

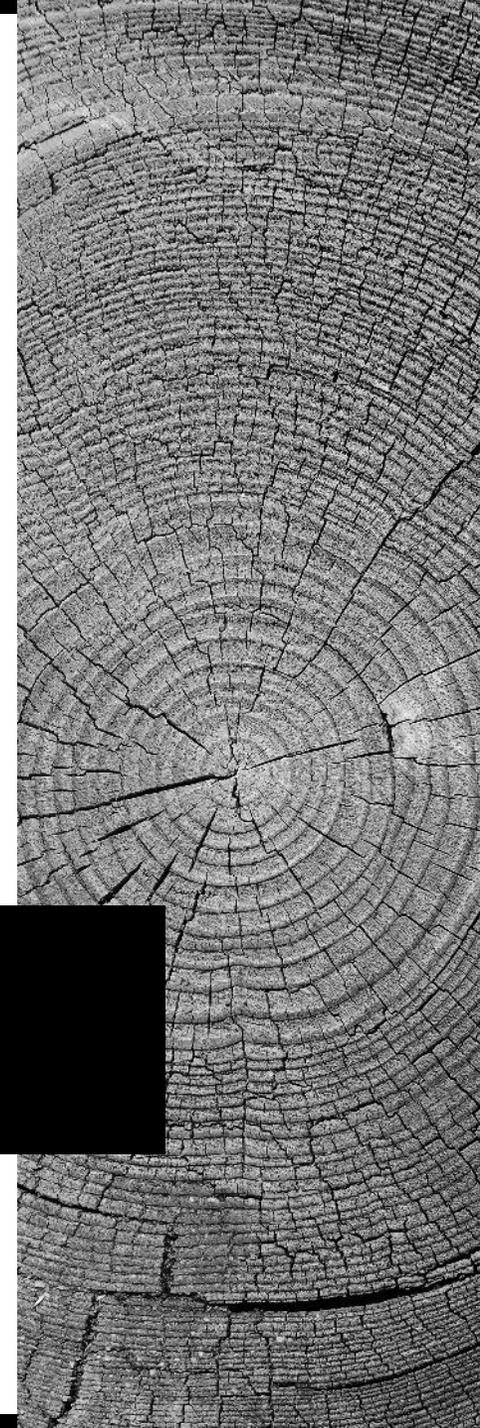


Jonathan Pincus
Summer 2022

AGRICULTURE AND ECONOMIC DEVELOPMENT

Development Policy

FSPPM



- In 1964 Asia was torn by political conflict
- Most countries were rice deficit: only Burma and Thailand were major exporters
- India, China and Indonesia's import requirement was 3x total exports from the rest of Asia
- Rice yields in 1964 lower than they had been in 1939 → underinvestment in infrastructure, research, logistics, fertilizer production and distribution
- 1955 2% of landowners in Mekong Delta controlled 45% of land.

The New York Times

SUNDAY, JULY 12, 1964



'HAVE-NOT' NATION—The Chinese, with their steadily increasing population, are a prime example of a people who cannot possibly subsist on what they harvest. Last year crops there were



'HAVE' NATION—South Vietnam is one of the six Asian countries that raise more foodstuffs than the population consumes. The others: Burma, Thailand, Cambodia, East Pakistan and Taiwan. (Above, Vietnamese women planting



rice.) The war has lessened considerably, but not erased, the crop surplus—which last year amounted to a third of a million tons. Here,

'A Grain of Rice Is Worth a Drop of Blood'

By **BERNARD S. FALL**

THE late French statesman Georges Clemenceau is credited with the sard: "A drop of oil is worth a drop of blood." Today in Southeast Asia and the Far East, Clemenceau's quip might well be changed to read: "A grain of rice is worth a drop of blood." And perhaps Red China and North Vietnam are willing to pay the price.

tion, with wheat a poor second at 20 per cent and corn an unimportant third at less than 10 per cent.

