Trade, Food Security and Nutrition

Lesson: Defining and Measuring Trade, Food Security and Nutrition

Text-only version

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Food and Agriculture Organization of the United Nations

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Learning objectives

In this lesson you will:

- define and recognize the difference between "trade" and "trade policy", and describe ways of measuring each concept;
- define and describe ways of measuring food security, including the three forms of malnutrition;
- identify the pathways through which trade can impact food security and nutrition; and
- be presented with an overview of all the lessons in this course.

Why is this course important?

The linkages between trade and food security have been subject to intense debate at the national and global levels, and have become central to many trade-related discussions and negotiations. At least part of the disagreement over the links between trade and food security is related to the below key points. The variety of **definitions** and potential **indicators** of both trade and food security. The difficulties in unequivocally linking the **multidimensional** concept of trade with the even more multidimensional notion of food security.

In addition, the concept of food security may be further expanded into food security and nutrition, thus adding complexity.

This course is intended to inform you on ways to bridge knowledge gaps between sectoral policy analysis on trade, food security and nutrition. It reinforces the need to work more closely with colleagues from other sectors and ministries in order to develop joint priorities, in order to **improve food security outcomes**.

Introduction

This lesson will inform you on how trade, food security and nutrition are defined and measured. You will also be aware of the pathways of interaction between these concepts. Here are the sections:

1. Defining and Measuring Trade and Trade Policies
2. Defining and Measuring Food Security and Nutrition
3. Pathways of Interaction between Trade, Food Security and Nutrition

Defining and Measuring Trade and Trade Policies

In order to understand the relationship between trade, food security and nutrition, we must define these concepts. Let's examine:

A. **Define Trade and Trade Policies**

B. **Measuring Trade**

A. Define Trade and Trade Policies

It is important to distinguish between the concepts of "**trade**" as the physical and economic exchange of goods and services, and "**trade policies**" as the interventions of governments that affect these exchanges between countries.

Trade is the connection between demand and supply through which human beings exercise their freedom to exchange goods and services. Presumably this leads to greater efficiency, and more variety and stability in consumption.

Trade policies refer to government actions or measures that affect trade flows.

Depending on how each policy measure is implemented, they are grouped into **border measures**[1] and **domestic measures**[2]**.** Thus, generally, "trade policy" includes both border measures and domestic measures.

Understanding "policies" and "measures"

In this course, the terms "policy" or "policies" mean a broad category of government actions. For example, trade policy is a category of government actions which can affect trade flows. The terms "policy measures" or "measures" are used to denote specific government actions which make up a broader category of actions; for example import tariffs. The classification of policies:

TRADE POLICY →	Border Measures	→	Specific border measures (e.g. import tariffs)
	Domestic measures	→	Specific domestic measures (e.g. output subsidies)

[1] Policy measures that are applied at the border.
[2] Policy measures that are applied within the country.

In this course, "trade policy" refers to a broader set of policies affecting agricultural trade. We will now examine what border measures and domestic measures that can affect trade entail.

Border measures

In economic terms, these measures usually denote government actions at the border; that is these measures are applied to imports or exports. These can take the following forms.

- Import taxes and quotas
- Export subsidies or taxes
- Import or export bans
- The operation of state trading enterprises
- Other non-tariff measures (such as health and safety measures)

In this context, "**trade liberalization**[3]" is considered to be the reduction or elimination of these barriers to trade that are directed at the agriculture and food sectors of the economy.

Domestic measures

These measures can be equally important to trade flows as border measures. This is due to their direct effects on national production. National production, combined with other variables such as stocks and consumption, is inherently linked to prices and the level of imports or exports of a country. They include the following:

- Input subsidies
- Price controls
- Producer price support
- Public stockholding

For now, it suffices to say that in discussing the linkages between trade, food security and nutrition, **it is important to bear in mind whether "trade" refers to** the these points:

- Implementation of trade agreements.
- Changes in domestic policies, e.g. trade liberalization; increase or decrease in production subsidies.
- The expansion of trade.

[3] Trade liberalization is considered to be the reduction or elimination of these barriers to trade that are directed at the agriculture and food sectors of the economy.

B. Measuring Trade

Controversies about the virtues or defects of closed or protected economies versus open or liberalized ones are complicated by the question of how to measure these concepts.

"**Trade openness**[4]" is the state of openness of an economy and can be quantified by indicators such as the share of trade in GDP. It can be used for the analysis of the effects of trade on other variables, including growth, poverty reduction and food security.

