



YOUR LOGO

AGRICULTURE AND DEVELOPMENT

EE463 Globalization and International Development
FACULTY OF ECONOMICS
THAMMASAT UNIVERSITY

Modul 5

Module outline





Agriculture is a
DOMINANT sector in many of the
world's poor countries

Dwight Perkins



SECTOR CHARACTERISTICS AND PRODUCTION

Agriculture has features that distinguish it from other development sectors

Key Sector Characteristics*

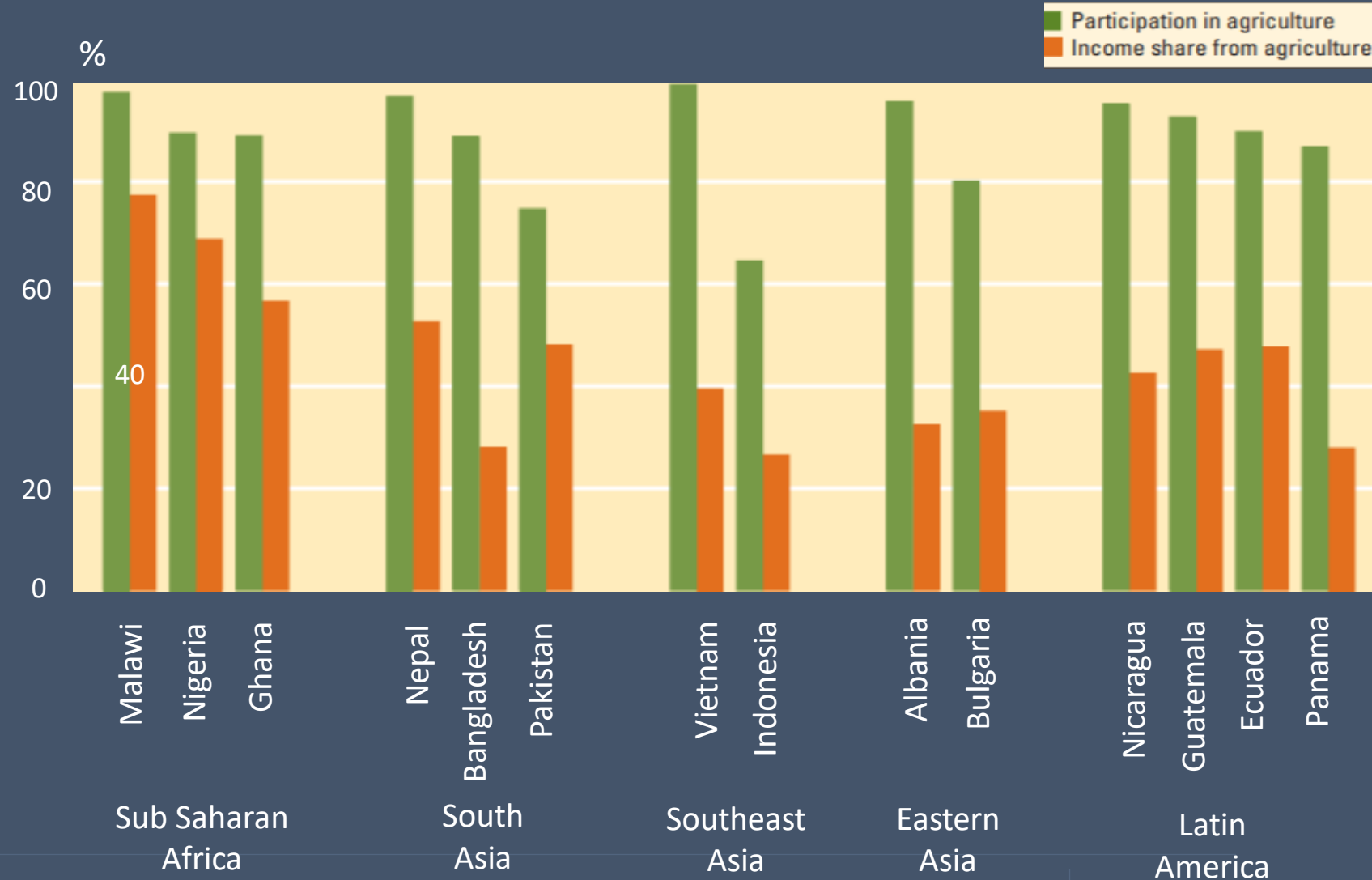
- Significant share of GDP
- High share of labor force
- Special characteristics of the agricultural production function
- Direct consumption of agriculture outputs by its producers (subsistence)
- Agriculture's role as a resource reservoir