In what used to be called "normal" times, a poor crop in China and India meant the death through outright starvation of perhaps 7 million people; and even today, with American, Canadian or French wheat surpluses available, a middling crop in Asia can wipe out economic progress for that year as the hungry countries deplete their hard-

1959: "If India's food production increases no faster than present rates, the gap between supplies and target will be 28 million tons by 1965-66. . . . No conceivable program of imports or rationing can meet a crisis of this magnitude." (Emphasis in the original text.) Indeed, Indian grain production dropped from 81 million tons in 1960 to less than 77 million in 1963 and is hardly likely to reach the bare minimum of 100 million tons planned for the end of the current economic plan.

ent struggle; excepting Malaya and Laos, these countries constitute the only food-surplus area in Asia and the only fertile part of the continent that could be called "underpopulated." Thailand alone, for example, normally is the world's fourth-largest grain exporter, after the United States, Canada, and France; and if it were exploited as intensively as parts of China and all of Japan, it could probably export three times as much. The same holds true for the other rice-producing countries of

FIVE ROLES OF AGRICULTURE IN ECONOMIC DEVELOPMENT

- Surplus labor in the agricultural sector is transferred to manufacturing and modern services
- Agriculture produces “wage goods” and raw materials that are used in industry
- Exports of agricultural products are an important source of foreign exchange during the development process
- Agricultural production generates tax receipts for the government: Often in the form of export or land taxes
- Agricultural producers constitute a domestic market for manufactured goods.



MICHEL KALECKI AND THE WAGE GOODS CONSTRAINT



Michał Kalecki

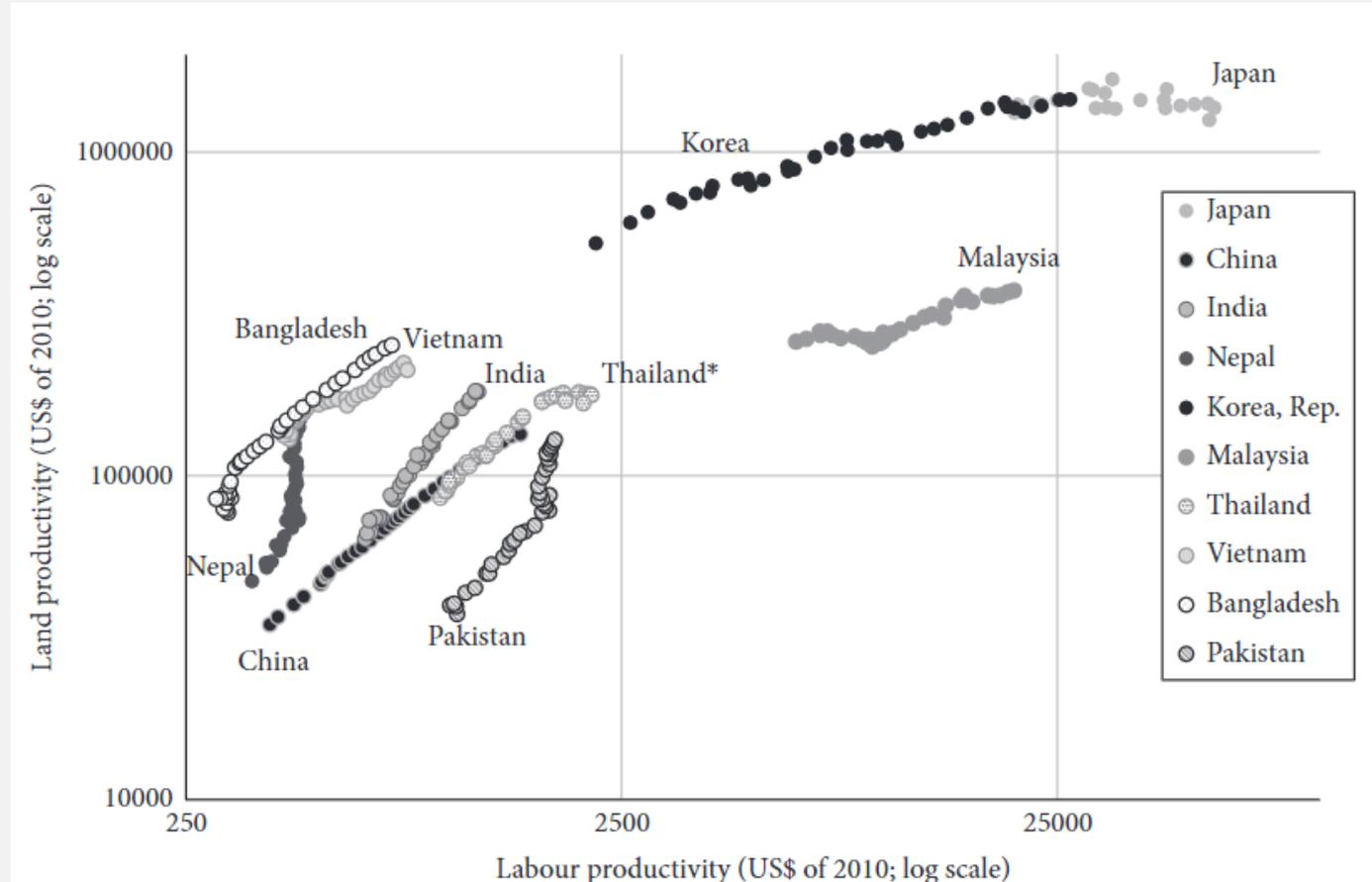
- The Lewis model is based on unlimited supplies of labor at a fixed wage (w_c) above subsistence (w_s) just enough to attract labor from the traditional to the modern sector
- Kalecki: Workers spend most of their money on necessities (food) produced in the agricultural sector
 - As the labor force in industry expands, demand for food rises (workers have more money to spend)
 - If the supply of food does not increase, then its price will rise
 - Rising money wages will eliminate employers' surplus, and slow down investment in the modern sector
 - Supply in the agricultural sector is price inelastic: it is held back by “institutional factors”

