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Title：Problem-Based Learning (PBL)

Case Study:
Leanne's Entrepreneurial Journey:
Finding Sustainable Business
Opportunities Amid Changes

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Abstract

This research paper explores the transformative journey of Leanne, a former purchasing manager who leveraged the global disruptions caused by the COVID-19 pandemic to establish a successful import-export company specializing in smart electronic devices and high-performance computer hardware. The study delves into the economic implications of her business model, particularly in the context of international trade, exchange rate fluctuations, trade agreements, and market regulations. Furthermore, it examines how Leanne integrated sustainable development goals (SDGs) into her business practices, addressing environmental and social responsibilities. By adopting green packaging, optimizing logistics to reduce carbon footprints, and ensuring fair trade principles, Leanne’s company not only enhanced its market competitiveness but also contributed to global sustainable development. This paper aims to provide insights into the intersection of economic strategies and sustainable practices in international trade, highlighting the importance of adaptability, innovation, and responsible entrepreneurship in today’s complex global business environment.

Keyword： International Trade, Sustainable Development Goals (SDGs), Economic Strategies, Supply Chain Management, Environmental Responsibility, Social Responsibility, Green Packaging, Fair Trade, Digital Transformation, COVID-19 Pandemic Impact

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Chapter 1 Background Knowledge

This lesson plan requires students to possess an understanding of market supply and demand theories, as well as basic macroeconomic knowledge. Therefore, students must first understand the implications of the following terms to analyze and explore the topics of this lesson plan:

Law of Demand

The Law of Demand states that, as the price of a good or service increases, its demand decreases. This law is based on consumer behavior whereby people prefer to purchase more of a good when its price is lower and less when its price is higher. In other words, the Law of Demand states that there is an inverse relationship between price and the quantity demanded.

Assumptions of law of demand

The law of demand states that, all other things being equal, the quantity demanded of a good and services is inversely related to its price. This is one of the most foundational principles in economics and underlies much economic theory. The assumption behind this law is that consumers prefer lower prices and are willing to substitute with goods that are cheaper.

Furthermore, the law also assumes that consumer preferences remain constant over time; meaning there is no significant change in consumer tastes or consumer incomes which would cause them to purchase more or less of a given product regardless of its price.

Additionally, it assumes there are good substitutes for a certain product; if there are few substitutes or none then people will be willing to pay higher prices for it without being affected by the changes in price. It further assumes that customers have perfect information about available alternatives, as well as their respective prices.

Implications of Law of Demand

The Law of Demand has various implications for businesses, producers, and consumers alike. From a business perspective, companies need to be mindful of how changes in prices might influence consumer behavior and their ability to sell products. For consumers, understanding this law allows them to make smart purchasing decisions by considering both quality and prices when making decisions about what goods or services they should buy. Finally, producers can use this law to maximize their profits by setting prices at an optimum level which balances satisfying customer demand while still providing sufficient profits.

Law of Supply

The law of supply is a microeconomic law. It states that, all other factors being equal, as the price of a good or service increases, the quantity of that good or service that suppliers offer will increase, and vice versa. In plain terms, this law means that as the price of an item goes up, suppliers will attempt to maximize their profits by increasing the number of that item that they sell.

Factors Affecting Market Supply and Demand - The Law of Supply and Demand

The law of supply and demand combines two fundamental economic principles describing how changes in the price of a resource, commodity, or product affect its supply and demand. As the price increases, supply rises while demand declines. Conversely, as the price drops supply constricts while demand grows. Factors such as taxes and government regulation, the market power of suppliers, the availability of substitute goods, and economic cycles can all shift the supply or demand curves or alter their shapes.

Market Equilibrium

Equilibrium is the state in which market supply and demand balance each other, and as a result prices become stable. Generally, an over-supply of goods or services causes prices to go down, which results in higher demand—while an under-supply or shortage causes prices to go up resulting in less demand. The balancing effect of supply and demand results in a state of equilibrium.

Gross Domestic Product (GDP)

Gross domestic product (GDP) is the standard measure of the value added created through the production of goods and services in a country during a certain period. As such, it also measures the income earned from that production, or the total amount spent on final goods and services (less imports).

Price Index (primarily the Consumer Price Index, CPI)

The Consumer Price Index (CPI) measures the monthly change in prices paid by U.S. consumers. The Bureau of Labor Statistics (BLS) calculates the CPI as a weighted average of prices for a basket of goods and services representative of aggregate U.S. consumer spending.

The CPI is one of the most popular measures of inflation and deflation. The CPI report uses a different survey methodology, price samples, and index weights than the producer price index (PPI), which measures changes in the prices received by U.S. producers of goods and services.

Import and Export Trade

These imports provide more choices to consumers because they are usually manufactured more cheaply than any domestically produced equivalent. Imports help consumers manage their strained household budgets. The price changes in imports and exports are tracked by the Import/Export Index (MXP) released by the Bureau of Labor Statistics (BLS).

When there are too many imports coming into a country in relation to its exports—which are products shipped from that country to a foreign destination—it can distort a nation’s balance of trade and devalue its currency. The devaluation of a country's currency can have a huge impact on the everyday life of a country's citizens because the value of a currency is one of the biggest determinants of a nation’s economic performance and its gross domestic product (GDP). Maintaining the appropriate balance of imports and exports is crucial for a country. The importing and exporting activity of a country can influence the country's GDP, its exchange rate, and its level of inflation and interest rates.

