



ISSUES IN AGRICULTURE

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Case Studies

- Green Revolution
- Land reform
- Global food crisis
- Structural transformation

The Green Revolution

Boost in grain production and farm yields with the discovery of new hybrid seed varieties, improved agricultural inputs and increases in agricultural productivity through scientific methods



Why Green Revolution?

- Traditional technologies and crop varieties yield low productivity
- Food production has not kept up with rapid population growth
- A fear that less-developed countries will fall to socialism
- Increased food production will enable countries to increase output and reduce poverty

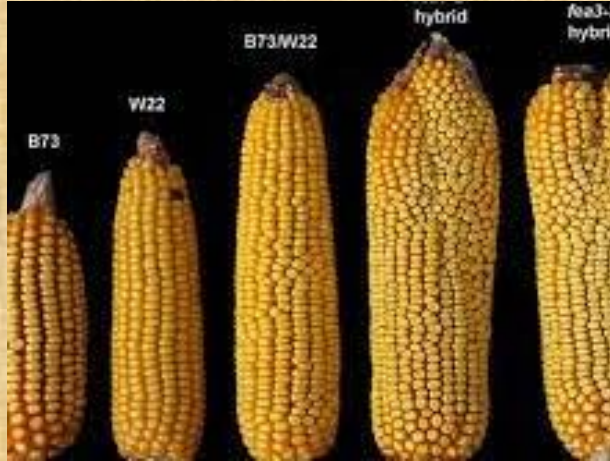


Outputs of the Green Revolution



Disease resistency

mostly staple crops such as rice, wheat and maize which can withstand pest diseases, parasites and weeds



Higher yields

high-yielding crop varieties, with substantial increases in crop yield per hectare



Improved agriculture inputs

Better mechanical equipment, application of chemical fertilizers, and improvement of other farm inputs

