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ТЕОРИЯ МЕЖДУНАРОДНОЙ ЭКОНОМИКИ

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Учебное пособие
Training manual

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Учебное пособие представляет конспект лекций и практических заданий по курсу «Теория международной экономики» для студентов специальных программ подготовки на иностранном языке в рамках общего учебного плана третьего курса экономических специальностей уровня бакалавриат и специалитет. Учебное пособие разработано в соответствии с требованиями Образовательного стандарта высшего образования МГИМО МИД России второго поколения (на основе ФГОС ВО 3++) по направлению подготовки 38.03.01 «Экономика».

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СОДЕРЖАНИЕ

I. Introduction

What does International Economics encompass?

The theory of international economics is a scientific direction within the framework of the related disciplines of macroeconomics and the history of economic decisions, the main purpose of which is the need to develop mechanisms for assessing the conditions for the development of international economic processes, identify key trends, and form tools for preventive global economic management policy. Among the key thematic blocks of the course, the following can be noted.

1. The mechanism of international trade.
2. Trade relations, peculiarities of their formation and development.
3. Tools and methods for managing trade relations.
4. Features of the formation of the balance of payments as an indicator of international economic relations between countries.
5. Aspects of determining the exchange rate and its role in relation to the terms of the trade balance.
6. Mechanisms for coordinating international policy in the regulation of international economic relations.
7. International monetary and the peculiarities of the formation of its key indicators.

The Gains from Trade

International trade provides a universal mechanism for interaction between countries in order to obtain both socio-economic benefits for their countries and for the global economy as a whole. The principle of specialization as the basic principle of trade relations leads to the possibility of increasing trade benefits for all countries participating in international trade relations, forming a universal mechanism for mutual satisfaction of participants in the context of global economic activity. In accordance with the principles of specialization, countries focus on the production of goods that are less expensive for themselves, which in the process of exchange with other countries leads to an increase in consumption and production both in these countries themselves and in their partner countries. International trade expands the production capabilities of countries, increases global productivity, and therefore the volume of world production and consumption, leads to an increase in the economic

efficiency of the participating countries in international economic relations and to economic growth of both the participating countries and the global economy as a whole.

The Pattern of Trade

The basic principle of international trade is the principle of specialization. Countries, having comparative advantages in terms of production and distribution of goods and services, focus or specialize in the production and/or distribution of precisely those goods that are less costly for them, which they produce at lower costs than trading partners, which means that the production of these countries becomes more economically efficient. The strengthening of trade relations as a result of the division of the spheres of production of goods and services leads to the intensification of export-import operations and to the economic growth of the countries participating in trade relations. There is some stable differentiation of countries in accordance with the availability of certain resources, the level of economic development and the level of technological equipment of production, as well as the quantity and quality of labor. Thus, countries with a large number of resources, often possessing not only comparative but also absolute advantages, are focused on the sale of raw materials. Agricultural countries, mainly involved in the production of agricultural goods, have comparative advantages in this particular economic sphere and act as the main suppliers of agricultural goods on the world market. Specializing in what is less expensive for countries and historically developed in their territories, they increase their own production volumes due to an additional share of exports and increase the level of well-being of their citizens.

There are a number of traditional examples of specialization that have historically developed in certain regions of the world, such as Brazil traditionally exports coffee; Saudi Arabia exports oil, which is predetermined by the geographical conditions of these countries. At the beginning of the 19th century, the idea of specialization in trade was theoretically formulated by the English economist David Ricardo. He suggested explaining trade by international differences in the possibilities of producing certain goods, the difference in the number of factors, and the level of factor productivity.

In the 20th century, another explanation of the principles of the formation of international trade appeared, namely from the point of view

of the availability of factors of production: the quantity and quality of labor, capital, land; as well as from the point of view of the availability of opportunities for their use.

How much trade?

At the end of the 20th century, the question arose about the optimal acceptable level of international trade, since the increasing growth rates of trade balances led to changes in money markets, increased consumption, creating prerequisites for overheating of the economy and overproduction. A similar trend began to form after the Second World War, due to the spread of democratic forms of organization of countries, many previously existing barriers, including trade barriers, were removed. The policy of democratization of international relations was also based on the fact that free trade contributes to both the development and prosperity of the countries themselves and the global economy as a whole. In the first half of the 1990s, several agreements were concluded and a number of agreements were reached on the expansion of free trade territories. Among the most significant are the North American Free Trade Agreement (NAFTA), concluded in 1993 and uniting the United States, Canada and Mexico; The Uruguay Round Agreement, signed in 1994, resulting in the creation of the World Trade Organization. A little later, the ideas of globalization of all spheres of society, including trade relations, began to actively develop.

Balance of Payments

The Balance of payments (BOP) is the main tool for assessing the functioning of international trade. It provides a report on all economic transactions between residents of the country (individuals, businesses and the government) and the rest of the world for a certain period, usually a year. The balance of payments includes the current account and the capital and finance account. The current account tracks the movement of goods, services, income and transfers between the country and the rest of the world; The Capital and Finance Account tracks the movement of financial assets and liabilities between the country and the rest of the world. The balance of payments works according to the principle of double entry, according to the principle of the balance sheet. Each transaction has two sides of the record: credit and debit. The credit side represents the inflow of funds (money enters the country), while the

debit side represents the outflow of funds (money leaves the country). The sum of all credit obligations must be equal to the sum of all debit transactions, which determines the balance of payments. Let's consider an example of calculating the balance of payments. Suppose a country exports $100 billion worth of goods and imports $80 billion worth of goods. In addition, the country receives $10 billion from foreign sources in the form of net income and $5 billion in net transfers. Thus, the country's current account shows a positive balance of $35 billion (the calculation is made by adding exports, net income and net transfers and deducting the amount of import transactions). To maintain a balanced balance of payments, the country will need a corresponding deficit in the capital and finance account in the amount of $35 billion, which may also be the reason for the outflow of foreign direct investment. The balance of payments acts as an indicator of interactions between countries, showing the common pros and cons of mutual trade, as well as the result of mutual commodity and financial flows.

Exchange Rate Determination

One of their important indicators of the comparative value of currencies is the exchange rate. Thus, in Japan, exchange rate regulation acts as a tool for systematic measures to curb inflation and ensure conditions for economic growth. In China, the People's Bank adheres to its own approach of direct currency exchange rate management through direct interventions and direct regulation by the management of the foreign exchange market. This approach led to a significant increase in the Chinese yuan exchange rate, which led to a global increase in prices for Chinese export goods. The strengthening of the yuan is the result of targeted actions by the People's Bank of China to regulate the foreign exchange market. Instruments such as buying government bonds, adjusting interest rates, the People's Bank of China set the task of reducing the money supply, which eventually led to an increase in the yuan exchange rate. To support the stability of the national currency, China is actively involved in the purchase and sale of US dollars. During periods of rapid growth, the yuan sells US dollars to increase demand for the national currency, which can lead to a revaluation. In the event of a depreciation of the yuan, the People's Bank of China, on the contrary, carries out transactions to buy US dollars, which increases the supply of the national currency and leads to devaluation.

India's exchange rate is also largely determined by the global demand for its export goods and services and is growing significantly during periods of particularly strong export growth. However, domestically, India is facing the problem of constantly high inflation, which is caused by many factors, including the unstable political situation, all of which also affects the fluctuation of the exchange rate.

The main condition for cooperation between countries and macroregions should be consistency of goals and maximum cooperation in solving problems. The experience of the European Union makes it possible to assess the degree of effectiveness of economic, political and trade cooperation between countries. The success of the European Union serves as a clear illustration of cooperation, since the joint initiatives of the participating countries cover almost all spheres of life: trade, agriculture, energy, environmental protection and others. By joining efforts to make decisions and working on their development and implementation collectively, the participating countries strengthen economic cooperation and unity within the union. Coordination of efforts in various fields is extremely important for successfully overcoming the difficulties of interaction with the outside world.

The example of a trade agreement between the United States, Canada and Mexico within the framework of the NAFTA alliance is also indicative, the main purpose of which is to expand trade and investment relations between the three participating countries. This announcement significantly contributed to the economic growth of these countries, solving a number of domestic economic tasks, such as creating additional jobs in the region by removing trade barriers and reducing tariffs.

The G20 Summit, which is held annually, serves as an important platform for solving many global problems, including economic ones. The agreement unites 20 of the world's largest economies, including both developed and developing countries. The summit is aimed at strengthening forms of interaction and developing an international strategy to strengthen cooperation between countries in the world.

Another inter-country association, the African Union (AU), is an intra-continental organization that develops joint instruments for expanding peace on the African continent and creating conditions for economic growth and strengthening the security of African countries.

The Association of Southeast Asian Nations (ASEAN) is an alliance of ten Southeast Asian countries, whose activities are aimed at strengthening economic cooperation, developing political dialogue and encouraging cultural exchange between the participating countries.

Established as a single trade body, the World Trade Organization (WTO) plays a crucial role in maintaining the stability and transparency of world trade. The WTO is an intergovernmental organization that monitors and coordinates international trade relations, is involved in resolving conflicts between participating countries, and ensures compliance with trade agreements within the organization.

The WTO replaced the previously existing agreement on tariffs and trade (GATT), which historically was aimed at forming common trade rules, the observance of which by the participating countries would allow increasing economic growth within countries, creating jobs and improving the standard of living of the population. The main goal of the GATT was to create a fair and understandable trading environment by reducing a number of barriers to the development of trade relations between countries.

The prerequisites for the coalition development of countries have been formed historically. Thus, in the 16th and 17th centuries, there was a significant boost in the development of capital markets, as well as the technology market. The inventions that arose radically changed the methods of production, and the creation of the first stock exchanges showed the importance of mutual cooperation in financial and trading operations. A historical moment can be called the opening of the Amsterdam Stock Exchange in 1602, which became the first official stock exchange in the world, and whose activities, among other things, provided the exchange of shares of the Dutch East India Company.

In the 19th century, the capital market developed rapidly, which was due to the Industrial Revolution.

At the beginning of the 20th century, there was a shift in public interest towards cross-border investments, which created the prerequisites for subsequent financial globalization. In large cities such as New York and London, stock exchanges appeared, which allowed trading in corporate stocks and government bonds. The introduction of the gold standard at the end of the 19th century led to the creation of a single medium of exchange, which simplified pricing in international trade and made investment flows comparable in calculations and estimates. However, the periods of the World Wars became a significant economic shock for

the development of the world economy and individual regions. However, a little later, in the 1980s and 1990s, a significant surge in liberalization revitalized world markets, laying the foundations for increased foreign investment and increased capital mobility, resulting in multinational corporations (TNCs) They expanded more and more, attracting and increasing the movement of capital flows. Financial systems were increasingly expanding, creating new prerequisites for cross-country interaction, including in terms of their regulation and management. With the advent of computer technology, trade relationships have significantly transformed, a large group of organizations in the e-commerce segment has emerged, the simplification of logistics schemes has increased the possibilities of consumer demand, pushing production to increase volumes. Industrial innovations have allowed us to move to a new trading level. Emerging markets, particularly Asia and Latin America, have received better trade and capital exchange opportunities.

At the end of the 20th century, the trading landscape underwent drastic changes with the advent of computer technology and electronic commerce, which brought technological progress to an unprecedented level. This surge in innovation has significantly improved the efficiency of international trade, while creating many enticing investment opportunities for global investors in emerging markets such as Asia and Latin America. The rapid growth of trade, investment and industrial relations led to the emergence of commodity, investment and capital bubbles, which inevitably had to end with the global crisis of 2008. The global crisis has highlighted the need for coordinated interaction and mutual participation of the countries of the world in matters of economic, technological and industrial development. The beginning of the 21st century was marked by several shocks of economic development, which led to the need for changes in the regulation of innovation and investment activities in the world. Among the current external shocks to stock markets, it is important to note: geopolitical instability; climate change; the COVID-19 pandemic and its financial consequences for the whole world. Today, the financial landscape is a complex network where there are global players, interest groups, coalitions and strategies for country and regional hedging. Some stock market participants, such as the NYSE and NASDAQ, demonstrate their significant position in terms of the size and liquidity of stock flows, undoubtedly influencing the formation of the

entire structure of financial and credit relationships in the world. Regional stock centers can be noted. Thus, London, which is also known for the London Stock Exchange, is one of the centers of financial attraction in the world. Singapore's economy, which is demonstrating steady economic growth, is undoubtedly another point of attraction for financial assets, including on the Singapore Stock Exchange (SGX) platform.

An important financial institution for the Asia-Pacific region is the Australian Securities Exchange (ASX), which facilitates communication between local and global companies. The Toronto Stock Exchange (TSX) focuses its activities on special attention to natural resources and technology, also occupying key positions in the international arena. The Hong Kong Stock Exchange (HKEX) forms a link between mainland Chinese companies and global investors, and is also defined as one of the largest exchanges in the world. The considered countries, regions, institutions, organizations, participating in securities transactions and capital movements, collectively form the international stock market, forming prerequisites for the development of cross-border investments.

II. World Trade (an overview)

In 2008, the world as a whole produced goods and services worth about $50 trillion at current prices.

Of this total, more than 30 percent was sold across national borders: World trade in goods and services exceeded $16 trillion.

That's a whole lot of exporting and importing.

Who Trades with Whom?

The latest quarterly WTO Goods Trade Barometer issued on 27 November indicates that the volume of global merchandise trade is recovering after its recent slump, with automobile sales and production and electronic components trade driving the recovery. However, mixed economic results coupled with increasing geopolitical tensions make the near-term outlook highly uncertain.

Fig. 1. Goods Trade Barometer

Global merchandise trade could start to show some modest gains in the first quarter of 2024 after a weak performance in 2023 according to the latest WTO Goods Trade Barometer issued on 8 March. However, geopolitical tensions continue to pose a downward risk to the near-term outlook.

The current reading of 100.6 for the barometer index is above the quarterly trade volume index but only slightly above the baseline value of 100 for both indices. This suggests that merchandise trade should continue to recover gradually in the early months of 2024, but any gains could be easily derailed by regional conflicts and geopolitical tensions.

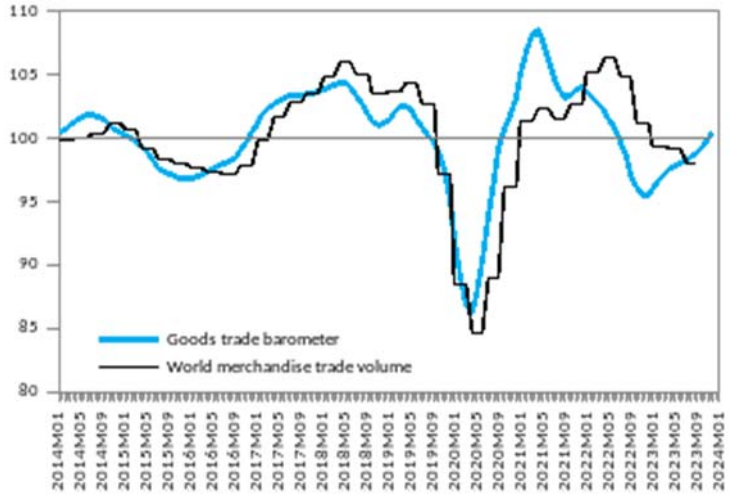


Fig. 2. Goods Trade Barometer Indicators

The "trade barometer" is the most important indicator of world trade, which allows you to receive timely information about trade trends. Values of the trade barometer above 100 indicate an increase in trade volumes exceeding the average trend value, while values below 100 indicate a trend in declining trade volumes, a threat of economic recession. Thus, according to official data from the World Trade Organization, in the third quarter of 2023, the volume of world trade decreased by 0.4% compared to the previous quarter. Compared to the same period in 2022. There was a 5% decrease in trading activity. In the period from January to October 2023, the volume of trade was the lowest in the last two years. The indices of the components of the trade barometer are mostly unchanged, while the value of 101 is fixed for export demand.

Other values of the indicator include: the air transportation index (102.3), the air cargo index (98.6), the container transportation index (98.6) and the raw materials trade index (99.1). The car production and sales index (106.3) remains above trend, although there are downward trends. The previously high level of the electronic goods trade index was nevertheless overestimated at 95.6. The trends of 2023 nevertheless formed the prerequisites for the expectation of a recovery in trade turnover in 2024, however, the degree of general uncertainty remains, increasing the overall risks.

Impediments to Trade: Distance, Barriers, and Borders

Calculations using the gravity model show a significant negative impact of distance on the result of international trade; on average, according to estimates by countries, an increase in distance by 1% leads to a decrease in trade volumes between them by 0.7–1%, which may be partly due to an increase in transaction costs, mainly due to an increase in logistics costs.

Intangible factors play an important role in the distribution of the trade structure, namely: partnerships between countries; historically established trade routes. At the same time, the distance between these countries may be significant, but it is not decisive in the formation of trade relations. Thus, being united in the NAFTA agreement, the United States, Canada and Mexico have preferences in trade with each other. Trade relations with Europe or Asia require large logistical costs from these countries. The proximity of the three countries allows them to freely negotiate trade terms, while business meetings with trading partners, for example in Japan or France, are conditioned by an increase in time and financial costs. It is important that the existence of such agreements nevertheless does not mean the automatic abolition of national borders. And despite the significant removal of trade barriers to cross-country trade, trade within countries often exceeds trade with partner countries by several times.

What Do We Trade?

Fig. 3. World trade in goods and commercial services, 2008–2021

+27%

Trade in goods has recovered faster than services trade due to strong consumer demand for products, especially in advanced economies, sustained by governments' fiscal stimulus measures. In 2021, trade in goods rose by 27 per cent year-on-year, and by 17 per cent in comparison with 2019.

+16%

By contrast, unequal distribution of vaccines, the emergence of new COVID-19 variants and border restrictions continued to weigh on the recovery of tourism and passenger transport in the services sector. Trade in commercial services expanded by 16 per cent in 2021. However, it remained 5 per cent below pre-pandemic levels.

Leading Merchandise Traders

China, the United States and Germany were the top three merchandise exporters in 2021, representing 15 per cent (China), 8 per cent (United States) and 7 per cent (Germany) of world exports

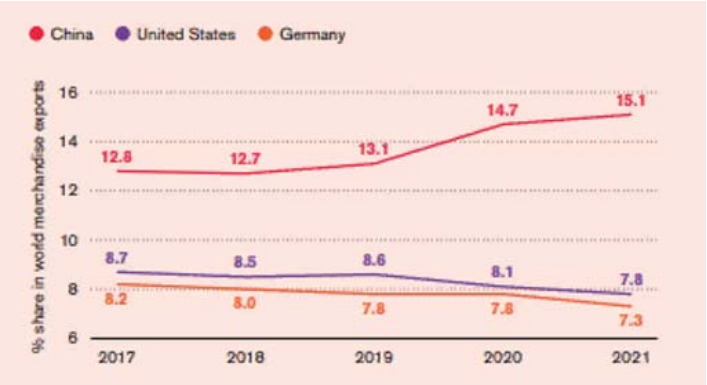


Fig. 4. Leading merchandise traders

**World Trade Statistics Review, 2022*

Manufactured goods

Trade in manufactured goods represented 68 per cent of world merchandise exports in 2021, with a value of US$ 14.8 trillion.

Fig. 5. Manufactured Goods

Trade in goods and services

World trade in goods and services amounted to US$ 27.3 trillion in 2021, a 24 per cent increase compared with 2020.

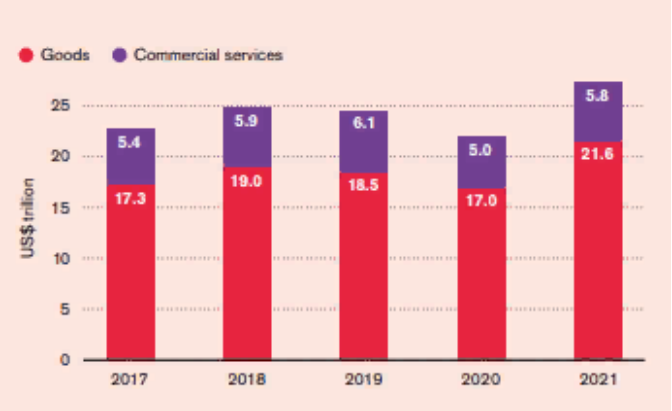


Fig. 6. Trade in goods and services

World exports of manufactured goods

In 2021, the volume of global exports of manufactured goods increased by 22% after the previous period of rapid decline caused by the Covid-19 pandemic. The leading groups of products were cast iron and steel, the volume of exports of which increased by 60%. Such a rapid growth in exports of cast iron and steel was due to both increased demand and increased prices for raw materials. Also significant for 2021 is

the significant growth in global fuel exports, as the need to restore the previous pace of industrial development after a significant recession during the Covid-19 pandemic. Due to the significant increase in demand for fuels and energy resources, prices for these goods also decreased significantly in 2021.

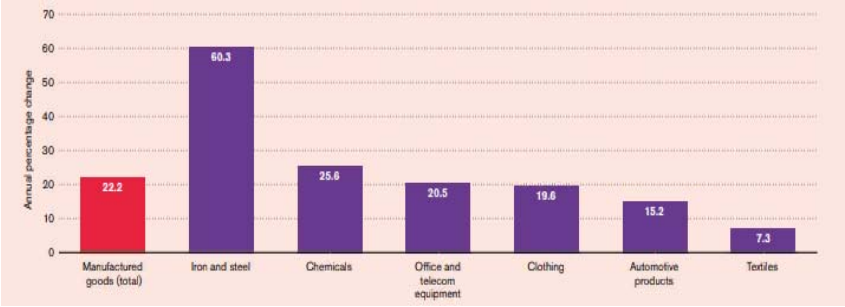


Fig. 7. World exports of manufactured goods

World exports of fuels and fuel prices

In 2021, world fuel exports reached a new peak in value terms, rising by 64 per cent and climbing to US$ 2,573 billion.

Fuel prices jumped by 73 per cent in 2021, due to increased demand and limited production.

Fig. 8. World exports of fuels and fuel prices

Do old rules apply?

In recent years, the dynamics of world trade have become increasingly ambiguous. If about a hundred years ago the trade profile of countries was largely determined by their geographical location, climate and availability of natural resources, today this is far from the case. Not so long ago, tropical countries specialized in the production of coffee and cotton, and the United States and Australia, having large territories, were key food suppliers for, for example, densely populated European countries. Trade disputes between countries and partners were quickly resolved. The main theoretical ideas of trade regulation and development were reduced to two views: liberalism and protectionism. The main threat was seen in the desire to protect their own territories from cheap food imports, such as for the landowners of England, while the industrialists of England were in dire need of markets for their products, which required a constructive dialogue of moderate protectionism and moderate liberalism of England's trade relations with other countries.

Summary

Modern trade relations between countries are undergoing significant changes and are becoming increasingly more complex relationships, increasing transaction costs of trade transactions. If earlier the main reason for trade agreements was the redistribution of natural resources, at the present stage, the results of scientific and technological progress, knowledge-intensive and capital-intensive goods and services, information benefits, the expansion of the range of goods and services led to a significant increase in world trade, but also to a change in the structure of trade. This has become possible, among other things, due to the leveling of distances due to scientific and technological inventions and computer transformations of the vital activity of the population. The World Wars of the 20th century also became an important condition for trade transformation. Due to these historical events, the former trade relations have been radically transformed. The military actions and their consequences required long-term measures to restore the countries' own economies, the introduction of protectionist measures against former trading partners, among others. Today, the structure of world trade has shifted from raw materials to industrial groups of goods. The share of services has increased significantly. Developing countries are gradually moving away from commodity exports to exports of processed goods. In these conditions, it is becoming increasingly difficult to assess the comparative advantages of trade, to build long-term trade relations solely on economic interests, geopolitical interests and the interests of established trade organizations come to the fore.

III. Aspects of Modelling in International Economics

Models:

- The Ricardian model: trade patterns between countries with different technologies;
- The H-O model explains trade patterns between countries with different factor endowments;
- The Krugman model (1980): "Scale Economies, Product Differentiation, and the Pattern of Trade";
- Gravity Model.

The Ricardian Model

The classical theory of comparative advantage, originally proposed by the British economist David Ricardo in the early 19th century, explains the reasons why countries participate in international trade, even if one country's production of exchange goods is more efficient. This theory is based on the idea of comparing opportunity costs, which determine the value of alternative options that are discarded when choosing. When a country produces a product with lower opportunity costs compared to another country, it gains a comparative advantage in the production of that product. It is on the idea of opportunity costs that the basic principle of international trade, the principle of specialization, is based. It is advantageous for countries to specialize in the production of goods where they have comparative advantages. Specialization leads to an increase in the efficiency of the country's economy as a whole, to an increase in the internal productivity of factors and a better allocation of resources. Through specialization and subsequent trade, countries can increase the overall level of consumption, ensuring that it is at a level higher than the total volumes of consumption and production without terms of trade. Classical trade theory emphasizes that trade allows countries to produce and buy goods at lower prices compared to domestic production capabilities. For example, two countries participate in trade relations: A and B, which specialize in the production of wine and fabrics. Country A is capable of producing 10 units of wine or 5 units of cloth, while country B can produce 6 units of wine or 4 units of cloth. To determine their respective comparative advantages, consider the opportunity cost of producing each product.