THE MARKETED SURPLUS AND LABOR PRODUCTIVITY IN AGRICULTURE

- As the modern sector grows, demand for food increases.
- But labor productivity in agriculture is low (measured in kilograms of rice produced per person per day).
- If labor productivity in agriculture does not increase, the “marketed surplus” (food produced above the amount consumed within the agricultural sector) will not rise.
- Increasing labor productivity in agriculture makes poverty reduction possible in rural areas.
- More productive farms stimulate growth of off-farm employment, including agro-processing industries and farm inputs.



LABOR PRODUCTIVITY GROWTH AND THE MARKETED SURPLUS



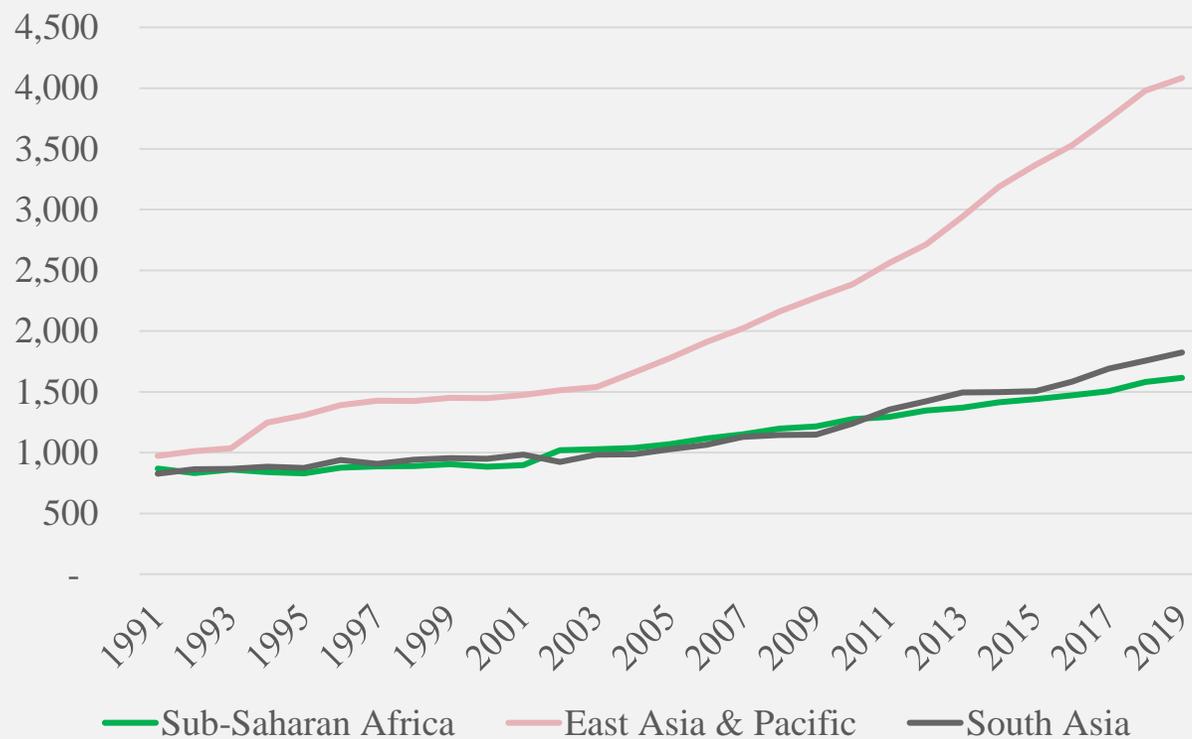
East Asia (Korea and Japan) achieved rapid labor productivity growth

India and Pakistan achieved growth in land productivity but slower growth of labor productivity

Fragmentation of holdings: absence of jobs outside of agriculture

Source: Vos 2019

VALUE ADDED PER WORKER, AGRICULTURE, FORESTRY AND FISHERIES (CONSTANT 2010 US\$)



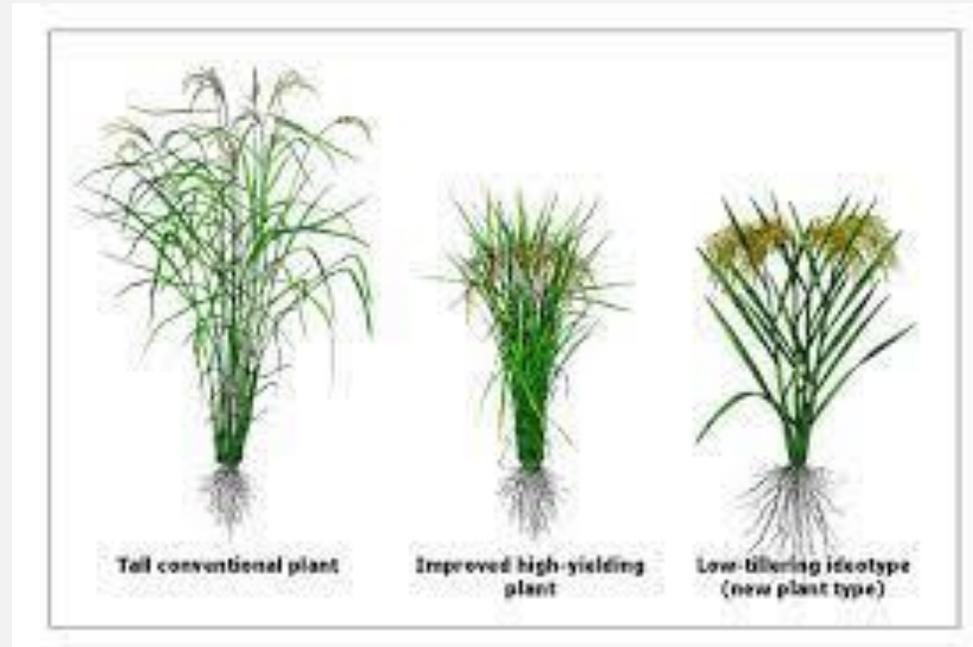
Source: World Development Indicators

- Rapid rise in labor productivity in agriculture in East Asia, but not in Sub-Saharan Africa and South Asia
- Rising agricultural GDP even as agriculture's *share* in GDP falls
- Large marketed surplus for wage goods and exports