"**Trade reforms**[5]" reflect a policy change that would result in greater or lower openness to trade. Sometimes, these are simultaneously different policies.

Empirical assessments of trade openness

Different economic variables have been used to empirically assess trade openness, which may have contributed to different findings of these studies.

- Sachs and Warner (1995) classified countries as either "open" or "closed" on the basis of five variables: the level of average tariffs, the coverage of non-tariff barriers; being or not being a socialist economy; having or not having a state monopoly on major exports; and the level of the black market premium for the exchange rate. Only three of these variables refer to trade issues in any of the meanings discussed so far.
- Other studies have looked at "openness" based on variables such as trade as a percentage of gross domestic product (GDP) or changes in this ratio, but these indicators reflect outcomes of multiple factors, only some of which may be trade policies. For example, some authors have cited the high values for the trade/GDP ratio in sub-Saharan Africa as evidence that excessive trade leads to poor economic performance (Mazur, 2000). However, East Asian countries that have higher levels of openness, as defined by the trade/GDP ratio, than sub-Saharan Africa have done much better.

Source: Diaz-Bonilla, E. (2015). Lost in translation: The fractured conversation about trade and food security. Background paper prepared for The State of Agricultural Commodity Markets 2015-2016. Rome, FAO.

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[4] The state of openness of an economy and can be quantified by indicators such as the share of trade in GDP.
[5] Policy change that would result in greater or lower openness to trade.

Empirical studies show that the final impacts of trade reforms on agriculture, food production and consumption depend on whether and to what extent:

- ✔ They apply to agricultural and food products (a subset of these) or non-agricultural and non-food products.
- ✔ The trade policy change occurs in just one country, which may be opening or closing its economy unilaterally, or simultaneously in multiple countries. This occurs with the implementation of regional or plurilateral trade agreements.
- ✔ Trade liberalization is mixed with other policy changes, which are variously defined as "privatization", "structural adjustment", and so on.

Trade policies - meanings and levels of application

The variety of possible interpretations of the terms used to discuss trade issues.

Sectors	Trade	Trade policies	Other (non-trade) policies
Agriculture and food and/or non-agriculture and non-food	Expansion or decline; national, regional, global	National level: free trade, intermediate openness, or protectionism Regional and global levels: free trade, intermediate openness, or protectionism	Macroeconomic policies, privatization, liberalization of domestic market, others as they directly affect agricultural and food issues

Source: Diaz-Bonilla, E. (2015). ***Lost in translation: The fractured conversation about trade and food security****.*

www.fao.org/publications/card/en/c/1ed06276-bd86-44d3-be65-4b07965b6fa5/

Background paper prepared for The State of Agricultural Commodity Markets 2015-2016. Rome, FAO.

The key points to remember

① Distinguish between notions of trade and trade policies, in assessing their impact on food 1 security.

② Recognize that trade flows can be affected by border measures and domestic measures, together defined in this course as "trade policies".

③ Determine whether trade policy changes focus only on agriculture and food production (or a subset of these). Otherwise whether they apply to all products, and what concurrent non-trade policies are being implemented.

Defining and Measuring Food Security and Nutrition

A. Defining Food Security and Nutrition

"**Food security**[6]" is a concept that was first articulated in the area of food policy in the mid-1970s. The initial focus was primarily on the volume and stability of food supplies. Since then, the concept has been continuously evolving, reflecting the complexities of the technical and policy issues involved. Over the decades, food security has evolved from access to food, to the nutrition and cultural dimensions of food security, and its social aspects.

Definition of food security

» Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life."

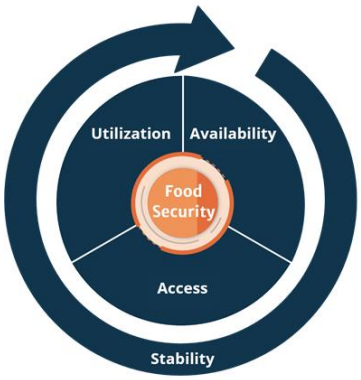
World Summit on Food Security (1996) «

Are there distinctions in "food security"?

Distinctions have been made between **chronic food insecurity** and **transitory food insecurity**. Chronic food security is associated with problems of continuing or structural poverty, and low incomes. Transitory food security involves periods of intensified pressure caused by natural disasters, economic collapse or conflict.

