



The Economic Geography of the NIEs





A (Very) Brief Economic History of Korea

- Chosôn Dynasty Period (1392–1910)
 - Largely agrarian peasant economy limited by poor control over water resources
- Colonial Period (1910–45)
 - Japanese colonization replaced dynastic bureaucracy with developmental state
 - Gradual replacement of agriculture toward manufacturing, led by Japanese capital inflows
- Post-Division Period (1946—present)
 - Division into North and South by superpowers culminated in Korean War, which destroyed ¼ of the capital stock
 - Brief period of import substitution followed by export oriented industrialization led by *chaebol* and developmental state



The Modern Korean Economy I

- Although South Korea began with less industrialization relative to the North, this has now sharply reversed
 - Korea is the 12th (nominal) and 14th (PPP) largest economy globally
 - Industry is diversified, including light and heavy production
 - Economy has transitioned from developmental state toward greater market orientation
 - Industrial structure still dominated by chaebol
 - Demographic pressures and diminishing returns to education limit future human capital contributions to growth



The Modern Korean Economy II

• The relative development gap between the two Koreas is evident from nighttime lights of the peninsula





The Modern Korean Economy III

 Chaebol are cross-shareholding structures similar to Japanese zaibatsu

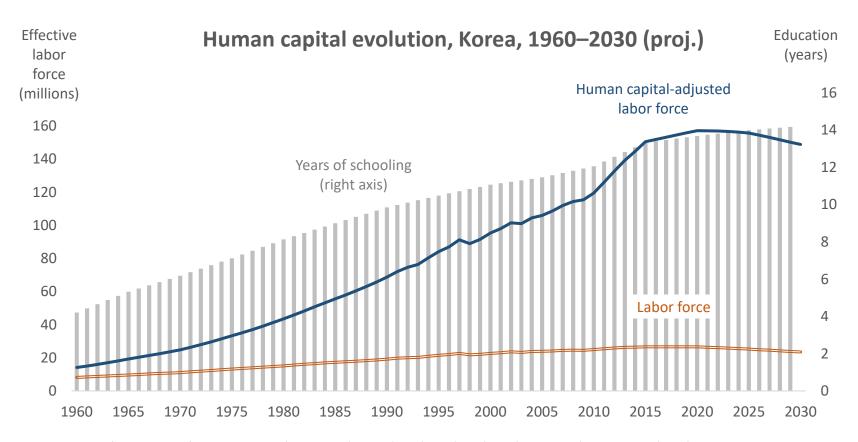
Majority Vertical shareholder family integration Direct equity investment equity investment ownership of equity investment majority shareholder loan, liability loan, liability family guarantee guarantee Major Insurance General trading manufactur company, company e company Bank equity investment equity investment Indirect equity investment liability guarantee hability guarantee ownership by crossequity investment loan shareholding Parts Small Service Shipping Parts Parts New supplier suppliers suppliers suppliers affilliate business agent Diversification

Figure 1. Conceptual Diagram of Chaebol Structure and Functioning



The Modern Korean Economy IV

 Korea faces an aging population and shrinking labor force, alongside diminishing returns to human capital



Source: Authors' calculations, from Barro & Lee (2015, 2016), IIASA (2010), ILO (2014), UN (2013, 2015), World Bank (2017)



A (Very) Brief Economic History of Taiwan

- Colonization Period (1635–1944)
 - Taiwan fell under various colonization attempts, during which development was slow and largely agricultural
- Nationalist Period (1945—present)
 - Chinese Nationalists took control of Taiwan and relocated their administration there
 - Taiwan was initially reliant on U.S. aid but industrialization via production of cheap manufactured goods began in late 1950s
 - Initial import substitution regime replaced by export orientation in 1960s
 - After expulsion from the UN in 1971, the government undertook Ten Major Construction Projects (shídà jiànshè) to stabilize and strengthen the economy



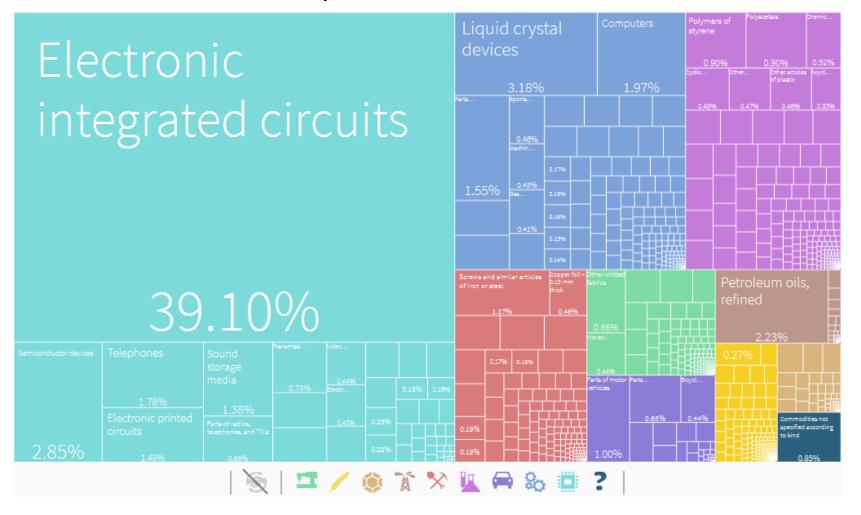
The Modern Taiwanese Economy I

- After embracing export oriented industrialization, the economy modernized rapidly
 - Taiwan is the 22nd (nominal and PPP) largest economy globally
 - Industry is diversified, including light and heavy production
 - Industrial structure comprised of clusters of network-linked SMEs rather than major industrial groups
 - Cross-firm spillovers from science and industrial parks
 - Risks from significant reliance on semiconductor manufacturing
 - Demographic pressures and diminishing returns to education
 - Cross-strait tensions cast a shadow but has not inhibited growth of trade