Interest Rates

An interest rate is a cost of borrowing money, expressed as a percentage of the amount borrowed. It is used to calculate the interest payments that are made over the life of a loan. An interest rate can be fixed or variable, and it can apply to either consumer debt or business loans. An interest rate is the percentage of an amount of money that is paid for its use over a period. The amount may be borrowed or lent, and the interest rate usually refers to the annual cost of borrowing. It’s how credit providers make their money.

The interest rate is usually expressed in two economics concepts

Real interest rates are the financial rates that are adjusted for inflation. Nominal interest rates are unadjusted or “pure” rates. The difference between the two is the real interest rate.

Nominal interest rates are often used when setting monetary policy because central banks can target a specific nominal rate. That said, in practice, most people are more interested in real interest rates. After all, it’s the real interest rate that determines how much purchasing power you’ll have in the future, affecting financial aspects like your credit ratings.

Central Bank

A central bank is a financial institution given privileged control over the production and distribution of money and credit for a nation or a group of nations. In modern economies, the central bank is usually responsible for the formulation of monetary policy and the regulation of member banks.

Monetary Expansion

An expansionary monetary policy is a type of macroeconomic monetary policy that aims to increase the rate of monetary expansion to stimulate the growth of a domestic economy. The economic growth must be supported by additional money supply. The money injection boosts consumer spending, as well as increases capital investments by businesses.

Monetary Policy

Monetary policy is a set of tools used by a nation's central bank to control the overall money supply and promote economic growth and employ strategies such as revising interest rates and changing bank reserve requirements. In the United States, the Federal Reserve Bank implements monetary policy through a dual mandate to achieve maximum employment while keeping inflation in check.

Chapter 2 Story Scenario

Leanne's Entrepreneurial Journey: Finding Sustainable Business Opportunities Amid Changes

As the pandemic ravaged the globe, causing unprecedented impacts on many industries, Leanne decided to seize this historic turning point to embark on a new journey. Before the pandemic, she worked as a purchasing manager at a company, coordinating global supply chain management. This job allowed her deep insights into the dynamics of the international market and developed her professional skills in logistics, cost control, and supplier negotiations. With the outbreak of the pandemic and the dramatic changes in global trade patterns, Leanne saw a unique opportunity. She realized that traditional supply chain models were facing a need for reshaping, and she could leverage her expertise and network to carve out a new niche in international trade. Thus, she decided to establish her own import-export company, focusing on the international trade of the latest technology products, such as smart electronic devices and high-performance computer hardware. These products were increasingly demanded in the wave of digital transformation following the pandemic, and Leanne believed it was the perfect time to launch her new business

Although Leanne's insights into the international market and her good relationships with Asian manufacturers laid a solid foundation for her new business, she quickly realized that mere past experience was insufficient to succeed in this competitive industry. Engaging in international trade would face more uncertainties, and she needed to learn about economics related to international trade, especially regarding exchange rate fluctuations, trade agreements, and market regulations.

Leanne also focused on how to make her business more sustainable. She recognized that the success of a business today depended not only on its economic profits but also on its positive contributions to society and the environment. Facing growing demands for environmental and social responsibility from the market and clients, Leanne began exploring more environmentally friendly and socially responsible strategies in her import-export business. She committed to integrating sustainable practices into daily operations, such as using green packaging materials, optimizing logistics to reduce carbon footprints, and ensuring fair trade principles within the supply chain.

This shift was catalyzed by a conversation with a major client from the European Union, who emphasized the importance of adhering to strict environmental and social responsibility standards. This made Leanne realize that for long-term success, her business needed to go beyond mere profit-seeking and actively contribute to achieving the United Nations' Sustainable Development Goals (SDGs). Hence, Leanne started incorporating the concept of sustainable development into her business model, from improving the transparency and efficiency of the supply chain to adopting eco-friendly packaging and logistics solutions. Every step she took reflected her commitment to a more equitable and sustainable future.

Leanne firmly believed that through these efforts, she could not only enhance her company's market competitiveness but also contribute to broader sustainable development goals. She saw that sustainable practices in businesses were a key driving force in promoting global sustainable development, especially in the field of international trade. Her company began to be recognized as a pioneer in promoting environmental and social responsibility in the industry, which also earned her more respect and cooperation opportunities from knowledgeable peers.

Leanne is a proactive lifelong learner. She transformed from an expert focused on supply chain management into a visionary and responsible international trade entrepreneur. In this process, she not only built a successful business but also became an advocate and practitioner of sustainable development concepts. Her story proves that even in an era filled with uncertainties, with wisdom, courage, and innovation, we can still create a meaningful and profitable future.

Next, we will review the various challenges Leanne encountered during the development of her company. This is not only a part of her career but also reflects the complexity and challenges of today's global business environment.

Chapter 3 Act Arrangements and Discussion Questions

Act One: The Revelation of Trade Balances (25 minutes)

Scene: Leanne and her assistant, Amelia, are discussing the company's situation in the office.

Leanne (looking at the trade data on the computer screen): "Although our exports have increased, the costs of imports have also risen accordingly."

Amelia: "Yes, this is mainly due to the rising prices of the electronic components we import. Our products are popular in the European and American markets, but we need to closely monitor the costs."

Leanne: "This means our trade surplus might be affected. We need to adjust our strategies to balance these changes."

Scene transition: Leanne discusses with her team during a meeting.

Leanne: "Everyone, we need to find a way to reduce our import costs while maintaining our competitiveness in the international market."

Lena: "We are negotiating more favorable import contracts and contacting suppliers with lower costs."

Leanne: "Good, Lena, you will be in charge of implementing this plan. Amelia, please continue to analyze the market data to help us make more precise decisions."