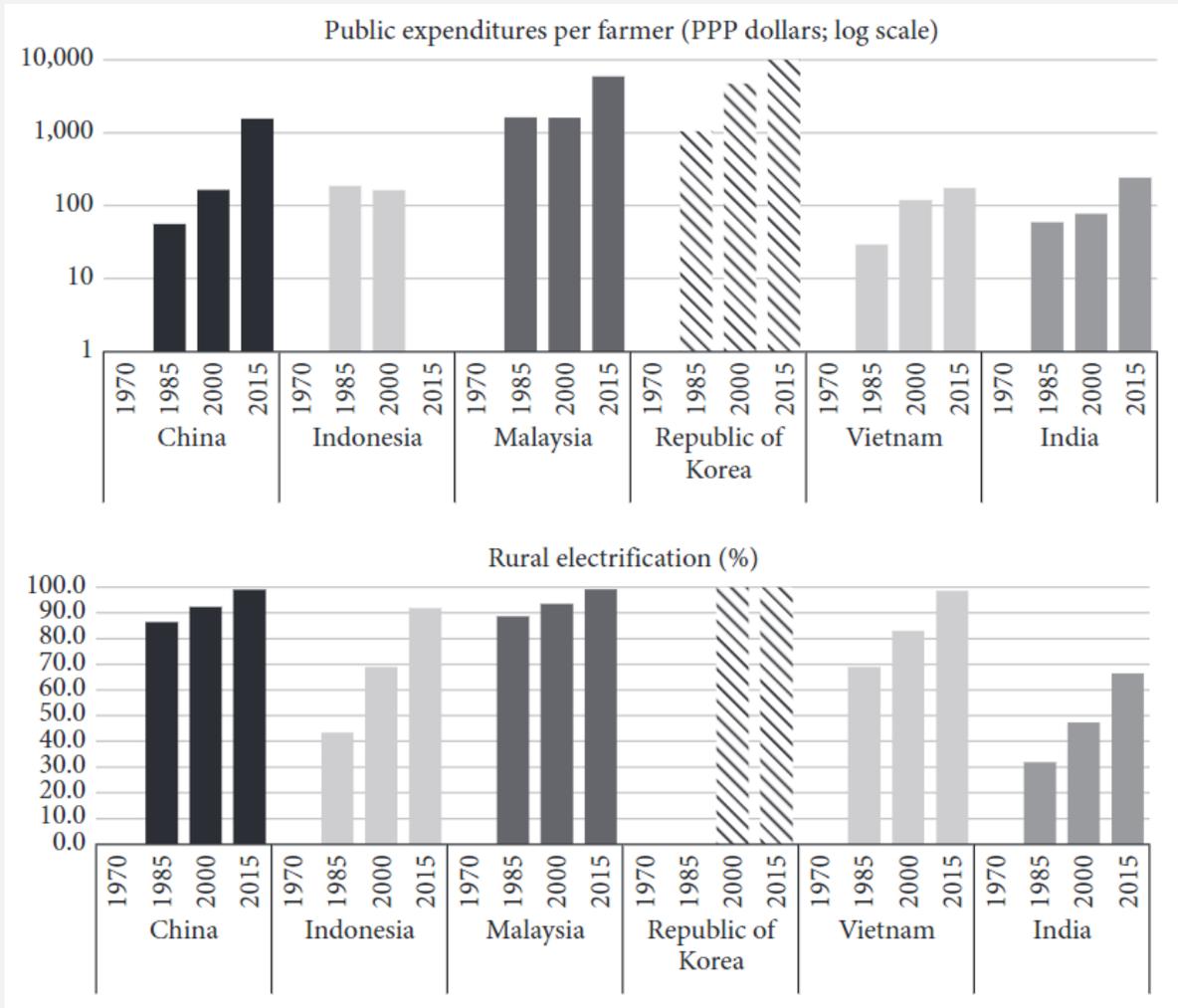
THE GREEN REVOLUTION IN RICE

- Modern rice varieties (IR8): “semi-dwarf (short statured) plants”
 - Sensitive to nitrogen fertilizer applications
 - Shorter growing season (spend less time growing stalks) so farmers can plant two or even three crops per year
 - But required timely and sufficient supplies of water
- Huge investment in irrigation systems needed to ensure reliable supplies of water all year round
- Shigeru Ishikawa: Irrigation as the leading input in agricultural development



- Public investment in water control stimulates private investment in tractors, storage, transport, threshers and hullers.

THE ROLE OF PUBLIC INVESTMENT IN AGRICULTURE



- Asian governments have invested in water control, roads, fertilizer production and agricultural research to accelerate agricultural growth.
- They continued to do so even as middle-income countries