FAO, SOFI (2001) and FAO, SOCO (2015)

To supplement and clarify the definition of food security, FAO identifies four "pillars" or "dimensions" of food security.

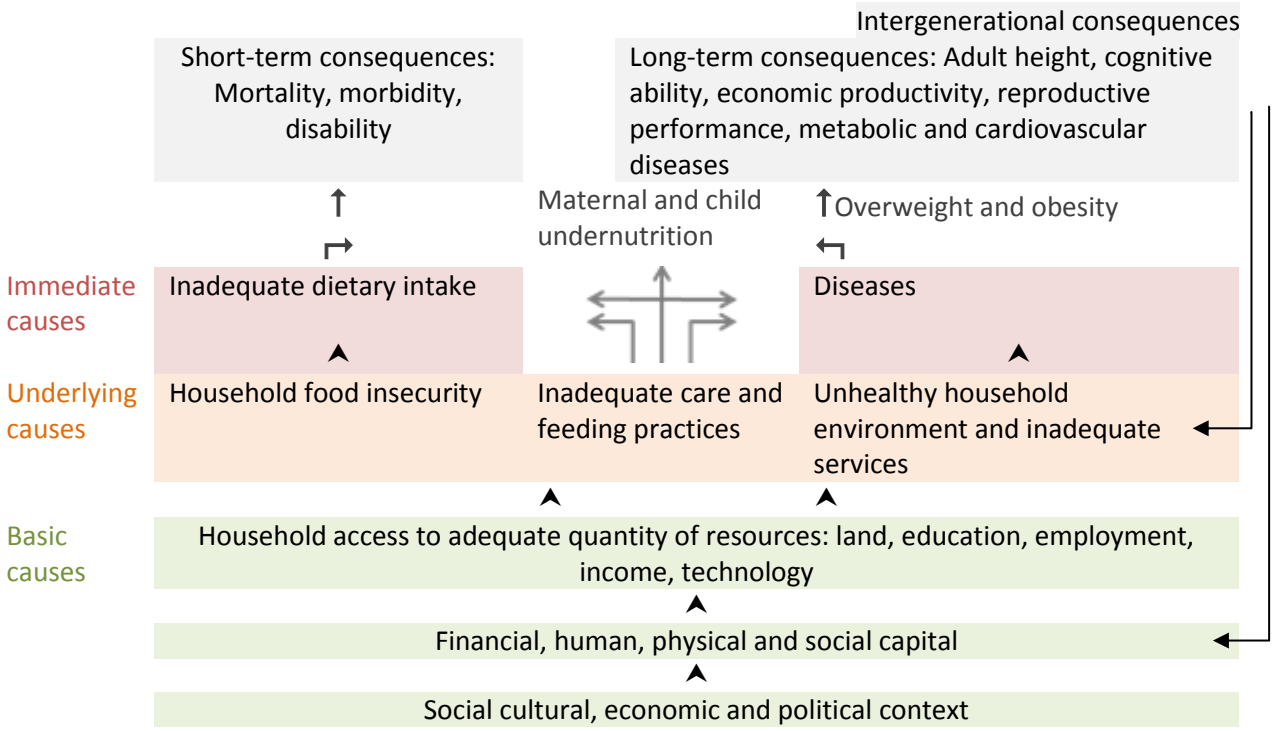


[6] Food security - State that exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

DIMENSIONS	DEFINITION
STABILITY	This refers to the stability of the other three dimensions over time. Even if individuals' food intake is adequate today, they are still considered food-insecure if periodically they have inadequate access to food, risking deterioration of their nutrition status. Adverse weather conditions, political instability, or economic factors (unemployment, rising food prices) may have an impact on individuals' food security status.
UTILIZATION	Utilization refers to the way the body makes the most of various nutrients in the food. Individuals achieve sufficient **energy and nutrient intake** through good care and feeding practices, food preparation, diet diversity and intra-household distribution of food. Combined with biological utilization of the food consumed, energy and nutrient intake determine the nutritional status of individuals.
ACCESS	Access refers to economic, social and physical access to food. Economic and social access is determined by **disposable income**, **food prices**, **and the provision of**, **and access to**, **social support**. Physical access is determined by the **availability and quality of infrastructure** and other installations that facilitate the functioning of markets.
AVAILABILITY	Availability refers to the physical availability of food. Food availability addresses the "**supply side**" of food security and is determined by the level of food production, stock levels and net trade.