In the example, country A has a comparative advantage in wine production, since 2 units of wine act as an alternative cost of 1 unit of fabric, while in country B 1.5 units of wine act as an alternative cost of 1 unit of fabric.

And, accordingly, country B has comparative advantages in fabric production. Trade specialization in this example leads to the fact that each country exports those goods that they produce more efficiently, and imports those that they produce more expensively. The idea of comparative advantage is important for the effective redistribution of resources and production capacities, which leads to improved economic gains for countries involved in international trade. By using their competitive advantages and engaging in international trade, countries increase their well-being and stimulate economic growth. However, the theory of comparative advantages has a number of limitations, such as idealized market conditions adopted to compare the production costs of two countries. The theory of comparative advantages proceeds from the concept of perfect competition, does not take into account the external influence of factors that are inherent in real markets. Also, in theory, there is a leveling of transportation costs, which are sometimes crucial when choosing trading partners. Thus, the theory of comparative advantages is based on a static structure, where the internal and external environment does not change a priori, on the availability of resources and, in fact, their unlimited, since the model does not make assumptions about increasing opportunity costs over time. Although this theory is traditional, determining the development of scientific thought in the direction of modeling trade relations, it is still important to take into account the limitations and assumptions of this theory, the specifics of its application in real conditions.

The main assumptions of the theory of comparative advantages are:

– the presence of perfect competition;

– availability of two goods and one factor of production (labor);

– labor mobility within the production sectors, which allows us to consider a single wage level;

Full-time employment conditions.

Full employment of the main factor of production in the economy under consideration (labor) is achieved using simple production technologies: $X = Lx /a$ and $Y = Ly /b$, where a and b represent the number of workers per unit of output (or hours of work per unit of output). The ratios a and b give the results of productivity per unit, this value also reflects the average productivity of labor and the level of marginal costs. At the same time, a constant Return to Scale is fixed for the production of both goods. All workers in the economy are equally productive and interchangeable. The level of wages in all industries is the same. The level of well-being and the level of usefulness of employees are displayed by indifference curves. Labor

productivity indicators, designated as 1/a and 1/b, are distinguishable by country, which is the main condition for the specialization of countries in the production of a particular product.

Here is an example, with these numbers being the labor-per-output ratios:

Table 1

	US	Mexico
Chemicals (C)	1	10
Radios (R)	3	5

The US has an absolute advantage in both C and R (more productive in both). Now in US (perfect competition): $p_C = w^{US} * 1$ $p_R = w^{US} * 3$ then $p^{US} = p_C/p_R = 1/3$.

Important point:

WAGES DO NOT MATTER FOR RELATIVE COSTS OR RELATIVE PRICES.

We can state this as 1C = 1/3 R and 1R = 3C.

These are the opportunity costs of C, R.

For Mexico, $p^M = p_C/p_R = 10/5 = 2$.

1C = 2R and

1R = 1/2 C

So C is relatively cheap in the US and R is cheap in Mexico.

We can immediately state about CA: $1/3 \leq p* = p^*_C/\ p^*_R \leq 2$ is the range of free-trade prices where there would be 2-way trade.

Let's look at this graphically with PPFs.

Let labor endowments be $L^{US} = 600$ and $L^M = 2000$. Then for US max C = 600, max R = 200. For M max C = 200, max R = 400.

Also the relative autarky prices are fixed: $p^{US} = p_C/p_R = 1/3$ and $p^M = p_C/p_R = 2$.

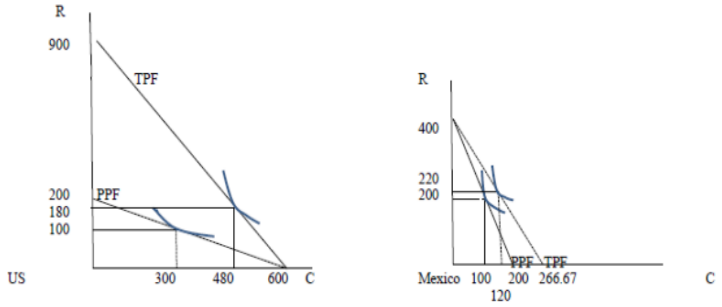


Fig. 9. The PPFs

Note that these PPFs feature constant opportunity costs in production: because of the unchanging marginal productivities of labor the PPFs are just straight lines.

(Example: to get one more C in the US always costs 1/3 R, no matter where the economy is on the PPF.)

Now let's think about an equilibrium and economic welfare in autarky.

We can draw in CICs for both countries; note they could be tangent to PPFs at any points, depending on preferences.

Let's just suppose that CICs split labor force in half in both US and M.

Table 2

		Outputs	Consumption	Trade
Autarky	US	300C, 100R	300C, 100R	NA
	Mexico	100C, 200R	100C, 200R	NA

Now let them trade and suppose the world price settles at p* = 1.5 (1C = 1.5R in trade; this implies 1R = 1/1.5 C or 1R = 2/3 C).

Then the US gets 1.5R in imports for each 1C in exports, better than in autarky (where 1C was worth 1/3 R). And Mexico can export 1R and get back 1/1.5C = 2/3 C, better than in of autarky (where 1R was worth ½ C).

BOTH COUNTRIES WOULD GAIN FROM TRADE

That is, US gains because 1C buys 1.5R (> 1/3 R in autarky). Mexico gains because 1C costs 1.5R (< 2R in autarky). Or we can state that 1R buys 2/3 C (> ½ R in autarky).

Next translate this outcome into trade possibility frontiers, or TPFs.

Note that each country would choose to specialize completely. This is because as you produce more of either good the productivity figures never change.

So it makes sense to take full advantage of your productivity advantage by completely specializing. Suppose in free trade that US exports 120C for 180R (which is consistent with p* = 1.5). What do our figures look like now?

Table 3

	Outputs	Consumption	Trade	GFT
US	600C, 0R	480C, 180R	120C for 180R	+180C, +80R
Mexico	0C, 400R	120C, 220R	180R for 120C	+20C, +20R
World	600C, 400R	600C, 400R	as noted	+200C, +100R

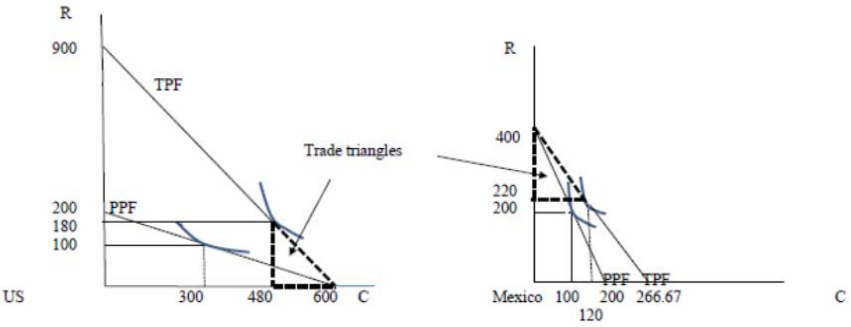


Fig. 10. The TPFs

Trade possibility frontiers (TPFs) are the national budget constraints in free trade. They start at complete specialization (US in C, Mexico in R) and extend to the max of the other good if you export all of your production.

So US could (it won't in equilibrium) export 600 C and get back 900 R at p* = 1.5; and Mexico could export 400 R and get back 400/1.5 = 266.67 C in imports.

Equilibrium will depend on how much the countries want or demand of these goods (preferences).

Note the *"trade triangles"*: US exports 120 C and imports 180 R; M exports 180 R and imports 120 C.

Important points:

Both US and M gain from trade, whether you look at higher CICs or the higher consumption bundles.

Trade is balanced. This means 2 things:

1. Physical terms: US exports of C = Mexico imports of C; Mexico exports of R = US imports of R.

2. Value terms (trade is balanced in dollar or peso terms). For US: $pC * pR * = IMR\ EXC$ => $pC * EXC = pR * IMR$ Example: (in dollars: let $pC * =$ \$200 and $pR * =$ \$133.3. Then the value of exports = \$200x120C =\$24,000 and the value of imports = \$133.33x180R = \$24,000). You show that Mexico also has balanced trade in dollars at these prices.

Note something here: without any change in labor supplies, there is more consumption and production in the world. How? Think of the GFT. Where do these gains from trade come from?

There are really 2 sources.

Specialization of labor in each country into its most productive use ("gain from specialization"). This is like a technological improvement.

Consumers and producers in both countries get to exchange goods at better price ratios ("gain from exchange"). Exporters receive higher prices and consumers face lower import prices. This isn't magic. It's the result of specialization according to comparative advantage. This is one of the most important global processes of all.

The H-O Model

The Heckscher-Ohlin theorem (1953) assumes that each country exports a product that uses the production factor that is available in abundance in that country. In fact, this model is an extended trading model. The Heckscher–Ohlin (H-O) theory, developed by Swedish economists Eli Heckscher and Bertil Ohlin in the early 20th century, is fundamental to the analysis of trade relations between countries. This theory expands the understanding of the idea of comparative advantages by taking into account the importance of factors of production, namely: differences in the level of use of factors of production, while the theory considers two factors of production in contrast to the traditional model: labor and capital. The main principles of the Heckscher–Ohlin theory are the following.

1. The sufficiency and even redundancy of the production factor, which reflects the different production capabilities of the countries. In this regard, countries are conditionally divided into capital-intensive and labor-intensive in terms of saturation of capital and labor resources, respectively.

2. Goods and services are differentiated by the volume of use of production factors.

3. The comparative advantages of countries are determined by their production capabilities, that is, countries will export those goods for the production of which they use the production factor available in the country in abundance.

The theory of Eli Heckscher and Bertel Ohlin assumes the following provisions:

Due to their specialization in trade, countries will focus on the production and export of those goods and services where the country's available resources are used in abundance.

Free trade will lead to an equalization of prices, including for factors of production, between countries. The level of wages in technologically similar countries will be balanced.

International trade will lead to a change in factor incomes within countries. So, if a country specializes in the production of labor-intensive goods, wages may increase, and the return on capital may decrease.

Thus, according to the Heckscher-Ohlin theory, labor–intensive countries will export labor-intensive goods and services, while capital-intensive countries will export goods and services with greater involvement of capital resources in their production. For example, India, being a labor-intensive country in international trade, is focused on the production and sale of textiles, while Germany, as a capital-intensive country, will export machinery and equipment. As a result of such specialization, the demand for Indian labor and German capital resources will grow, and factor prices will grow accordingly (In India, the level of wages; in Germany, the return on capital).

The main conclusion of the Heckscher-Ohlin theory for international politics is that free international trade will lead to an increase in the well-being of all countries involved in trade relations. The theory also emphasizes the influence of trade on changes in factor prices and the distribution of factor income. In addition, according to the theory, it is possible to determine the factors of economic growth of commodity-producing countries and form a strategy for their economic development. However, there are also a number of limitations in the Heckscher–Ohlin theory. Thus, the theory is based on the assumption of perfect competition and uniformity of goods and services. There are also groups of goods and services that are defined as "non-tradable", but at the same time can significantly affect both factor prices and the distribution of factor income. Nevertheless, despite a number of limitations, the Heckscher–Ohlin theory still acts as one of the classics in describing trade relations between countries, as well as their influence on the pricing of factors of production.

In 1962, an empirical test was conducted that confirmed the basic idea of the Heckscher–Ohlin theory of changes in factor incomes, but later V. Leontiev's research showed the opposite. V. Leontiev was a pioneer in empirical testing of economic models, he used the input-output account to evaluate the factors of labor and capital used by sectors of the economy. He found that American import-substituting industries are 30% more capital intensive than export production. Leontiev suggested that the study should be determined according to a multifactorial model, but not a two-factor one.

Then, using the trade data, he computed the amounts of labor and capital used in the US exports and imports.

Table 4

	Exports	Imports
Capital ($ million)	2.5	3.1
Labor (person-years)	182	170
Capital/Labor ratio ($ per person)	13.700	18.200

Paradox: The capital/labor ratio is greater in imports

Possible Explanations:

US and foreign technologies are not the same, land is ignored (another factor of production) labor should be divided into skilled and unskilled. The US was not engaged in free trade. In general, the reasons are quite valid. A number of papers took into account those reasons. However, in some cases, the paradox continued to occur. Until Leamer (1980) showed that Leontief performed a wrong test: the capital/labor ratios in exports and imports should not be compared.

The Heckscher-Ohlin-Vanek Model (the "factor content" version of the H-O model)

Assumptions:

many countries indexed by i
many industries indexed by j
many factors indexed by k, l
identical technologies FPE under free trade
identical homothetic preferences

Let us denote A = [a_{jk}]` as the input-output matrix. That is, these are amounts of capital, labor, and other factors need for one unit of product in each industry (industry j, factor k). No differences across the countries. Let us also denote a vector Y^i as output in each industry in country i. In the same way, D^i is demand for each good in country i.

The Factor Content of Trade:

$$T^i = Y^i - D^i$$

$$F^i \equiv AT^i$$

Let $F^i{}_k$ is an individual component of the vector F^i. If $F^i_k > 0$ (< 0), then country i exports (imports) factor k. The goal of the model is to relate F^i to factor endowments.

V^i is the vector of endowments in country i:

$$AY^i = V^i$$

Identical, homothetic preferences:

$$D^i = s^i D^w ==> AD^i = s^i AD^w = s^i AY^w = s^i V^w$$

where s^i is the share of country i in the world consumption.

To summarize,

$$F^i = AT^i - V^i - s^i V^w$$

Note: if trade is balanced (exports=imports), then s^i is the share of country i in the world GDP

$$\frac{p^i Y^i}{p^i Y^w}$$

The main conclusion:

Tests of the HOV model fail under the assumption about identical homothetic preferences and identical technologies.

Trade patterns cannot be explained only by differences in factor endowments!

We need differences in technologies across countries!!

The Recardian Model: Continuum of Goods (Dornbusch, Fischer and Samuelson (1977)

Assumptions: two countries continuum of goods z ϵ [0, 1] one factor (labor) => no FPE across the countries identical homothetic preferences different technologies and factor endowments: a(z) and a*(z) are labor requirements in industry z at home and abroad, respectively L and L* are labor endowments: labor is perfectly mobile between sectors, but immobile across countries.

Let us arrange industries such that the relative unit labor requirement function

$$\mathrm{A}(z) = \frac{a^*(z)}{a(z)}$$

A`(z) < 0. That is, the foreign country is relatively more productive in industries that are "closer" to 1. Let us define w and w* as nominal wages at home and abroad, respectively. The home country will produce all those commodities for which domestic unit labor costs are less than or equal to foreign unit labor costs. In other words, good z is produced at home if:

$$a(z)w \leq a^*(z)w^*$$

Hence, if we denote ω = w/w*, then there exists a cutoff z˜ such that goods with index z<=z˜ are produced at home, while goods with z > z˜ are produced abroad. The cutoff z˜ solves:

$$A(\tilde{z}) = \omega$$

In other words, given wages, the home country has comparative advantage in goods with z ϵ [0, z˜], while the foreign country has comparative advantage in goods with z ϵ (z˜, 1].

Finally, the prices are given by:

$$P(z) = min(wa(z), w^*a^*(z))$$

Thus, the relative price of good z with respect to good z` is as follows:

$$\frac{P(z)}{P(z')} = \begin{cases} a(z)/a(z') & \text{if } z, z' \leq \tilde{z} \\ \omega a(z)/a^*(z') & \text{if } z < \tilde{z} < z' \\ a^*(z)/a^*(z') & \text{if } \tilde{z} < z, z' \end{cases}$$

Demand side:

Identical and homothetic preferences:

$$P(z)C(z) = b(z)Y > 0,$$

where C(z) is demand for good z, Y is total income, and b(z) is the fraction of income spent on good z. This fraction is exogenous. Moreover,

$$\int_0^1 b(z)dz = 1.$$

Therefore, the fraction of total income spent on the goods in which the home country has a comparative advantage:

$$\theta(\tilde{z}) = \int_0^{\tilde{z}} b(z)dz > 0$$

With

$$\theta'(\tilde{z}) = b(\tilde{z}) > 0.$$

Factor market clearing condition: The labor supply at home is given by L. Recall that the demand for good z is given by

$$\frac{b(z)Y^w}{P(z)}.$$

Therefore, if the good is produced at home, then labor, which is necessary to produce that good, is

$$a(z)\frac{b(z)Y^w}{P(z)} = \frac{b(z)Y^w}{w} \quad (\text{as } P(z) = wa(z)).$$

As a result, total labor demand is given by

$$\int_0^{\tilde{z}} \frac{b(z)Y^w}{w} dz = \theta(\tilde{z})\frac{Y^w}{w}.$$

Equilibrium: Labor supply is equal to labor demand:

$$L = \theta(\tilde{z})\frac{Y^w}{w} \iff$$

$$\omega = \frac{\theta(\tilde{z})}{1-\theta(\tilde{z})}\frac{L^*}{L},$$

As

$$\mathbf{Y^w} = \boldsymbol{wL} + \boldsymbol{w^*L^*}$$

Finally

$$\omega = A(z)$$

So we have two equations and two unknowns (ω and z˜). This closes the model.

Gains from trade:

To analyze the gains from trade, we look at the changes in real return to labor (real income).

Specifically, we look at:

$$\frac{w}{P(z)} \text{ for all } z \in [0,1].$$

In autarky:

$$P(z) = wa(z) \implies \frac{w}{P(z)} = \frac{1}{a(z)} \text{ for all } z.$$

In the trade equilibrium:

$$\text{for } z \in [0,\tilde{z}],\ P(z) = wa(z) \implies$$

$$\frac{w}{P(z)} = \frac{1}{a(z)}.$$

No gains and losses!

$$\text{for } z \in [\tilde{z}, 1],\ P(z) = w^* a^*(z) \implies$$

$$\frac{w}{P(z)} = \frac{w}{w^* a^*(z)} = \frac{wa(z)}{w^* a^*(z)} \frac{1}{a(z)} > \frac{1}{a(z)},$$

As:

$$wa(z) > w^* a^*(z).$$

Consumers can buy greater amounts of goods with z ϵ [z˜, 1].

Consider the same model with continuum of goods, but also with non-zero transport costs.

In particular, we consider the "iceberg" transport costs.

That is, to deliver one unit of a good, τ units have to be sent, where τ > 1. In other words, a fraction 1/τ of a shipped good actually arrives. This modifies the equilibrium equations in the following way.

If good z is such that:

$$wa(z)\,\tau < w^* a^*(z)$$

then good z is produced at home and exported to the foreign country. This gives the cutoff z˜:

$$\omega\tau = A(z)$$

The Krugman Model

Krugman developed New Trade Theory (1980) as an alternative to older theories that explain patterns of international trade as based on comparative advantage and natural resource endowments. Krugman's New Economic Geography grew out of New Trade Theory.

Krugman's defense of free trade is not what earned him the Nobel Prize. Rather, the prize was awarded for his work of the late 1970s, explaining patterns of international trade, and for his work in the early 1990s on economic geography.

The main elements:

Economies of scale (increasing return to scale).

The possibility of product differentiation: firms can costlessly differentiate their products (each product is a new one) => monopoly power

Imperfect competition (monopolistic competition): each firm is small enough to affect aggregate variables Free entry =)>

Trade between economies with similar factor endowments, the role of a home market in determining trade patterns.

Assumptions:

A large number of potential goods (in fact, a continuum of potential goods).

The utility function is given by:

$$U = \sum_{i=1}^{n} C_i^{\theta}$$

where $0 < \theta < 1$ and c_i is consumption of good (variety) i. The number of goods actually produced is n.

The only factor of production is labor.

The cost function (labor requirements):

$$l_i = \alpha + \beta x_i$$

where x_i output of good i. That is, there are a fixed costs of production and constant marginal costs. Increasing returns to scale:

$$\frac{l_i}{x_i} = \frac{\alpha}{x_i} + \beta$$

is decreasing in x_i. Therefore, it is profitable for firms to produce a new variety than to compete with other firms (higher share of the market).

We identify consumers with workers:

$$x_i = Lc_i$$

where L is the number of workers in the economy.

Full employment (labor market clearing condition):

$$L = \sum_{i=1}^{n} (\alpha + \beta x_i)$$

Firms maximize their profits.

Free entry: equilibrium profits are always zero.

Equilibrium in Closed Economy

Consumer Behavior:

Consumers maximize:

$$U = \sum_{i=1}^{n} C_i^{\theta}$$

subject to:

$$\sum_{i=1}^{n} p_i c_i = w$$

where w is the wage level.

This implies that individual demand for good i is given by:

$$c_i = \left(\frac{\lambda}{\theta}\right)^{\frac{1}{\theta-1}} p_i^{\frac{1}{\theta-1}}$$

where λ is the Lagrangian multiplier (the marginal utility of income) and given:

$$\lambda = \theta\left(\frac{\sum_i p_i \frac{\theta}{\theta-1}}{w}\right)^{1-\theta}$$

Firms profits are given by:

$$\pi_i = \left(p_i - w\beta\right)x_i - w\alpha$$

Recall that:

$$x_i = Lc_i = L\left(\frac{\lambda}{\theta}\right)^{\frac{1}{\theta-1}} p_i^{\frac{1}{\theta-1}}$$

Therefore, firms maximize (each firm ignores the effect of its actions on other firms, λ is taken as g):

$$\pi_i = \left(p_i - w\beta\right)L\left(\frac{\lambda}{\theta}\right)^{\frac{1}{\theta-1}} p_i^{\frac{1}{\theta-1}} - w\alpha$$

with respect to price.

Firms:

The optimal price level is given by:

$$p_i = p = \frac{\beta w}{\theta}$$

Prices are the same for all goods (symmetry). The price does not depend on output (the property of the utility function).

Given the price:

$$\pi_i = \frac{1-\theta}{\theta} w\beta x_i - w\alpha$$

Free entry condition:

Because of free entry, firms profits are equal to zero in the equilibrium. Therefore:

$$\pi_i = 0 \Leftrightarrow$$

$$x_i = \frac{\alpha\theta}{\beta(1-\theta)}$$

Production of each firm is constant and does not depend on the characteristics of the economy: the size, the number of firms, etc.

The number of firms:

Labor market clearing condition implies that

$$L = nl_i = n(\alpha + \beta x_i) = n\frac{\alpha}{1-\theta}$$

Therefore,

$$n = \frac{(1-\theta)L}{\alpha}.$$

The model is closed! We know n, p, x.

Suppose now there are two countries. Countries have same technologies and preferences One factor of production =) no differences in relative factor endowments No conventional reasons for trade: the Ricardian and H-O models predict no trade!

Trade occurs because, in the presence of increasing returns, each good will be produced in only one country and only by one firm!

The trade equilibrium:

The symmetry and the absence of transport costs imply that the countries have the same wages (FPE – the factor price equalization). Demand for a certain variety does not change:

$$p = \frac{\beta w}{\theta}$$

Therefore, the output of each firm does not change compare to the autarky equilibrium. The only thing that changes is the number of varieties:

$$U = \sum_i c_j^{\theta} + \sum_j \left(c_j^*\right)^{\theta}$$

Individuals distribute their expenditure over both the n goods produced at home and the n* goods produced in the foreign country.

The trade equilibrium: n and n* can be found from the labor markets clearing conditions:

$$n = \frac{(1-\theta)L}{\alpha}$$

$$n^* = \frac{(1-\theta)L^*}{\alpha}$$

Gains from trade: w/p does not change. The variety effect only works. Consumers gains because of higher number of available varieties:

$$U = \left(n + n^*\right)^{1-\theta} \left(\frac{w}{p}\right)^{\theta}$$

Gains from trade come solely through increased product diversity.

Trade volumes:

Consider the value of exports from the home country to the foreign:

$$Exports = npc^*L^*$$

where c* is the demand for a certain variety of an individual in the foreign country. It can be shown (see the class presentation) that:

$$c^* = \frac{w^*}{(n+n^*)p}$$

Therefore:

$$EX - \frac{w^* nL}{n+n^*}$$

Trade balanced condition:

The trade balanced condition states that imports should be equal to exports. In our case, it holds. It confirms our assumption about same wage rate in the countries. In general, we want to have:

$$\frac{w^* nL^*}{n+n^*} = \frac{w^* nL^*}{n+n^*} \Leftrightarrow w = w^*$$

Transport costs:

Now suppose there are trade costs represented by the "iceberg" transport cost, τ. An individual has a choice over n domestic products and n* products produced abroad. Because of trade costs, foreign products will cost more than the producer price. That is, if p* is the producer price of a foreign variety, than the price of this product in the home country is τp*. In other words, domestic consumers pay τp*, while foreign consumers pay only p*.