*Timmer, Falcon and Pearson



Labor Participation and Income Share

- Comparison across countries and regions
- High participation to income ratio indicates low productivity



Features of Agricultural Production



Seasonality

farmers minimize costs through timing of activities such as planting and harvesting



Sources of risk

Farmers are exposed to price fluctuations and changes in weather



Geography

Agriculture is distributed through wide areas which requires effective marketing



Technology

Productivity growth is driven by technological change; acquiring technology is a challenge



AGRICULTURAL SYSTEMS

Traditional and modern, or settled systems

Traditional Systems

- **Shifting cultivation.** Producers cultivate an area until its fertility is exhausted. Opening up new areas sometimes involves slash and burn
- **Pastoral nomadism.** Producers travel more or less continuously in search of better pastures; usually based on livestock
- **Subsistence production.** Small scale, under 3 hectares; farmers consume most of production. Farmers are either land owners or are laborers



Settled Agriculture

- **Mixed farming** Farming method engaged in intensive annual and/or perennial cropping and livestock perennial crops to sell to the market
- **Commercial plantation farming** Farming method engaged in large-scale estate; generally specializes in cash crops such as coffee, tea, rubber and palm oil





STRUCTURAL TRANSFORMATION

Changes in the portion of the agriculture sector's contributions to the overall economy

The Green Revolution

- **Use of traditional technologies and crop varieties:** Although suited to local contexts, productivity was low (before the 1950s)
- **Rapid population growth:** sufficient food relied on expansion of areas under cultivation
- **New technologies (1960s):** resulted in new crop varieties, better quality seeds and improved agricultural inputs and substantial increases in agricultural productivity