The four dimensions of food security play a key role in promoting good nutrition. Food availability and access throughout the year are necessary conditions for promoting good nutrition. In addition, adequate food preparation and distribution practices at household level are needed to ensure that each member enjoys food in the right quantity, quality, safety and diversity to satisfy their nutritional requirements.

This diagram shows the causes of malnutrition that highlights UNICEF's three levels of malnutrition: immediate, underlying and basic causes.



Causes of malnutrition according to UNICEF

Malnutrition is a **multidimensional** problem.

According to the **UNICEF conceptual framework** originally developed for maternal and child undernutrition, three levels of causes need to be considered:

- **immediate** causes which operate at the individual level: inadequate dietary intake and diseases;
- **underlying** causes which operate at the household and community level: household food insecurity, unhealthy environment (namely access to water, sanitation, health services) and inadequate care and feeding practices (including feeding, hygiene, health-seeking behaviour); and
- **basic** causes which relate to the structures, processes and phenomena that operate at the level of the society: they include political, socio-economic and cultural factors, such as governance and institutional capacities, gender relations, social solidarity mechanisms, access to education, presence of infrastructure, trade policies and systems, conflicts, environmental factors such as climate change, and the agro-ecological context in which communities live.

Underlying causes are clearly correlated with child stunting, micronutrient deficiencies and wasting.

For more information on Nutrition visit FAO's course entitled "**Nutrition, Food Security and Livelihoods: Basic concepts**" **www.fao.org/elearning/#/elc/en/course/NFSLBC**

In many developing countries, undernutrition, overweight and obesity occur simultaneously in the same population groups, and even in the same individuals. This phenomenon is referred to as the "**double burden**" of malnutrition, or even as the "**triple burden**" of malnutrition.

- **Undernutrition** - The lack of sufficient intake of dietary energy (i.e. calories) and protein.
- **Micronutrient deficiencies** - Insufficient food intake to meet dietary energy requirements or poor absorption/biological use due to diseases.
- **Overweight and obesity** - The excess intake of dietary energy (i.e. calories), that manifests in the number of overweight and obese people.

In the new nutrition landscape, the need to update the framework to include a broader set of underlying drivers for obesity and NCDs has become clear. The underlying causes are relevant to obesity and NCDs: food insecurity can also be characterised by difficulty to access diverse foods, including fresh fruits, vegetables and animal source foods, leading to poor diet quality. All underlying causes are also indirect contributors of obesity and NCDs, since stunted children are more likely to develop these diseases in adulthood. But other factors such as the **food environment**, **physical activity and lifestyles** need to be considered. To this end, an **adaptation of the framework** has been proposed by the Global Nutrition Report: ***http://globalnutritionreport.org/the-report/*** (p. 62).

Even if a country has sufficient food supply, it can still contain malnourished people, if, for instance, there are health and sanitation issues preventing nutrient absorption. As the UNICEF Framework for Malnutrition shows, these other conditions, such as: water, hygiene and a sanitary environment; adequate health and education and care, are also important for proper nutrition.

Nutrition is therefore an outcome of food security, and food security is a necessary yet not sufficient condition to achieve good nutrition.

B. Measuring Food Security

Food security is a multidimensional concept. Therefore, organizing and presenting a large array of potential indicators is challenging. FAO provides a set of indicators that aim to capture various aspects of food insecurity.

Four dimensions of food security

Availability Indicators

- ✓ Average dietary energy supply adequacy.
- ✓ Average value of food production.
- ✓ Share of dietary energy supply derived from cereals, roots and tubers.
- ✓ Average protein supply.
- ✓ Average supply of protein of animal origin.

Stability Indicators

- ✓ Cereal import dependency ratio.
- ✓ Percentage of arable land equipped for irrigation.
- ✓ Value of food imports over total merchandise exports.
- ✓ Political stability and absence of violence/ terrorism.
- ✓ Domestic food price volatility.
- ✓ Per capita food production variability.
- ✓ Per capita food supply variability.

Utilization Indicators

- ✓ Access to improved water sources.
- ✓ Access to improved sanitation facilities.
- ✓ Dietary diversity score.
- ✓ Percentage of children under 5 years of age who are stunted.
- ✓ Percentage of children under 5 years of age who are underweight.
- ✓ Prevalence of overweight and obese adults (based on BMI measures).
- ✓ Prevalence of anaemia among women of reproductive age.
- ✓ Prevalence of anaemia among children under 5 years of age.
- ✓ Prevalence of Vitamin A deficiency in the population.
- ✓ Prevalence of iodine deficiency.