Equilibrium:

Because of trade costs, wage rates are different in the countries. But! Demand for a certain variety still has the same elasticity:

$$p = w\beta / \theta$$

$$p^* = w^* \beta / \theta$$

In the same manner:

$$x = x^* = \frac{\alpha\theta}{\beta(1-\theta)}$$

Finally,

$$n = \frac{(1-\theta)L}{\alpha}$$

$$n^* = \frac{(1-\theta)L^*}{\alpha}$$

Hence, we need to find only wages or, in fact, the relative wage given by

$$\omega = \frac{w}{w^*}$$

We will use the trade balanced condition: the total value of exports should be equal to the total value of imports.

Exports of the home country are given by:

$$EX = np\tau c^* L^*$$

where c* is the foreign demand for domestic variety. It can be shown that

$$c^* = \frac{w^*}{p\tau} \frac{1}{n^* \left(\frac{p^*}{p\tau} \right)^{\frac{\theta}{\theta-1}} + n}$$

Equilibrium:

Therefore, total exports are given by:

$$EX = \frac{w^* n L^*}{n^* \left(\frac{p^*}{p\tau} \right)^{\frac{\theta}{\theta-1}} + n}$$

By analogy, total imports (total exports of the foreign country) are given by:

$$IM = \frac{w n^* L}{n \left(\frac{p}{p^*\tau} \right)^{\frac{\theta}{\theta-1}} + n^*}$$

Equilibrium:

In equilibrium:

$$EX = IM \Leftrightarrow \frac{w}{w^*} = \frac{L^* + \left(\frac{w}{w^*}\right)^{\frac{\theta}{\theta-1}} L\tau^{\frac{\theta}{1-\theta}}}{L^* + \left(\frac{w}{w^*}\right)^{\frac{\theta}{1-\theta}} L^*\tau^{\frac{\theta}{1-\theta}}}$$

From this equation, we can find w/w*.

Analysis of the equilibrium:

First, if $\tau = 1$, then $w/w^* = 1$.

Second, assume that $L^* > L$, then $w/w^* < 1$, that is, the larger country has the higher wage.

Intuition: if production costs were the same in both countries (this is the case when wages are the same), it would be always profitable to produce near the larger market (to save on transport cost). Therefore, to keep labor employed in both countries, this advantage must be offset by a wage differential.

Main idea: countries will tend to export those kinds of products for which they have relatively large domestic demand. Two industries with many differentiated products within each of them.

We want to show:

Countries will be a net exporter in the industry for whose products it has the relatively larger demand.

Two classes of products: alpha and beta.

Consumption in one class is c_i and in the other class is $\tilde{c}_i$.

Two population groups: one group of size L likes only alpha products, while the other group of size $\tilde{L}$ likes only beta products.

That is,

$$U = \sum_i c_i^\theta \quad \text{and} \quad \tilde{U} = \sum_i \tilde{c}_i^\theta$$

The technology of production is the same for both industries:

$$l_i = \alpha + \beta x_i$$

$$\tilde{l}_j = \alpha + \beta \tilde{x}_j$$

There are two countries and transport cost of the "iceberg form".

We assume that:

$$L + \tilde{L} = L^* + \tilde{L}^* = \bar{L},$$

meaning that w = w*. However,

$$L = f\bar{L}$$

$$L^* = (1-f)\bar{L}$$

where f ϵ (0, 1). That is, in terms of demand, the foreign country is a mirror image of the home country. If f > 0.5, then the home country has the large domestic market for the alpha products and vice versa.

Theorem

The home country will be a net exporter of the first industry's products (alpha products) if f > 0.5.

The Krugman model:

A rise in the home demand for alpha products (a rise in L): more home firms enter the industry. These firms sell in both home and foreign markets (exports). As a result, production in the alpha industry increases by more than unity!

The Gravity Model

The gravity model is a fundamental economic concept for assessing international trade, which provides information about the dynamics of bilateral trade relations and their effectiveness. The idea that underlies this theory is Newton's law of universal gravitation. The model assumes that trade relations between countries are influenced by factors such as the size of their economies, population and distance between them. Thus, countries with larger economies will trade more, especially with large countries like them. The model emphasizes the importance of the size of economies for shaping the structure of international trade. In addition, geographically closer countries will strive to increase trade volumes among themselves, as territorial proximity reduces transaction and logistical costs for them. Countries with common linguistic or cultural characteristics will also have more opportunities for trade relations. Mutual understanding of languages and cultures can help overcome communication obstacles and strengthen business ties.

Mutual trade agreements, for example: the reduction of trade barriers between the countries will significantly expand trade turnover. The basic formula of the gravitational trading model is quite simple:

Tij = (GDPi * GDPj) / Dij, where Tij represents the trade flow between countries i and j; GDPi refers to the GDP of country i; GDPj refers to the GDP of country j; Dij represents the distance between countries i and j.

Taking into account the size of the economy and the territorial proximity of the countries, the gravity model makes it possible to predict bilateral trade

flows. The presence of discrepancies in actual trade flows between countries and the results of forecasts according to the model is the result of the presence of trade and geopolitical barriers between these countries.

Nevertheless, the gravity model is a variant of a simplified assessment of the dynamics of trade relations, does not take into account complex geopolitical aspects, product diversification features, and technological changes. The accuracy of the model is mainly determined by the accuracy of the statistical data taken for calculations. The model also does not take into account the specifics of internal public administration, the specifics of the economic infrastructure.

The gravity model serves as a tool for understanding and forecasting the structure of international trade. Thus, in the figure, it can be noted that the dots tightly grouped around the 45 degree trend symbolize countries with close trade interconnections in the context of international trade between the United States and European countries. Thus, Germany, which has the largest economy among European countries, accounting for 21% of EU GDP, accounts for a larger percentage of trade with the United States (19.9%). On the contrary, Sweden, a smaller economy (2.7% of EU GDP), is also less involved in trade with the United States (3% of US–Europe trade relations). In this case, when choosing an equidistant territory of a trading partner, the difference in economic volumes is a correlating factor with the share of international trade, in accordance with the gravitational model.

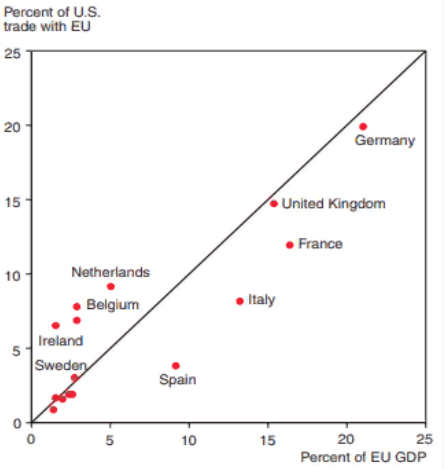


Fig. 11. The Gravity Model: US – EU Trade

IV. A Standard Model of a Trading Economy

The ideal scenario of free trade assumes that goods freely cross borders between countries without encountering any restrictions and barriers, such as tariffs or quotas. The barrier-free environment of international trade significantly enhances trade turnover and in this sense leads to an increase in the efficiency of economic exchange, as well as stimulates economic growth within countries. The main criterion of this model is the equilibrium condition, which is aimed at establishing a balance of prices and quantities of goods and factors of production both within countries and on the international market. The limitations of this model are the following provisions: countries participating in international exchange produce and consume the same set of goods; the production function of countries is characterized by a constant return on scale, which means that when all costs are doubled, output doubles. It is also assumed that all factors of production in the countries are used in full. Factors of production can move freely between industries within a country, but there are restrictions on the movement of factors between countries. The analysis of international trade emphasizes the importance of assessing comparative advantages for the formation of trade specialization, arguing that international trade based on specialization leads to an increase in the efficiency of the redistribution of resources in the world market and leads to the availability of price information on factors of production, to transparency in pricing for goods and services. Considering the economic growth opportunities of the two countries participating in international trade, the traditional model based on the specialization of countries emphasizes the advantages of specialization and the expansion of consumer opportunities, which are enhanced as a result of exchange. Despite its simplicity and a number of prerequisites, the standard model of trade relations provides a basis for understanding the essence of international trade, which forms the possibility of analyzing the key factors determining country specialization. Although the model in question is based on simplifications and assumptions, it nevertheless lays the foundation for the study of more complex and more realistic trading models.

Production Possibilities and Relative Supply

The dynamics of international trade is determined mainly by the possibilities of production and, as a result, the relative supply of goods. The idea of relative variables allows us to understand how countries determine specialization opportunities and shape the export supply. A key

analytical tool for understanding these concepts is the Production Possibility Frontier (Curve) (PPF (PPC)). The production possibility curve demonstrates the possible combinations of production of two goods that a country can produce using its resources and technologies, provided that resources are fully employed. Using a visual representation, PPF reflects combinations of goods. The border of a country's production possibility curve (PPC) is determined by its technological capabilities and the amount of resources (factors). The outward curve indicates an increase in opportunity costs, which requires a country to give up more of one product to produce additional units of another. According to the idea of comparative advantages, a country specializes in the production of a certain product, for the production of which it requires a lower amount of opportunities costs compared to another country. Relative supply characterizes the level of the ratio of production volumes of two goods that a country tends to produce at different price levels. This situation is graphically illustrated by the point of tangency of the isovalue curve (TT) reflecting the volume of production and the curve of production possibilities, the point of tangency shows the optimal volume of production and the point of production equilibrium. Thus, if the price of product X increases, the country will increase the production of product X while reducing the output of product Y, which will lead to a shift in the relative supply curve. The global relative supply curve is the combined supply curves of two specific products in the traded countries. It shows the total quantity of each product that the global market is ready to supply at different relative prices. The shape of this curve is influenced by the production capacity and resource availability of each country. This significantly affects the equilibrium relative price, which serves as a price ratio that equalizes global supply and demand for these two goods. The impact of trade can be seen in the commodity specialization of countries. In identifying their comparative advantages, countries tend to focus on the production of goods, the production of which is less expensive for them. Such specialization leads to potential benefits from trade, since the equilibrium relative price determined by global supply and demand opens up opportunities for countries to increase their consumption by participating in trade with other countries. Changes in production possibilities, such as technological progress or quantitative and qualitative changes in the volume of resources (factors of production), as well as changes in relative prices can have a significant impact on the global supply curve. These changes can lead to shifts in specialization in trade and to changes in the volume and structure of trade relations. Understanding production possibilities and relative supply is essential

for understanding the specifics of international trade. These concepts provide a systematic framework for analyzing how countries use their resources and technologies to specialize in production, how their combined production possibilities affect the dynamics of global trade, and how changes in these factors can affect trade outcomes.

The study of these concepts allows us to better understand the structure of world trade, the specifics of specialization and the specifics of the impact of trade on the economic development of countries.

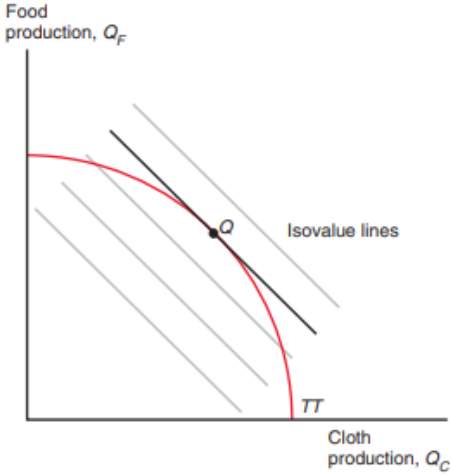


Fig. 12. The TT Curve

An economy whose production possibility frontier is TT will produce at Q, which is on the highest possible isovalue line.

Relative Prices and Demand

Relative prices and demand are key factors in shaping consumption patterns and trade flows between countries. To analyze the dynamics of international trade, it is important to understand how they interact. The relative price shows the value of one product relative to another. So, for example, the relative price of apples compared to oranges is the number of oranges that you have to give up in order to buy one apple. Relative prices are influenced by several factors, including supply and demand for goods, and changes in supply or demand for goods affect their relative prices. The relative demand for the quantity of one product, the demand for which is associated with another product at different relative prices. The peculiarities of the interaction of relative prices and demand are determined on the one

hand by the substitution effect: when the relative price of one product increases, consumers usually replace it with a cheaper product. Changes in relative prices can also affect the purchasing power of consumers, which leads to a change in demand for goods. If the prices of goods rise significantly, then purchasing power decreases, potentially reducing demand for all goods. The theory of comparative advantage is crucial in determining the dynamics of trade, as it is determined by relative prices. A country has a comparative advantage in the production of goods if its relative prices are lower than those of another country. At the same time, countries often specialize in the production and export of goods in which they have a comparative advantage. Specialization leads to increased trade benefits, allowing countries to access a wider range of goods at lower prices. Relative prices also affect the terms of trade, which relate to the ratio of export and import prices. A country's terms of trade improve when it can export goods at higher relative prices.

International Implications:

The variability (volatility) of the exchange rate also affects the peculiarities of national pricing of countries. If the value of a country's national currency decreases, this leads to a decrease in the value of export goods, which means that it potentially increases the demand for goods of this country. However, the presence of tariff restrictions can change pricing and affect the specifics of international trade: by raising domestic prices, tariffs will reduce demand for imported goods and stimulate local production. The relationship between relative prices and demand is the most important factor that shapes consumption patterns and influences global trade trends. Understanding trade dynamics is important for analyzing cross-country patterns of interaction between countries in the context of international trade.

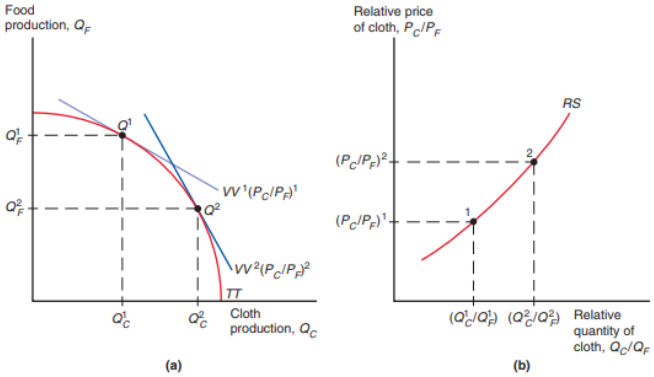


Fig. 13. The TT and the RS Curves

Panel (a):

The isovalue lines become steeper when the relative price of cloth rises from $(P_C / P_F)^1$ to $(P_C/P_F)^2$ (shown by the rotation from VV^1 to VV^2). As a result, the economy produces more cloth and less food and the equilibrium output shifts from Q^1 to Q^2.

Panel (b) shows the relative supply curve associated with the production possibilities frontier TT. The rise from $(P_C/P_F)^1$ to $(P_C/P_F)^2$ leads to an increase in the relative production of cloth from Q_C^1 / Q_F^1 to Q_C^2 / Q_F^2.

Production, Consumption, and Trade in the Standard Model

The traditional model of international trade reflects the complex relationship between production, consumption and trade itself. It shows how countries, guided by the principle of comparative advantage, specialize in the production of certain goods, which ultimately leads to a more efficient allocation of resources and an increase in the overall well-being of all participants. In manufacturing, countries specialize in those products where they have comparative advantages over other countries. This strategy allows them to optimize production efficiency and increase the output of a certain group of goods using their available resources (factors of production). The Production Capability curve (PPF) demonstrates the combinations of production of two goods that a country can produce, taking into account its available resources and technological capabilities. The curve of production capabilities is convex, which reflects the law of increasing opportunity costs. Specialization occurs when countries concentrate on the production of goods for which they have a comparative advantage, which leads to an increase in total production and an increase in global market efficiency. International trade plays a crucial role in providing countries with access to goods that go beyond their domestic production capabilities. By participating in trade, countries can acquire goods in the production of which they may not have succeeded, thereby expanding their opportunities for consumption. The term "terms of trade" refers to the ratio of export and import prices that affect a country's ability to consume a wider range of goods. Favorable trade conditions are characterized by high relative export prices and thus allow the country to expand its consumer opportunities. Trade provides countries with access to a wider range of goods at lower prices, which leads to an increase in consumer welfare in the societies of the trading countries. The equilibrium relative prices of goods, determined by global supply and demand, play a key role in determining the terms

of trade and consumption. The comparative advantages of a country and the structure of its trade depend on the available factors of production, mainly on labor and capital. Let's consider two hypothetical countries: country A is rich in labor resources, and country B is rich in capital resources. Country A is likely to excel in the production of labor-intensive goods such as textiles, while country B may have a comparative advantage in the production of capital-intensive goods such as machinery and equipment. By participating in trade, country A can focus on the production of textiles and export these goods to country B, while country B can specialize in the production of machinery and equipment and export these goods to country A.

Both countries benefit from a wider range of products at discounted prices, surpassing the option they had before international trade opportunities. The standard Model of international trade shows how specialization based on comparative advantages, made possible by international trade, leads to more efficient use of resources and increased consumer opportunities. This mechanism contributes to the well-being of each country involved, emphasizing the crucial role of trade in promoting global economic growth.

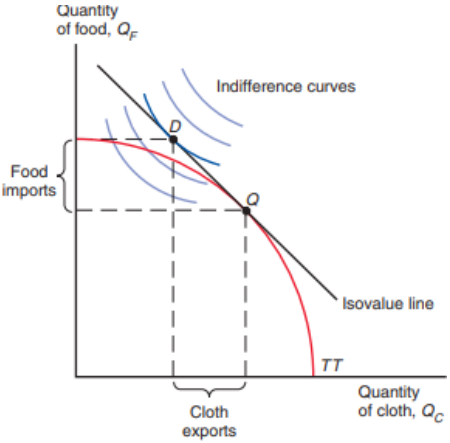


Fig. 14. Export – Import Options

As you can see in Figure, the economy will choose to consume at the point on the isovalue line that yields the highest possible welfare. This point is where the isovalue line is tangent to the highest reachable indif-

ference curve, shown here as point D. Notice that at this point, the economy exports cloth (the quantity of cloth produced exceeds the quantity of cloth consumed) and imports food.

Now consider what happens when VV increases.

Panel (a) in Figure shows the effects.

First, the economy produces more C and less F, shifting production from Q_1 to Q_2. This shifts, from to the isovalue line on which consumption must lie. The economy's consumption choice therefore also shifts, from D_1 to D_2. The move from VV^1 to VV^2 reflects two effects of the rise:

First, the economy has moved to a higher indifference curve, meaning that it is better off. The reason is that this economy is an exporter of cloth. When the relative price of cloth rises, the economy can trade a given amount of cloth for a larger amount of food imports. Thus the higher relative price of its export good represents an advantage.

Second, the change in relative prices leads to a shift along the indifference curve, toward food and away from cloth (since cloth is now relatively more expensive).

These two effects are familiar from basic economic theory.

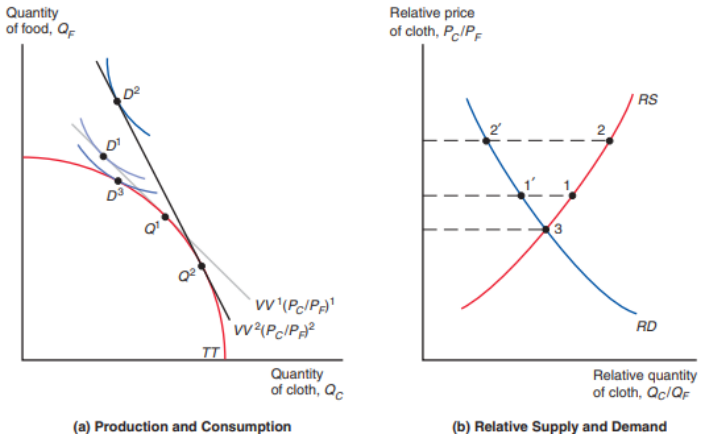


Fig. 15. Production and Consumption
(a) – Relative Supply and Demand (b)

The Welfare Effect of Changes in the Terms of Trade

Changes in the terms of trade, that is, in relation to the prices of exports and imports of countries, have a significant impact on national welfare. Positive changes in the terms of trade can bring benefits, but potential negative aspects should also be considered. Improving the terms of trade leads to an increase in the purchasing power of a country, allowing its citizens to buy more imported goods without increasing exports. This, in turn, expands consumption opportunities and leads to economic growth. Conversely, the deterioration of the terms of trade reduces purchasing power, which requires an increase in exports in order to afford the same amount of imported goods. Such unfavorable conditions can limit consumption opportunities and hinder economic growth, reducing the export earnings of national producers. A reduction in exports can have an impact on the level of domestic production, creating additional barriers to both investment and economic growth. The terms of foreign trade are influenced by many factors. The dynamics of global supply and demand plays a crucial role in shaping the conditions of trade relations. A sharp increase in demand for the country's exports on the world market may lead to the creation of more favorable conditions for foreign trade. Fluctuations in exchange rates can also affect the terms of foreign trade. When a country's currency becomes cheaper, the volume of exports of a given country becomes more competitive on the world market, which potentially improves its foreign trade conditions. Trade policy restrictions, including customs duties, subsidies and other similar trade barriers, can significantly affect the terms of international trade. So, if a country is an oil exporter and imports manufactured goods, and world oil prices are rising, this leads to a favorable change in the terms of trade. Price growth allows the country to purchase more manufactured goods with the same volume of oil exports, which can potentially lead to an increase in the welfare of the population. Conversely, a decline in global oil prices can negatively affect the terms of trade, reduce purchasing power and potentially cause a decline in welfare. A favorable change in the terms of trade can bring short-term benefits, but it is also important to assess the long-term consequences for a country's competitiveness and economic development. Changes in the terms of trade may affect different sectors and population groups in a country in different ways. For example, rising export prices can stimulate producers in the export sector, while putting import-dependent consumers at a disadvantage. The terms of trade and the specifics of their changes play an important role in shaping the prerequisites for the economic development of the country.

Determining Relative Prices

Relative prices play an important role in understanding the structure of trade and its economic results, and determine the degree of possible relationship between supply and demand in both the domestic and global markets. The establishment of relative prices involves the analysis of various components, such as a factor analysis of supply in accordance with the production capability curve (PPF). PPF reflects the possibilities of production combinations of goods, taking into account the available amount of resources. Relative supply shows the amount of goods that a country is willing to produce at different relative prices. The theory of the production opportunity curve (PPF) reflects the opportunity costs of producing combinations of goods. The relative supply curve combines the relative supply curves of two specific goods in all countries, which gives an understanding of global production opportunities in relation to a group of goods at different relative prices. Consumer demand is closely related to their preferences, reflected by utility functions that measure satisfaction received from various products. Demand curves graphically represent the relationship between the price of a product and the quantity that consumers are willing to buy, and usually have a downward slope in accordance with the law of demand. In addition, the concept of relative demand explores how the quantity of two goods demanded by consumers changes in response to fluctuations in their relative prices. Equilibrium is achieved when the equilibrium relative price is determined by crossing the curves of world relative supply and world relative demand. This price ratio indicates the point at which the global quantity of goods supplied is equal to the quantity in demand. In a state of market equilibrium, all producers and consumers are satisfied, there is no excess or shortage in supply or demand. Relative prices can be influenced by various factors, including changes in production capacity, technology development and the discovery of new resources. Various factors can influence relative prices. Changes in consumer preferences, income levels, or pricing of substitutes and supplements may lead to changes in demand, which will therefore affect relative prices. In addition, trade policies such as tariffs and subsidies can lead to differences between domestic and international prices, which will further affect relative prices. In addition, fluctuations in exchange rates can also play a role in determining the relative prices of goods traded on the world mar-

ket. The dynamic interaction between supply and demand, consumer behavior, trade policy, and exchange rate changes all affect relative prices. The analysis of the factors influencing relative prices is crucial for understanding the structure of trade, as well as forecasting the results of trade policy and assessing the impact of changes in international markets on social security.