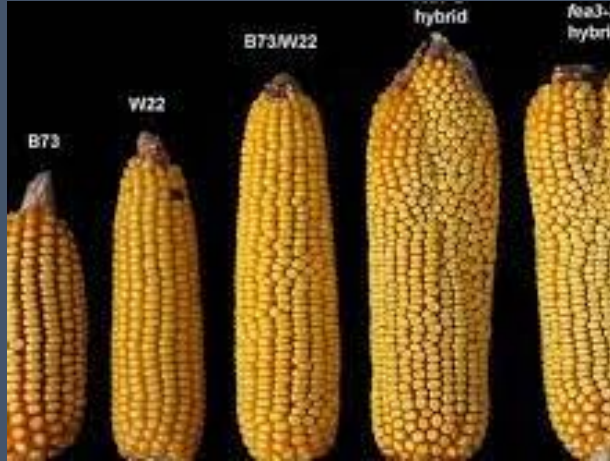


Outputs of the Green Revolution



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

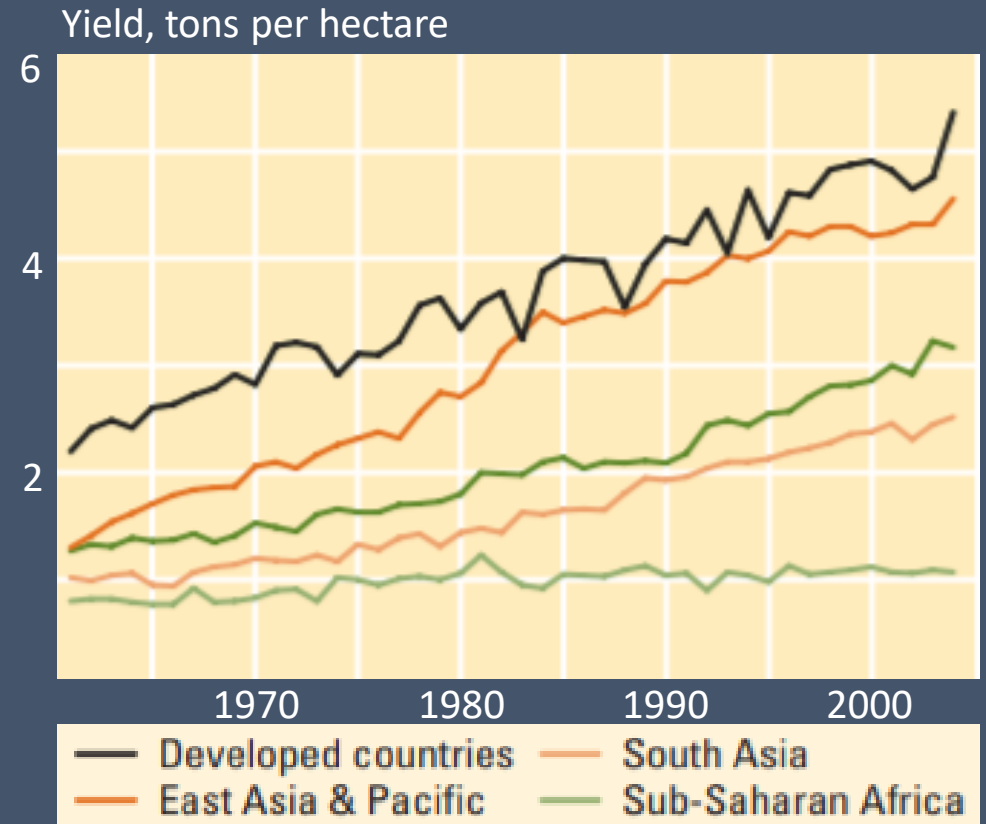


Improved farming practices

innovative crop breeding, and improved farm practices

Trends in Agricultural Productivity

- **Increasing world agricultural production** particularly since the 1960s green revolution
- **Decline in economic growth rates** particularly since the 1980s, resulting in cuts in agricultural research and development expenditures
- **Marked differences across regions** in yield (tons per hectare). Sub Saharan Africa has not progressed much; East Asia and Pacific countries have substantially increased their crop yields



Labor Surplus Model (Arthur Lewis)

- **Diminishing returns:** crops require land while land is fixed. To increase production, farmers move to poorer land
- **Redundancy:** the agriculture sector has a large labor force, more than necessary to produce food. The surplus labor could be shifted to the industrial sector without reducing agricultural output
- **Shift from agriculture to industrial sector employment:** will continue until the decrease in agricultural employment will result in a decrease in agricultural output



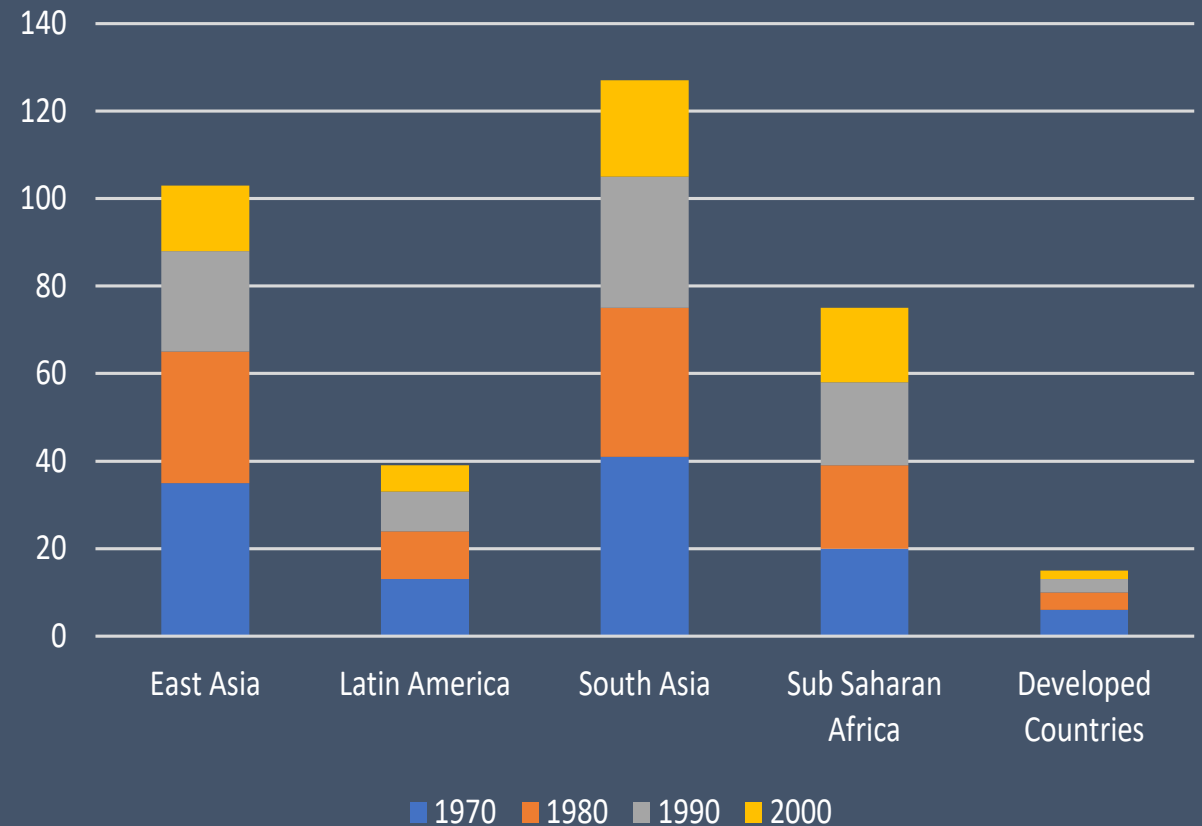


Structural transformation refers to systemic changes in sector proportions as economies grow