The Modern Taiwanese Economy II

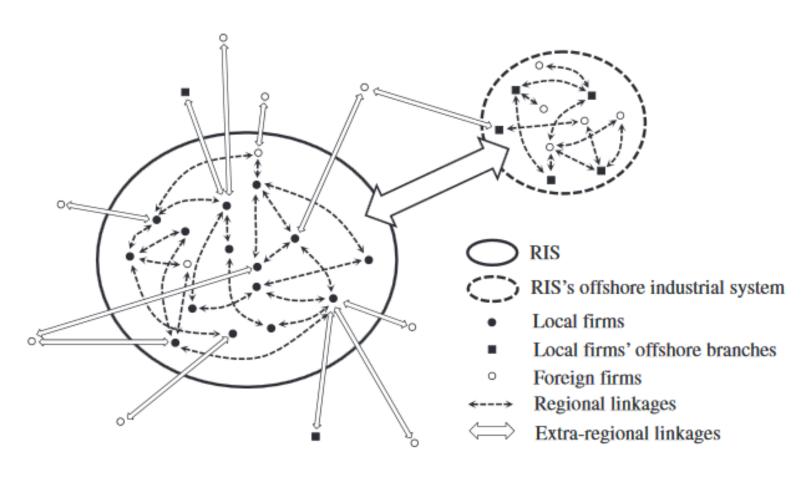
 Industry is close to 30% of the economy, with exports of electronics, machinery, metals, and chemicals





The Modern Taiwanese Economy III

 Although Taiwan's SMEs do not have a vertically-integrated structure, they exhibit upstream and downstream linkages





The Modern Taiwanese Economy IV

 Cross-strait uncertainty has not impeded the growth of business relationships between Taiwan and the Mainland

	香港轉口貿易統計				陸委會估算			
期間	Transit Trade between Taiwan and Mainland China via HK			Estimates by Mainland Affairs Council, ROC				
Period	出口比重1	進口比重1	進出口比重 ¹	出口比重 ¹	進口比重1	進出口比重1		
	export share	import share	total trade share	export share ¹	import share	total trade sha		
1984	1.40	0.58	1.06	1.40	0.58	1.06		
1985	3.21	0.58	2.17	3.21	0.58	2.17		
1986	2.04	0.60	1.49	2.04	0.60	1.49		
1987	2.28	0.83	1.71	2.28	0.83	1.71		
1988	3.70	0.96	2.47	3.70	0.96	2.47		
1989	4.38	1.12	2.94	5.03	1.12	3.31		
1990	4.88	1.40	3.32	6.54	1.40	4.23		
1991	6.10	1.78	4.15	9.79	0.46	5.57		
1992	7.66	1.55	4.79	12.84	1.03	7.31		
1993	8.82	1.43	5.32	16.28	1.31	9.19		
1994	9.03	1.51	5.45	16.99	2.17	9.93		
1995	8.72	1.51	5.27	17.15	2.97	10.36		
1996	8.26	1.54	5.12	17.63	2.97	10.79		
1997	7.82	1.52	4.79	18.08	3.41	11.03		
1998	7.43	1.57	4.60	17.62	3.91	11.00		
1999	6.61	1.46	4.17	17.22	4.07	11.00		
2000	6.31	1.41	3.95	16.46	4.43	10.67		
2001	6.98	1.57	4.48	20.27	5.47	13.45		
2002	7.62	1.51	4.84	23.30	7.04	15.89		
2003	7.83	1.69	5.01	25.43	8.61	17.70		
2004	8.09	1.47	4.91	26.83	9.95	18.72		
2005	8.60	1.44	5.17	28.36	11.00	20.04		
2006	8.35	1.44	5.07	28.27	12.23	20.65		
2007	8.60	1.33	5.18	30.11	12.77	21.95		
2008	7.84	1.23	4.63	28.94	13.05	21.23		
2009	8.85	1.71	5.55	30.48	14.03	22.89		
2010								
1-3月 JanMar.	8.21	1.62	5.05	31.32	13.14	22.60		



A (Very) Brief Economic History of Hong Kong

- Imperial Period (221 BCE–1841)
 - Territory incorporated into China during Qin dynasty, and distinguished as a trading center as early as the Tang
- Colonial Period (1842–1948)
 - Formally ceded to Great Britain after 1st Opium War, and rapidly grew into a regional commercial and financial center
- Postwar Industrialization Period (1949–1996)
 - Rapid development through a combination of free-market-oriented policies alongside state involvement in selected areas of economy
- Post-Handover Period (1997–present)
 - Dramatic deindustrialization with a pivot toward services



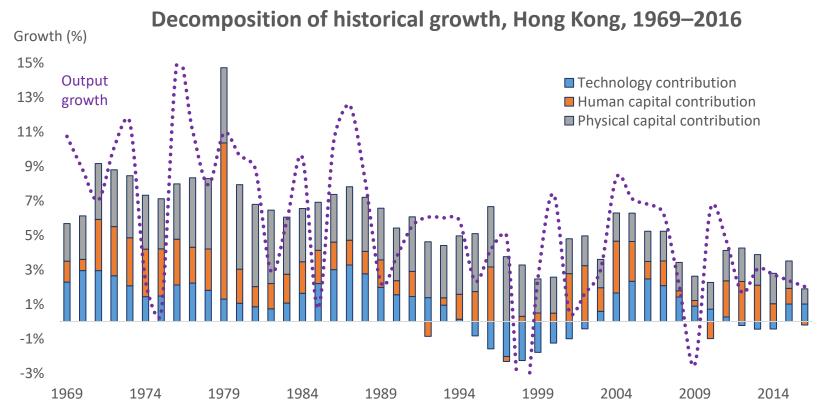
The Modern Hong Kong Economy I

- Hong Kong took the path of economic freedom to develop a strongly capitalist economy
 - Business-friendly institutional framework, geographic advantages, and resource mobilization has enabled rapid growth
 - Industry is diversified, with strong emphasis on exportable services
 - Industrial structure comprised of clusters of network-linked SMEs with hinterland ties to China
 - Relocation of labor-intensive manufacturing to Shenzhen
 - Demographic challenges offset by significant educational attainment
 - Limited land resources has made Hong Kong one of the densest regions of the world



