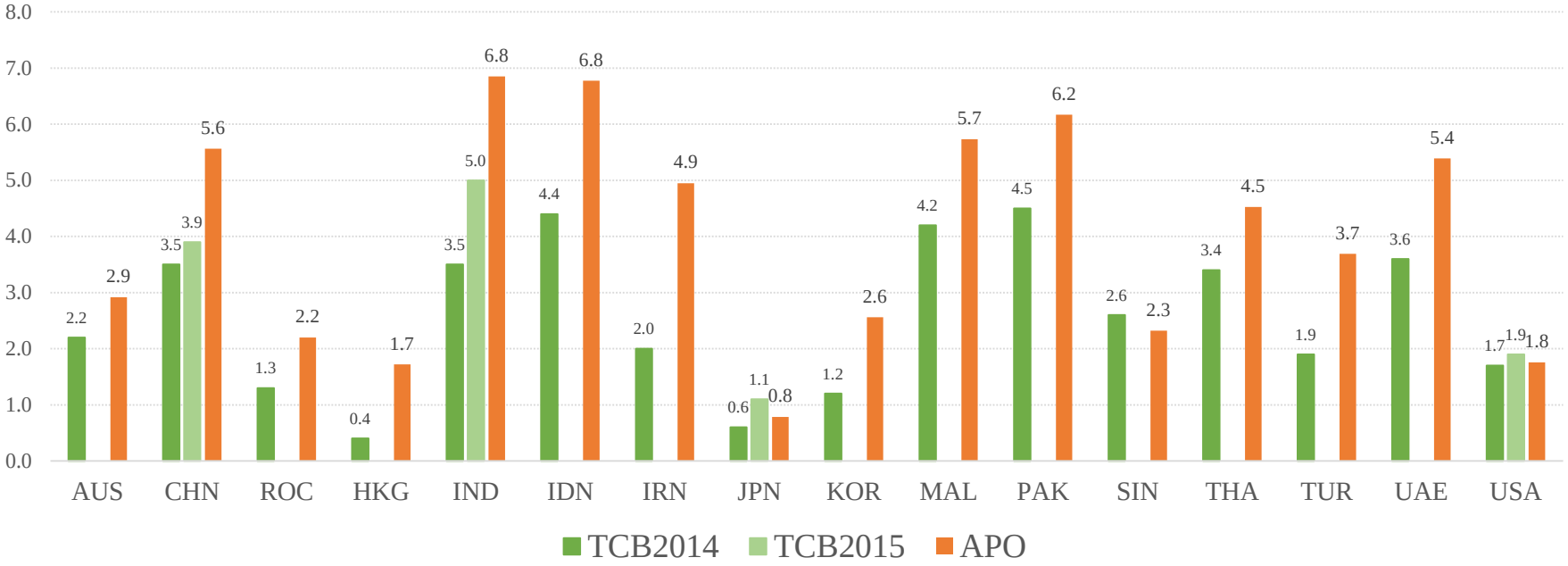


Sources: Author's estimates (based on UN, *World Population Prospects: The 2012 Revision*; ROC National Development Council, *Population Projections for ROC 2014-2060*; APO , *APO Productivity Databook 2014*; Asia-QALI Database 2014 (under construction).
Abdul Azees Erumban, Klaas de Vries, and Bart van Ark(2013) New Measures of Global Growth Projection for The Conference Board Global Economic Outlook 2014.
Unit: Average annual growth rate.

Comparison with The Conference Board Estimates 2014/2015(2)

—Their estimates are more pessimistic, even in Asian countries.

- Projected Growths, 2020–2025
  - TCE has a pessimistic view of 2.4% growth projection of the word economy (revised to 2.7%, in Nov 2014).
  - In 2020–25, China 3.5% (revised to 3.9, in Nov 2014; APO 5.6%), India 3.5% (revised to 5.0%; APO 6.8%), Japan 0.6% (revised to 1.1%; APO 0.8%), and the U.S. 1.7% (revised to 1.9%; APO 1.8%).



Sources: Author's estimates (based on UN, *World Population Prospects: The 2012 Revision*; ROC National Development Council, *Population Projections for ROC 2014-2060*; APO , *APO Productivity Databook 2014*; Asia-QALI Database 2014 (under construction).
Abdul Azees Erumban, Klaas de Vries, and Bart van Ark(2013) New Measures of Global Growth Projection for The Conference Board Global Economic Outlook 2014.
Unit: Average annual growth rate.

Thank you.

For further information, please contact

Koji NOMURA
Keio University, Tokyo
email: nomura.koji@gmail.com