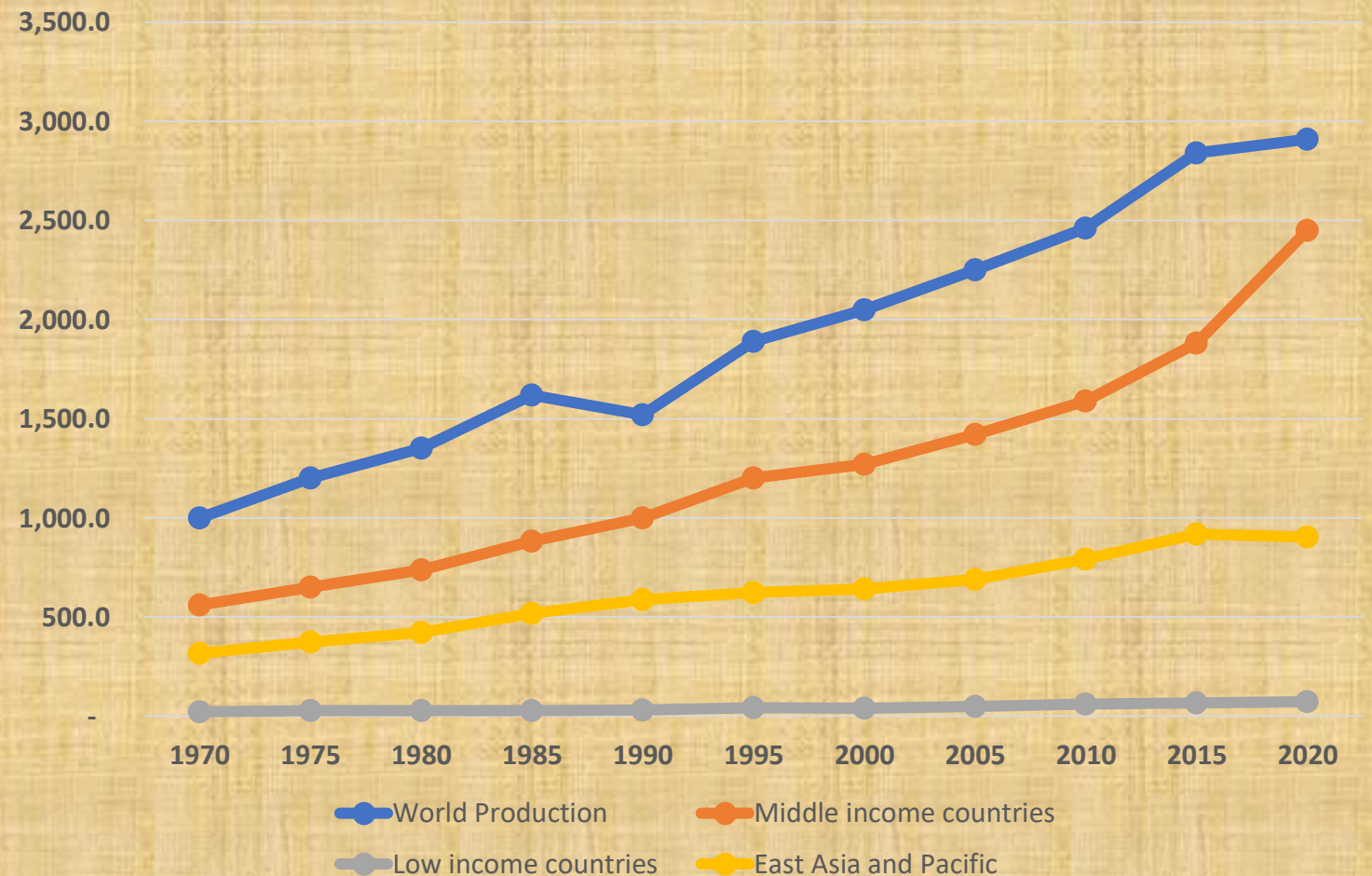


Improved farming practices

innovative crop breeding, and improved farm practices

Cereal yield worldwide, 1970-2020

- Increasing food production and productivity
- Increase has been faster than the population growth
- Progress is uneven across regions



Negative impacts of the Green Revolution

- Overuse of pesticides and chemicals: soil and water pollution
- Over adoption of use of agricultural methods
- Overproduction; sometimes farmers are unable to market their supply of produce
- Increased incidence of human and livestock diseases
- Farmers do not necessarily have the money to buy seeds, fertilizers, machinery,



Land Reform

Background

- Land is the only fixed factor of production
- Most poor farmers have limited land
- Equitable redistribution of land could improve agricultural output
- Land reform: changes in laws and regulations on land ownership; and re-distribution of land from wealthy landowners to farmers



Land Reform

Land reform takes a variety of forms:

- Reform of rent contracts
- Rent reduction
- Land to tiller with compensation
- Land to tiller without compensation

Implementation of land reform:

- Often controversial
- Particularly land is given to the tiller without compensation



Land Reform in South Korea and Taiwan

Case of successful land reform: South Korea and Taiwan after World War II

- Korea and Taiwan were under Japan occupation before the war
- Following Japanese defeat, land holdings were re-distributed
- Farmers were given the rights of ownership
- Agricultural production and productivity increased



Land Reform in Soviet Union and China

Case of reforms in the context of socialism

- Land reform preceded by foreign invasions that destroyed the agrarian order followed by revolutions
- Land confiscated from rich landlords and distributed to peasants
- Similar cases experienced by Cuba, Ethiopia, Nicaragua and Viet Nam