The Modern Hong Kong Economy II

 Rapid physical and human capital accumulation contributed far more than TFP to Hong Kong's remarkable growth record

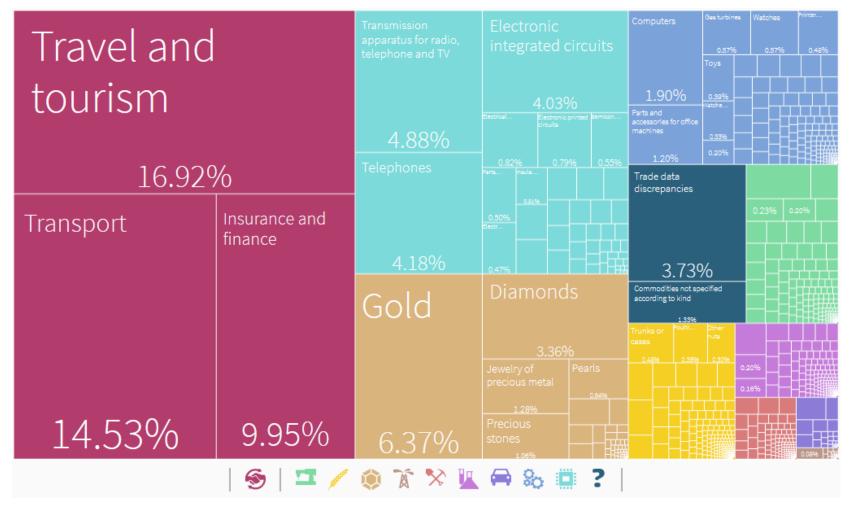


Source: Authors' calculations, from Barro & Lee (2015, 2016), IIASA (2010), ILO (2014), UN (2013, 2015), World Bank (2017)



The Modern Hong Kong Economy III

 Industry has largely migrated to Shenzhen, with exports now focused on some electronics and jewelry, but also services





Extremely scarce land has resulted in population densities that are among the highest in the world







A (Very) Brief Economic History of Singapore

- Sultanate Period (1365–1818)
 - Undistinguished trading settlement encumbered by piracy and malaria
- Colonial Period (1819–1964)
 - Established as strategically-important port for British, but sustained immigrant flows meant housing shortages and poor living conditions
 - In the postwar period, Singapore underwent varying degrees of selfgovernment alongside socio-political instability
- Post-independence Period (1965–present)
 - Singapore gained independence in an environment of uncertainty over its economic prospects
 - Adoption of outward-oriented industrialization model with reliance on MNCs for foreign investment and technology



The Modern Singaporean Economy I

- Singapore has always relied on exploiting its strategic advantages to foster economic change
 - Strong institutions, favorable geography, and resource mobilization has resulted in accelerated growth
 - Reliance on foreign investment inflows alongside forced saving to mobilize capital and import technology
 - High-educated labor force supplemented by immigration
 - One of the most open economies in the world, with a shift away from pure entrepôt toward global logistics
 - Exhaustion of manufacturing value-added and move toward services
 - Strong government involvement in economy (both ownership and public goods)



The Modern Singaporean Economy II

 Singapore's average growth of 8% for almost half a century has far exceeded those of other SE Asian economies

Average Annual Growth Rates of GDP (%), 1961-2007

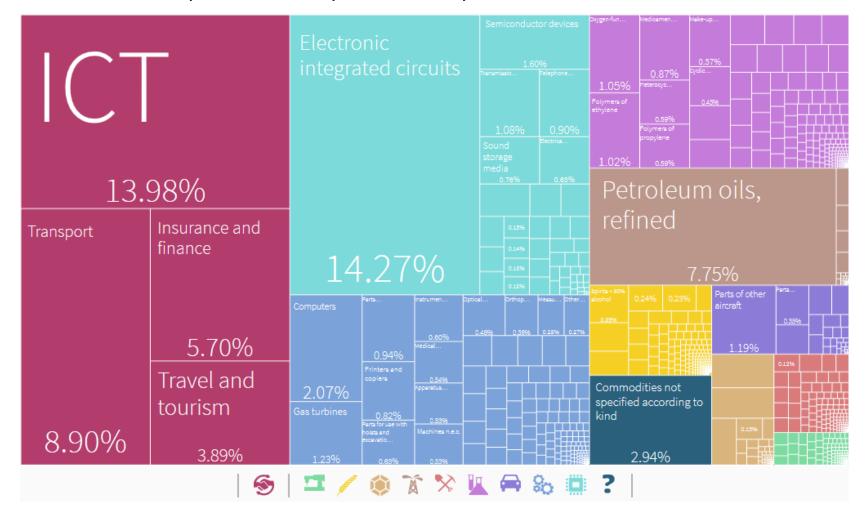
	1961–1970	1971–1980	1981–1990	1991–2000	2001–2007	1961–2007
Indonesia	4.2	7.9	6.4	4.4	5.1	5.6
Malaysia	6.5	7.9	6.0	7.2	4.8	6.6
Myanmara	3.2	4.7	1.4	6.8	9.0	4.6
Philippines	4.9	5.9	1.8	3.1	5.0	4.1
Singapore	9.9	8.8	7.5	7.6	5.3	8.0
Thailand	8.2	6.9	7.9	4.6	5.1	6.6

 Post-crisis growth has, however, fallen to half that rate, and potential growth may now be permanently lower



The Modern Singaporean Economy III

 Industry is (still) about ¼ of the economy, with exports of electronics, chemicals, and food, but also services





The NIEs in Comparative Perspective I

- Although distinct, all four NIEs share certain similar features
 - Rapid growth through factor mobilization with limited TFP contribution
 - Export-oriented industrialization strategy
 - Attraction of FDI into export-processing zones (EPZs)
 - Open trade but not necessarily capital openness or unfettered markets
 - Industrial policies consistent with developmental state (*dirigisme*)
 - Production and export diversification
 - Integration into the East Asian production chain
 - Demographic challenges alongside shrinking labor force