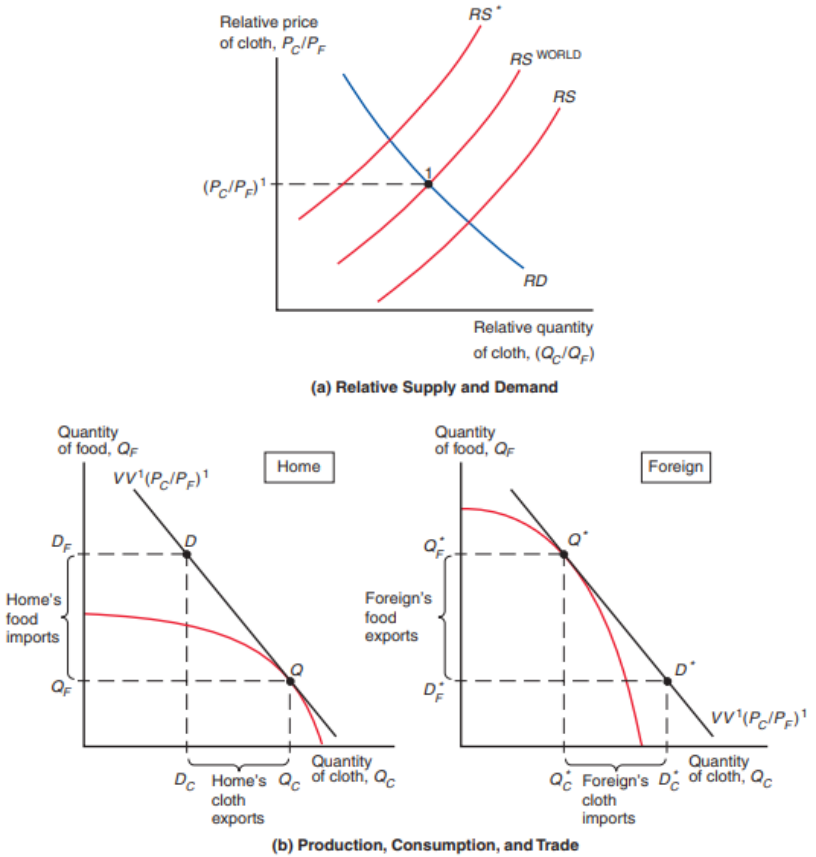


Fig. 16. Equilibrium Relative Price with Trade and Associated Trade Flows

* *Panel (a) shows the relative supply of cloth in Home (RS), in Foreign (RS*), and for the world. Home and Foreign have the same relative*

demand, which is also the relative demand for the world. The equilibrium relative price ($P_C/P_F)^1$ *is determined by the intersection of the world relative supply and demand curves. Panel (b) shows the associated equilibrium trade flows between Home and Foreign. At the equilibrium relative price (*$P_C/P_F)^1$*, Home's exports of cloth equals Foreign's imports of cloth; and Home's imports of food equals Foreign's exports of food.*

Economic Growth: A Shift of the RS Curve

The ongoing discussions on the impact of economic growth on global trade focus on two key points. First, is it the impact of other countries' economic growth on the national economy? Secondly, is there a correlation between the economic growth of the national economy and the degree of its involvement in world trade? When considering the impact of economic growth in other countries, arguments can be made in support of both points of view. On the one hand, the economic progress of other countries can be beneficial to the national economy by creating larger markets for national exports and providing access to cheaper imports. Conversely, it may also lead to increased competition for our exporters and domestic producers.

When analyzing the consequences of internal growth, different points of view are revealed. One of the scientific schools advocates the expansion of production capacities, emphasizing the potential benefits that all participants in trade relations can receive. Conversely, there is concern that the benefits of economic growth may be mainly aimed at satisfying the interests of foreign consumers, as domestic export prices may decrease. It is possible to use a standard trading model to resolve correlational relationships between countries.

Growth and the Production Possibility Frontier

The impact of economic growth in a global trading economy is a pressing topic that continues to spark debate and concern. At the core of this discussion are two crucial questions. Firstly, how does economic growth in other countries affect our nation? Secondly, is economic growth more beneficial when a country is closely integrated into the global economy?

When considering the implications of growth in other countries, arguments can be made in support of both viewpoints. On one hand, the economic expansion in other nations can be advantageous for our economy as it provides new markets for our exports and access to more affordable imports. Conversely, it may also lead to increased competition for our exporters and domestic manufacturers.

When assessing the implications of domestic growth, various viewpoints come to light. On one side, the expansion of production capacity

can prove advantageous if a nation effectively markets its surplus goods on the global stage. Conversely, there exists a concern that the benefits of growth might be passed on to overseas consumers via lower export prices. To navigate these intricate dynamics and comprehend the impact of economic growth within the realm of global trade, the standard trade model offers a valuable framework.

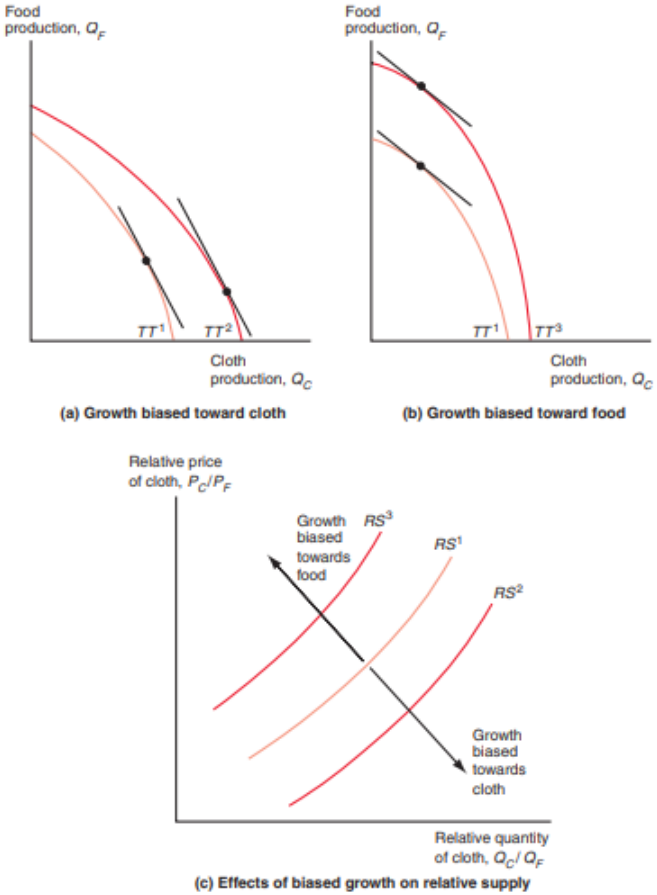


Fig. 17. Biased Growth

* *Growth is biased when it shifts production possibilities out more toward one good than toward another. In case (a), growth is biased toward cloth (shift from* TT^1 to TT^2*), while in case (b), growth is biased*

toward food (shift from TT^1 to TT^3*). The associated shifts in the relative supply curve are shown in panel (c): shift to the right (from* RS^1 to RS^2*) when growth is biased toward cloth, and shift to the left (from* RS^1 to RS^3*) when growth is biased toward food.*

World Relative Supply and the Terms of Trade

The concepts of the global relative supply curve (WRS) and terms of trade are closely related and have a significant impact on determining the prices of goods and on how benefits are distributed in international trade. The WRS curve illustrates the supply of two goods in the global economy at different price levels, reflecting the supply curves of all participating countries. The shape of the WRS curve reflects the production capabilities and available resources of each country, while countries with comparative advantages in the production of a particular product contribute more to its global supply at different price levels. The equilibrium relative price is determined by the intersection of the world relative supply curve (WRS) and the world relative demand curve (WRD), which balances the dynamics of global supply and demand. The Terms of Trade (TOT) show the correlation between a country's export and import prices, demonstrating the purchasing power of a country in obtaining imports at the expense of exports. Favorable terms of trade mean that a country can purchase more imports with a certain volume of exports, which therefore increases its purchasing power and overall well-being. Unfavorable terms of trade may lead to the fact that a country will need to export more goods to maintain the same level of imports, which will reduce its purchasing power and potentially harm the overall well-being. The relationship between the global relative supply curve and the terms of trade is important because shifts in the WRS curve can affect the equilibrium relative price and, in turn, the terms of trade in a country. For example, if a country has a technological breakthrough that increases its productivity in the production of a certain product, the supply of that product will increase.

Adjusting the WRS curve can affect the relative price of a particular product, potentially improving the terms of trade in the country and allowing an increase in imports with the same volume of exports. On the other hand, a decrease in the availability of resources for a country may lead to a reduction in the relative supply of goods that depend on these resources. This scenario may lead to an increase in prices for the relevant goods and a deterioration in the terms of trade for the country.

The WRS curve demonstrates the comparative advantages of different countries on a global scale. Countries with comparative advantages over a particular commodity are likely to benefit from favorable terms of trade for that commodity.

Changes in the terms of trade have a significant impact on well-being. A positive shift can increase a country's purchasing power and overall well-being, while a negative shift can limit consumption choices and reduce well-being. Trade policies such as tariffs and subsidies can affect the global relative supply curve and terms of trade. For example, the introduction of import tariffs could lead to an increase in the relative prices of imported goods, which would potentially worsen the terms of trade for the country.

The global relative supply curve and the terms of trade are closely related factors that significantly affect the relative prices and distribution of benefits derived from international trade. Understanding the dynamic interaction between these concepts is important for analyzing the complexities of global trade and assessing the impact of trade policy on a country's well-being.

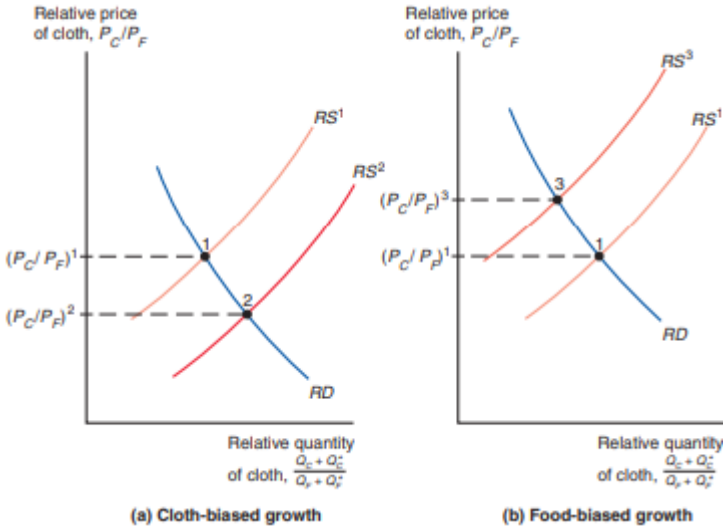


Fig. 18. Growth and World Relative Supply

** Growth biased toward cloth shifts the RS curve for the world to the right (a), while growth biased toward food shifts it to the left (b).*

Our analysis leads to the following general principle:

Export-biased growth tends to worsen a growing country's terms of trade, to the benefit of the rest of the world; import-biased growth tends to improve a growing country's terms of trade at the rest of the world's expense.

International Effects of Growth

The economic growth observed in the country reflects the expansion of trade and investment opportunities, including for other countries, the greater the demand for final goods and services. All this leads to the mutual benefit of the countries, to the development of economic partnership between the countries. Economic growth is often accompanied by innovative and technological development, strengthening of these processes within the country, however, such trends can also cause negative consequences for the country. Thus, advanced technologies developed in one country can be adopted and used by other countries, thereby stimulating overall technological progress. Economic growth can effectively reduce poverty and inequality within a country, triggering a chain reaction that can have a positive impact on the global community. The impact of economic growth on the environment can be different, both positive and negative, with significant international consequences. The increasing economic activity of countries leads to increased environmental pollution and depletion of natural resources, which creates problems for the global environment and underlines the need for international cooperation in solving environmental problems. The pursuit of economic growth stimulates global competition, encouraging countries to increase their investment attractiveness. On the one hand, increasing competition contributes to increased productivity, on the other hand, this process is moving to a level of continuous growth, which requires a constant increase in the economic and financial efforts of countries. The international consequences of economic growth affect the structure and characteristics of trade, investment, and technological innovation. It is extremely important for the countries to form mutually beneficial and long-term economic cooperation.

Summary

The traditional model of international trade is based on the theory of relative supply and demand, which are used to determine the equilibrium relative prices of exports relative to imports, which represents the conditions of international trade. The trade equilibrium in which global supply crosses global demand determines the possibilities of trade exchange between countries. If the terms of trade improve, which is reflected by an increase in the relative prices of export-import operations, this leads to economic activation within the country. An increase in export prices allows a country to purchase more imported goods while maintaining the same volume of exports, thereby increasing the purchasing power and expanding the consumer opportunities of its citizens. On the other hand, the deterioration of the terms of trade, that is, a decrease in the relative price of export-import transactions, can negatively affect the economic condition of countries, which leads to a decrease in the purchasing power of the population and requires an increase in exports to maintain the previous level of imports. The terms of trade are important because they determine the economic position of a country in the international market. An improvement in the terms of trade leads to a strengthening of negotiating positions and an increase in economic benefits, while a deterioration indicates a weak economic and trade position and increasing obstacles to the country's economic growth.

V. Trade Tariffs

Trade restrictions have traditionally been largely based on tariffs, which have served as the main regulatory tool. Tariffs are preferred for several key reasons. First, their simplicity and ease of application make tariffs an obvious choice for governments. By imposing taxes on imported goods, tariffs actually increase the cost of these goods for domestic consumers. This simple mechanism is easier to understand and control compared to other trade restriction methods. Secondly, tariffs also become a source of revenue for government budgets, allowing them to finance various programs. This financial aspect makes tariffs an attractive option for governments seeking to increase their revenues.

Protectionism involves the use of tariffs as a primary strategy to protect local industry from foreign competition. Tariffs are introduced in order to reduce the attractiveness of imported goods to consumers, thereby providing competitive advantages to domestic producers. Throughout history, there have also been other forms of trade restrictions, including quotas that limit the amount of a particular commodity allowed to be imported, offering a more specific approach to protecting the local economy.

Non-tariff barriers (NTBs) include a range of measures such as regulations, licenses, acts of standardization and certification of products and are usually indirect in relation to trade restrictions. Although non-tariff restrictions are less visible than tariffs, they can have a similar effect on protecting the national interests of production. Historically, tariff restrictions arose earlier, so, in the 19th century, revenues from tariff regulation were significant for the state treasury, especially for the United States and European countries. After the Second World War, international organizations were formed, including the World Trade Organization (WTO), one of the goals of which was to reduce tariff restrictions in world trade. The WTO's activities for a number of countries have led, on the one hand, to a significant reduction in tariff barriers, but on the other hand, to the emergence of new forms of trade restrictions, usually of an indirect nature. Tariffs have historically remained the leading form of trade restrictions, although their role has changed over time. In the context of dynamic international trade, the importance of measures such as quotas and non-tariff barriers is increasing, and they are becoming more significant than traditional tariff regulation. Understanding the imposed trade restrictions, the historical background of

these measures, allows us to build more competent trade relations between countries, maximizing the interests of the participating countries.

Table 5

Russian Federation

Part A.1 **Tariffs and imports: Summary and duty ranges**

Summary		Total	Ag	Non-Ag	WTO member since		2012
Simple average final bound		7.5	10.7	7.1	Binding coverage:	Total	100
MFN applied						Non-Ag	100
Simple average	2022	6.6	9.7	6.1	Ag: Tariff quotas (in %)		3.2
Trade weighted average	2022	5.3	9.0	4.9	Ag: Special safeguards (in %)		0
Imports in billion US$	2021	280.0	31.3	248.7			

Frequency distribution		Duty-free	0 <= 5	5 <= 10	10 <= 15	15 <= 25	25 <= 50	50 <= 100	> 100	NAV
		Tariff lines and import values (in %)								in %
Agricultural products										
Final bound		3.0	43.6	21.6	24.3	3.9	0.9	2.8	0	22.9
MFN applied	2022	9.4	40.4	20.5	22.5	4.3	1.1	1.8	0	23.5
Imports	2021	20.1	31.7	15.3	24.6	1.1	5.5	1.7	0	41.1
Non-agricultural products										
Final bound		3.4	51.6	30.1	14.0	0.7	0.0	0.0	0.0	7.0
MFN applied	2022	16.9	42.4	29.1	10.7	0.7	0.0	0	0.0	6.5
Imports	2021	30.9	35.9	24.2	8.7	0.2	0.0	0	0.0	6.1

Part A.2 **Tariffs and imports by product groups**

Product groups	Final bound duties				MFN applied duties			Imports	
	AVG	Duty-free	Max	Binding	AVG	Duty-free	Max	Share	Duty-free
		in %		in %		in %		in %	in %
Animal products	23.2	7.4	80	100	18.5	17.2	80	0.7	9.8
Dairy products	15.1	0	*38*	100	14.9	0	*38*	0.9	0
Fruit, vegetables, plants	8.4	0.2	15	100	8.0	4.8	15	3.2	6.6
Coffee, tea	6.3	4.2	13	100	5.4	29.2	13	1.1	48.9
Cereals & preparations	10.1	1.3	*69*	100	9.5	3.5	*68*	1.1	9.5
Oilseeds, fats & oils	7.1	8.2	25	100	6.6	15.9	*17*	1.7	73.1
Sugars and confectionery	11.5	0	*43*	100	10.9	0	*40*	0.1	0
Beverages & tobacco	17.6	0	*100*	100	16.8	4.0	*100*	1.6	3.9
Cotton	0.0	100.0	0	100	0.0	100.0	0	0.0	100.0
Other agricultural products	5.3	0	10	100	4.8	8.1	10	0.8	5.2
Fish & fish products	7.7	0	*113*	100	7.0	1.6	*113*	0.9	3.8
Minerals & metals	8.0	0.1	20	100	7.3	8.5	20	10.2	16.8
Petroleum	5.0	0	5	100	4.4	12.7	5	0.5	0.2
Chemicals	5.2	0.4	10	100	4.5	10.7	10	16.4	16.7
Wood, paper, etc.	8.0	5.0	*15*	100	8.1	5.2	*15*	2.6	6.2
Textiles	7.8	0	18	100	7.5	1.0	18	2.5	0.8
Clothing	8.5	0	*19*	100	7.4	0	*19*	2.8	0
Leather, footwear, etc.	6.1	0	15	100	5.7	9.4	15	3.2	5.2
Non-electrical machinery	5.8	8.0	15	100	2.7	65.7	15	19.4	63.9
Electrical machinery	6.1	23.8	*16*	100	4.4	44.5	18	13.2	60.1
Transport equipment	8.9	2.5	20	100	9.1	8.4	20	11.7	0.9
Manufactures, n.e.s.	8.4	8.0	20	100	7.2	22.2	20	5.3	40.8

Part B **Exports to major trading partners and duties faced**

Major markets	Bilateral imports		Diversification		MFN AVG of		Pref.	Duty-free imports	
		in million	95% trade in no. of		traded TL		margin	TL	Value
		US$	HS 2-digit	HS 6-digit	Simple	Weighted	Weighted	in %	in %
Agricultural products									
1. Türkiye	2021	3,894	8	15	30.7	34.0	0.0	13.9	11.4
2. Kazakhstan	2021	2,630	22	157	10.6	15.0	15.0	100.0	100.0
3. European Union	2021	2,501	25	71	14.7	4.1	0.0	14.9	66.2
4. China	2021	2,258	12	32	12.7	9.9	0.0	2.6	1.2
5. Uzbekistan	2021	804	18	58	11.9	14.8	14.8	100.0	100.0
Non-agricultural products									
1. European Union	2021	133,226	33	185	4.4	0.6	0.0	22.8	89.1
2. China	2021	77,201	15	56	5.6	1.2	0.0	14.3	72.2
3. United States of America	2021	29,200	18	61	3.6	0.2	0.0	46.4	95.5
4. United Kingdom	2021	24,421	3	10	2.7	0.1	0.0	48.5	98.7
5. Korea, Republic of	2021	17,105	10	31	6.0	2.5	0.0	22.6	46.5

* WTO. World Tariffs Profile, 2023. – URL: https://unctad.org/system/files/official-document/wto2023_en.pdf

Tariffs can be ad valorem, specific, or compound.

The ad valorem tariff is defined as a percentage of the value of the goods, whereas the specialized tariff sets a fixed amount per unit of goods. The integrated tariff combines elements of both ad valorem and specialized types. For example, an ad valorem bicycle tariff of 10% means that $10 will be required for each imported bicycle worth $100, and $20 for a bicycle worth $200. In turn, a specialized tariff of $10 for bicycles assumes the same fixed fee of $10 for each imported bike, regardless of its cost.

Thus, the application of a comprehensive tariff consisting of a 5% ad valorem and a fixed specialized fee of $10 for imported bicycles will result in customs authorities charging $15 for a bicycle worth $100 and $20 for a bicycle worth $200.

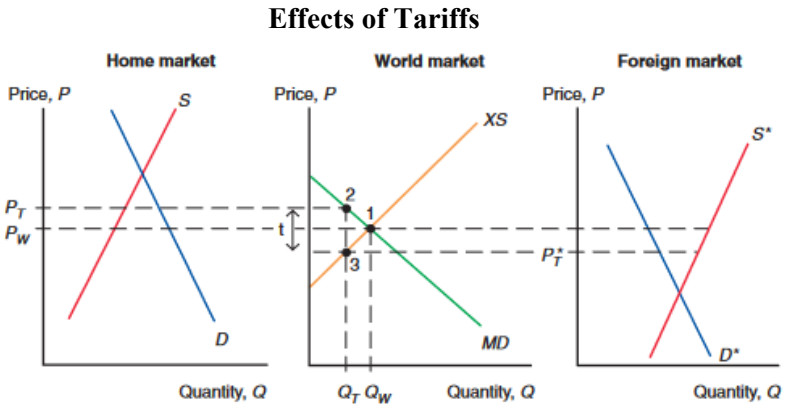


Fig. 19. Effects of Tariffs

Import tariffs and export subsidies play an important role in shaping supply and demand in international markets. These measures have a noticeable impact on market mechanisms. For example, the introduction of tariffs leads to an increase in the cost of imported goods, which reduces their competitiveness in the domestic market. As a result, local producers have the opportunity to increase their market share by offering their products at higher prices, which, in turn, causes an increase in the supply of domestic products in different price segments.

When the prices of imported goods increase, consumers often choose locally produced products. This change leads to a decrease in import demand at each price level and shifts the relative demand curve to the left in the domestic market.

On the other hand, export subsidies can make domestic goods more competitive in foreign markets, which in turn increases their attractiveness to foreign buyers. This stimulates an increase in demand for such goods, encouraging local producers to increase production volumes for export. Thus, the relative internal supply curve shifts to the right.

A decrease in the prices of exported goods on the world market may also indirectly affect domestic demand, changing the relative prices of locally produced products. When the volume of exports of domestic goods increases, their prices in the domestic market may increase, which potentially leads to a decrease in domestic demand. These changes in relative demand are more complex and multifactorial than the effects caused by import tariffs. Both tariffs and subsidies have an impact on the relative prices of goods, which changes consumer preferences and producer decisions. Tariffs raise the relative prices of imported goods, while subsidies lower the prices of exported goods.

Price fluctuations also have a significant impact on trading. Import duties lead to a decrease in the volume of imports, which, accordingly, stimulates local production. Export subsidies make it possible to increase the volume of exports, which can potentially affect the growth of domestic production. Although subsidies are targeted, such measures can also affect other segments of the country's economy, changing the balance of supply and demand. Export subsidies form the price difference between the domestic and foreign markets, which ultimately affects consumer behavior, as well as production decisions and the overall dynamics of trade relations.

Non-tariffs Measures

Non-tariff measures (NTMs) include various policy and regulatory instruments that can create restrictions on international trade without resorting to direct regulatory measures - tariffs. Although these measures may be less visible than tariffs, their impact on the protection of national industry and trade dynamics may be significant. There are many varieties of non-tariff regulatory measures, including quantitative restrictions such as quotas. Quotas set limits on the volume of a certain product that can be imported, which allows you to control the level of import operations in combination with the volume of domestic production of substitutes. Voluntary Export Restrictions (VERS) are agreements between exporting and importing States under which the exporting country agrees to limit its exports in order to maintain national production in the importing country. Technical barriers (TBT) and sanitary and phytosanitary measures (SPS) can also hinder trade relations. Technical barriers are measures that set minimum quality and safety parameters for imported goods, which can make it difficult to import products. In addition, technical regulations, including requirements for testing, certification and labeling, can increase the cost of preparing exporters' goods. Sanitary and phytosanitary measures to ensure food safety are aimed at protecting public health by setting safety standards through inspections and quarantine regulations. Regulations on plant and animal protection are being introduced to protect local agriculture from diseases and pests by imposing strict import restrictions. Government procurement policies are often aimed at attracting domestic suppliers to participate in government contracts, which may limit foreign companies' access to the market. Complex administrative procedures increase costs for exporting countries. In addition, government subsidies to local producers can provide them with a competitive advantage over imported goods. Non-tariff measures such as protectionism are often used to protect the national economy from foreign competition. Non-tariff measures can change the structure of trade, which, in turn, leads to inefficient use of resources and price increases. Moreover, the introduction of such measures may cause trade

disputes between States with different points of view on the legality or compliance of such restrictions. Some non-tariff measures may be disguised as consumer or environmental protection measures, while their real purpose is to deter trade. In addition, non-tariff measures may be biased, potentially favoring local producers. Understanding the various forms and consequences of non-tariff measures is crucial for analyzing trading models, evaluating the effectiveness of trading strategies, and removing obstacles to ensuring a fair and transparent trading system.

Anti-dumping

Anti-dumping is a trade measure that States use to protect national production from unfair competition from other countries. A similar situation is possible if manufacturers in other countries offer their products at deliberately discounted prices to ensure maximum sales. Dumping is a controversial strategy in which a company exports goods at prices below its production costs or below the prices it sets in its domestic market. This practice is often used to increase market share, eliminate competitors, or quickly sell off excess inventory. When a country identifies unfair trade practices that harm local producers, it can impose anti-dumping duties. The process of challenging anti-dumping sanctions is complex and very lengthy, so it is often more profitable for trading partners to give up market share or change their trade policy. The application of anti-dumping measures is regulated by the rules of the World Trade Organization (WTO), one of the objectives of which is to maintain fair trade practices and prevent the use of anti-dumping as a tool of protectionism to restrict imports. Anti–dumping measures are a tool to protect national production from unfair competition from other countries. However, many experts also point out that the application of anti–dumping sanctions is just an excuse to pursue their own protectionist policy towards those countries with which trade is not welcome or requires regulation. In response, exporting countries may introduce their own protective measures, which may lead to an escalation of trade conflicts, the emergence of trade wars, which will negatively affect overall world trade.