Land Reform in South Africa and Zimbabwe

Case of reforms post-apartheid

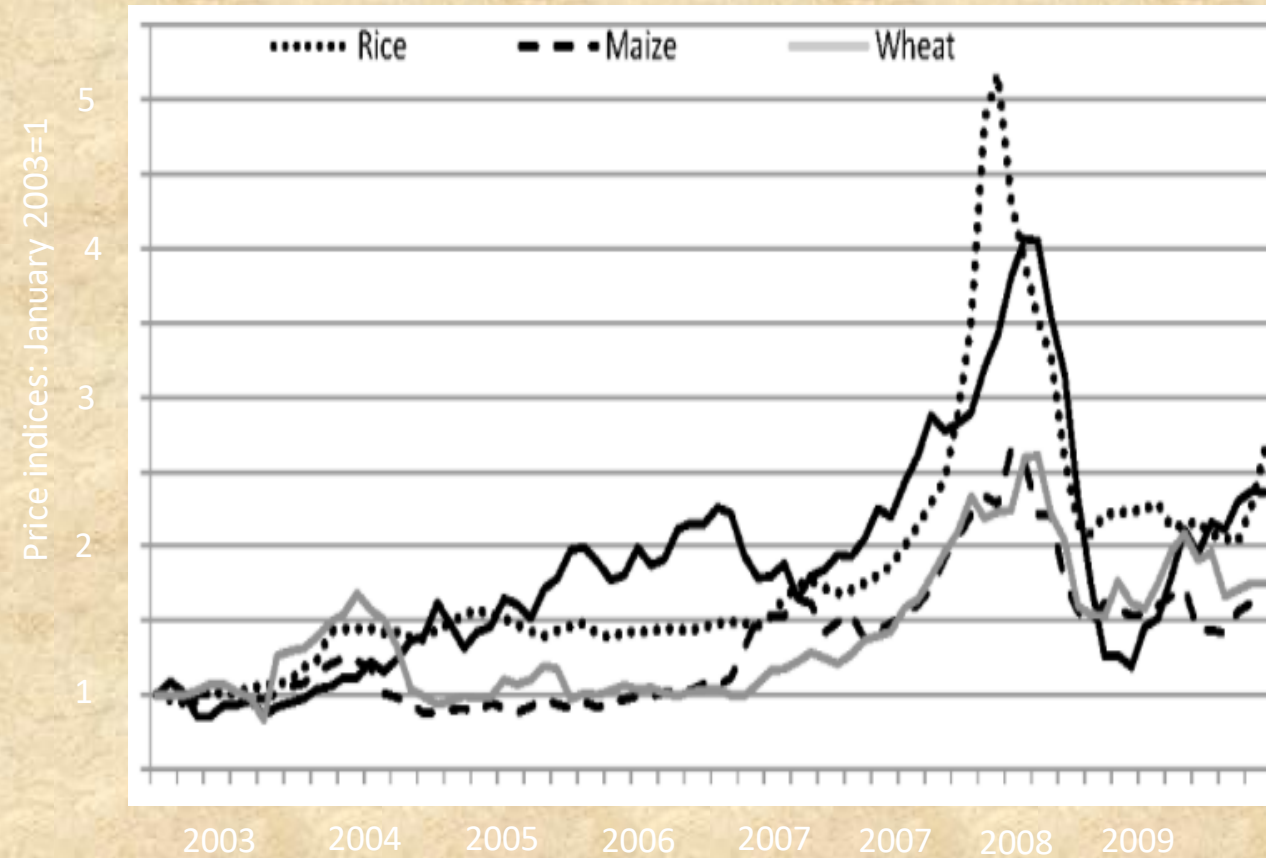
- Settler communities owned much of the prime land
- Apartheid was abolished in 1999; forced expropriation of white-owned farms and redistribution of land to black Africans
- Zimbabwe: reforms widely criticized because of violence and favoritism
- South Africa took a more cautious approach; redistributed 30% of white-owned land to black Africa



Global Food Crisis

Background

- 2005-2008: the world suffered its most severe food crisis
- rapid increase in food prices, triggered by a rise in petroleum prices
- 2007-2008: price of rice tripled from \$335 per ton to \$1,000; wheat and maize prices followed



Source: IMF, 2009

Causes of the global food crisis

- Growth in food demand from China and India
- Speculation on financial markets
- Hoarding and export restrictions, limits supply
- Rising oil prices increases transport costs
- Demand for biofuels, causes land competition
- Depreciation of US dollar

In US, 25% of corn production was dedicated to biofuels, thereby raising corn prices

In 2007, India banned rice exports

In Australia, severe droughts increased wheat prices

Impacts

- Increased worldwide poverty rates by 4.5%
- Shift in food consumption pattern (e.g., eating less rice or shifting from rice to tapioca)
- Increased worldwide poverty count by 105 million



Several policy implications from the crisis:

- the realization that agriculture sector is important
- government should step up to increase sector productivity
- incentives should be in place to ensure continuous and improved agricultural production