The NIEs in Comparative Perspective II

 After accounting for rapid factor accumulation, the contribution from TFP is only a fraction of headline growth

AVERAGE TOTAL FACTOR PRODUCTIVITY GROWTH (PERCENT PER ANNUM)

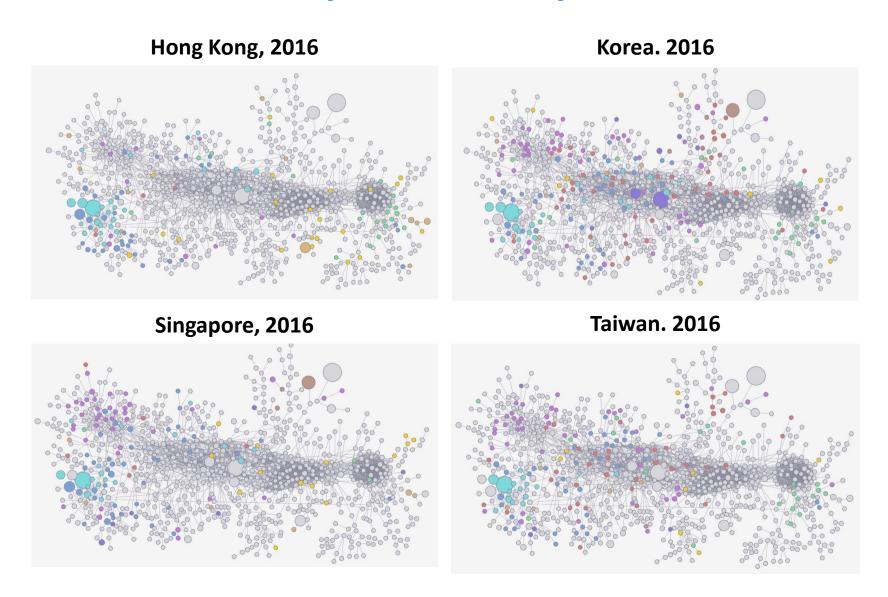
	Hong Kong (1966–1991)	Singapore (1966–1990)	South Korea (1966–1990)	Taiwan (1966–1990)
Economy*	2.3	0.2	1.7	2.1
Manufacturing#	NA	-1.0	3.0	1.7
Other industry	NA	NA	1.9	1.4
Services	NA	NA	1.7	2.6
Private sector	NA	NA	NA	2.3

NA-not available. *In the case of Korea and Taiwan, agriculture is excluded. #In the case of Singapore, the years are 1970–1990.

Is the East Asian miracle an unsustainable mirage?



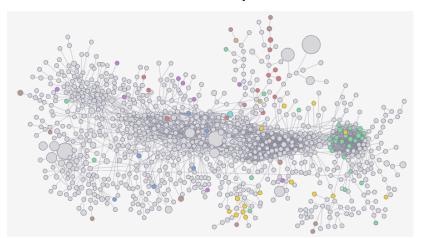
The NIEs in Comparative Perspective III



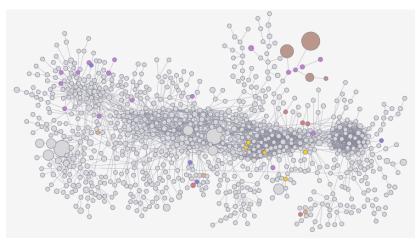


The NIEs in Comparative Perspective IV

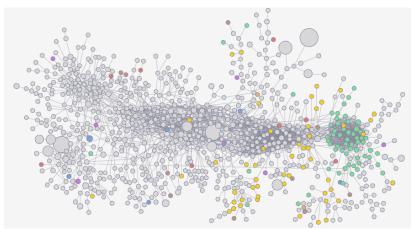
North Korea, 2016



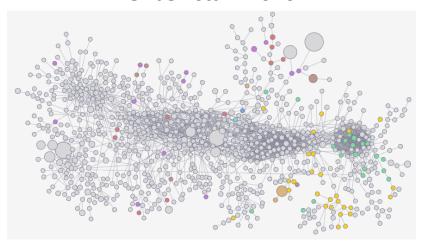
Saudi Arabia. 2016



Pakistan, 2016



Uzbekistan. 2016





The NIEs in Comparative Perspective V

- While NIEs share similar growth strategies, they also reflect distinct development patterns
 - Trade openness is far greater in the city states (Singapore, Hong Kong) relative to larger NIEs
 - Industrial structures may be large and concentrated (Korean chaebol, Singaporean GLCs) or smaller and diffuse (Taiwanese, Hong Kong SMEs)
 - Larger NIEs (Korea, Taiwan) also developed and expanded heavy industry, while smaller NIEs (Hong Kong, Singapore) retained laborintensive light industry and expanded into services



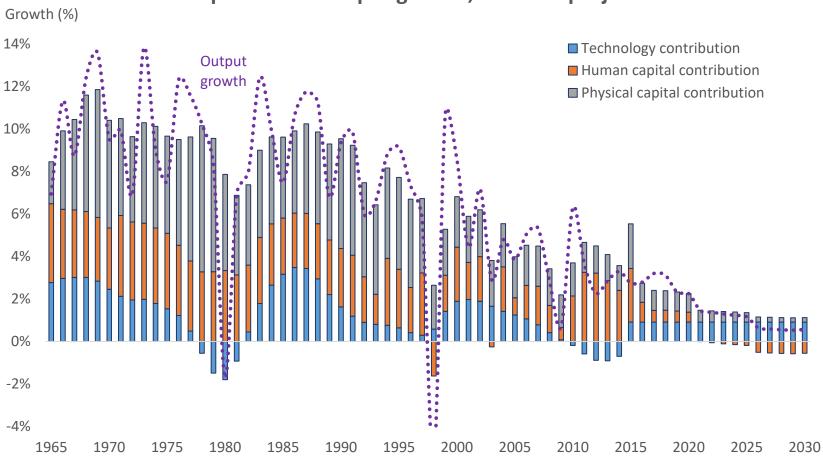
The Future of NIEs I

- Challenges to the NIE's Economic Future
 - Low fertility and aging populations imply rising dependency ratios even while labor force shrinks
 - Dissaving from aging population and aged-related expenditures lower saving available for investment
 - 3. Productivity gains can no longer be based on importing technology