Dwight Perkins

Structural Transformation

- Despite its importance, agriculture share of GDP is declining
- At low levels of income, agriculture dominates share of GDP and employment
- As economies grow, share of agriculture decreases while manufacturing increases
- Followed by a demographic transition whereby birth rates and death rates become lower



Phases of Structural Transformation



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Phase 1

Output increase

Increase in agricultural output per worker creates surplus in rural economy

Phase 2

Surplus

Surplus is transferred to non agricultural sector (taxes, payment for agriculture inputs)

Phase 3

Market linkage

Integration of agriculture and non agriculture factors and market linkages; rural-urban migration supported by improved mobility

Phase 4

Integration

Agriculture sector is fully integrated into the economy





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COFFEE BREAK

Enjoy your 15' pause



ISSUES IN AGRICULTURE

Key issues in the agricultural sector

Constraints to Agriculture Development

Economic

- Inefficient farm markets
- Poor quality infrastructure
- Low prices for agricultural produce
- Uncertainty of land tenure

Technical

- Absence of agriculture inputs (seed variety, quality of seeds, fertilizers)
- Poor land/soil quality
- Lack of technology and know how



Agriculture and Poverty – 1

- **Locational characteristics.** In most developing countries, people are disproportionately concentrated in rural areas, are poor and depend on agriculture
- **Agriculture vs industrial growth.** Agricultural growth is more effective in reducing poverty compared to industrial growth
- **Policies for poverty alleviation in the agricultural sector** pro-poor growth policies should include developing the agricultural sector



Agriculture and Poverty – 2

Agricultural growth provides pathways out of poverty by:

- Enabling subsistence oriented farmers increase their farm outputs
- Engaging in rural labor markets especially for non-farm work which can be used to invest in improved farming
- Migrate to the urban economy; remittances back to rural areas can support household consumption and investment

Land Reform

Background

- Land is the only fixed factor of production; as many poor farmers have limited land, equitable redistribution of land could improve agricultural output
- Land reform involves: changes in laws, regulations or customs regarding land ownership; and re-distribution of land from wealthy landowners to farmers who work the land



Land Reform

Land reform takes a variety of forms:

- Land Reform of rent contracts: increases security of tenure
- Rent reduction: places a ceiling on rent
- Land to the tiller with compensation
- Land to the tiller without compensation

Implementation of land reform:

- Not easy and sometimes controversial
- Difficult where 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