Countervailing Measures

Countervailing measures (CMS) are used by countries to eliminate unfair trade advantages resulting from the introduction of subsidies provided by foreign governments to their producers. These measures are aimed at regulating trade imbalances. Subsidies, including various forms of financial assistance such as grants, loans, tax incentives and direct payments, can reduce the production costs of national companies and thus provide them with a price advantage in the market. Countervailing duties are imposed when a country considers that foreign subsidies cause

serious damage to its domestic industry and constitute an additional type of tariff on imports. The procedure for appealing against the introduction of countervailing duties is similar to the anti-dumping procedure and requires significant costs and time. The rules established by the World Trade Organization (WTO) regulate the application of countervailing measures, guaranteeing their fair use on the basis of evidence of illegally imposed subsidies. One of the main arguments in favor of compensatory measures is their ability to enhance the competitive environment. Countervailing duties compensate for price imbalances and help create equal trading conditions for both importers and domestic producers.

Safeguards

A Safeguards, also known as emergency measures, because they are temporary trade restrictions that a country can impose in order to protect national production from sharp fluctuations in prices and production volumes, supply and demand imbalances in the market. Safeguards are a mechanism that allows national industry to adapt to unexpected challenges of foreign trade. Most often, precautions are applied in the event of a sudden increase in imports of a certain product, which may occur for reasons such as a general economic downturn or a sharp change in the structure of production. To justify the introduction of safeguards, the country needs to prove that a significant increase in imports poses a serious threat to the national economy and the domestic market, which can lead to a decrease in national production, job cuts, and business closures. The application of trade safeguards is regulated by the World Trade Organization (WTO). Unlike anti-dumping measures and subsidies, safeguards are not evaluated from the perspective of fair trade, so the conditions for their introduction are more stringent. So, for example, the EU must demonstrate that an increase in imports is an acute problem, justify causing (or threatening to cause) serious damage to national industry (a higher level of damage than the material damage required for anti-dumping measures and subsidies); define the guarantees of the EU's interests (requirements that go beyond WTO obligations). There have been examples of the use of safeguards in the history of trade relations. So, on March 23, 2018, the United States introduced safeguards in the form of increased customs duties on imports of steel and aluminum products, including from Russia. At the same time, the application of safeguards in the global practice of trade relations may provoke retaliatory measures from other countries, which will potentially worsen trade relations, lead to trade conflicts, and damage global trade and global economic development.

Table 6

Anti-dumping measures in effect in 2022

Country/Territory	Actions taken as importer				
	From 1 January 2022 to 31 December 2022			As of 31 December 2022	
	Investigations initialed	Final measures		Final measures in effect	
		Implemented	Withdrawn/Revoked	Number of measures	Products covered on HS 6-digit
Russian Federation[14]		2	1	26	83
China	2	2	5	118	80
Germany					
United States of America	19	15	8	493	502
European Union[13]	3	8	1	116	227
India	29	7	59	142	420

Actions faced as exporter					Country/Territory
From 1 January 2022 to 31 December 2022			As 31 December 2022		
Investigations initialed	Final measures		Final measures in effect		
	Implemented	Withdrawn/Revoked	Number of measures	Products covered in HS 6-digit	
38	38	42	672	1098	China
8	4	3	96	217	India
1	4	5	55	134	Russian Federation
		1	27	73	Germany
1	2	6	31	179	European Union
1	3	6	68	89	United States of America

Transparency

Transparency is a key element of international trade, playing an important role in building trust, promoting fair competition and maintaining the effective functioning of global markets, which implies the availability of accessible and transparent information about trade policies, legislation and practices and allows companies and stakeholders to make informed decisions. One of the main components of transparency in trade is the provision of information on trade policy. This includes detailed information on tariffs, quotas, subsidies and other restrictions, which gives the public a clear understanding of the process of developing, implementing and monitoring compliance with these policies. Clear and transparent rules play a crucial role in helping companies understand and comply with product standards, and follow sanitary and phytosanitary measures. If trade agreements are transparent, this guarantees easy public access to trade agreements and related documents. Such openness allows companies to understand their rights and obligations within the framework of the agreements reached. Access to open and publicly available trading data is essential for companies to make informed decisions about their trading strategies and investments. This data may include information on imports, exports, prices and market trends. Transparent dispute resolution processes are necessary to ensure that parties involved in trade conflicts have a clear understanding of the rules and procedures related to dispute resolution. Transparency in trade brings many benefits, including support for fair competition. Transparency also plays a key role in building trust between trading partners, reducing uncertainty, and providing companies with information to make informed decisions. This is an important aspect for stimulating trade growth, as it helps entrepreneurs better understand the rules and nuances of international trade, which, in turn, contributes to improving the efficiency of operations and business expansion. In addition, the introduction of transparent trade policies and procedures increases government accountability by providing stakeholders with the opportunity to monitor and evaluate trade practices.

Table 7

Average bound and MFN applied tariff rates for product groups, 2021

Agriculture	54.4	14.8
Non-agriculture	27.6	8.0
All	37.4	8.9

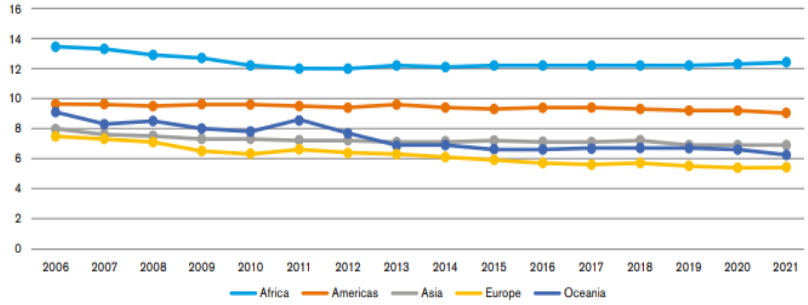


Fig. 20. Applied MFN average tariffs by region (per cent)

The information provided focuses on the significant difference in the levels of trade protection between the agricultural and non-agricultural sectors, especially between countries at different stages of development. Consider the consequences of this imbalance: With regard to high tariffs on non-agricultural products, developed countries with advanced economies and complex industrial structures tend to impose higher tariffs compared to developing countries. Such a protective policy may be justified by the need to protect traditional sectors of the economy from external competition. Developing countries with emerging industries and economies may decide to reduce tariffs on non-agricultural goods in order to attract foreign investment, promote industrial development, improve access to cheap imported goods, and expand the introduction of technologies from more developed countries. Reducing tariffs on agricultural products can also be beneficial. Developed countries with a strong agricultural sector may consider reducing tariffs in this area, which will indicate a willingness to develop international trade and stimulate overall economic growth. Tariffs in agriculture are influenced by various factors, which vary depending on the country. Usually, developed countries strive to ensure the availability of inexpensive food and participate in international trade to increase efficiency. In contrast, developing countries, where agriculture plays an important role in the economy, may impose higher tariffs to protect local farmers, ensure food security and support economic growth in rural areas. In addition, agricultural trade policy is influenced by complex economic, social and political factors. The mention of the 16-year period in the statement highlights the existence of a significant long-term trend, which makes us think about the dynamics of tariff inequality during this time and gives an idea of changes in trade relations. The indication of average values also highlights general trends, but may not take into account the characteristics specific to different groups of countries.

Trade Opening Patterns

The measures applied to protect national production indicate a significant contrast in the levels of trade protectionism between the agricultural and non-agricultural sectors, and this is typical for different countries, regardless of the level of economic development. In the event of an increase in tariffs on non-agricultural products, countries with developed economies and industries tend to impose higher tariffs on non-agricultural products compared to developing countries. Such a defensive position is often dictated by the desire to protect well-established industries from competitive pressure. In this regard, priority positions may be: the level of employment, support for product quality standards, ensuring consumer safety, and others. For developing countries, which are characterized by a large number of industries that are at the stage of formation and early development, it is possible to observe trends in setting lower tariffs on non-agricultural products. This approach is aimed at facilitating trade and stimulating economic growth. Trade models reflect the changing trends over time towards reducing trade barriers, both tariff and non-tariff. Although there has been a marked shift towards greater liberalization in recent years, understanding these models requires careful consideration of many factors. In a historical context, the post-World War II period was marked by the creation of the Bretton Woods system and international organizations such as the GATT, and later the WTO. These initiatives were aimed at promoting free trade and aimed at significantly reducing tariffs in all countries. The 1980s and 1990s were characterized by a sharp increase in trade liberalization, driven by a growing understanding of the benefits of free trade and the growth of globalization. During this era, agreements were concluded to strengthen free trade, and many trade barriers were eliminated. In recent years, there has been a tendency to increase protectionism. This shift is primarily driven by concerns about job cuts, rising economic inequality, and national security concerns. With regard to the differentiation of trade restrictions by economic sectors, the agricultural sector is experiencing a slower pace of liberalization compared to other sectors, mainly due to the persistence of high tariffs and non-tariff barriers in various countries. On the contrary, there has been significant liberalization in the manufacturing sectors, accompanied by a marked reduction in tariffs and trade barriers. This shift is driven by the growing integration of global supply chains and the growing importance of manufacturing in

developing countries. The services sector often faces greater restrictions than the goods sector, mainly due to the specifics of the regulatory framework, licensing requirements and problems associated with the cross-border provision of services. Nevertheless, in some service sectors, such as finance and tourism, there is a gradual transition to liberalization. With regard to trade openness, developed countries tend to show a higher level than developing countries, which is reflected in significant tariff reductions, active participation in free trade agreements and promotion of global trade liberalization in international forums. In recent decades, there has been a clear shift towards a more open trade policy, but the extent of this shift varies greatly across industries and countries.

Trade restrictions: Tariffs

In the context of Nation 2, DX and SX denote the demand and supply curves for commodity X. When the price of X in free trade, PX, is $1, Nation 2 consumes 70X (AB), with 10X (AC) being domestically produced and 60X (CB) imported. However, when a 100 percent import tariff is imposed on commodity X, pushing PX to $2, the consumption pattern shifts. Nation 2 now consumes 50X (GH), with 20X (GJ) domestically produced and 30X (JH) imported. The tariff results in a consumption effect of -20X (BN), a production effect of 10X (CM), a trade effect of -30X (BN + CM), and a revenue effect of $30 (MJHN).

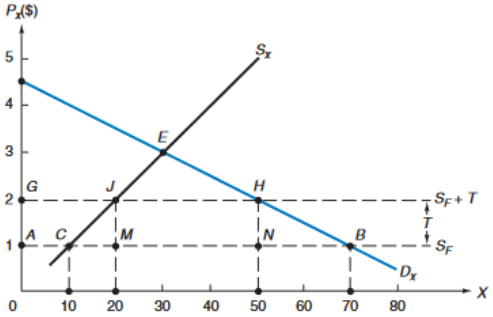


Fig. 21. Trade restrictions

The left panel shows that a tariff that increases the price of commodity X from P_X = $1 to P_X = $2 results in a reduction in consumer surplus from ARB = $122.50 to GRH = $62.50, or by shaded area AGHB = $60.

The right panel shows that the tariff increases producer surplus by shaded area AGJC = $15.

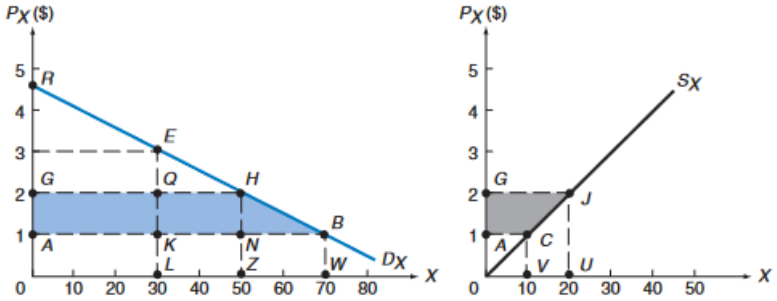


Fig. 22. Trade restrictions: Consumer and Producer Surplus

The figure shows that with a 100 percent import tariff on commodity X, PX rises from $1 to $2 in Nation 2.

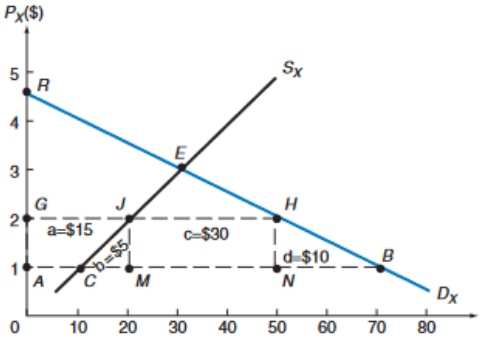


Fig. 23. Gains of Tariff

This reduces the consumer surplus by AGHB = a +b +c +d = $15 + $5 + $30 + $10 = $60. Of this, MJHN = c = $30 is collected by the government as tariff revenue, AGJC = a = $15 is redistributed to domestic producers of commodity X in the form of increased rent or producer surplus, while the remaining $15 (the sum of the areas of triangles CJM = b = $5 and BHN =d = $10) represents the protection cost, or deadweight loss, to the economy.

The Rate of Effective Protection

The rate of effective protection (calculated on the domestic value added, or processing, that takes place in the nation) exceeds the nominal tariff rate (calculated on the value of the final commodity).

Domestic value added equals the price of the final commodity minus the cost of the imported inputs going into the production of the commodity.

While the nominal tariff rate is important to consumers (because it indicates by how much the price of the final commodity increases as a result of the tariff), the effective tariff rate is important to producers because it indicates how much protection is actually provided to the domestic processing of the import-competing commodity.

The rate of effective protection is usually calculated by the following formula:

$$g = \frac{t - a_i t_i}{1 - a_i}$$

where g = the rate of effective protection to producers of the final commodity;

t = the nominal tariff rate on consumers of the final commodity;

a_i = the ratio of the cost of the imported input to the price of the final commodity in the absence of tariffs;

t_i = the nominal tariff rate on the imported input.

Offer curves 1 and 2 define free trade equilibrium point E and PX / PY = 1, as in Figure 8.6. If the optimum tariff for Nation 2 rotates its offer curve to 2*, Nation 2's terms of trade improve to:

$$PX / PY = 1/ P' W = 1/0.625 = 1.6.$$

At equilibrium point E *, Nation 2 is at its highest possible welfare and is better off than at the free trade equilibrium point E. However, since Nation 1's welfare is reduced, it is likely to retaliate with an optimum tariff of its own, shown by offer curve 1 * and equilibrium at point E **.

Nation 2 may then itself retaliate so that in the end both nations are likely to lose all or most of the benefits from trade.

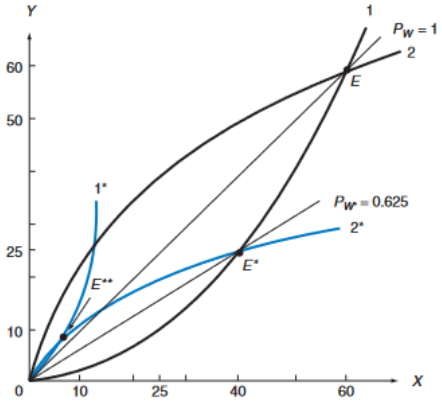


Fig. 24. Offer curves

Openness and Income Inequality: the Stolper-Samuelson theorem

Stolper-Samuelson theorem: "A rise in the relative price of a good increases the relative reward of the factor intensively used to produce this good, and reduces the reward of the other factor". In each country the owners of one factor gain, while the owners of the other factor lose. In a variant with unskilled labor and human capital, the SS theorem predicts rising inequality in skill-abundant countries. Trade Pareto-dominates autarky only if lump-sum transfers from winners to losers are possible.

To get intuition, consider the special case where P_X falls and P_Y remains constant after opening to trade.

Production is reallocated along the PPF towards sector Y.

Contraction in the X sector reduces demand for labor disproportionately. Since factor supply is fixed w r falls.

With a fall in w r each sector substitutes some labor for capital, mitigating the previous effect.

The marginal productivity of capital (MPK) increases, while the marginal productivity of labor (MPL) falls.

Perfect competition on the labor market implies: $w = P_{X*}MPL_X = P_Y*MPL_Y$ and $r = P_{X*}MPK_X = P_Y*MPK_Y$

Since MPL ↓, w/P_X and w/P_Y ↓, the real wage falls.

Since MPK ↑, r/P_X and r/P_Y ↑, real capital income increases.

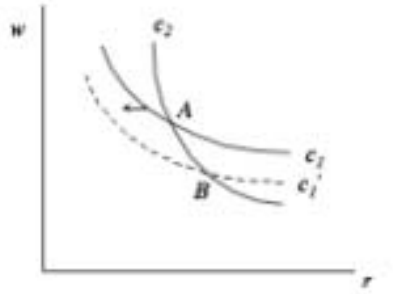


Fig. 25. Factor market equilibrium

A fall in price p_1, which shifts sector 1's zero-profit locus ($p_1 = c_1(w,r)$) downward, leads to a lower w/r at the factor market equilibrium.

Proof:

Zero profit conditions:

$$P_X X = wL_X + rK_X \quad \Rightarrow \quad P_X = wa_{LX} + ra_{KX}$$
$$P_Y Y = wL_Y + rK_Y \quad \Rightarrow \quad P_Y = wa_{LY} + ra_{KY}$$
$$\text{with } a_{LX} = L_X/X,\ a_{KX} = K_X/X, \text{ etc.}$$

Differentiate P_X et P_Y for a given production structure (given a_{ij}):

$$dP_X = a_{LX}\,dw + a_{KX}\,dr$$
$$dP_Y = a_{LY}\,dw + a_{KY}\,dr$$

Denote

$$\theta_{KX} = a_{KX}\,r/P_X \text{ and } \theta_{KY} = a_{KY}\,r/P_Y$$

$$\frac{dP_X}{P_X} = (1-\theta_{KX})\frac{dw}{w} + \theta_{KX}\frac{dr}{r}$$
$$\frac{dP_Y}{P_Y} = (1-\theta_{KY})\frac{dw}{w} + \theta_{KY}\frac{dr}{r}$$

Proof (2)

The evolution of factor prices then is:

$$\frac{dw}{w} = \frac{\theta_{KY}\frac{dP_X}{P_X} - \theta_{KX}\frac{dP_Y}{P_Y}}{\theta_{KY}(1-\theta_{KX}) - \theta_{KX}(1-\theta_{KY})}$$

$$\frac{dr}{r} = \frac{(1-\theta_{KX})\frac{dP_Y}{P_Y} - (1-\theta_{KY})\frac{dP_X}{P_X}}{\theta_{KY}(1-\theta_{KX}) - \theta_{KX}(1-\theta_{KY})}$$

$$\Rightarrow \frac{dw}{w} - \frac{dr}{r} = \frac{1}{\theta_{KY}(1-\theta_{KX}) - \theta_{KX}(1-\theta_{KY})}\left(\frac{dP_X}{P_X} - \frac{dP_Y}{P_Y}\right)$$

Given that θKY > θKX (indicating that good Y is more capital intensive), it follows that the denominator in both expressions is positive. Consequently, the following outcomes can be derived:

1. An increase in the relative price of the labor-intensive good (X) leads to an increase in the wage rate relative to the rental rate of capital (w/r).

2. Conversely, an increase in the relative price of the capital-intensive good (Y) results in a decrease in the wage rate relative to the rental rate of capital (w/r).

This principle is encapsulated in the Stolper-Samuelson theorem, which states that "A rise in the relative price of a good raises the relative compensation of the factor used intensively in the production of that good, while diminishing the compensation of the other factor." This implies that in each country, the owners of one factor experience gains, while the owners of the other factor encounter losses.

Summary

According to theoretical assumptions, free trade increases well–being in all countries participating in trade relations, contributing to increased efficiency, specialization and lower prices. However, it is also generally accepted that many countries impose trade restrictions that benefit certain groups within their borders. This leads to a contradiction between the desire for broad economic benefits and the interests of specific sectors or industries. An analysis of the factors underlying this conflict shows the following: One of the main advantages of free trade is increased efficiency. By allowing countries to focus on producing goods and services in which they have a comparative advantage, free trade increases overall output and productivity.

Free trade brings a number of benefits to consumers and the economy as a whole. First, it is a reduction in prices for goods and services, as

increasing competition from foreign manufacturers reduces costs, allowing consumers to increase their purchasing power and increase overall well-being. In addition, free trade provides consumers with a wider range of choices, expanding their opportunities and improving their quality of life. Moreover, by promoting investment, job creation and innovation, free trade can stimulate economic growth. On the other hand, proponents of trade restrictions argue that measures such as tariffs and quotas are necessary to protect domestic industry. These restrictions can help protect local businesses from foreign competition, thereby preserving jobs and preserving domestic production. Governments have the right to impose trade restrictions on certain goods in order to protect national security interests. The problem of ensuring a balance between global well-being and domestic interests is obvious. Domestic lobbying plays an important role in advocating for trade restrictions that benefit certain groups within the country, such as manufacturers in protected sectors. These restrictions, while serving the interests of lobbyists, can have a negative impact on the economy as a whole. In addition, political pressure often forces Governments to prioritize specific sectors over broader economic benefits because they are influenced by influential interest groups. Cross-country reconciliations of interests can occur when countries impose trade restrictions, leading to potential retaliatory actions that can escalate into devastating trade disputes for all parties involved. Despite the well-documented benefits of free trade, the influence of national interest groups and the pursuit of national goals often lead to the establishment of trade barriers. This presents a difficult task for policy makers, who must balance improving global well-being with addressing the concerns of local stakeholders. The search for strategies that promote fair and open trade while mitigating negative impacts on specific populations remains a major challenge in international economic governance.

VI. Other Instruments of Trade Theory

Tariffs are the simplest trade policies, but in the modern world, most government intervention in international trade takes other forms, such as:

- **export subsidies**;
- **import quotas**;
- **voluntary export restraints**;
- **local content requirements**.

An export subsidy is a payment to a firm or individual that ships a good abroad.

Like a tariff, an export subsidy can be either specific (a fixed sum per unit) or ad valorem (a proportion of the value exported).

When the government offers an export subsidy, shippers will export the good up to the point at which the domestic price exceeds the foreign price by the amount of the subsidy.

The effects of an export subsidy on prices are exactly the reverse of those of a tariff.

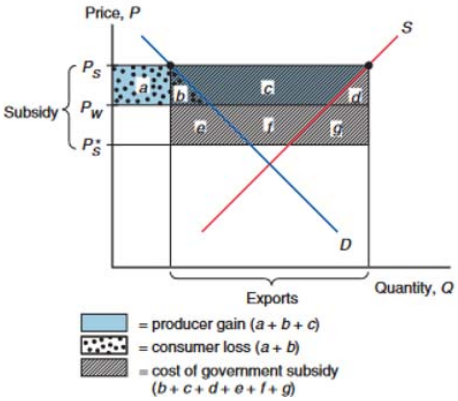


Fig. 26. Effect of Export Subsidy

An import quota is a direct restriction on the quantity of some good that may be imported.

The restriction is usually enforced by issuing licenses to some group of individuals or firms.

It is important to avoid having the misconception that import quotas somehow limit imports without raising domestic prices.

The truth is that an import quota always raises the domestic price of the imported good.

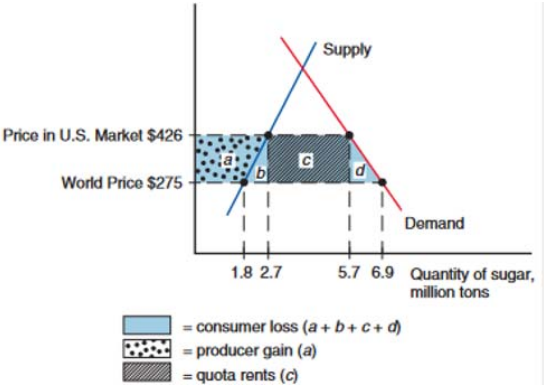


Fig. 27. Effect of Import Quotas

Trade policy is often based on well-known instruments such as tariffs and quotas, but there are many other strategies that can significantly affect the dynamics of global trade. Among them, export subsidies stand out as an attractive tool that deserves closer study. Export subsidies include financial assistance or direct payments from Governments to local producers aimed at expanding their export activities. By reducing the prices of domestic goods in foreign markets, these subsidies effectively increase the competitiveness of local industries. To illustrate this, imagine a scenario in which the United States government decides to introduce an export subsidy for its wheat producers. This subsidy will directly reduce the cost of American wheat on the world market, which will make it more attractive to international buyers compared to wheat of alternative origin. Export subsidies have a significant impact on international trade. By providing financial incentives to producers, these subsidies can boost exports, making domestic products more competitive in global markets. The World Trade Organization (WTO) has put in place rules governing export subsidies. These rules set limits on the use of export subsidies and require countries to notify the WTO of any subsidies they provide. An example of an export subsidy would be the European Union's agricultural subsidies, which have long been the subject of controversy due to their significant impact on global agricultural markets and the problems they pose to producers in developing countries.