The Future of NIEs II

Decomposition of output growth, baseline projection Korea

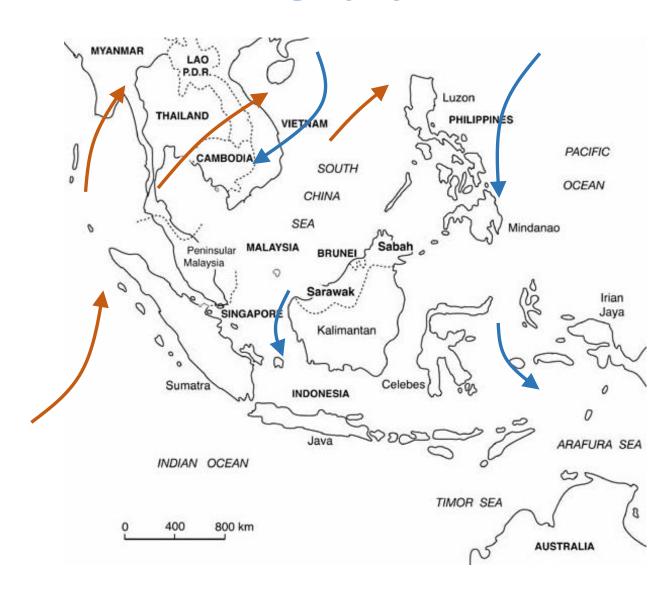


Source: Authors' calculations, from Barro & Lee (2015, 2016), IIASA (2010), ILO (2014), UN (2013, 2015), World Bank (2017)





The Economic Geography of Southeast Asia I





The Economic Geography of Southeast Asia II





A Brief Economic History of Southeast Asia I

- Early Modern Period (1500–1830)
 - Southeast Asia has always been deeply integrated into international commerce and trade ever since the beginning of the Age of Commerce
 - Connected to trading spheres as meeting point of monsoon winds
 - Maritime silk road between Indian Ocean and South China Sea
 - Acceptance of new ideas and technologies
 - International economic relationships centered on trade based on comparative advantage



A Brief Economic History of Southeast Asia II

- The region's history of international commercial relations conditioned its subsequent development
 - Southeast Asian economies generally pursued export-oriented industrialization
 - Regional economic integration was precursor to modern verticallyintegrated production systems
- But the region's relative economic homogeneity was subsequently interrupted by distinct colonial experiences



A Brief Economic History of Southeast Asia III

- Colonial Period (1831–1963)
 - Economic motivations led European powers to colonize virtually all of Southeast Asia
 - Development of inland infrastructure and cash crop cultivation alongside traditional agriculture
 - Introduction of Western institutions in civil service, law, and the economy
- The ultimate legacy of colonialism was mixed, and the effects remain controversial



A Brief Economic History of Southeast Asia IV

- A country's experience with the colonial period depends on whether the colony was extractive or settler-oriented
 - Settler colonies developed stronger institutions and fostered education, while extractive colonies exploited both natural resources as well as natives
 - Introduction of a monetary economy fostered economic development
 - Colonization eventually gave rise to nationalism



Cash crops were introduced in colonial times, and agricultural exports are a major component of SE Asian economies today







Modern Southeast Asian Economies I

- Post-Independence Period (1964—present)
 - Most colonial powers exited the region following nationalist movements
 - Independence was accompanied by struggles over political-economic systems
 - Socialism <u>vs</u> capitalism
 - Export orientation <u>vs</u> import substitution
 - Communism vs democracy
- Variations in choices over these systems account for much of the differences in SE Asian economies today



The ideological battle over communism left significant scars, especially in Indochina, but even non-frontier regions experienced effects that persist till this day







Modern Southeast Asian Economies II

- Contemporary Southeast Asian economies are incredibly diverse
 - Economic growth and per capita income levels define "turtle," "horse," and "elephant" economies
 - Factor endowments in land, natural resources, and labor vary widely, as do demographic circumstances
 - Export patterns reflect differences in comparative advantage and factor endowments
 - Even within developing SE Asia, inequality and poverty vary significantly
 - Governance quality ranges from world-class to extremely poor

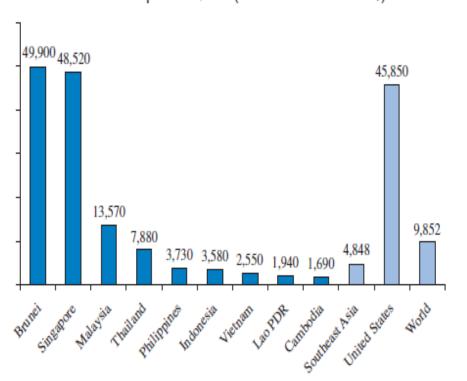


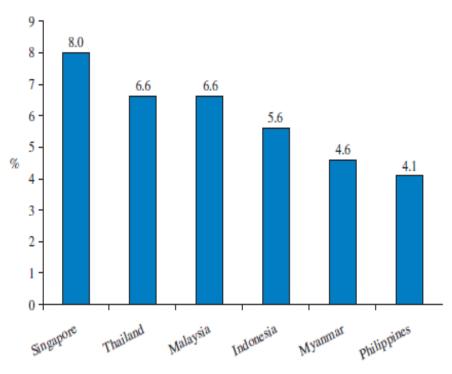
Modern Southeast Asian Economies III

 Per capita incomes and growth rates vary substantially, although there is recent evidence of convergence