Scene transition: Leanne thinking at her desk.

Leanne (recording notes): "Managing trade surpluses and deficits is crucial for our business. We must remain vigilant and respond to every fluctuation in the market."

Scene transition: Lena and Amelia chatting in the break area.

Lena: "The global trade situation is really complex lately. Many countries are struggling to balance their trade surpluses and deficits."

Amelia: "Yes, especially as international policies and market conditions change, the impact of trade balances on national economies has become more apparent."

Lena: "The adjustments in our company’s strategy actually reflect these broader economic trends. We need to keep an eye on these changes to ensure that our business strategies evolve with the times."

(The act ends with Leanne and her team facing the challenge of maintaining good trade balances in the rapidly changing international market while also paying attention to broader global economic dynamics.)

Discussion Question 1:

According to the 2022 data, which five countries had the largest trade surpluses? Why do these countries have such large trade surpluses?

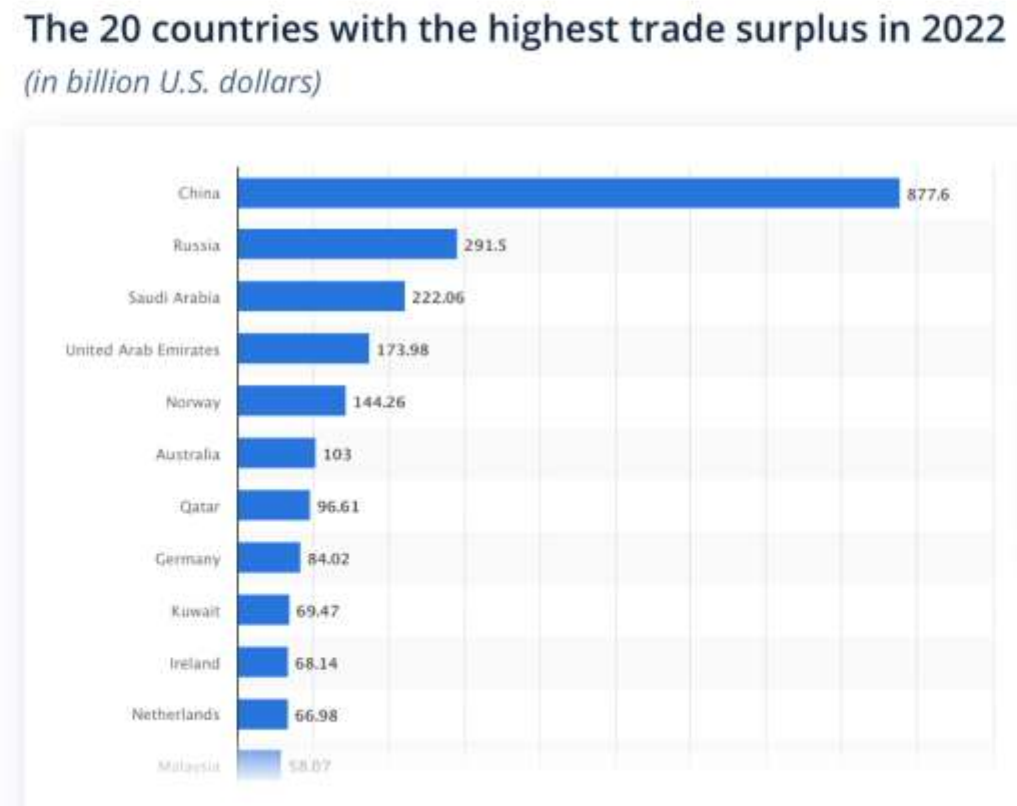

Figure 1 The 20 countries with the highest trade surplus in 2022

In 2022, the five countries with the largest trade surpluses were:

1. **China**: With a trade surplus of approximately $877.6 billion.
2. **Russia**: With a trade surplus of $370.7 billion.
3. **Saudi Arabia**: With a trade surplus of $238.2 billion.
4. **Norway**: With a trade surplus of $164.4 billion.
5. **Australia**: With a trade surplus of $112.1 billion.

These countries have large trade surpluses due to a combination of factors:

- **China**: Known for its competitive manufacturing and export-oriented economy, China has a significant trade surplus. It has historically undervalued its currency to promote exports, although it is working to reduce reliance on exports.

- **Russia**: Rich in natural resources, especially oil and gas, Russia's trade surplus is bolstered by its energy exports.
- **Saudi Arabia**: As one of the world's largest oil producers, Saudi Arabia's trade surplus is driven by its petroleum exports.
- **Norway**: Norway's trade surplus is also largely due to its oil and gas exports, alongside seafood and other goods.
- **Australia**: Known for its vast mineral resources, Australia's trade surplus comes from exporting commodities like iron ore and coal.

Trade surpluses in these countries are generally the result of strong export sectors, favorable commodity prices, and sometimes strategic currency valuations. However, it's important to note that a trade surplus isn't always sustainable or indicative of overall economic health, as it can lead to a stronger currency, making exports more expensive and potentially reducing the competitiveness of a country's goods abroad.

According to the 2022 data, which five countries had the largest trade deficits? Why do these countries have such large trade deficits?

In 2022, the five countries with the largest trade deficits were:

1. **United States**: With a trade deficit of -$1,313,010,925,000.
2. **United Kingdom**: With a trade deficit of -$285,818,339,000.
3. **India**: With a trade deficit of -$279,881,779,000.
4. **France**: With a trade deficit of -$204,827,905,000.
5. **Japan**: With a trade deficit of -$153,026,533,000.