Access Indicators

- ✓ Percentage of paved roads over total roads.
- ✓ Road density.
- ✓ Rail lines density.
- ✓ Gross domestic product per capita (in purchasing power equivalent).
- ✓ Domestic food price index.
- ✓ Prevalence of undernourishment.
- ✓ Share of food expenditure of the poor.
- ✓ Depth of the food deficit.
- ✓ Prevalent of food inadequacy.

Increasingly, attention is being paid to the nutritional status of individual household members.
Food security has been interpreted as the aggregate supply of food at various levels. These food security levels include: Global, Regional/national, Household

It has now been understood that managing the food supply at these levels does not necessarily translate into good nutritional status for household members most in need. This is why the concept is now being referred to as Food Security and Nutrition, to explicitly point out the importance of having the individual as ultimate focus of concern.

The key points to remember

① Food security is a multidimensional concept that captures the availability and stability of food supplies, the access of vulnerable populations to food, as well as the consumption and utilization of that food.

② Malnutrition refers to an abnormal physiological condition caused by inadequate food intake or inadequate absorption by the body. The three forms of malnutrition are:

- undernutrition;
- micronutrient deficiencies; and
- overweight and obesity.

③ Having adequate food supplies at a national level does not necessarily translate into household food security or optimal nutrition status for all individuals in the household. It is therefore important to pay attention to all the three levels of food security (global, regional/ national, household).

Pathways of Interaction between Trade, Food Security and Nutrition

Now that we have defined the concept of trade and trade policies, and of food security and nutrition, we can now examine their links and relationships. In this last section of the lesson we will examine the pathways of interaction between trade, food security and nutrition.

A. Economic Context and Growth
B. Effects on Key Domestic Variables
C. From Direct Effects to Impacts on Food Security
D. Example of Pathways of Interaction

The links between trade, food security and nutrition are inherently complex, with several channels of interaction simultaneously affecting the different dimensions of food security: availability, access, utilization and stability. The impact of the food security dimensions will be discussed in lesson "Impact of Trade on Food Security and Nutrition".

A. Economic Context and Growth

The relationship between trade and poverty is a central element of the trade and food security nexus, because poverty, particularly extreme poverty, is a principal underlying factor of undernourishment. There are two key factors to take into account when assessing **the impact of trade on poverty**.

FACTOR #1: What is the impact of trade on overall income growth?

While it is difficult to establish a clearly attributable link between trade and income growth, many agree that in most countries (where high income growth has been sustained over time) **trade has played an important role in the overall policy package**. Although there is no single determinant of growth, more open economies tend to grow faster.

At the same time, there is extensive evidence that opening to trade can have very heterogeneous effects on poor households, depending on the type of policies being changed, and on the existing conditions. These conditions include the ease with which factors of production can move between activities, and the sectors within which the poor work. Under these conditions, those working in export industries generally benefit from trade expansion, while those working in import-competing sectors that were previously protected, may lose. Episodes of growth, accompanied by strongly worsening income distribution may reduce or wipe out income gains for vulnerable groups, thus affecting their food security and nutrition.

FACTOR #2: What is the sectoral composition of growth?

Growth in agriculture and food production generates broad employment and income opportunities that can be crucial for food access. Therefore agricultural growth, as compared to growth in other sectors, can have larger effects on poverty reduction by increasing the income of the poorest segments of the population.

The correlation between agricultural development and poverty reduction has been weaker in:

- Developing countries with large inequalities in landholdings.
- Richer countries, where a large proportion of the poor are not in agriculture.

Thus, it can be said that to the extent that poverty is the main cause of food insecurity, and where a large proportion of the poor are working in the agriculture sector, agricultural growth can have positive effects on poverty alleviation and reducing food insecurity. Reaping these benefits would require complimentary policies that promote equitable distribution of gains.

B. Effects on Key Domestic Variables

A number of interlinked domestic variables are directly affected by changes in the level of trade openness of a country. The combined effects of trade on these variables ultimately determine the physical and economic access to food of populations suffering from hunger and malnutrition. For ease these variables have been grouped into the below three clusters.