National Procurement

National procurement, commonly referred to as public procurement, is an important tool through which Governments provide goods and services to meet their operational needs. Although national procurement policy is often viewed as an internal matter, it has a significant impact on

global trade and economic relations. As major consumers of goods and services, Governments play a key role in shaping the economy. Consequently, their purchasing decisions can significantly affect the dynamics of the market for a wide range of goods and services. National procurement policy goes beyond the simple purchase of goods and services. It is aimed at achieving various goals. One of these goals is to support domestic industry by providing preferences to local suppliers, which in turn helps to stimulate local employment and the development of domestic production. In addition, procurement policy can be used to achieve social goals by including criteria related to strengthening labor standards and reducing social inequality. Another important aspect is ensuring national security by prioritizing domestic suppliers of essential goods and services necessary for national security. Transparency and accountability are essential components of national procurement policies to combat corruption and promote fair competition. In the field of international trade, preferential treatment towards domestic suppliers can lead to trade restrictions that make it difficult for foreign companies to access and impede the flow of international trade. Such practices can lead to unequal competition and limit market opportunities for foreign firms. The access of foreign companies to markets largely depends on national procurement policies. Governments that prefer domestic suppliers may prevent foreign companies from competing for contracts by limiting their market participation. This can lead to trade disputes as countries seek to protect their local suppliers from unfair competition. Examples of discriminatory national procurement policies can exacerbate tensions between countries. In the United States, there is a long tradition of applying "Buy American" laws, according to which, in public procurement, priority is given to goods produced domestically. Similarly, the European Union has introduced strict procurement rules to promote fair competition and achieve social and environmental goals. On the other hand, China's "Made in China by 2025" initiative is an important industrial policy event aimed at developing domestic technologies and production capacities, which may affect national procurement strategies.

Red-tapes Barries

Red-tapes barriers, commonly referred to as "administrative barriers" or "non-tariff barriers", are barriers to trade resulting from complex rules, procedures and paperwork associated with the import and export of goods. These barriers, which are not related to direct taxes or quantitative restrictions such as tariffs and quotas, can significantly impede trade. Foreign exporters often face many challenges when it comes to meeting the complex documentation requirements imposed by import

regulations. This includes obtaining various documents, certificates, licenses and permits, which not only takes up additional time, but also entails higher costs in the trading process. Lengthy customs procedures can become a serious obstacle for enterprises engaged in international trade, as they are often associated with time-consuming bureaucratic processes, thorough inspections and compliance with complex rules. These procedures can lead to delays in customs clearance of goods, which affects the efficiency of supply chains. Another problem faced by foreign exporters is the need to comply with technical standards and regulations, which vary from country to country. These standards cover a wide range of product specifications, including safety, quality, labeling, packaging, and environmental aspects. Meeting these requirements can be a difficult and expensive task for companies seeking to enter new markets. In addition, many countries are introducing strict sanitary and phytosanitary measures (SPS) to protect public health and prevent the spread of diseases. These rules can significantly affect the trade in agricultural goods, especially perishable products, as they establish strict requirements for the processing and transportation of these goods. In general, understanding the complexities of customs procedures, technical standards and SPS measures is important for companies seeking to expand their international presence and ensure compliance with regulatory requirements in foreign markets. One way to facilitate trade is to increase transparency and simplify procedures. By optimizing processes, simplifying documentation requirements and ensuring transparency of regulations, countries can facilitate the participation of enterprises in cross-border trade. Another important aspect is the harmonization of standards. When technical standards are brought into line with international standards, the need for multiple certifications and tests is reduced, which makes it easier for products to meet the requirements of different markets. Mutual recognition agreements are also key to reducing trade barriers. By concluding agreements between countries on the recognition of product standards and testing procedures for each other, unnecessary duplication of testing and certification processes can be avoided, which contributes to a smoother development of trade relations. Digitalization of trade procedures through the introduction of digital platforms for customs clearance, trade documentation and other processes can simplify trade operations, increase efficiency and minimize administrative obstacles.

Effects of Alternative Trade Policies

Trade policy has a wide range of applications, from promoting free trade to adopting protectionist measures. This policy has a significant and diverse impact on the economy, businesses and consumers. Understanding this impact is crucial for making informed policy decisions. Free trade is characterized by allowing goods and services to cross borders with minimal restrictions. The use of free trade provides a number of advantages. Firstly, it increases efficiency by developing specialization. Countries can focus on producing goods and services where they have comparative advantages, which leads to an increase in total output and lower prices for consumers. Growing trade activity can lead to increased transportation costs, exacerbating problems of social inequality and environmental problems. The application of protectionist measures can protect domestic industry from foreign competition, thereby preserving jobs and income balance in these sectors. The implementation of protectionist policies can lead to higher prices for consumers due to reduced competition in the market, which ultimately leads to a decrease in consumer welfare. Protectionist measures can lead to restrictions on international trade, create inefficient conditions and curb overall economic growth. When countries pursue protectionist policies, they risk provoking retaliatory actions from other countries, which could potentially lead to trade conflicts that could have negative consequences for global trade. Strategic trade policies are designed to help industries that are considered to be promising, especially in sectors such as technology, defense, and critical infrastructure. In order to achieve their goals, various support and protection tools can be used within the framework of this policy, such as subsidies, preferences in public procurement and targeted support. One of the key effects of a strategic trade policy is its ability to enhance a country's competitiveness in vital industries. The policy measures under discussion have the potential to create new jobs and stimulate innovation in targeted sectors. However, their implementation may also lead to trade disputes with other countries, especially if they are perceived as protecting certain interests or having a protective nature. There are different types of trade agreements that countries enter into. Bilateral agreements are concluded between two countries, while regional agreements cover groups of countries within a certain geographical area. Multilateral agreements such as the World Trade Organization (WTO) cover several countries. Trade agreements have various

effects, such as liberalization. They often lead to lower tariffs, quotas and other trade barriers, which contributes to smoother international trade. In addition, these agreements promote investment and economic growth by providing businesses with greater certainty and predictability in their operations. Trade agreements usually include mechanisms for resolving trade disputes to prevent them from escalating into full-scale conflicts. Striking a balance between improving global well-being and meeting domestic needs remains a key challenge in the ever-changing landscape of international trade.

	Tariff	Export Subsidy	Import Quota	Voluntary Export Restraint
Producer surplus	Increases	Increases	Increases	Increases
Consumer surplus	Falls	Falls	Falls	Falls
Government revenue	Increases	Falls (government spending rises)	No change (rents to license holders)	No change (rents to foreigners)
Overall national welfare	Ambiguous (falls for small country)	Falls	Ambiguous (falls for small country)	Falls

Summary

Tariffs lead to price differences between domestic and international markets, which provokes an increase in domestic prices, although to a lesser extent than the tariff rate itself. However, for "small" countries with minimal impact on world prices, tariffs are fully reflected in the prices of the domestic market. The concepts of consumer and production surpluses are used to assess the costs and benefits associated with tariffs. Tariffs stimulate domestic producers by raising prices, while the main burden of price increases falls on domestic consumers. Moreover, the government receives revenue from tariffs. The introduction of tariffs for a country's economy has a twofold impact on its overall well-being. Firstly, it is a decrease in efficiency that occurs due to the distortion of incentives for both domestic producers and consumers. Secondly, there is a potential for improving the terms of trade, which is associated with the impact of the tariff on reducing foreign export prices. In the case of small countries with limited ability to influence external prices, the gains in terms of trade are usually insignificant, which leads to a significant decrease in overall well-being. It is worth noting that the tariff analysis can also be expanded to include other trade policy measures such as export subsidies, import quotas and voluntary export restrictions.

VII. The International Monetary System, 1870–1973

In the period from 1870 to 1973, significant changes took place in the global financial sector due to the introduction of the gold standard. The adopted monetary system pegged national currencies to gold, thereby establishing stable exchange rates, which contributed to the strengthening of international trade and investment flows. Known as the "golden age" of the international monetary system, this period was characterized by fixed exchange rates that provided a certain level of predictability for cross-border transactions. Under the gold standard, there was a mechanism for automatic price adjustments and the elimination of trade imbalances. When a country experienced a trade deficit, it lost its gold reserves, which led to a reduction in the money supply. Consequently, prices decreased, which increased the competitiveness of exports and strengthened the country's trade advantages. Conversely, the trade surplus led to an increase in gold reserves, and consequently the money supply, which increased prices and reduced the competitiveness of the country's exports. During this period, central banks had limited flexibility in making monetary policy decisions, since their main goal was to maintain a fixed gold parity, which hindered the possibility of inflation regulation. The gold standard has played an important role in ensuring the stability of world prices, preventing currency crises and facilitating the smooth movement of capital and trade. However, during the First World War and after it, the system faced a problem due to the partial abandonment of the gold standard by a number of countries, due to the need to finance military operations, it was impossible to maintain a price balance on the international market. Despite attempts to restore the gold standard after the war, this led to deflation and economic instability. During the Global Crisis of the 1930s, economic shocks clearly revealed the weaknesses of the gold standard. This prompted countries to abandon the peg of national currencies to gold in favor of an expansionary monetary policy, which led to currency devaluation and increased trade conflicts that exacerbated the global economic downturn. The difficulties associated with financing military operations during World War II completely eliminated the gold standard, as the country's interests were shifted towards economic and political survival. After World War II, the Bretton Woods Agreement established a new international monetary system focused on linking the dollar to gold. The Bretton Woods system began with the US dollar as the main currency backed

by gold. However, over time, the dollar's dominance was threatened by an increase in the US trade deficit and inflation, which weakened its position. The turning point came in 1971, when President Richard Nixon decided to suspend the convertibility of the dollar into gold, effectively eliminating the Bretton Woods system. This momentous event, known as the "Nixon shock," marked the transition to a more flexible exchange rate system. Since the early 1970s, many countries have switched to floating exchange rates, allowing currencies to fluctuate freely against each other. The history of the international monetary system from 1870 to 1973 highlights the complexities of managing global financial relations and the constant search for long-term solutions to ensure international monetary stability.

Internal Balance: Full Employment and Price-Level Stability

The concept of internal equilibrium refers to the ideal state of the economy, in which full employment and stable price levels are achieved simultaneously.

Full employment is characterized by the efficient use of all available resources. Achieving full employment is crucial to maximize a country's productive potential and promote economic growth. Governments have various tools at their disposal to achieve full employment, including fiscal and monetary policies. For example, the implementation of fiscal stimulus measures, such as increased government spending and tax cuts, combined with soft monetary policy, such as lower interest rates, can effectively stimulate demand and create new jobs. Price level stability is a situation in which the overall price level remains relatively stable over time, thus avoiding significant inflation or deflation. Such stability is important because it reduces uncertainty for businesses and consumers, allowing them to make economic decisions more effectively. Monetary policy is crucial to maintaining price stability, as central banks can regulate interest rates and manage the money supply to contain inflation. The Phillips curve demonstrates a short-term relationship between inflation and unemployment, implying that governments can stimulate economic growth and reduce unemployment by allowing higher inflation. However, this correlation is not always reliable, and long-term political choices can influence the choice of compromise. Maintaining internal economic balance poses a number of challenges that policy makers must effectively address. One of the key problems is related to the demand shock. Another obstacle is related to supply shocks, such as sudden spikes in oil prices or natural disasters, which can lead to higher prices of

components and production costs. Moreover, when making economic decisions, there is always a political dilemma that complicates the achievement of an economic goal. For example, the task of maximizing employment may conflict with the need to ensure stable prices. Balancing these competing priorities requires a subtle approach and a deep understanding of the trade-offs associated with economic policy decision-making. Achieving internal balance is the cornerstone of economic policy. This condition represents the maximum use of resources and the regulation of the inflation rate. Despite the difficulties of ensuring internal balance, sound fiscal and monetary policies are vital to stimulate economic growth, maintain price stability and create more stable socio-economic development.

External Balance: The Optimal Level of the Current Account

The external balance is an essential concept that reflects a country's ability to maintain an acceptable level of its current account. This balance is achieved when there is a balance between incoming and outgoing flows of goods, services and income, which ensures the stability of the country's external finances and at the same time preserves its long-term economic well-being. The current account plays a key role in this context, acting as the main indicator of a country's overall interaction with the global economy. It includes the balance of trade in goods and services, net income from foreign investments and net transfers. A current account deficit occurs when a country imports more goods and services than it exports, indicating that the country invests more in foreign goods and services than it earns from exports. On the other hand, a current account surplus occurs when a country's exports exceed its imports, which means that the country earns more from exports than it spends on imports. The optimal level of the current account balance varies depending on the economic conditions and priorities of the country. A stable level of the current account is usually considered one that does not jeopardize the long-term economic growth of the state. A significant and sustained current account deficit can lead to an unsustainable accumulation of external debt, which can ultimately lead to financial instability in the long term. The country's current account deficit can be financed by external borrowing. Various factors play a role in determining the current account balance. One of the significant factors influencing it is the global economic conditions, which can lead to fluctuations in the account balance. These conditions include changes in export demand

and interest rates around the world. In addition, exchange rate fluctuations have a significant impact. For example, a depreciation of the national currency may increase the competitiveness of a country's exports, which could potentially lead to an increase in the current account balance. In addition, government policy has a significant impact. Fiscal policy, including government spending and taxation, as well as monetary policy, such as interest rate adjustments, can significantly affect the current account balance. Achieving the external balance of countries is important for strengthening the global economy.

Problems with Excessive Current Account Surpluses

A current account surplus may seem beneficial because it assumes that a country earns more from exports than it spends on imports, in fact, an excessive surplus can lead to serious economic problems both domestically and globally. One of the key problems associated with a large surplus is the suppression of domestic demand. When a country consistently maintains a significant surplus, this often indicates a lack of domestic demand, when consumers prefer to spend less on local goods and services. All this can lead to slower economic growth, lower investment levels and higher unemployment. Deflationary pressures can arise from excessive savings and cuts in domestic spending, which will lead to lower prices, and may discourage investment and further weaken economic activity. In addition, a prolonged surplus may provoke a devaluation of the national currency, and will affect its competitiveness. The global economy is influenced by various factors. Excessive surpluses in some countries can lead to deficits in others, creating global imbalances. In response to significant budget deficits, countries may resort to protectionist measures that are likely to escalate into trade conflicts and impede international trade flows. Moreover, the growth of savings due to a significant surplus in one country can lead to risky investments and the formation of financial bubbles, contributing to financial instability on a global scale. For example, Germany's ongoing current account surplus has caused tensions in the Eurozone, as some countries argue that it exacerbates economic imbalances and deflationary trends. Similarly, China's significant trade surplus raises concerns about its impact on global demand. To address the problem of excessive surpluses, Governments can implement strategies aimed at strengthening domestic demand. This can be achieved by reducing taxes, increasing investments in infrastructure and social spending. An-

other effective approach is to encourage investment by implementing policies that encourage businesses to invest. This can be achieved through initiatives such as providing tax incentives to companies or improving access to financing options. By stimulating investment, countries can boost domestic demand and sustainably reduce surpluses. In addition, central banks can play a crucial role in managing surpluses by intervening in the foreign exchange market. By preventing currency revaluation, central banks can maintain export competitiveness and help balance trade flows. Currency regulation is an important tool for ensuring a balanced trade balance. International cooperation is important both at the level of coordination of fiscal and monetary policy, and at the level of concluding trade agreements that promote balanced trade.

International Economic Disintegration

International economic disintegration is a situation that occurs when countries face disruption of economic cooperation and integration, which leads to a decrease in world trade, investment and overall economic progress. This phenomenon can be caused by various factors, one of which is the adoption of protectionist measures. For example, the imposition of tariffs and quotas on imported products as a means of protecting local industry may provoke retaliatory actions from other trading countries, leading to trade conflicts and disruptions in interconnected global supply chains.

Non-tariff barriers, such as complex regulations, bureaucratic procedures and technical standards, can prevent foreign goods from entering the market, thereby complicating international trade. In addition, Governments providing subsidies to domestic enterprises or giving preference to domestic suppliers in public procurement can distort competition and create trade barriers. Geopolitical tensions, including political instability in critical regions, have the potential to disrupt trade, investment and global supply chains, leading to uncertainty and reduced economic activity. Armed conflicts and wars also lead to trade imbalances.. Economic sanctions have a similar effect. Cybersecurity threats pose significant risks to various sectors, including financial systems, critical infrastructure, and international trade. Cyber attacks can not only disrupt operations, but also undermine trust and stability. Modern financial crises can arise from various causes, such as: currency crises characterized by sudden and sharp drops in exchange rates, leading to economic disrup-

tions, reduced trade and investment. Moreover, the interconnected nature of global financial markets can lead to the spread of a financial crisis, when the crisis in one country quickly spreads to others as investors lose confidence and withdraw capital from vulnerable economies. The consequences of such disintegration can be long-term. Economic disintegration could potentially lead to increased political tensions and trade conflicts as countries compete for resources and markets. This was the case during the Global Crisis from 1929 to 1939, when a sharp increase in protectionist measures such as high tariffs and currency devaluation led to a significant reduction in world trade, exacerbating the economic crisis. Similarly, the trade war between the United States and China, characterized by tariffs and trade barriers, has had a devastating impact on global supply chains and hindered economic progress. Britain's exit from the European Union, known as Brexit, has brought uncertainty and disrupted the Eurozone's trade structure, leading to economic instability and reduced investment in the region. Strengthening international institutions such as the WTO, the IMF and the World Bank is essential for policy coordination, resolving trade disputes and maintaining global economic stability. The Sustainable Development Goals are essential to address urgent global challenges such as climate change and increasing inequality, leading to a more sustainable and interconnected global economy. The risk of international economic disintegration poses a threat to global prosperity and stability. By developing cooperation, strengthening international institutions and solving common tasks, countries can work to maintain a sustainable global economy.

The Bretton Woods System and the International Monetary Fund

The Bretton Woods System, established in 1944 at the conference of the same name, represented a key initiative after World War II aimed at creating a stable and reliable international monetary and financial system. Its main purpose was to prevent the economic turmoil experienced after World War I by promoting global trade and financial stability. One of the key features was the establishment of fixed exchange rates, at which most currencies were pegged to the US dollar, which, in turn, was converted into gold at a fixed rate. This system was designed to reduce fluctuations in national exchange rates and create more predictable conditions for international trade. The US dollar has gained fame as the world's leading reserve currency, which countries have chosen to protect their foreign exchange reserves. This allowed the United States to take

a dominant position in the global economy, but over time it also led to a number of difficulties. At the same time, the International Monetary Fund (IMF) has become the most important institution entrusted with overseeing, providing financial assistance to countries experiencing balance of payments difficulties, and promoting international monetary cooperation. The IMF offered assistance to countries by supporting them in developing effective economic strategies and improving their financial institutions. In 1971, President Richard Nixon made the historic decision known as the "Nixon Shock" by abolishing the convertibility of the dollar into gold, thereby ending the system of fixed exchange rates. This landmark event paved the way for the widespread adoption of floating exchange rates. The legacy of the Bretton Woods Agreement included the transition to floating exchange rates.

At the same time, the IMF has remained an important regulatory institution in the global economy.

Industrial Production and Wholesale Price Index Changes, 1929–1935

The Great Depression was a period of unprecedented economic recession that lasted from 1929 to 1933. It was caused by a significant drop in global economic activity, characterized by a sharp decline in industrial production and a marked increase in the unemployment rate. The depression was caused by a number of factors, such as overproduction, which led to lower prices and lower business profits, as well as the explosion of a speculative stock market bubble in 1929, which led to a loss of confidence and a reduction in investment.

During the Great Depression, a significant number of banks went bankrupt in the United States and Europe, which led to a sharp reduction in credit availability and lending volumes. In addition, countries have resorted to protectionist policies such as the imposition of tariffs, which disrupted international trade and exacerbated the economic downturn. Industrial production worldwide declined sharply, with a 47% decline in the United States between 1929 and 1933.

The sharp decline in industrial production can be explained by a number of factors. Firstly, the decline in consumer demand played a significant role, since the decline in household incomes and high unemployment led to a noticeable decrease in consumer spending, thereby reducing demand for industrial goods. In addition, there was a slowdown

in business investment due to market uncertainty and prevailing pessimism among enterprises, which led to a reduction in production. In addition, deflationary pressures have exacerbated the problems faced by enterprises, as the continued downward trend in prices has affected profitability, leading to further production cuts and the continuation of the price reduction cycle.

The Wholesale Price Index (RPI) serves as a key indicator for understanding the effects of deflation. During the depression, there was a marked decrease in the consumer price index, which reflects the average prices of goods sold by wholesale companies. This downward trend was due to a combination of factors.

Firstly, a decrease in consumer demand and business activity led to an oversupply of goods on the market, which led to lower prices. In addition, Governments have implemented restraining policies aimed at curbing inflation. These measures included raising interest rates and cutting spending, which in turn exacerbated the deflationary trend. This double effect further weakened demand and exacerbated the economic downturn.

During the Great Depression, businesses found themselves in a difficult position and turned to price wars as a strategy to attract customers and survive the economic downturn. However, this fierce competition led to a sharp drop in prices, which ultimately made it difficult for businesses to make a profit.

After the Great Depression, the U.S. economic recovery was slow and uneven, and it was only in the late 1930s that it fully returned to pre-crisis levels. This period has taught valuable lessons about the dangers of aggressive pricing strategies and the importance of sustainable business practices during a crisis.

During the Great Depression, the government responded by redefining its role. In the United States, President Franklin D. Roosevelt pursued a "New Deal" policy, prioritizing public works projects, financial reforms, and welfare programs to combat the economic downturn. This marked a significant shift towards increased government intervention in the economy.

Moreover, the Great Depression played a key role in popularizing the ideas of John Maynard Keynes and his economic theories. Keynesian economic theory, which emphasizes the importance of government intervention in stabilizing the economy, gained widespread acceptance during this period.

Ultimately, the enduring lesson of the Great Depression is the urgent need for strong economic policies to prevent and mitigate the effects of crises. The profound impact of this historic event has highlighted the vital role that effective government intervention plays in preventing economic disasters.

During this period, there was a surge in the development of innovative economic theories and strategies. One notable approach was to use financial and monetary instruments to manage demand and maintain economic stability.

Countries such as Australia and the United Kingdom, which abandoned the gold standard early and adopted a counter-deflationary monetary policy, experienced a more moderate decline in production during the Great Depression. In countries such as France and Switzerland, which have been adhering to the gold standard for longer, there has been a more significant decline in price levels and output.

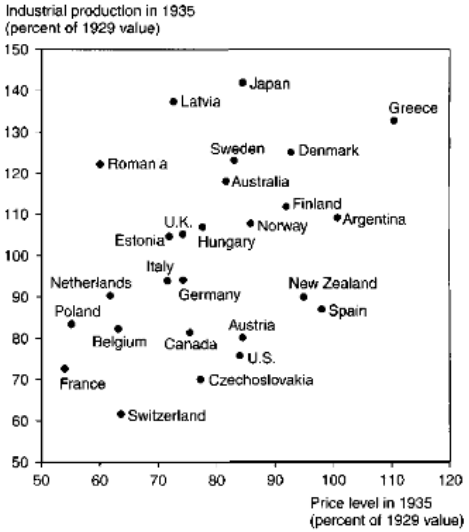


Fig. 28. Industrial Production and Wholesale Price Index Changes, 1929–1935

Convertibility

In the field of international finance, convertibility means the ability of a currency to be easily exchanged for other currencies or gold. This fundamental concept plays a crucial role in ensuring the smooth functioning of global trade and investment. Full convertibility, the most optimal form, occurs when a currency can be exchanged for any other currency without restrictions, thereby facilitating international trade and investment. Partial convertibility refers to a situation where a currency is subject to certain restrictions when exchanged for other currencies. These limits may vary depending on the type of transaction or the organizations involved. On the other hand, non-convertibility occurs when currency exchange for other currencies is prohibited. As a rule, this happens in countries with highly regulated economies, where government supervision of foreign exchange transactions is strict. The importance of currency convertibility lies in its ability to optimize international trade and investment, making it easier for businesses and investors to conduct cross-border transactions without the need for complex and expensive currency exchange processes. In addition, convertible currencies play a key role in enhancing economic integration, allowing countries to participate more effectively in global markets. Currency convertibility is important for maintaining financial stability, and government regulation can play a significant role in limiting currency convertibility for various reasons, such as protecting national industry or curbing speculative activity. During financial crises, countries may temporarily impose restrictions on convertibility to protect their reserves and prevent a sudden devaluation of their currency. One historical example of this is the gold standard, which was widespread in the 19th and early 20th centuries and guaranteed the full convertibility of currencies into gold.