Trade Deficits by Country

One hundred and sixty-seven trade entities recorded deficits for 2022, outpacing the 62 countries, islands, territories or other geographic that earned surpluses over the same timeframe.

Collectively, the overall trade deficit for these 167 geographies totaled a sum equal to -US$3.585 trillion for 2022.

Out of the 167 trade entities that registered a deficit in 2022, the vast majority (114) expanded their negative trade balances compared to the amount of international red ink for 2021.

RANK	TRADE ENTITY	TRADE DEFICIT	2021-2
1.	United States	-$1,313,010,925,000	+11.2%
2.	United Kingdom	-$285,818,339,000	+25.9%
3.	India	-$279,881,779,000	+59.4%
4.	France	-$204,827,905,000	+52.9%
5.	Japan	-$153,026,533,000	+841.2%

Table 1 Trade Deficits by Country

These countries have such large trade deficits for a variety of reasons:

- **United States**: The U.S. has a strong currency and a high demand for imports, especially consumer goods, which often exceed its exports.
- **United Kingdom**: The UK's trade deficit can be attributed to a high demand for imported goods and services, as well as challenges in some export sectors.
- **India**: India's large trade deficit is often due to high oil import bills and a growing demand for electronic goods and gold.
- **France**: France's trade deficit may stem from higher imports of energy and manufactured goods compared to its exports.
- **Japan**: Japan's trade deficit is influenced by its need to import fossil fuels and raw materials for its manufacturing sector.

Trade deficits can occur due to a country's economic structure, such as reliance on imports for energy or consumer goods, differences in labor costs, exchange rates, domestic policies, and inadequate export competitiveness. They can also be a sign of a strong economy where consumer demand for goods and services is high, leading to increased imports.

Please research and chart the annual export total, import total, and trade balance (net exports) for Taiwan from 1971 to 2023, valued in nominal US dollars. Briefly describe any trends or phenomena you observe. (15 minutes)

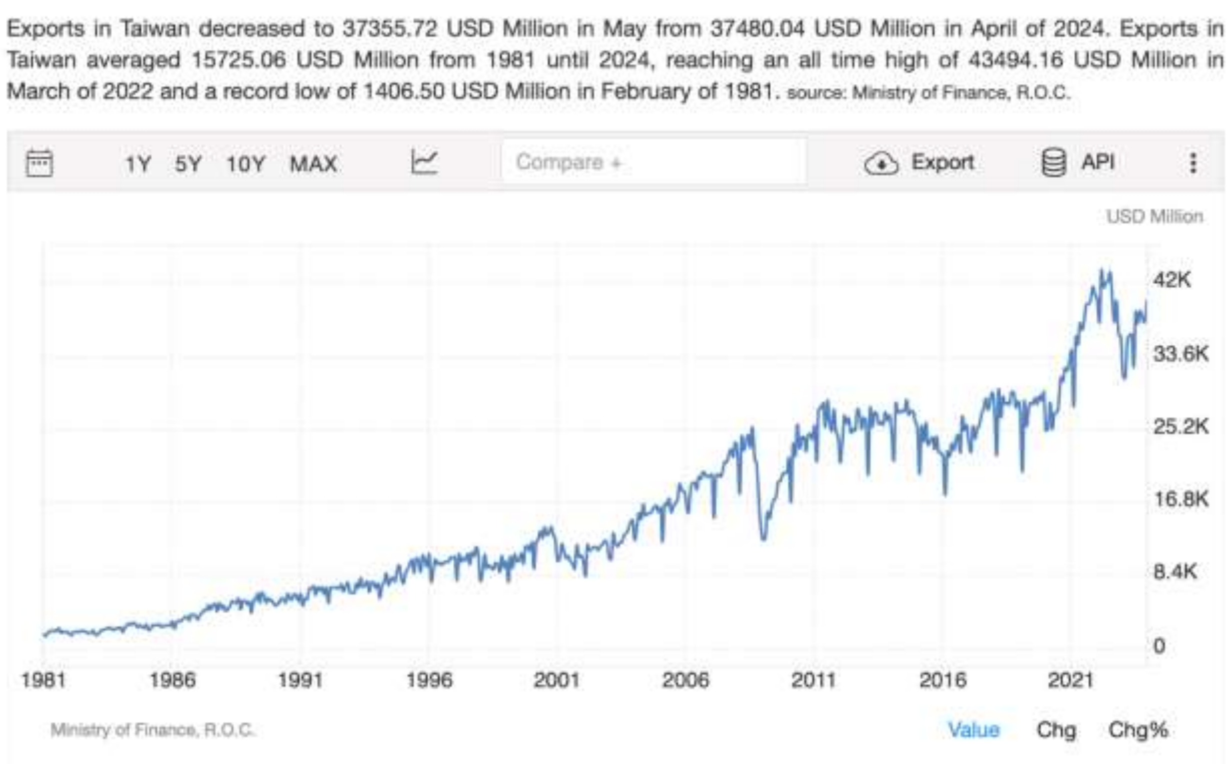

Figure 2 Exports in Taiwan from 1981 to 2024

Imports in Taiwan increased to 31307.33 USD Million in May from 31020.32 USD Million in April of 2024. Imports in Taiwan averaged 13688.08 USD Million from 1981 until 2024, reaching an all time high of 39936.23 USD Million in May of 2022 and a record low of 1203.70 USD Million in February of 1983. source: Ministry of Finance, R.O.C.