CLUSER #1 - Prices, Production, and Labour Market

Trade can lead to changes in the prices of imports and exports, which in turn affect consumer prices, but also production incentives, and thus employment in different economic activities. These effects are important determinants of access to food. Trade is only one determinant of prices. Others such as domestic marketing arrangements, transportation, availability of storage and, particularly, local weather conditions affecting yields, can have more significant impacts on the prices paid by consumers or received by producers.

Trade is endogenous to the economic system comprising these and other macro-economic variables – while changes in trade affect prices, production, and employment, these variables will in turn have an impact on trade flows.

CLUSER #2 Government Operations

Governments' effectiveness in designing and implementing policies and programs that support rural and agricultural development, is of critical importance in achieving food security. Trade can affect the effectiveness of governments in two ways:

1. International trade agreements and other frameworks imply specific rights and obligations for the member countries. These in turn affect rules, regulation, mechanisms and programs for agriculture.
2. Trade and trade policies affect government revenues through customs duties, export and import taxes.

CLUSER #3 Competition, Distribution and Infrastructure

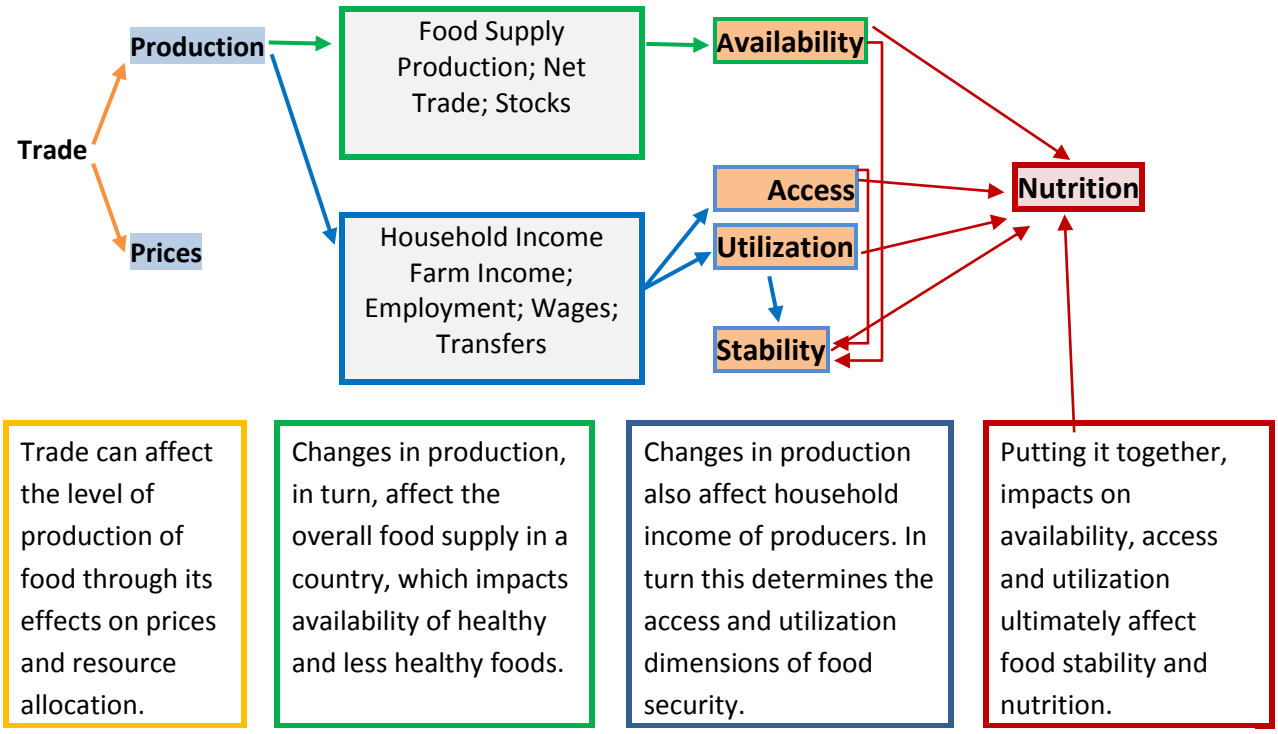
Trade has an impact on competition, infrastructure development and the development of marketing channels and distribution networks, all of which are important determinants of overall food supply and incomes. In the longer run, trade also affects the incentives for public and private investments and new players' entry into markets.