2007 Per Capita GNI, PPP (Current International \$)

Differences in Average Annual Growth Rates, 1961–2007





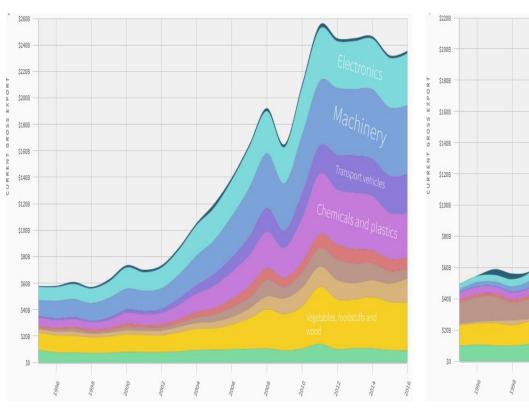


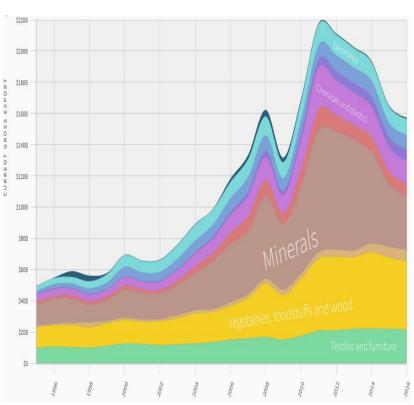
Modern Southeast Asian Economies IV

 Export patterns tend to heavily reflect wage-based productivity advantage and natural resource endowments

Exports from Thailand, 1996–2016

Exports from Indonesia, 1996–2016







Modern Southeast Asian Economies V

 Within developing SE Asia, poverty rates vary according to differences in growth rates and policies for poverty alleviation

Percentage of Population Living Below National Poverty Line

	Survey year	National (%)	Urban (%)	Rural (%)
Thailand	1998	14	n.a.	n.a.
Indonesia	1999	27	16	34
Vietnam	2002	29	7	36
Cambodia	2004	35	18	38
Philippines	1997	37	22	51
Lao PDR	1997–98	39	27	41



Modern Southeast Asian Economies VI

• By a similar token, income distribution is uneven, with transition economies exhibiting less unequal outcomes

Measures of Income Distribution

	Survey Year	Gini coefficient	Lowest 20% over highest 20%
Lao PDR	2002	34.6	0.19
Vietnam	2004	37.0	0.16
Indonesia	2005	39.4	0.15
Cambodia	2004	41.7	0.14
Thailand	2002	42.0	0.13
Singapore	1998	42.5	0.10
Philippines	2003	44.5	0.11
Malaysia	1997	49.2	0.08



Modern Southeast Asian Economies VII

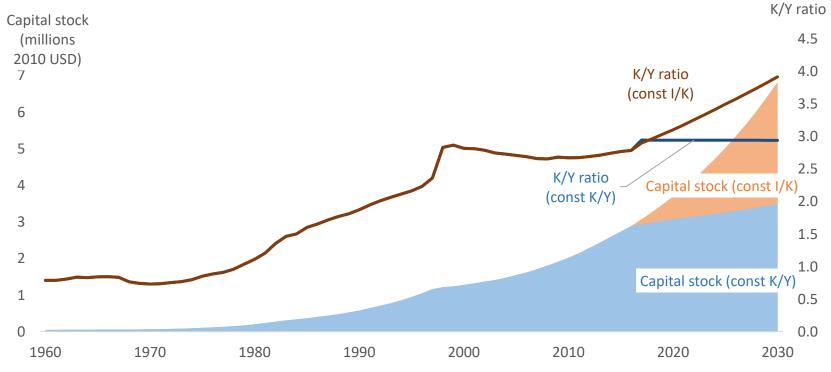
- Southeast Asian economies do share a number of common characteristics
 - High saving with high investment in physical and human capital
 - Relatively pointed talent pyramid for human resources
 - Continued importance of agricultural employment and production
 - Export-oriented industrialization strategy
 - Selective application of tariff protection



Modern Southeast Asian Economies VIII

 Southeast Asian economies have also encouraged high levels of saving that were reinvested into building the capital stock



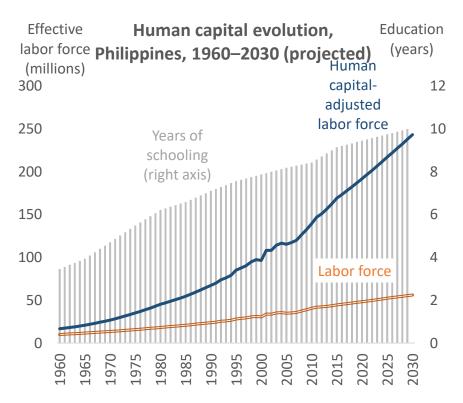


Source: Author's calculations, from World Bank (2017).

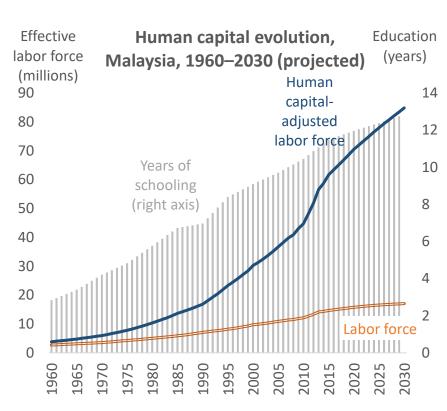


Modern Southeast Asian Economies IX

Southeast Asian economies have emphasized rapid increases in primary and secondary schooling



Source: Author's calculations, from Barro & Lee (2015, 2016), IIASA (2010), ILO (2014), UN (2013, 2015), World Bank (2017).