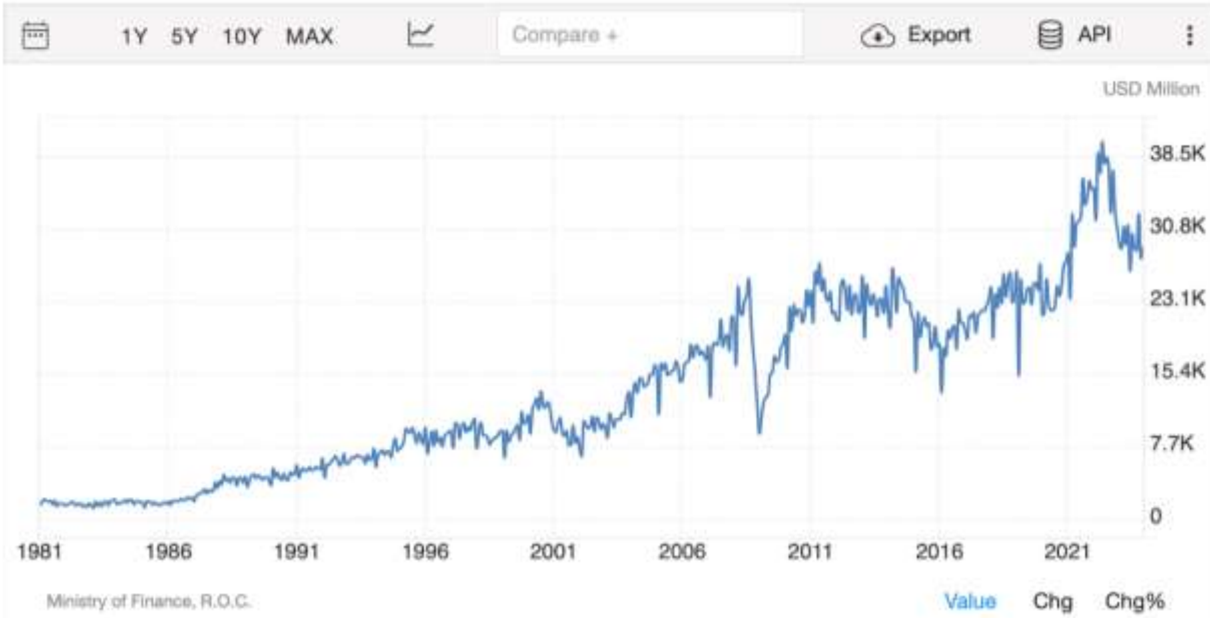

Figure 3 Imports in Taiwan from 1981 to 2024

Taiwan trade surplus widened to USD 6.04 billion in May 2024 from USD 4.98 billion in the same period in the previous year but less than forecasts of USD 6.75 billion. Year-on-year, exports rose 3.5% to USD 37.36 billion, mainly driven by higher sales of information, communication, and audio-video products (62.4%). Meanwhile, imports grew at a softer 0.6% to USD 31.31 billion, due to increased purchases of information, communication, and audio-video products (40.5%) and parts of electronic products (23%). Considering January to May, the trade surplus increased to USD 31.46 billion compared to USD 15.79 billion in the corresponding period last year, with exports advancing 9.1% and imports by 3.2%. source: Ministry of Finance, R.O.C.

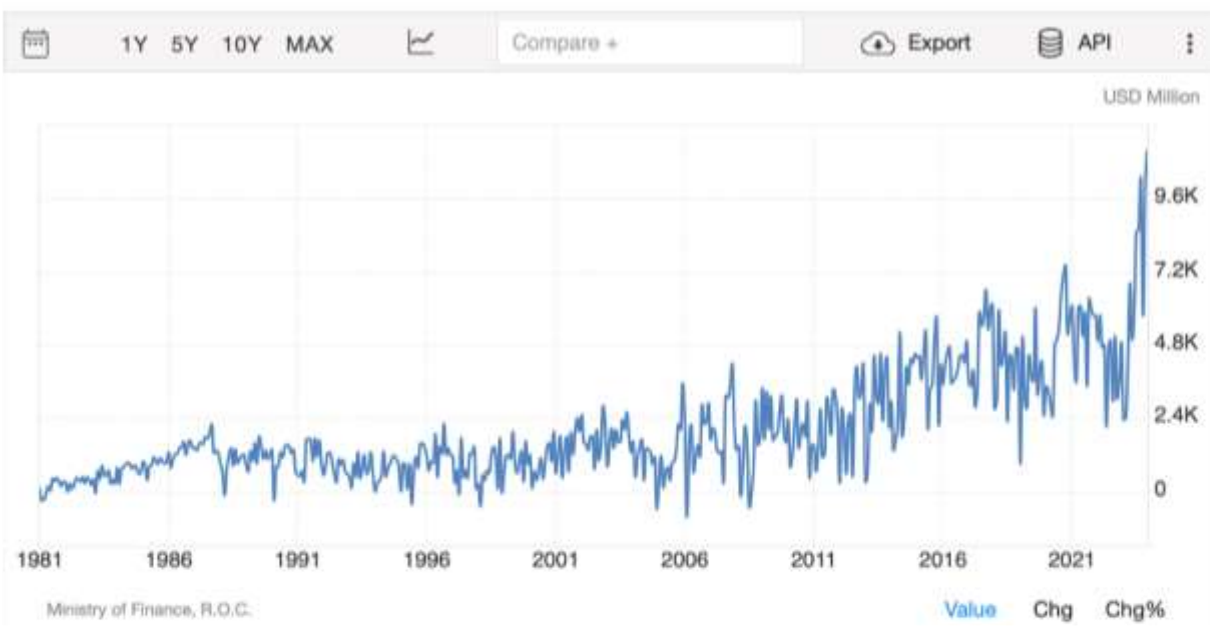

Figure 4 Trade surplus of Taiwan from 1981 to 2024

From the available data, we can observe that Taiwan has experienced significant growth in its export-oriented economy over the past decades. The country has transformed from an agriculture-based economy to a technology powerhouse, with electronics and semiconductors being major export products. This shift has led to a consistent trade surplus, as the value of exports generally exceeds imports.