C. From Direct Effects to Impacts on Food Security

The direct effects of trade on the key domestic variables translate into changes in food security through three main intervening factors:

Food Supply	Production and net trade form an integral part of domestic food supplies, which in turn define food availability. Trade also affects how food supplies are distributed at the subnational level, across domestic regions, between urban and rural markets, and at different points in time, affecting availability geographically and temporally. In the longer run, food supplies are also affected by changes in productivity, the composition of agricultural output, and market structure, all of which can be triggered by changes in trade patterns. The impact of trade on nutrition will depend on whether healthy foods become more readily available and affordable vis-a-vis unhealthy products as a consequence of changes in prices and food supplies.
Household Income	The effect of trade on prices can be a particularly important determinant of household purchasing power, as sudden changes in prices can trigger severe repercussions for households' real incomes and budgets for food. Additionally, the effect of trade on production incentives for export-oriented sub-sectors, and potential disincentives in import-competing sectors can affect employment and therefore household incomes of producers in each of these sectors.
Government Services	Government budgets for social protection and agricultural development can determine the availability of resources and the delivery mechanisms necessary for implementing food security programmes. These include those directed to consumers and producers. Below are two examples. Programmes directed to consumers: social protection, education and other services addressing the basic needs of the population including nutrition. Programmes directed to producers: government purchases and food stockholding, extension services, rural infrastructure and other types of support.

Example of Pathways of Interaction



The key points to remember

① **Economic context and growth**

Trade can affect poverty – which is a key underlying factor of food insecurity – by influencing overall income growth in an economy, as well as the sectoral composition of growth.

② **Effects on key domestic variables**

Trade, influenced by the economic context and sectoral composition of growth, directly affects key domestic variables like food production, prices, employment, and government revenues. In the longer run, trade affects competitiveness, and the development of marketing channels and distribution networks. It is important to recognize that the level of trade is also affected by these variables.

③ **From direct effects to impacts on food security**

These direct effects translate into changes in food security indicators through three key factors:

- Total food supply, which affects how much and what kind of food is available and how it is distributed across space and time.

- Household income, which affects the access and utilization of food and therefore, diets.
- Government revenues, which affects all four dimensions of food security and nutrition.

Course Overview

UNIT 1 – INTRODUCTION TO TRADE, FOOD SECURITY AND NUTRITION

Lesson #1.1: Defining and Measuring Trade, Food Security and Nutrition

This lesson will present the definitions of Trade, Food Security and Nutrition, and discuss the pathways of interaction between these concepts.

Lesson #1.2: Impacts of Trade on Food Security and Nutrition

This lesson will examine the potential positive and negative impacts of trade on the four dimensions of food security and nutrition, and discuss the determinants of these impacts.

UNIT 2 – TRADE POLICY SUPPORTIVE OF FOOD SECURITY AND NUTRITION

Lesson #2.1: Trade Policy Measures and Agricultural Development

This lesson will discuss different types of trade policy measures, and the role that these measures can play by stage of agricultural development.

Lesson #2.2: Design and Implementation of Trade Policy Measures

This lesson will discuss the considerations for designing and implementing trade policy measures, and present historical patterns of their use.

UNIT 3 – GOVERNANACE OF TRADE, FOOD SECURITY AND NUTRITION

Lesson #3.1: Introduction to the Multilateral Trading System

This lesson will provide some background to the World Trade Organization (WTO), introduce the structure of the WTO Agreement on Agriculture (AoA) and describe the concept of policy space for food security available to developing countries.

Lesson #3.2: Policy Space in the Multilateral Trading System

This lesson further discusses the main policy areas regulated by the WTO Agreement on Agriculture (AoA), identifying the rules that govern the use of trade policy measures and the policy space for food security available to countries.

Lesson #3.3: Towards Improved Governance for Trade, Food Security and Nutrition

This lesson will describe the frameworks governing trade, food security and nutrition at the global and regional levels, and discuss the challenges and opportunities for improving policy coherence.

Summary

In this lesson you have learnt that:

- In this course, "trade policies" are defined as government actions or measures that affect trade flows (these include border measures and domestic measures).
- Levels of food security are dependent on the availability of food, an individual's access to food, how food is utilized by the body and the stability of these three dimensions over time.
- Nutrition is affected by food security, and adequate food supply is a necessary yet not sufficient condition to achieve good nutrition.
- Linkages between trade, food security and nutrition are complex with several channels of interaction that affect the different dimensions of food security.