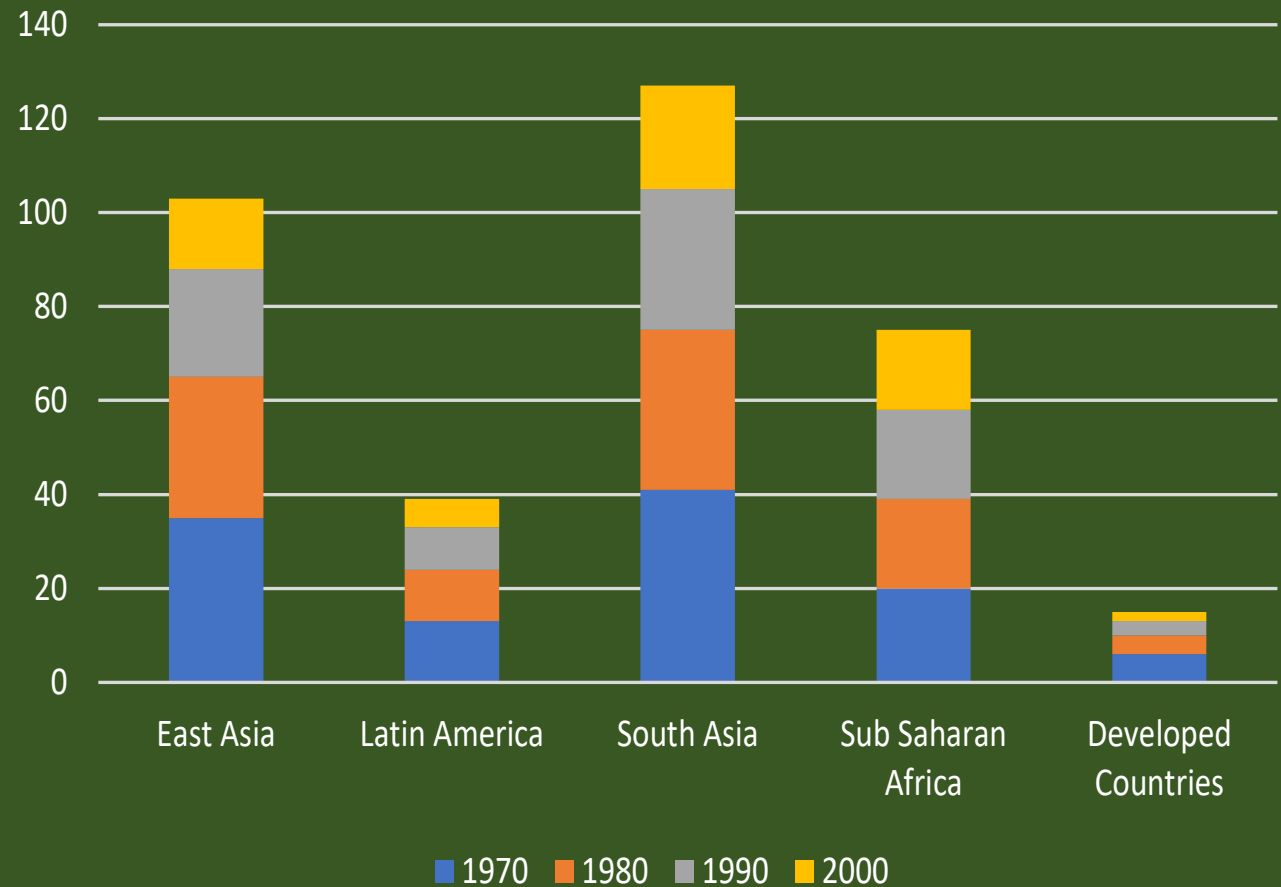
Structural transformation

Is the systemic change in sector proportions as economies grow

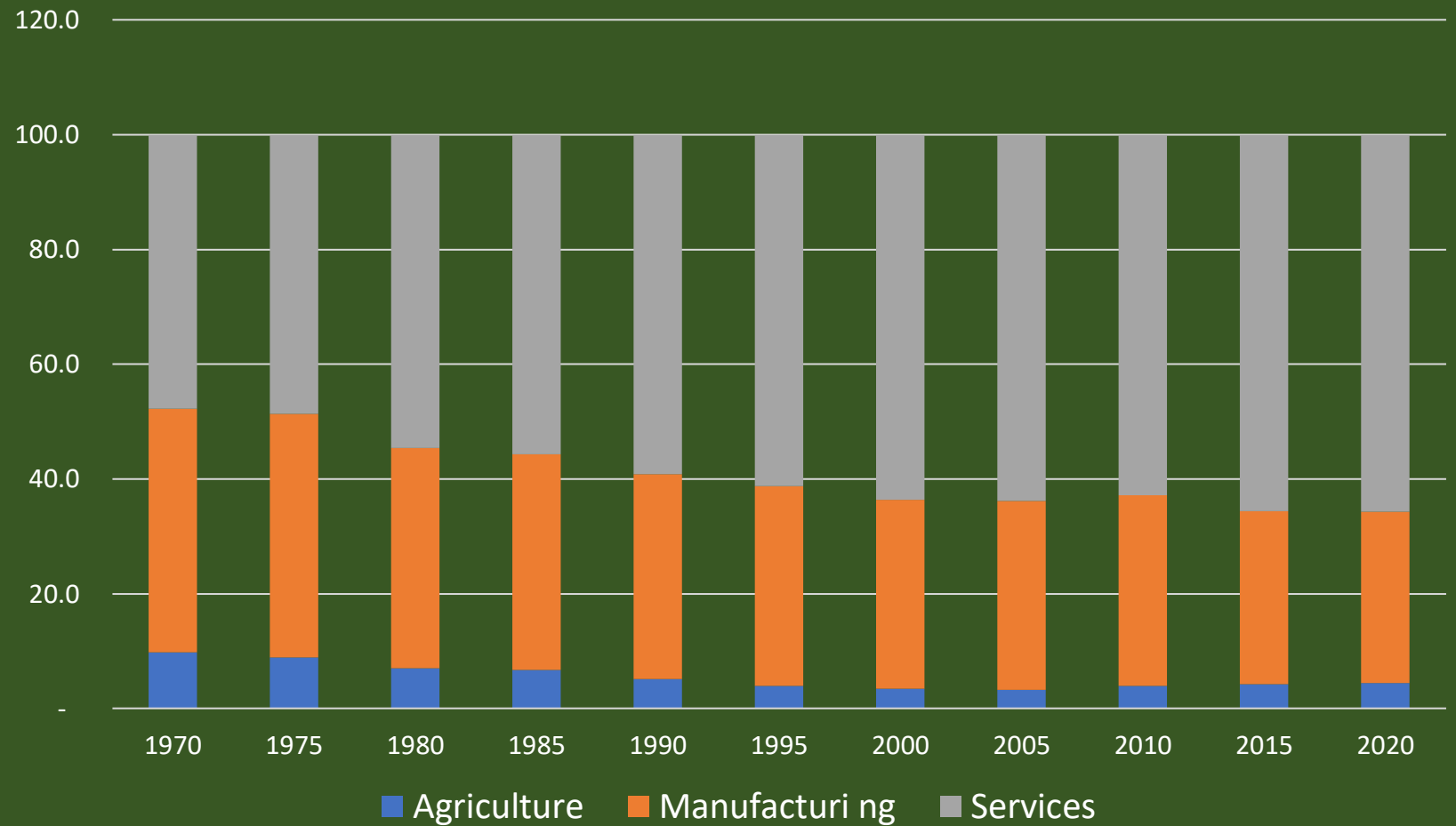
Agriculture labor surplus

Structural transformation

- Low levels of income: agriculture dominates share of GDP
- As economies grow, agriculture decreases relative to manufacturing



Comparison across sectors



Phases of structural transformation

Phase 1

Output increase

Creates surplus in rural economy

Phase 2

Surplus transfer

To non agricultural sector (taxes, payment for agriculture inputs)

Phase 3

Market linkage

Integration of agriculture and non agriculture; supported by improved mobility

Phase 4

Integration

Agriculture is fully integrated into the economy



Summary

- The green revolution, land reform and the global food crisis illustrate the importance of agriculture sector
- The green revolution succeeded in increasing agricultural outputs through research and technology, decreased food price and make food more available
- Land reform provides farmers with incentives to produce; however in reality it is difficult to implement



Summary

- The global food crisis points to the importance of stabilizing food prices and appropriate government policies to address the crisis
- Reducing poverty should address the problems that exist in the agriculture sector



THANK **Y**OU!