Key trends observed in Taiwan's trade data over the years include:

Rapid Industrialization: Starting in the 1970s, Taiwan began to industrialize, moving away from agricultural exports to manufacturing goods, particularly in electronics and technology.

Trade Surplus Growth: Taiwan has maintained a trade surplus for many years, indicating strong international demand for its products.

Economic Resilience: Despite global economic downturns, Taiwan's export sector has shown resilience, often rebounding quickly due to strong fundamentals and innovation.

Shift in Trade Partners: While the United States has been a significant trade partner, there has been a shift towards more trade with China and ASEAN countries in recent years.

For the most current and detailed data, including specific figures for exports, imports, and trade balance from 1971 to 2023, you should refer to official Taiwanese government publications or trusted international economic databases. These sources will provide the nominal US dollar values and allow for a more precise analysis of trends and phenomena. Remember to verify the credibility of the data and consider the context of global economic conditions when analyzing trade statistics.

Discussion Question 2:

Is a trade surplus always beneficial? Taiwan has a substantial trade surplus with the United States; does this mean Taiwan has a complete advantage in trade with the US?

Why does economist Mankiw say, "A trade deficit is not a problem in itself, but it can sometimes be a symptom of a problem"? (10 minutes)

A **trade surplus**, which occurs when a country's exports exceed its imports, is not always unequivocally beneficial. While it can indicate a strong economy and lead to job creation and economic growth, it can also result in higher prices and interest rates within an economy. Moreover, a strong currency resulting from a trade surplus can make exports less competitive.

Taiwan's substantial trade surplus with the United States does not necessarily mean it has a complete advantage in trade. Trade balances are influenced by a variety of factors, including currency values, economic policies, and global market conditions. A surplus might indicate strong demand for Taiwanese goods in the U.S., but it doesn't account for the complexities of the entire economic relationship.

Economist **N. Gregory Mankiw** suggests that a trade deficit is not inherently problematic but may signal underlying issues in the economy. For instance, a deficit could reflect a nation's overconsumption relative to its production or a lack of savings. It's the economic conditions that lead to a trade deficit, such as excessive national debt or poor economic growth, that are of concern, not the deficit itself. Mankiw uses the analogy of his family's spending at a restaurant to illustrate that a bilateral trade deficit is not necessarily bad; it's the overall balance between income and spending that matters.

Act Two: Leanne's Company Faces Exchange Rate Risks (25 minute)

Scene: Sunlight streams through the window onto a desk covered in reports. Leanne is intently watching the exchange rate trends on her computer screen. Leanne (muttering to herself): "These fluctuations in the exchange rate are really headache- inducing, especially now that most of our products rely on electronic components and accessories from Asia..."
Scene transition: Leanne meets with her business advisor, Sam, in the conference room.
Leanne: "Sam, the team and I have been discussing some strategies to combat exchange rate fluctuations, but we need some expert advice. What do you suggest regarding hedging tools?"
Sam: "I've looked at some solutions from financial institutions. For instance, Taiwan Bank has recently introduced a series of hedging tools that seem well-suited for small and medium-sized enterprises. They offer flexible futures contracts that could help you lock in better exchange rates."
Leanne: "That sounds like a good option. I'll further discuss these choices with the team."

Scene transition: Leanne discusses with her team members, Lena and Amelia. Leanne: "Based on Sam's suggestions, we should consider using the hedging tools from Taiwan Bank. Lena, can you analyze the potential impact of these tools on our financial situation?" Lena: "I'll start analyzing immediately. We need to ensure that these tools can reduce exchange rate risks without causing too much strain on our cash flow." Amelia: "I just reviewed our financial situation. If we can accurately predict future exchange rate movements, these hedging tools could indeed offer us some protection." Leanne: "Okay, we'll carefully assess every detail of these plans.

Right now, our primary task is to ensure we remain flexible and robust in this unstable economic environment."

Scene transition: Leanne thinking at her desk. Leanne (recording notes): "This step will be a critical turning point in our company's strategy. We must act cautiously and wisely."

(The act ends with Leanne and her team facing the challenge of maintaining competitiveness in a turbulent exchange rate market and actively seeking innovative solutions.

Discussion Question 3:

What is foreign exchange? Why does a country have foreign exchange reserves? Please illustrate the foreign exchange reserve figures for the top five countries in terms of reserves from 2017 to 2023. Is the United States among them? Why or why not?

What is the foreign exchange rate? Economic theory distinguishes between nominal and real exchange rates. What do these terms mean, and how are they related? Here, the exchange rate is defined as the amount of foreign currency (or goods) that can be exchanged for a unit of domestic currency (or goods).

Please explain the meaning of the Purchasing-Power Parity (PPP) theory.

When calculating the GDP (PPP) of various countries, should the nominal or real exchange rate be used? (15 minutes)

Foreign Exchange (Forex or FX) is the conversion of one country's currency into another. It is a system that allows countries to trade in different currencies and is essential for conducting international trade and business.