The Bretton Woods system, which operated from 1944 to 1971, was designed to establish a fixed exchange rate system in which most currencies were pegged to the US dollar and could be exchanged for gold. The euro, introduced as a common currency for several European countries, has been fully convertible into them.

Speculative Capital Flows and Crises

Speculative capital flows are the cross-border movement of funds driven by the expectation of quick profits. One of the main mechanisms underlying speculative flows is the desire to increase profits. Investors often seek to take advantage of lucrative opportunities in countries experiencing rapid economic growth or offering high interest rates. Investors sometimes expect a currency appreciation by buying a currency that is expected to rise in value in order to profit from fluctuations in exchange rates. This can create a "crowd effect" as investors monitor each other's actions, causing an influx of capital that increases the value of the currency. Speculative capital flows are often aimed at obtaining short-term benefits rather than long-term investments, giving priority to quick profits. However, these speculative flows also carry potential risks. The influx of speculative capital can lead to volatility in exchange rates, a decrease in the competitiveness of a country's exports and the potential emergence of economic imbalances. In addition, speculative investments can lead to higher asset prices in sectors such as real estate and stock markets, creating bubbles. Moreover, a sudden change in investor sentiment can quickly reverse capital flows, leading to rapid currency devaluation and potential financial instability. Currency crises can be caused by coordinated speculative attacks on the currency, in which investors sell large amounts of currency in anticipation of its decline. Such actions have the potential to provoke a crisis that undermines confidence in the economy, reduces investment and can lead to an economic downturn. One striking example of this is the 1997-98 Asian crisis, when speculative investments in Southeast Asian countries initially contributed to rapid economic growth. However, the change in investor sentiment led to a sudden outflow of capital, which eventually led to a currency crisis in the region. The financial crisis in Russia in 1998 was characterized by speculative investments, which caused a surge in the stock market and a rapid strengthening of the ruble. However, when investor sentiment changed, the sudden abandonment of these investments caused a currency crisis and financial turmoil. Similarly, during the 2008 Global Financial Crisis, speculative capital flows exacerbated the situation as investors sought higher returns by investing in complex financial products that ultimately proved to be extremely risky. The management of speculative capital flows requires careful monitoring and regulation to prevent destabilizing effects on the financial system. The promotion

of international cooperation is a key factor in solving economic problems. Working together through institutions such as the IMF can provide vital financial and technical support to countries facing speculative pressures, helping to stabilize currencies and increase economic resilience.

Maintaining Internal Balance

Assume that domestic (R) and foreign (R*) interest rates are always equal: R = R*

Throughout, (exchange rate) E is the domestic currency price of the dollar.

The analysis applies to the short run because the home and foreign price levels (P and P*, respectively) are assumed to be fixed.

First consider internal balance. If both P* and E are permanently fixed, domestic inflation depends primarily on the amount of aggregate demand pressure in the economy, not on expectations of future inflation.

Internal balance therefore requires only full employment, that is, that aggregate demand equal the full-employment level of output, Yf.

Recall that aggregate demand for domestic output is the sum of consumption, C, investment, I, government purchases, G, and the current account, CA.

Consumption is an increasing function of disposable income, Y – T, where T denotes net taxes.

The current account surplus is a decreasing function of disposable income and an increasing function of the real exchange rate, EP*/P.

Finally, investment is assumed constant.

Condition of International Balance

$$Yf = C(Yf - T) + I + G + CA(EP^*/P, Yf - T)$$

Equation shows the policy tools that affect aggregate demand and therefore affect output in the short run.

Fiscal expansion (a rise in G or a fall in T) stimulates aggregate demand and causes output to rise.

Similarly, a devaluation of the currency (a rise in E) makes domestic goods and services cheaper relative to those sold abroad and also increases demand and output.

The decision-making body has the opportunity to maintain output at full employment (Y1) by implementing fiscal policy or adjusting the exchange rate. Achieving international equilibrium assumes that the country is in a state of internal equilibrium, that is, full employment of resources

and stable prices, and at the same time in a state of external equilibrium, that is, the current account is stable. Maintaining price stability is essential to prevent the negative effects of high inflation or deflation by ensuring a constant overall price level. The external balance is another key aspect that needs to be considered, especially in terms of maintaining a current account that ensures long-term economic stability and trade growth. To do this, it is necessary to manage the trade balance of goods and services, as well as investment flows. Ensuring the stability of the national currency is crucial to minimize exchange rate fluctuations, which in turn reduces uncertainty for both businesses and consumers. Such stability contributes to the creation of favorable conditions for economic growth, low inflation and sustainable external financing, thereby contributing to overall economic stability. Moreover, maintaining international balance has a positive effect on living standards, increasing incomes and expanding consumer choice. The conditions of a stable economy play a crucial role in reducing the risk of economic shocks, currency crises and financial instability. By achieving a balance in international relations, countries can cooperate more effectively, minimizing trade differences and conflicts. However, there are also difficulties in striving for balance caused by the need to follow a policy of compromise. Aligning internal policies, such as the implementation of fiscal stimulus measures, with external considerations can sometimes lead to internal conflicts of interest. Achieving international balance requires coordination between countries, as decisions made by one country can have negative consequences for others. It is crucial for policy makers to prioritize sustainability when implementing measures to restore international balance, avoiding the accumulation of unsustainable debt levels and other imbalances in the long term. The flexibility and adaptability of national economies are crucial for achieving international equilibrium.

Internal Balance (IT), External Balance (XX), and the "Four Zones of Economic Discomfort"

The concept of the "Four Zones of Economic Discomfort" provides a visual representation of how a country's internal and external balances interact, highlighting the difficulties that countries face while simultaneously achieving both goals, namely fiscal measures and exchange rate levels. The four zones cover different scenarios:

In the Zone of Prosperity, the country harmoniously achieves internal and external balance. The economy achieves full employment, stable

prices and a stable current account. The inflationary boom zone has a thriving economy with full employment, but with a current account deficit. The deficit is due to high domestic demand stimulating imports, which leads to a trade deficit. Despite the economic prosperity, there are concerns about the country's long-term economic sustainability. The recession zone has a high unemployment rate and weak economic activity, along with a stable current account. Such a scenario is possible under conditions of excess exports over imports, that is, with a positive trade balance, but the strengthening of the external balance is achieved at the cost of internal economic stagnation. In economic analysis, a stagnation zone is a situation of both internal and external imbalance. In this case, the economy is facing slow growth, high unemployment and a current account deficit. Solving these problems requires a multidimensional approach. Policies aimed at stimulating domestic demand in the field of information technology may lead to an increase in the current account deficit in the 21st century. And actions aimed at improving the current account in the 21st century may hinder domestic growth in the field of information technology. Policy makers face a difficult task to find a harmonious balance between internal and external factors in order to create conditions for sustainable economic development. One of the key policy tools available to policy makers is fiscal policy. Governments can use a combination of spending and taxation measures to influence aggregate demand and ensure domestic stability. Monetary policy allows central banks to regulate interest rates and control the money supply in order to manage inflation and influence exchange rates. In addition, structural policy plays an important role in increasing productivity, competitiveness and stimulating long-term growth, which are necessary to achieve stability both domestically and in the global market.

The concept of the "Four Zones of Economic Discomfort" provides a helpful framework for understanding the complexities of maintaining a balance between internal and external economic stability. Policymakers are tasked with the important responsibility of carefully considering potential trade-offs and implementing policies that support a sustainable economic path, aligning domestic priorities with the need to uphold a strong international economic position. The diagram shows what different levels of the exchange rate and fiscal ease imply for employment and the current account. Along IT, output is at its full-employment level, Yf.

Along XX, the current account is at its target level, X.

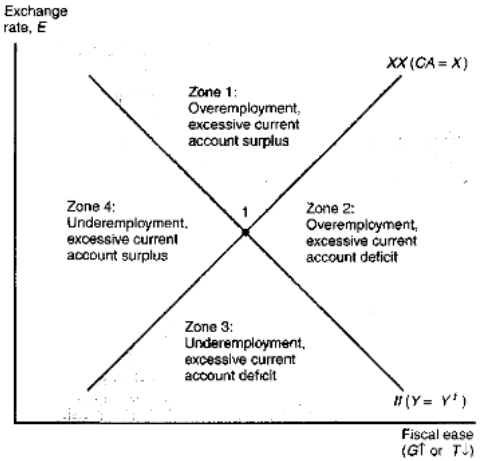


Fig. 29. Four Zones of Economic Discomfort Maintaining External Balance

Maintaining External Balance

Let's consider a scenario in which the government sets a specific target value, denoted as X, for a current account surplus. To achieve an external balance, the government needs to carefully manage both fiscal policy and the exchange rate to ensure compliance with the equation CA(EP*/P, Y-T) = X. When the exchange rate (E) rises, domestic goods become more affordable, which leads to an improvement in the current account balance. On the other hand, fiscal expansion has the opposite effect on the current account balance. A reduction in taxes (T) leads to an increase in production (Y). This, in turn, increases disposable income, which entails an increase in import costs, and, accordingly, negatively affects the current account balance. Similarly, with an increase in G, CA decreases due to an increase in Y. To keep the current account at X while devaluing the currency (i.e. raising E), the government needs to increase its spending or reduce taxes. Graph XX illustrates the degree of fiscal expansion required to maintain a current account surplus at level X when the currency devalues by a certain amount. When E rises, net exports increase, resulting in a current account surplus above the target level of X. Conversely, the current account deficit is below the target level XX. Maintaining an external

balance sheet is crucial for long-term economic growth, as it involves securing a current account and a stable exchange rate. However, achieving such a balance is a difficult task that requires skillful political maneuvering in the global economic network. One of the main problems related to the foreign trade balance is related to fluctuations in the global market. Competitiveness plays a crucial role in shaping the country's external balance in world markets. The level of productivity, innovation, and skill level of the workforce significantly affect how competitive a country is perceived to be. Unstable investment flows can have a significant impact on exchange rates, creating difficulties in maintaining the external balance. Protectionist trade policies such as tariffs and quotas can negatively affect a country's trade balance and competitiveness, ultimately affecting its external equilibrium.

Policies to Bring About Internal and External Balance

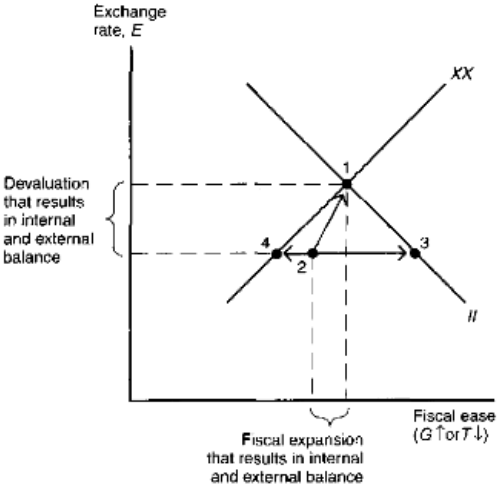


Fig. 30. Aspects of Balance

Unless the currency is devalued and the degree of fiscal ease increased, internal and external balance (point I) cannot be reached. Acting alone, fiscal policy can attain either internal balance (point 3) or external balance (point 4), but only at the cost of increasing the economy's distance from the goal that is sacrificed.

US Macroeconomic Data, 1964–1972

As Figure shows, US inflation rose in 1970 despite the onset of a recession. By then, inflationary expectations had become entrenched in the economy and were affecting wage settlements even in the face of the slowdown.

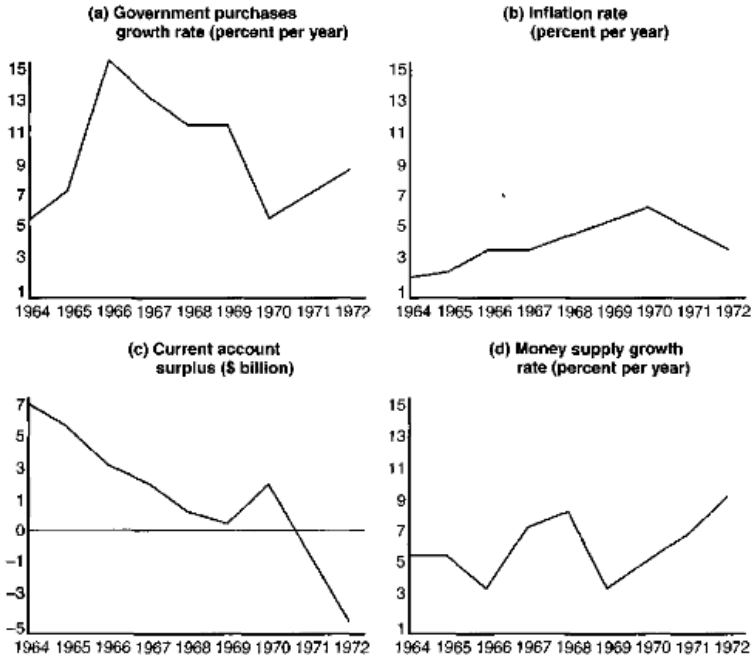


Fig. 31. US Macroeconomic Data, 1964–1972

Falling aggregate demand did, however, contribute to an improvement in the US current account in 1970.

President Richard M. Nixon forced the issue on August 15, 1971. First, he ended U.S. gold losses by announcing the United States would no longer automatically sell gold to foreign central banks for dollars.

This action effectively cut the remaining link between the dollar and gold. Second, the president announced a 10 percent tax on all imports to the United States, to remain effective until America's trading partners agreed to revalue their currencies against the dollar.

The acceleration of American inflation in the late 1960s was a worldwide phenomenon. The data that by the end of the 1960s, inflation had also speeded up in European economies.

One interpretation of the Bretton Woods system's collapse is that foreign countries were forced to import US.

To stabilize their price levels and regain internal balance, they had to abandon fixed exchange rates and allow their currencies to float.

Table 8

Inflation rate, 1966–1972

Country	1966	1967	1968	1969	1970	1971	1972
Britain	3.6	2.6	4.6	5.2	6.5	9.7	6.9
France	2.8	2.8	4.4	6.5	5.3	5.5	6.2
Germany	3.4	1.4	2.9	1.9	3.4	5.3	5.5
Italy	2.1	2.1	1.2	2.8	5.1	5.2	5.3

US monetary policy certainly contributed to inflation abroad by its direct effect on prices and money supplies. It helped wreck the fixed rate system by confronting foreign policymakers with a choice between fixed rates and imported inflation.

But the US fiscal policy that helped make a dollar devaluation necessary also contributed to foreign inflation by giving further encouragement to speculative capital flows out of dollars.

US fiscal policy in the later 1960s must be viewed as an additional cause of the Bretton Woods system's demise.

The Balance of Payments, Foreign Exchange Markets, and Exchange Rates

The balance of payments is a summary statement in which, in principle, all the transactions of the residents of a nation with the residents of all other nations are recorded during a particular period of time, usually a calendar year.

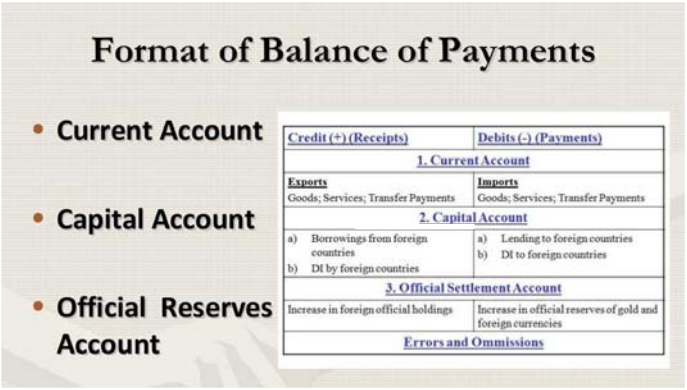


Fig. 32. Format of Balance of Payments

International transactions are classified as credits or debits.

Credit transactions are those that involve the receipt of payments from foreigners.

Debit transactions are those that involve the making of payments to foreigners.

Credit transactions are entered with a positive sign, and debit transactions are entered with a negative sign in the nation's balance of payments.

Financial inflows can take either of two forms: an increase in foreign assets in the nation or a reduction in the nation's assets abroad.

Financial outflows can take the form of either an increase in the nation's assets abroad or a reduction in foreign assets in the nation because both involve a payment to foreigners.

In recording a nation's international transactions, the accounting procedure known as double-entry bookkeeping is used.

This means that each international transaction is recorded twice, once as a credit and once as a debit of an equal amount.

	Credit (+)	Debit (–)
Goods exports	$500	
Financial outflow		$500

Fig. 33. Data Example

Fig. 34. Russia: Data

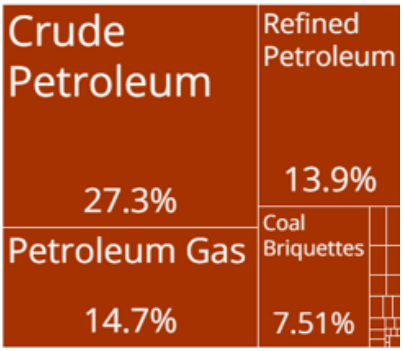


Fig. 35. Russia: Exports, 2022

Fig. 36. Russia: Trade Balance, 2015–2023 (in billions of US $)

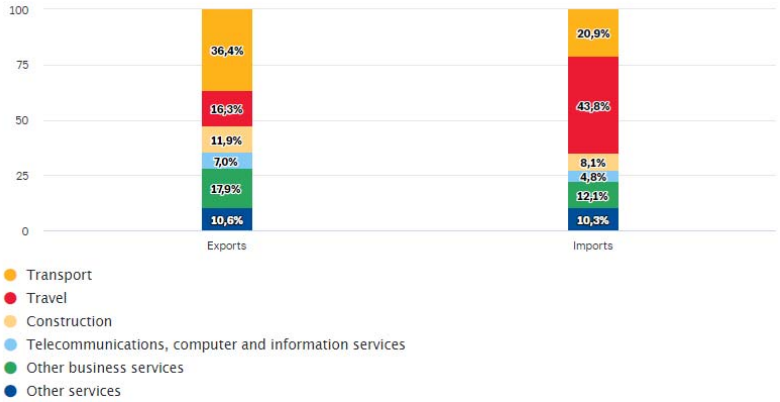


Fig. 37. Russia: Composition of Exports and Imports of Services, 2023

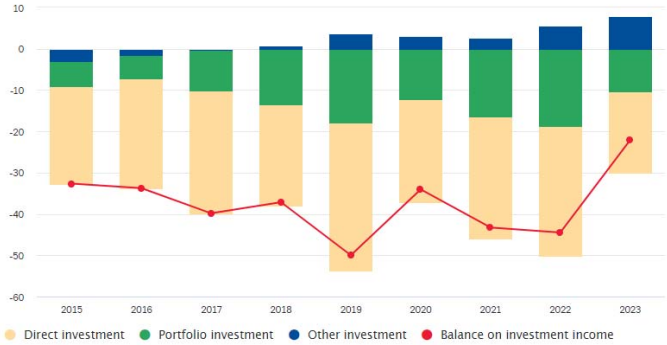


Fig. 38. Russia: Balance on Investment Income
by Type of Investment in 2015–2023 (in billions of US $)

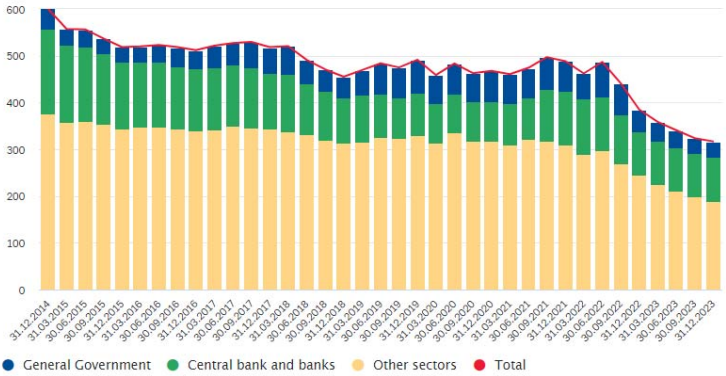


Fig. 39. Russia: External Debt of the RF (in billions of US $)

The balance on official reserve transactions is called the official settlements balance or simply the balance of payments, and the account in which official reserve transactions are entered is called the official reserve account.

The official settlements balance or balance of payments is given by the sum of the current account balance, the capital account balance, the balance in the financial account (excluding official or reserve transactions or flows but including the net balance of financial derivatives), and the statistical discrepancy.

If the sum of these balances is negative, the nation has a deficit in the balance of payments, which must be covered by an equal amount of official reserve transactions (reduction in the international reserves of the nation or increase in foreign holdings of official assets of the nation).

Table 9

Russia's Balance of Payments (billons of US $)*

	2021					2022					2023
	Q1	Q2	Q3	Q4	Year	Q1	Q2	Q3	Q4	Year	Q1**
Current account	**22.4**	**17.3**	**35.5**	**47.0**	**122.3**	**69.8**	**77.2**	**48.5**	**37.5**	**233.0**	**18.6**
Balance of trade	28.7	38.8	54.2	68.5	190.3	83.0	94.1	72.6	58.2	308.0	29.0
Exports	*93.3*	*114.9*	*132.1*	*154.0*	*494.3*	*154.5*	*151.8*	*141.4*	*140.6*	*588.3*	*100.8*
Imports	*64.6*	*76.1*	*77.9*	*85.5*	*304.0*	*71.5*	*57.7*	*68.8*	*82.3*	*280.4*	*71.8*
Balance of services	-3.0	-4.1	-6.9	-6.3	-20.2	-3.6	-3.5	-6.9	-8.2	-22.2	-4.9
Exports	*11.5*	*13.0*	*14.1*	*17.0*	*55.7*	*13.9*	*11.1*	*11.3*	*12.3*	*48.5*	*9.2*
Imports	*14.5*	*17.1*	*21.0*	*23.3*	*75.9*	*17.5*	*14.5*	*18.2*	*20.5*	*70.7*	*14.2*
Balance of primary and secondary income	-3.3	-17.5	-11.9	-15.2	-47.8	-9.6	-13.4	-17.3	-12.5	-52.8	-5.5
Capital account	**0.2**	**0.0**	**0.0**	**0.0**	**0.1**	**0.0**	**-1.1**	**-1.9**	**-1.5**	**-4.6**	**0.0**
Current and capital accounts balance	**22.7**	**17.3**	**35.5**	**47.0**	**122.4**	**69.8**	**76.1**	**46.5**	**36.0**	**228.4**	**18.6**
Financial account balance, excluding reserve assets	**19.0**	**9.8**	**4.1**	**26.1**	**59.0**	**77.2**	**78.7**	**42.4**	**35.7**	**234.1**	**21.4**
Net incurrence of liabilities	-0.3	2.9	32.2	2.9	37.7	-34.6	-54.7	-15.9	-24.6	-129.9	-13.3
Net acquisition of financial assets, excluding reserve assets	18.7	12.7	36.3	29.1	96.7	42.6	24.1	26.5	11.1	104.2	8.1
Net errors and omissions	**0.0**	**1.0**	**-1.8**	**0.8**	**0.1**	**-3.2**	**3.8**	**-2.3**	**0.1**	**-1.6**	**-2.3**
Change in reserve assets	**3.7**	**8.5**	**29.6**	**21.7**	**63.5**	**-10.6**	**1.2**	**1.8**	**0.4**	**-7.3**	**-5.1**

In the opposite situation the nation has a surplus in the balance of payments, which needs to be settled by an increase in the nation's international reserves and/or reduction in foreign official holdings of the nation's assets.

Summary

The Balance of Payments (BOP) is a tool for assessing a country's economic activity in the global market. A balance of payments is a report that displays all financial transactions between residents of a country (including individuals, businesses, and the government) and the global community over a period of time, usually one year. This is an accounting system where money flows into the country and its withdrawal from the country are presented. The balance of payments consists of a number of components. One of them is the current account, which tracks the exchange of goods, services, income and transfers between the country and the rest of the world.

There are three main elements in the current account: the trade balance, which shows the difference between exports and imports of goods and services in the country; net income from abroad includes income earned by residents of the country from investments made abroad, which are offset by income paid to foreign investors within the country; net transfers, including inflows and outflow of funds related to foreign aid, money transfers and other transfers. By analyzing these balance of payments indicators, policymakers and economists can gain valuable information about the economic advantages and threats to the country in relation to the global market. The Capital and Finance Account tracks the movement of financial assets and liabilities between a country and the global economy. This includes foreign direct investment, including investments by foreign companies in real estate, enterprises and infrastructure of the country; portfolio investments – investments in financial assets of the country (including stocks and bonds); other investments, including: loans and deposits. The balance of payments operates on the basis of the concept of double-entry bookkeeping, in which each transaction is documented by both credit and debit. A loan means an inflow of funds, while a debit represents an outflow. The balance between total loans and debits guarantees a constant balance of payments. The balance of payments is of great importance in various aspects: it acts as an essential tool for monitoring the economic well-being of a country, assessing the structure of trade, analyzing investment behavior and assessing financial stability.