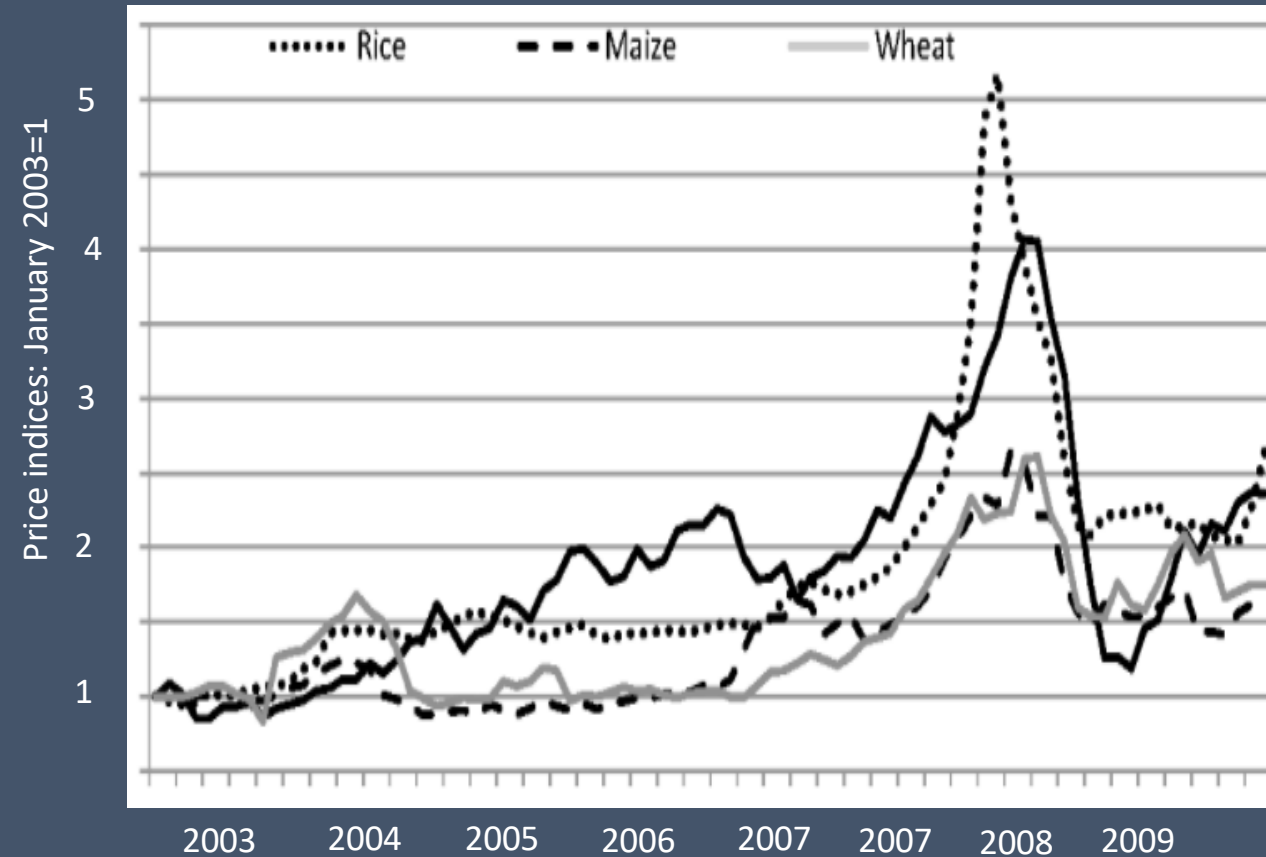
- Settler communities owned much of the prime land
- Apartheid was abolished in 1999; forced expropriation of white-owned farms and re-distribution of land to black Africans
- Zimbabwe: reforms widely criticized because of violence and favoritism
- South Africa took a more cautious approach; redistributed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



Global Food Crisis

Background

- During 2005-2008, the world suffered its most severe food crisis with a rapid increase in food prices, triggered by a rise in petroleum prices
- Price of rice tripled from \$335 per ton to \$1,000 from October 2007 to April 2008; wheat and maize prices also went up



Source: IMF, 2009

Global Food Crisis

Causes of the crisis: a confluence of several factors

- 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

Global Food Crisis

Impacts arising from the crisis

- Increased worldwide poverty rates by 4.5% with the rise in food prices
- 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



AGRICULTURE DEVELOPMENT POLICIES

Government policies to incentivize production and enhance productivity

Policies to Create Incentives for Production

- **Regulate farm markets**
- **Invest in rural infrastructure** such as irrigation systems, rural roads, and health and educational facilities
- **Set food prices.** Government determines food prices; if prices are set too low, there is no incentive for farmers to produce; if it is too high, then problems of hunger and malnutrition arise
- **Regulate land tenure and rights**

Policies to Enhance Productivity

- **Subsidize agriculture inputs** such as fertilizers, quality seeds, equipment
- **Provide institutional support for agriculture** such as microfinance credits and social protection
- **Introduce technology and know how** through dissemination of technology and information on good agricultural practices and provision of extension services



CONCLUSION

Key presentation highlights

Summary of Today's Presentation

- The agriculture sector is unique, as it has a relatively large share of GDP and employment, features of the agricultural function, a large share of sector's output consumed by producers, and its role as a reservoir of resource
- The agricultural systems include shifting cultivation, pastoral nomadism, and subsistence farming; and mixed farming and plantation farming



Summary of Today's Presentation

- The Green Revolution succeeded in increasing agricultural outputs through research and technology. This reduced prices of agricultural commodities and therefore, incentives to farmers in the long run

Summary of Today's Presentation

- Growth in agricultural productivity plays an important role in facilitating the release of labor and capital from agriculture for employment in industry and services
- Agricultural growth is more effective in reducing poverty compared to industrial growth because in most developing countries people are disproportionately concentrated in rural areas and most are poor

THANK **Y**OU!