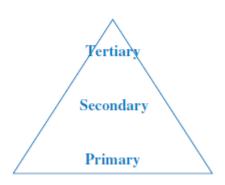
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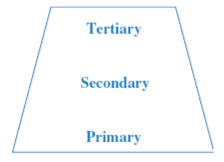
Talent pyramids of low vs high human resource development economies

- High public investment in education after independence has seen significant growth in human development
- However, lower levels of investment in tertiary education has resulted in SE Asian talent pyramids being more narrow at the top

Talent Pyramid of a Country with Low Human Resource Development



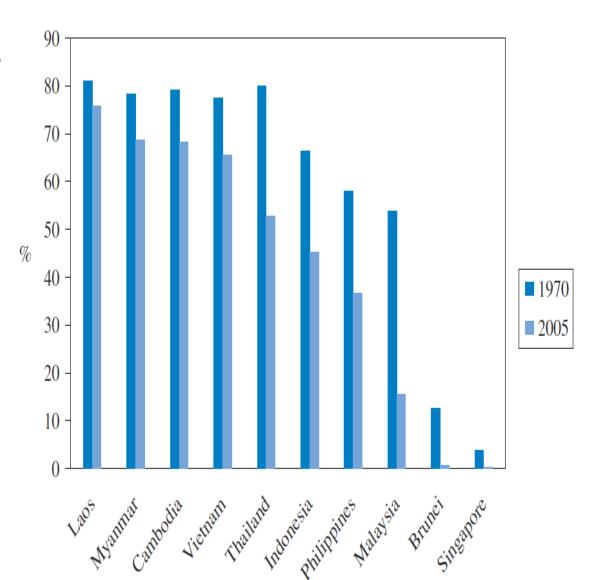
Talent Pyramid of a Country with High Human Resource Development





Economically-active population in primary sector, 1970 & 2005

- Agricultural production is declining as a share of output but remains a major share of employment
- Efficiency in the sector is low, with yields below other ricegrowing regions
- Rice self-sufficiency is a policy objective

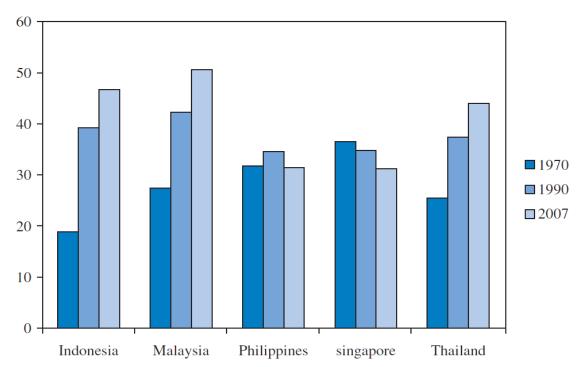




Modern Southeast Asian Economies X

 Middle-income economies have had rising shares of manufacturing production in output, as part of East Asian production network

Industry share of GDP, ASEAN-5, 1970, 1990 and 2007





Modern Southeast Asian Economies XI

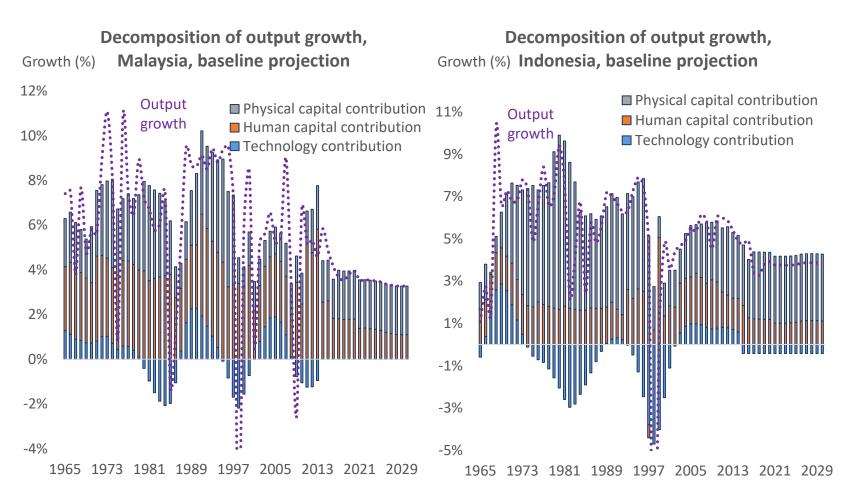
 Even as recently as the late 1980s, many SE Asian economies enacted substantial import barriers to support domestic industrial development

Effective Tariff Rates of ASEAN-5 (Trade Weighted Average) 1989 and 2006

	Effective Tariff Rates		% Change
	1989	2006	
Indonesia	14.7	6.4	-56.5
Thailand	34.1	6.2	-81.8
Singapore	0.6	0	-100.0
Malaysia	10.6 (1988)	4.4	-58.5
Philippines	23.1	3.3	-85.7



The Future of Southeast Asian Economies I



Source: Author's calculations, from Barro & Lee (2015, 2016), IIASA (2010), Source: Author's calculations, from Barro & Lee (2015, 2016), IIASA (2010), ILO (2014), UN (2013, 2015), World Bank (2017)

ILO (2014), UN (2013, 2015), World Bank (2017)



The Future of Southeast Asian Economies II

- Challenges to Southeast Asia's Economic Future
 - Need to harness human capital (broader talent pyramid) in order to fully enjoy demographic dividend
 - Institutional challenges are constraints to investment, human capital accumulation, and productivity growth





Opportunity Costs & Comparative Advantage I

- Opportunity cost (for economy)
 - Tradeoff faced between producing one good versus another
 - Differences in opportunity costs offer possibility of mutually beneficial rearrangements of world production

Comparative advantage

 Country has a comparative advantage in producing a good if the opportunity cost of producing that good is lower in the country than it is in other countries



Opportunity Costs & Comparative Advantage II

- Example: The Case of Water
 - 2 countries, Singapore and Malaysia
 - Two different, distinct types of water
 - **Singapore**: 15 million cases of reclaimed *NEWater* can be produced with the same resources that could produce 8 million cases of treated water
 - Malaysia: 3 million cases of reclaimed water can be produced with the same resources that could produce 8 million cases of treated water
 - What are possible changes in production if Singapore specializes in reclaimed water and Malaysia in treated water?