VIII. Foreign Exchange Markets and Exchange Rates

The foreign exchange market is the market in which individuals, firms, and banks buy and sell foreign currencies or foreign exchange.

The foreign exchange market for any currency – say, the US dollar – is comprised of all the locations (such as London, Paris, Zurich, Frankfurt, Singapore, Hong Kong, Tokyo, and New York) where dollars are bought and sold for other currencies.

These different monetary centers are connected electronically and are in constant contact with one another, thus forming a single international foreign exchange market.

The exchange rate (R) between the dollar and the euro is equal to the number of dollars needed to purchase one euro.

That is, R = $/€.

For example,

if R = $/€= 1, this means that one dollar is required to purchase one euro.

The Exchange Rate under a Flexible Exchange Rate System

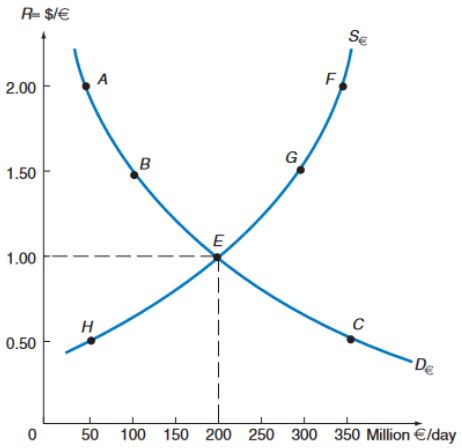


Fig. 40. The Exchange Rate System

The vertical axis measures the dollar price of the euro ($R = \$/€$), and the horizontal axis measures the quantity of euros. With a flexible exchange rate system, the equilibrium exchange rate is $R = 1$, at which the quantity demanded and the quantity supplied are equal at €200 million per day. This is given by the intersection at point E of the U.S. demand and supply curves for euros. At a higher exchange rate, a surplus of euros would result that would tend to lower the exchange rate toward the equilibrium rate. At an exchange rate lower than $R = 1$, a shortage of euros would result that would drive the exchange rate up toward the equilibrium level.

Depreciation & Appreciation

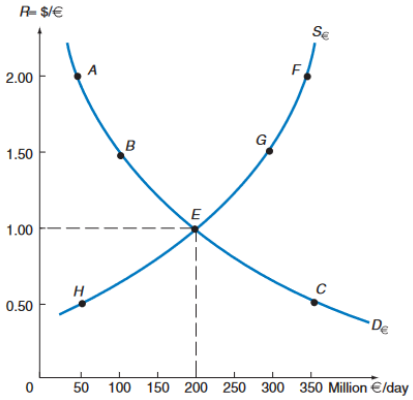


Fig. 41. The Exchange Rate System

Depreciation thus refers to an increase in the domestic price of the foreign currency.

Conversely, if the US demand curve for euros shifted down so as to intersect the U.S. supply curve for euros at point H (see Figure), the equilibrium exchange rate would fall to R = 0.5 and the dollar is said to have appreciated (because fewer dollars are now required to purchase one euro).

Appreciation thus refers to a decline in the domestic price of the foreign currency.

An appreciation of the domestic currency means a depreciation of the foreign currency and vice versa.

Shifts in the US supply curve for euros would similarly affect the equilibrium exchange rate and equilibrium quantity of euros.

Cross-exchange Rate

$$R = €/£ = \frac{\$ \text{ value of } £}{\$ \text{ value of } €} = \frac{2}{1.25} = 1.60$$

Arbitrage

The exchange rate between any two currencies is kept the same in different monetary centers by arbitrage.

This refers to the purchase of a currency in the monetary center where it is cheaper, for immediate resale in the monetary center where it is more expensive, in order to make a profit.

Example:

$$\$1 = €1 \text{ in New York}$$
$$€1 = £0.64 \text{ in Franfurt}$$
$$£0.64 = \$1 \text{ in London}$$

These cross rates are consistent because

$$\$1 = €1 = £0.64$$

Disequilibrium under a Fixed and a Flexible Exchange Rate System

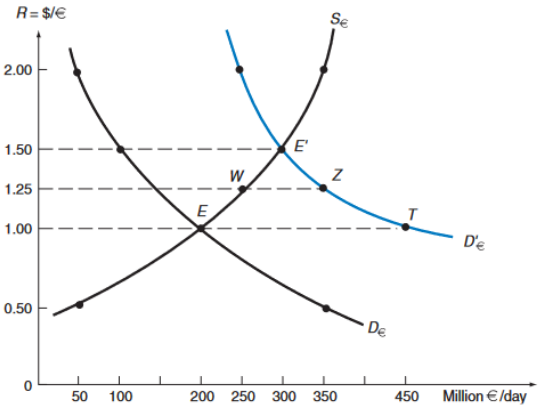


Fig. 42. Disequilibrium

With $D_€$ and $S_€$, equilibrium is at point E at the exchange rate of $R = \$/€ = 1$, at which the quantities of euros demanded and supplied are equal at €200 million per day. If $D_€$ shifted up to $D'_€$, the United States could maintain the exchange rate at $R = 1$ by satisfying (out of its official euro reserves) the excess demand of €250 million per day (TE in the figure). With a freely flexible exchange rate system, the dollar would depreciate until $R = 1.50$ (point E' in the figure). If, on the other hand, the United States wanted to limit the depreciation of the dollar to $R = 1.25$ under a managed float, it would have to satisfy the excess demand of €100 million per day (WZ in the figure) out of its official euro reserves.

Efficiency of Foreign Exchange Markets

When exchanging foreign currencies, the effectiveness is manifested in the ability of forward exchange rates to reliably predict future spot rates. This means that forward rates are quickly adjusted according to new information, which prevents investors from constantly using arbitrage opportunities. Empirical studies by Levich (1985) and other scientists study in detail the effectiveness of foreign exchange markets. They show that the chances of making a risk-free profit through arbitrage are very limited. Small deviations from interest rate parity are usually insignificant in terms of transaction costs, which indicates a high level of market efficiency. Financial speculators often face the problem of combining profits and losses, which highlights the difficulty of consistently making significant profits with such activity. Discrepancies in the arbitration calculations for covered interest were investigated by Frenkel and MacArthur (1988), who concluded that this strategy works effectively in large industrialized countries, but its effectiveness is usually low in countries with small economies. Lewis (1995) argues that the traditional theory of developing countries cannot explain the unique dynamics inherent in these economies. Researchers Clarida and others (2003), having studied the data of time series of forecast exchange rates, justified the possibility of more accurate forecasting of future spot exchange rates. These research results indicate that, although foreign exchange markets demonstrate significant efficiency, there are still opportunities for further study in order to form a deeper understanding of the processes taking place.

Summary

The International Monetary System (IMS) is the most important global structure regulating exchange rates, currency transactions and international financial flows. Its main function is to support international trade and investment by providing stable conditions for currency exchange. One of the key aspects of IMS is its role in determining how currencies are valued relative to each other, which in turn affects trade balances and economic ties between countries. Exchange rate regimes within the IMS can be divided into fixed, floating or pegged, each of which has its own effect on how currencies react to market dynamics or government actions.

The International Monetary Fund (IMF) is responsible for monitoring exchange rates, providing financial assistance to countries dealing with balance of payments problems, and facilitating international monetary cooperation. The World Bank pays special attention to promoting long-term economic development and poverty reduction.

An important tool for assessing the financial situation of a country is the balance of payments, which is a report on all economic transactions between residents of the country and the rest of the world for a certain period of time. It includes a current account (trading operations), a capital account (financial transactions) and a financial account (investment flows). The balance of payments of a country can also influence the exchange rate of its currency. In the field of international monetary relations, countries often coordinate their monetary policies to maintain stable exchange rates and protect against external currency crises.

The international Monetary System (IMS) has undergone significant changes throughout history. Historically formed financial systems such as the Gold Standard, the Bretton Woods system and the modern floating exchange rate system deserve attention. Each of them faced both achievements and obstacles, forming prerequisites for further improvement. Among the modern problems of the global financial system, it can be noted: volatility of exchange rates, frequent financial crises, economic inequality of countries, the emergence of new types of currencies, such as: cryptocurrency.

The IMS plays an important role in ensuring global economic transactions, promoting trade, investment and economic stability, while adapting to the ever-changing landscape of international finance.

Tasks

Task 1

Problems.

1. Imagine a situation in which country A imposes tariffs on goods imported from country B, what in your opinion may be retaliatory measures on the part of country B. Assess the potential consequences of this trade conflict in accordance with the following criteria:

– consumer prices in countries;

– the level of production and the level of employment by sector of the economy (for both countries);

– prospects for economic growth and living standards in the countries;

– prospects for participation in international organizations.

2. During a currency crisis, a developing country may face a rapid and significant devaluation of its currency, which will lead to serious consequences. Analyze the possible causes of such crises according to the following criteria:

– current account deficit;

– the level of external debt;

– political instability.

3. If a currency becomes the object of speculation, it can have far-reaching consequences for the economy, including: a sharp increase in the inflation rate; a negative impact on economic growth; violations of the investment model; difficulties in debt repayment. Identify possible strategies for managing the currency crisis in relation to:

– fiscal and monetary policy measures to stabilize the currency;

– measures to prevent speculative attacks;

– measures to increase the transparency of the national economy and restore confidence in the national market.

Task 2

1. Home has 1,200 units of labor available and can produce two goods: apples and bananas. The unit labor requirement for apple production is 3, and for banana production it is 2:

a) illustrate Home's production possibility frontier graphically;

b) determine the opportunity cost of producing apples in terms of bananas;

c) in the absence of trade, calculate the price of apples in terms of bananas and explain the reasoning behind it.

2. Building upon the scenario in problem 1, introduce a new country called Foreign with a labor force of 800. Foreign's unit labor requirement for apple production is 5, and for banana production it is 1:

a) draw a graph of the production capability of Foreign;

b) build a global relative supply curve.

3. Suppose that the global relative demand has the following form: Demand for apples / demand for bananas = price of bananas / price of apples.

a) plot the relative demand curve along with the relative supply curve;

b) what is the equilibrium relative price tag for apples?

c) describe the trading model;

d) show that both Home and Foreign benefit from trading.

4. Let's analyze the impact of doubling the workforce at Home from 1,200 to 2,400 employees.

a) calculate the updated equilibrium relative price by analyzing the impact of the changes in Home's production capabilities and the global relative supply and demand. The expansion of the labor force in Home is expected to expand its production possibilities, potentially influencing the equilibrium relative price.

b) assess the efficiency of global production by studying the shifts in specialization and trade patterns resulting from the larger labor force in Home.

c) does this boost efficiency, resulting in a more optimal allocation of resources on a global scale?

Task 3

1. Create a diagram akin to Figure 1 representing Nation 1, with the quantity of commodity Y plotted on the horizontal axis and the dollar price of Y on the vertical axis.

Draw the supply curve (S Y) for Nation 1, which is identical to the supply curve (S X) for Nation 2 in Figure 1. However, draw the demand curve (D Y) for Nation 1 crossing the vertical axis at a price of PY = $8 and the horizontal axis at a quantity of 80Y. Additionally, assume that under free trade, the price of commodity Y is PY = $1. Finally, consider that Nation 1 decides to impose a 100 percent ad valorem import tariff on commodity Y.

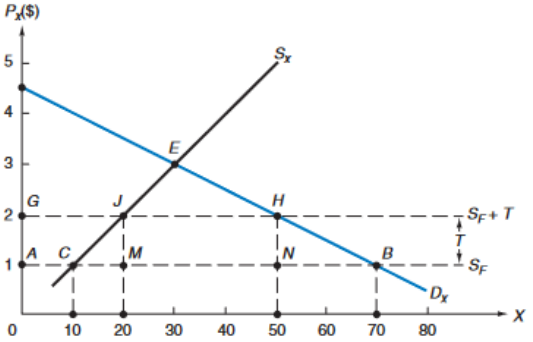


Fig. 1. Partial Equilibrium Effect

With regard to your figure, indicate the following for Nation 1:

a) the level of consumption, production, and imports of commodity Y at the free trade price of PY = $1;

b) the level of consumption, production, and imports of commodity Y after Nation 1 imposes the 100 percent ad valorem tariff on commodity Y;

c) what are the consumption, production, trade, and revenue effects of the tariff?

2. For the statement of Problem 1:

a) determine the dollar value of the consumer surplus before and after the imposition of the tariff;

b) of the increase in the revenue of producers with the tariff (as compared with their revenues under free trade), how much represents increased production costs? increased rent, or producer surplus?

c) what is the dollar value of the protection cost, or deadweight loss, of the tariff?

3. Suppose that a nation reduces import tariffs on raw materials and intermediate products but not on finished products. What effect will this have on the rate of effective protection in the nation?

4. Calculate the rate of effective protection when t (the nominal tariff on the final commodity) is 40 percent, ai (the ratio of the cost of the imported input to the price of the final commodity in the absence of tariffs) is 0.5, and t_i (the nominal tariff on the imported input) is 40 percent.

5. For the given in Problem 4, recalculate g with the following values of t^i:

a) ti = 20 percent;

b) ti = 0;

c) ti = 80 percent;

d) ti = 100 percent.

6. For the given in Problem 4,

a) recalculate g if ti = 20 percent and ai = 0.6;

b) what general conclusion can you reach about the relationship between g and t from your answer?

7. Is India more likely to restrict its imports of L-intensive or K – intensive commodities? Why? What effect is this likely to have on the distribution of income between labor and capital in India?

Topics for Discussion!!

1. What are the primary benefits and drawbacks associated with free trade agreements?

2. How do tariffs and quotas influence both the economy of a nation and its trade dynamics?

3. What are the key rationale for and objections against protectionist trade measures?

4. How does the Balance of Payments (BOP) function, and what insights does it offer into a nation's economic well-being?

5. Elucidate the notion of comparative advantage and its significance in the realm of international trade.

6. What are the principal determinants of exchange rates in the global market?

7. Explore the connection between exchange rates and a country's current account balance.

8. Examine the advantages and hurdles that globalization presents to developing nations

Task 4

Analyze the Balance of payment and give your recommendations

India Balance of Payments indicating further build in forex reserves

India Balance of Payments (USD Bn)						
Item	**2012 – 13**	**2013 – 14**	**2014 – 15**	**2015 – 16**	**2016 – 17p**	**2017 – 2018p**
Current Account						
Merchandise trade balance	-195.7	-147.6	-144.2	-130.1	-108.0	-129.0
Invisibles	107.5	115.2	116.2	107.9	100.0	109.0
Total Current Account	-88.2	-32.4	-27.9	-22.2	-8.0	-20.0
CAD as % of GDP	-5.2%	-2.0%	-1.6%	-1.3%	-0.4%	-1.0%
Capital Account						
FII	34.7	8.7	40.9	-4.1	6.0	9.0
FDI	22.4	24.3	32.6	36.0	47.0	36.0/51.0
Others*	42.6	22.4	16.4	9.2	-16.0	10.0
Total Capital Account	**99.7**	**55.4**	**90.0**	**41.1**	**37.0**	**55.0/70.0**
Balance of Payments	**14.2**	**22.1**	**61.4**	**17.9**	**29.0**	**35.0/50.0**

***Note:** Others include net commercial borrowings, short term loans, banking capital and other capitals

Slide 20

Task 5

Analys the Balance of payment and match 3-4 trends

Оценка платежного баланса Российской Федерации за I-II-III-IV квартал 2020 года (аналитическое представление)

млрд $

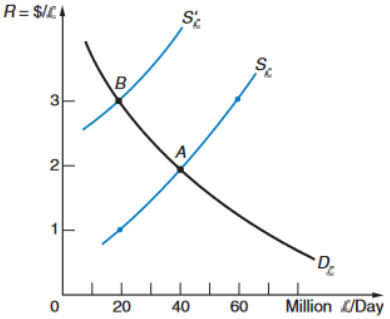
	I квартал 2020 г от 09.10.20	I квартал 2020 г от 19.01.21	II квартал 2020 г прогн. от 09.10.20	II квартал 2020 г от 19.01.21	III квартал 2020 г прогн. от 09.10.20	III квартал 2020 г от 19.01.21	IV квартал 2020 г прогн. от 19.01.21	2020 г прогн. от 19.01.21
Счет текущих операций	**21,7**	**22,9**	**0,6**	**-0,5**	**0,9**	**2,5**	**3,2**	**5,6**	**32,5**
Торговый баланс	31,9	33,2	14,3	15,3	16,5	17,0	18,3	21,5	89,4
Экспорт	*88,1*	*89,3*	*67,9*	*69,5*	*70,4*	*76,9*	*78,5*	*91,5*	*329,5*
Импорт	*56,2*	*56,1*	*53,6*	*54,0*	*53,9*	*59,9*	*60,2*	*69,5*	*240,1*
Баланс услуг	-6,7	-6,8	-2,1	-2,3	-2,2	-3,1	-3,9	-5,4	-18,3
Экспорт	*13,4*	*13,6*	*7,7*	*9,8*	*9,9*	*10,7*	*10,5*	*10,5*	*44,5*
Импорт	*20,1*	*20,3*	*9,8*	*12,1*	*12,1*	*13,8*	*14,5*	*15,9*	*62,8*
Баланс оплаты труда	-0,7	-0,7	-0,1	-0,5	-0,5	-0,7	-0,5	-0,2	-1,7
Баланс инвестиционных доходов	-1,6	-1,7	-10,2	-11,6	-11,6	-9,0	-9,5	-8,1	-30,5
Доходы к получению	*11,5*	*9,8*	*8,9*	*8,9*	*9,0*	*9,1*	*9,5*	*8,9*	*36,8*
Доходы к выплате	*13,1*	*11,4*	*19,2*	*20,5*	*20,5*	*18,1*	*18,5*	*16,9*	*67,4*
Баланс ренты	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1
Баланс вторичных доходов	-1,2	-1,1	-1,3	-1,5	-1,4	-1,8	-1,6	-2,5	-6,4
Счет операций с капиталом	**0,0**	**0,0**	**-0,2**	**-0,2**	**-0,2**	**-0,1**	**-0,1**	**-0,4**	**-0,7**
Чистое кредитование (+) / чистое заимствование (-) (Сальдо счета текущих операций и счета операций с капиталом)	**21,7**	**22,9**	**0,4**	**-0,7**	**0,7**	**2,4**	**3,1**	**5,2**	**31,9**
Чистое кредитование (+) / чистое заимствование (-) (Сальдо финансового счета, кроме резервных активов)	**16,5**	**18,4**	**12,7**	**13,8**	**13,6**	**3,2**	**7,4**	**10,4**	**49,9**
Чистое принятие обязательств ('+' - рост, '-' - сниж	**-11,0**	**-13,8**	**-1,6**	**-2,8**	**-2,7**	**-13,6**	**-14,9**	**-11,7**	**-43,1**
Федеральные органы управления	*0,6*	*0,6*	*1,0*	*1,1*	*1,1*	*-0,7*	*-0,4*	*2,6*	*5,9*
Субъекты Российской Федерации	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*
Центральный банк	*-1,0*	*-1,0*	*-1,5*	*-1,5*	*-1,5*	*2,6*	*2,5*	*-0,9*	*-0,9*
Банки	*-7,0*	*-6,8*	*-8,7*	*-9,2*	*-9,2*	*-5,6*	*-2,2*	*-7,6*	*-25,8*
Прочие секторы	*-3,6*	*-6,5*	*7,7*	*6,5*	*6,6*	*-11,9*	*-14,5*	*-5,9*	*-20,3*
Чистое приобретение финансовых активов, кроме	**5,5**	**4,7**	**11,1**	**10,9**	**10,9**	**-10,5**	**-7,5**	**-1,3**	**6,8**
Органы государственного управления	*0,1*	*0,1*	*0,7*	*1,2*	*1,2*	*-1,3*	*-0,7*	*0,3*	*0,9*
Центральный банк	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*0,0*	*-0,1*
Банки	*2,5*	*2,5*	*-1,4*	*-2,0*	*-2,0*	*-8,7*	*-7,4*	*-1,0*	*-7,9*
Прочие секторы	*3,0*	*2,2*	*11,8*	*11,7*	*11,7*	*-0,5*	*0,6*	*-0,6*	*15,9*
Чистые ошибки и пропуски	**-0,2**	**0,6**	**-0,6**	**1,6**	**0,0**	**-1,5**	**2,1**	**1,6**	**4,3**
Изменение резервных активов ('+' - рост, '-' - снижен	**5,0**	**5,0**	**-12,9**	**-12,9**	**-12,9**	**-2,3**	**-2,3**	**-3,6**	**-13,8**

Task 6

1. From the following figure, determine:

a) the equilibrium exchange rate between the dollar and the pound sterling and the equilibrium quantity of pounds with supply curve S£ and S ′£ under a flexible exchange rate system;

b) If the United States wanted to maintain the exchange rate at $3 = £1 with supply curve S£, how much pound reserves would the U.S. central bank gain or lose per day?



Test

I. Multiple Choice (1 point each, total 10 points).

1. Which of the following is NOT a major goal of international economic policy?

a) economic growth;

b) price stability;

c) full employment;

d) maximizing trade deficits.

2. The principle of comparative advantage states that:

a) countries should specialize in producing goods and services they can produce most efficiently;

b) countries should focus on exporting goods they can produce at the lowest cost;

c) countries should impose tariffs to protect domestic industries;

d) countries should aim for a balanced trade.

3. A tariff is:

a) a tax on imported goods;

b) a limit on the quantity of imported goods;

c) a government subsidy for domestic producers;

d) a measure to promote free trade.

4. The Balance of Payments (BOP) records:

a) a country's economic transactions with the rest of the world;

b) the flow of goods and services within a country;

c) the level of government spending and taxation;

d) the amount of money in circulation.

5. Which of the following is NOT a component of the current account in the BOP?

a) trade balance;

b) net income from abroad;

c) foreign direct investment;

d) net transfers.

6. What is the primary function of the foreign exchange market?

a) to regulate inflation;

b) to facilitate international trade and investment;

c) to control government spending;

d) to set interest rates.

7. The Bretton Woods system, established after World War II, was based on:

a) floating exchange rates b. Fixed exchange rates pegged to gold;

c) a global currency managed by the IMF;

d) free trade among all member countries.

8. Internal balance in an economy refers to:

a) a stable exchange rate;

b) a sustainable current account balance;

c) full employment and price stability;

d) efficient allocation of resources.

9. Which of the following is a potential consequence of a currency crisis? a. Increased economic growth:

b) reduced inflation;

c) increased investment;

d) financial instability.

10. The "Four Zones of Economic Discomfort" highlight the potential trade-offs between:

a) inflation and unemployment;

b) internal balance and external balance;

c) trade liberalization and protectionism;

d) economic growth and environmental sustainability.

II. Short Answer (2 points each, total 20 points).

1. Briefly explain the concept of comparative advantage and provide an example.

2. Describe two main types of trade restrictions and their potential effects on a country's economy.

3. What are the key components of the Balance of Payments (BOP)?

4. What are the main benefits and challenges of globalization?

5. Briefly discuss the Triffin Dilemma and its role in the collapse of the Bretton Woods system.

6. Define internal balance and external balance in an economy.

7. What are the primary factors that influence exchange rates?

8. What are some strategies countries can use to maintain external balance?

9. What are the main objectives of trade agreements, and how can they impact international trade?

10. Discuss the role of international institutions like the WTO and IMF in shaping the global economy.

III. Essay (10 points).

Choose ONE of the following essay topics.

1. Discuss the potential benefits and drawbacks of free trade agreements. Analyze the arguments for and against free trade agreements, considering both economic and political factors.

2. Examine the relationship between globalization and income inequality. Discuss the potential impacts of globalization on income distribution both within and across countries, and explore policy options to mitigate the negative effects of globalization on inequality.

3. Analyze the challenges of maintaining external balance in a globalized economy. Consider the role of exchange rate fluctuations, capital flows, and global economic shocks in influencing a country's external balance, and discuss policy options that can help countries maintain a sustainable current account.

IV. Problem Solving (10 points).

Suppose a country has a current account deficit of $100 billion. It is considering implementing a combination of fiscal and monetary policies to address this deficit.

• Fiscal Policy: The government is considering increasing taxes by $50 billion to reduce government spending.

• Monetary Policy: The central bank is considering raising interest rates by 1%.

Analyze the likely impact of these policy choices on the current account deficit, considering:

• The potential effects of increased taxes on consumer spending and investment.

• The potential effects of higher interest rates on exchange rates and capital flows.

• Explain your reasoning for each policy decision and its potential consequences.

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4	International Labour Organization www.ilo.org	Publications, regulatory documents, news feed, projects are presented in the public domain
5	Federal State Statistics Service (Rosstat) https://rosstat.gov.ru/	The official statistical materials of Rosstat, regulatory and legal documents are available in the public domain
6	UN https://www.un.org/	Publications, regulatory documents, news feed, projects are presented in the public domain
7	Demoscope: weekly http://www.demoscope.ru/	Electronic publication of the Institute of Demography, National Research University Higher School of Economics
8	Eurostat https://ec.europa.eu/eurostat	Publications, EU statistical databases

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