- Vietnam did a good job building rural infrastructure (for example roads, electrification)

Source: Vos 2019

DIFFERENCE BETWEEN SOUTHEAST ASIAN AND AFRICAN DEVELOPMENT EXPERIENCE

Southeast Asia	Africa
Unlimited supplies of labor	Limited supplies of labor
Densely populated rural areas in rice-growing areas	Less densely populated rural areas: low productivity agriculture
Rapid growth of labor productivity in agriculture	Slow growth of labor productivity in Africa
Increase in marketed surplus of food and relaxation of wage goods constraint	Slow growth of food production
Stable real wages in the modern sector	Stable (but high) real wages in the modern sector
Rapid productivity growth in the modern sector	No productivity growth in the modern sector



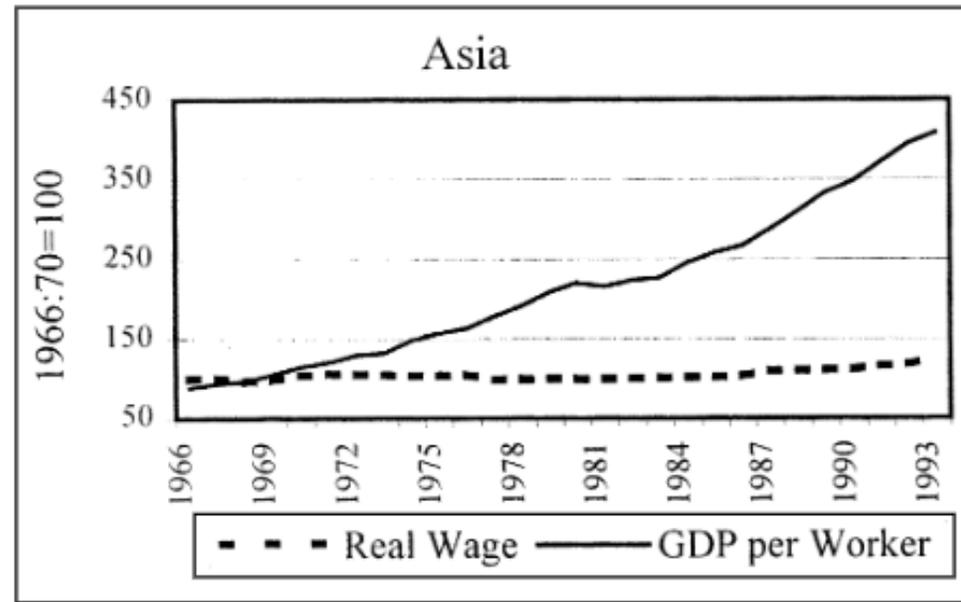
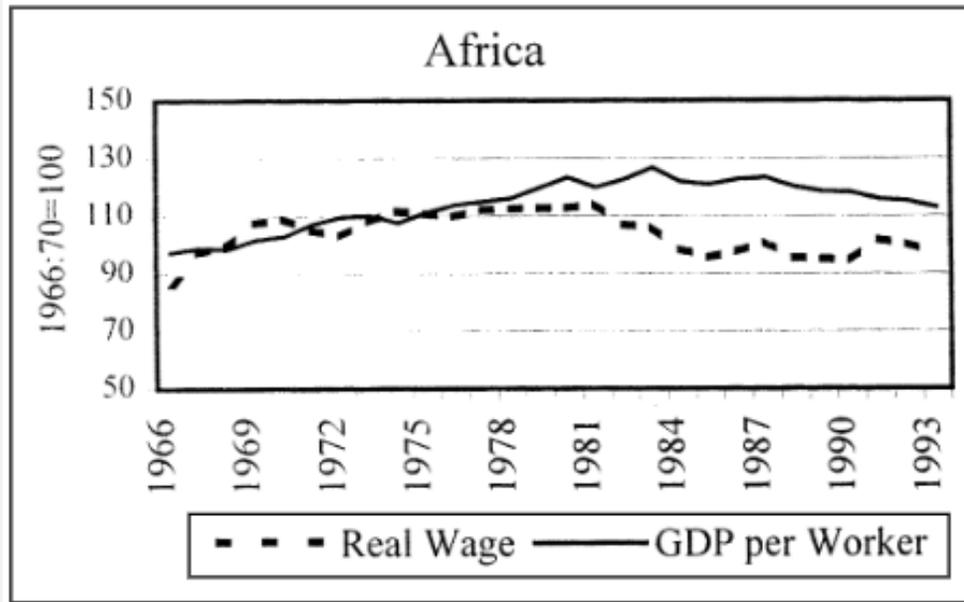
HIGH REAL WAGES IN AFRICAN MANUFACTURING