Ricardian Model I

Assumptions

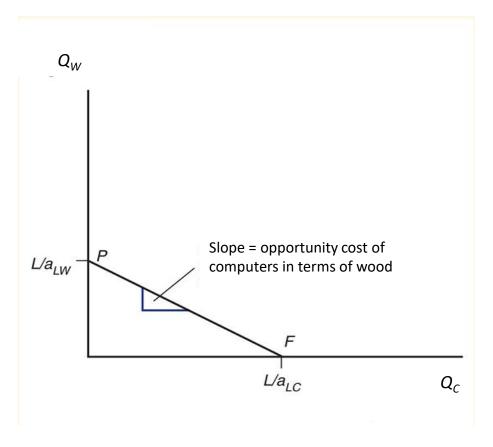
- **1. One factor**: Labor (*L*) is the only resource important for production, with constant supply in each country
- **2. Two goods**: 2 goods for production and consumption: wood (*W*) and computers (*C*)
- 3. Two countries: 2 countries, Home and Foreign (*)
- **4. Perfect competition**: Competition allows laborers to be paid a competitive wage



Ricardian Model II

• PPF of Home

$$a_{LC}Q_C + a_{LW}Q_W = L$$



Ricardian Model III

Pattern of specialization

• Under perfect competition and single factor, wages are

$$w_W = \frac{P_W}{a_{LW}} \qquad \& \qquad w_C = \frac{P_C}{a_{LC}}$$

• Workers like high wages, so they will work in industry that pays more; so what happens if

$$\frac{P_C}{a_{LC}} > \frac{P_W}{a_{LW}}$$



Trade in the Ricardian Model I

Autarky

- What happens in the absence of trade?
- The country must produce both goods, which will only happen if

$$\frac{P_C}{P_W} = \frac{a_{LC}}{a_{LW}}$$



Trade in the Ricardian Model II

More assumptions

5. Absolute advantage: Home produces *both* goods with less labor input

$$a_{LW} < a_{LW}^* \qquad \& \qquad a_{LC} < a_{LC}^*$$

6. Comparative advantage: Home produces computers with relatively less labor input

$$\frac{a_{LC}}{a_{LW}} < \frac{a_{LC}^*}{a_{LW}^*}$$



Trade in the Ricardian Model III

Free trade

- What happens when we open both economies to trade?
- We now need to determine relative prices and quantities in world production

$$\frac{P_C}{P_W}$$
 & $\frac{(Q_C + Q_C^*)}{(Q_W + Q_W^*)}$

Pattern of trade

Relative supply

- 1. $P_C/P_W < a_{LC}/a_{LW}$
- 2. $P_C/P_W = a_{LC}/a_{LW}$
- 3. $a_{LC}/a_{LW} < P_C/P_W < a_{LC}^*/a_{LW}^*$
- 4. $a_{LC}/a_{LW} < P_C/P_W = a_{LC}^*/a_{LW}^*$
- 5. $a_{LC}^*/a_{LW}^* < P_C/P_W$

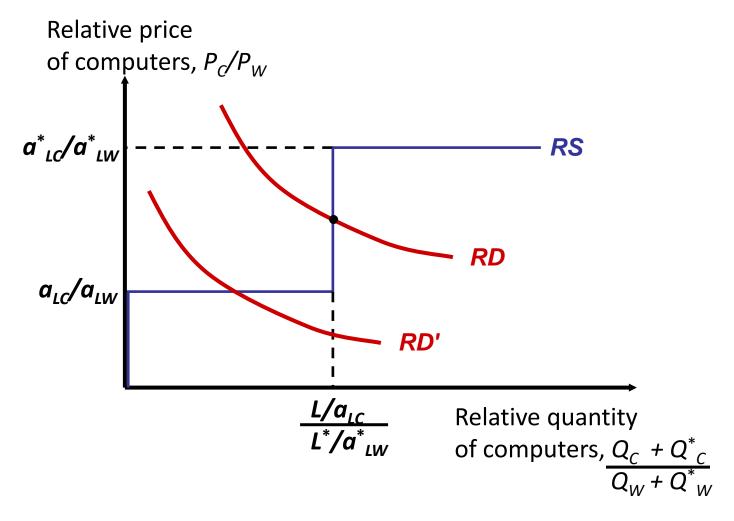
Relative demand

Assume substitution > income effect

 \Rightarrow Downward-sloping



Trade in the Ricardian Model IV



Is this the only possible equilibrium?



Trade in the Ricardian Model V

- Gains from trade
 - 1. Trade as an indirect method of production
 - Home can produce wood directly
 - Alternatively, Home can "produce" wood by producing computers and trading computers for wood
 - This indirect method of is more efficient than direct production
 - 2. Trade as a means of expanding consumption possibilities
 - Without trade, consumption possibilities are equal to production possibilities
 - With trade, countries can consume a different mix of computers and wood from what it produces



Trade in the Ricardian Model VI

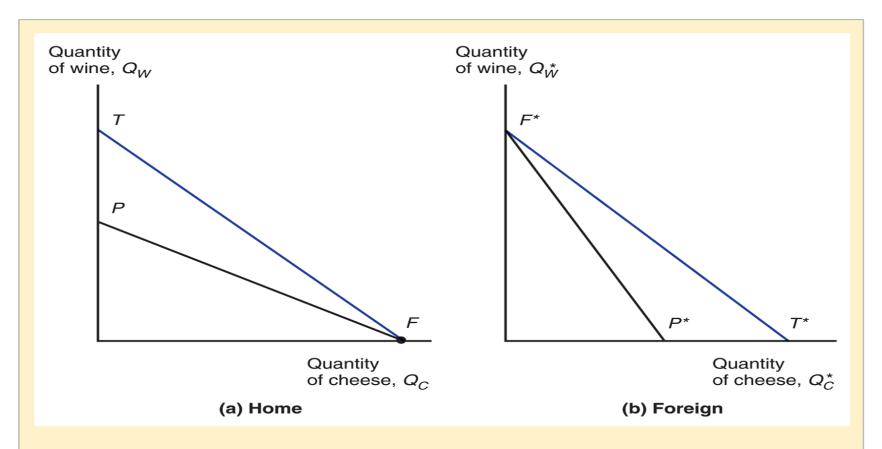


Figure 3-4

Trade Expands Consumption Possibilities

International trade allows Home and Foreign to consume anywhere within the colored lines, which lie outside the countries' production possibility frontiers.