Countries maintain **foreign exchange reserves**—assets held in foreign currencies—as a buffer to back liabilities, influence monetary policy, and provide confidence in the financial markets. These reserves can include banknotes, deposits, bonds, treasury bills, and other government securities. They are crucial for maintaining a country's currency value, ensuring liquidity during economic crises, meeting international financial obligations, funding internal projects, and reassuring investors.

The **top five countries** in terms of foreign exchange reserves from 2017 to 2023 are typically those with large economies and significant international trade. The United States is not among the top five, primarily because it can pay for imports in its own currency, the U.S. dollar, which is the primary reserve currency used globally.

The **foreign exchange rate** is the price of one currency in terms of another. The **nominal exchange rate** is the rate at which you can trade the currency of one country for that of another. The **real exchange rate**, on the other hand, adjusts the nominal rate to account for differences in price levels between countries. It reflects the amount of goods and services in one country that can be exchanged for those in another country.

Purchasing-Power Parity (PPP) is a theory which states that exchange rates between currencies are in equilibrium when their purchasing power is the same in each of the two countries. This means that the exchange rate between two countries should equal the ratio of the two countries' price level of a fixed basket of goods and services.

When calculating the **GDP (PPP)** of various countries, the real exchange rate should be used. This is because GDP (PPP) aims to compare the actual output of economies by considering the relative cost of living and inflation rates, rather than just the currency market valuations. Therefore, the real exchange rate is used to adjust the GDP figures to reflect the purchasing power of each country's currency.

Discussion Question 4:

What is the demand-side and supply-side factors that affect the foreign exchange market? How do they influence the appreciation or depreciation of the exchange rate? For discussion, assume the vertical axis represents the nominal exchange rate (the exchange value of foreign currency relative to domestic currency, i.e., how much domestic currency can be exchanged for foreign currency), and the horizontal axis represents the quantity of foreign currency.

In the foreign exchange market, the **demand-side factors** include:

- **Economic Growth**: Higher economic growth in a country increases demand for its currency as investors seek to invest in that country's assets.
- **Interest Rates**: Higher interest rates offer better returns on investments denominated in that currency, increasing its demand.

- **Trade Balances**: A country with a trade surplus (exports greater than imports) will see higher demand for its currency.
- **Political Stability and Economic Performance**: Stable and strong economies attract foreign investment, increasing demand for their currency.

The **supply-side factors** involve:

- **Inflation Rates**: Higher inflation in a country decreases the value of its currency, increasing its supply in the market as it becomes less attractive to hold.
- **Government Debt**: Large amounts of debt can lead to inflation, which may increase the supply of the currency.
- **Current Account Deficits**: When a country imports more than it exports, there is a higher supply of its currency on the global market.

These factors influence the **appreciation or depreciation** of a currency as follows:

- **Appreciation**: Occurs when demand for a currency increases (shift to the right of the demand curve) or when supply decreases (shift to the left of the supply curve). This results in a higher exchange value of the currency.
- **Depreciation**: Happens when demand for a currency decreases (shift to the left of the demand curve) or when supply increases (shift to the right of the supply curve), leading to a lower exchange value of the currency.

In a graph where the vertical axis represents the nominal exchange rate and the horizontal axis represents the quantity of foreign currency, these shifts in demand and supply curves will move the equilibrium point where they intersect. The new equilibrium will reflect either an appreciated or depreciated exchange rate, depending on the direction of the shifts in demand and supply. For example, if the demand for a currency increases due to higher interest rates, the demand curve will shift to the right, leading to a higher exchange rate and appreciation of the currency.

For example, if the U.S. goes into a recession, then GDP falls and they would import less from Mexico. Thus, the demand for Mexican pesos decreases and the U.S. dollar falls relative to the Mexican peso. In other words, the peso gains value.

Figure 1(a) offers an example for the exchange rate between the U.S. dollar and the Mexican peso. The vertical axis shows the exchange rate for U.S. dollars, which in this case is measured in pesos. The horizontal axis shows the quantity of U.S. dollars being traded in the foreign exchange market each day. The demand curve (D) for U.S. dollars intersects with the supply curve (S) of U.S. dollars at the equilibrium point (E), which is an exchange rate of 10 pesos per dollar and a total volume of $8.5 billion.

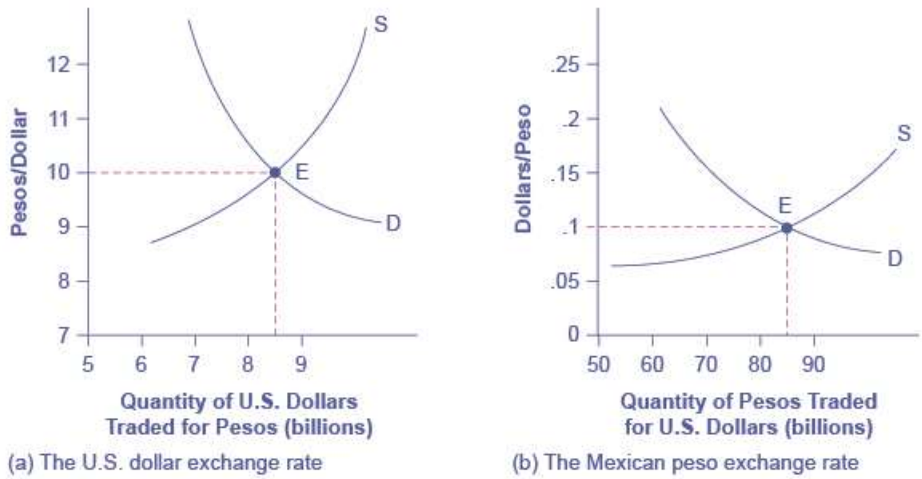

Figure 5 Example for the exchange rate between the U.S. dollar and the Mexican peso