Table 7. *Manufacturing wages in sub-Saharan Africa and Asia, 1965–94*

	In US\$ at official exchange rates			Consumption wages at PPP Exchange rate ^a			Real wage index ^b		
	1965–70	1975–80	1985–90	1965–70	1975–80	1985–90	1965–70	1975–80	1985–90
<i>Median</i>									
Africa	700	2593	1692	180	330	508	98	100	88
Asia	402	741	1215	100	197	454	82	100	133
<i>Mean</i>									
Africa	861	2459	2506	162	349	494	109	100	85
Asia	433	901	2037	107	206	509	87	100	145
<i>t</i> -test for difference between the means	3.95	4.48	0.53	2.43	3.21	-0.13	1.60	—	-4.15

Source: Karshenas 2001

PRODUCTIVITY GROWTH RISES RAPIDLY IN ASIAN MANUFACTURING WHILE REAL WAGE IS STEADY



Source: Karshenas 2001

AGRICULTURE AS A HOME MARKET FOR INDUSTRIAL GOODS

- Mundle: The size of the home market for industrial output (demand) depends on productivity growth in agriculture
- Productivity growth in agriculture depends on the organization of production:
 - If farmers keep the extra production that they create (Japan and England during industrialization) they have an incentive to invest in productivity-enhancing technology
 - If someone else keeps the extra production (feudal landlords), then farmers do not have the means and the incentive to invest in productivity-enhancing technology (France during industrialization and India)
 - Slow growth of agricultural productivity reduces demand for the output of the modern sector.



SOME POLICY IMPLICATIONS

- Although the share of agriculture in GDP falls during the development process, development requires *a sustained rise in labor productivity in agriculture*.
- Failure to produce sufficient supplies of wage goods (or have the capacity to import them) leads to inflationary pressures that slow down or halt the development process.
- Achieving sustained labor productivity growth in agriculture requires public investment in irrigation, drainage, roads, electricity, research and removing institutional obstacles to change.
- Rural infrastructure creates off-farm jobs in rural areas that are important for income growth and poverty reduction



DISCUSSION QUESTIONS

1. Why was the Green Revolution in rice so important to economic development in East Asian countries?
2. What are the implications for Vietnam's economic development of rising seas level resulting from climate change?