Following from (1), assuming external factors remain unchanged (e.g., no increasing preference for Taiwanese goods in the US or significant technological innovations) and without government intervention in exchange rates, it is difficult for a country to maintain a net export position against another country. (10 minutes)

Act Three: Global Policies and Supply Chain Restructuring (25 minutes)

Scene: In Leanne's conference room, a group of team members are gathered around a meeting table, discussing recent changes in global economic policies and the impact of the pandemic on supply chains.
Leanne (opening): "The challenges brought by the pandemic have forced us to rethink our supply chain structure. Additionally, global quantitative easing policies, especially those of the US and the EU, are changing the market environment we face."
Lena: "The depreciation of the dollar has indeed put pressure on our exports to the US. We need to find more cost-effective suppliers and consider moving some production lines to regions with lower costs."
Amelia: "I have been assessing the supply chain potential in several Asian countries. For example, the market for electronic components in Vietnam and Thailand is growing rapidly."
Leanne: "That's a good direction. In the Eurozone, we also need to pay attention to changes in monetary policy, which could provide new opportunities for us in the European market."

Scene transition: The team members engage in an animated discussion about strategies.
Lena: "I am in contact with several new European suppliers to reduce our dependence on a single market."
Amelia: "At the same time, we are exploring more digitized supply chain management methods to increase our flexibility and efficiency."
Leanne: "Good. These changes will have a profound impact on our business strategy. We must ensure that we always stay one step ahead in this changing environment."

Scene transition: Leanne alone in her office.
Leanne (thinking): "Facing such global economic changes, we must be perceptive and decisive. Repositioning our supply chain and market strategies is key to achieving sustainable growth."

(The act ends with Leanne and her team facing the challenge of how to rebuild a more efficient and flexible supply chain and market strategy in an uncertain global economic environment.)

Extracurricular Discussion Topic: (This question does not require an answer)
The 2008-09 financial crisis and the COVID-19 pandemic starting in 2020 are major events of this century, both causing severe economic recessions. To aid economic recovery, many central banks adopted Quantitative Easing (QE) monetary policies. Explain: What is QE? How does it differ from traditional monetary policy? When do central banks typically implement QE policies?

The policy goal of QE is to stimulate the economy, but how exactly does it help facilitate economic recovery? What potential negative impacts could QE have on the economy? Based on academic reports (which must be explicitly cited), explain why QE might be more effective than traditional monetary policies? (15 minutes)

Extracurricular Discussion Topic: (This question does not require an answer)
Explain: If the central bank's goal is "long-term weakening of the domestic currency," then it must maintain a "long-term low interest rate environment." What are the potential benefits and drawbacks of a country being in a long-term low interest rate environment?

During the pandemic, Taiwan's government adopted policies to increase monetary liquidity and financial relief policies, both of which led to an increase in money supply, and from early 2020 to early 2022, key interest rates (such as the discount rate) were lowered. However, during this period, the New Taiwan Dollar appreciated. Why? (10 minutes)

Act Four: Practicing a Sustainable Vision (45 minutes)

Prologue: After years of growth, Leanne's company has become a leader in the field of international trade, committed to combining business success with social and environmental responsibilities to create a better world.

Scene: At an international sustainable development seminar, Leanne and business leaders from around the world discuss how to integrate their businesses with the United Nations Sustainable Development Goals (SDGs).
Leanne (to other business leaders): "In this era of rapid change, we must combine innovation and responsibility to lead the transformation."

Mr. Zhang, a business leader: "I completely agree. We recently started using an upgraded energy storage system that significantly improves energy efficiency, which is not only environmentally friendly but also brings economic benefits."

Scene transition: Leanne visits a factory focused on sustainable production, which utilizes a high-tech smart grid and advanced carbon footprint assessment systems.
Leanne (to the factory manager): "What innovative measures has your factory implemented in using the smart grid?"
Factory Manager: "We use the smart grid to optimize energy use, and in conjunction with IoT technology, we perform real-time monitoring and management of energy flow, effectively

reducing energy consumption and carbon emissions."
Leanne: "This is very important for our company's sustainability strategy, and we are looking for similar solutions."
Scene transition: A sustainability strategy meeting at Leanne's company.
Leanne (to her staff): "We have already taken actions in many areas, such as encouraging the use of public transport and providing transport subsidies. Now, we need deeper ideas."
Ms. Liu, an employee: "We could consider establishing an in-house green initiative team, specifically responsible for promoting environmental measures in daily operations and regularly organizing events to raise environmental awareness." Leanne: "That's a great idea. Let's start from within and collectively push for greater change."

Scene transition: At night, Leanne looks out over the city lights from her office window.
Leanne (reflecting): "Our journey is not only about pursuing business achievements but also about striving to create a more sustainable and harmonious world."

(The act ends with Leanne and her team actively promoting sustainable development, not only making progress in business but also playing an active role in practicing social responsibility and environmental protection.)

Discussion Question 5:

Briefly describe the content of SDG1 (No Poverty), SDG2 (Zero Hunger), and SDG10 (Reduced Inequalities), explain how international trade can help achieve these three goals, and discuss the potential conflicts between international trade and these goals.

Please provide a brief analysis of a real case (with a credible report or data source) to illustrate the benefits or conflicts of international trade with respect to these three goals, supporting the arguments made in the previous item. (15 minutes)

The **Sustainable Development Goals (SDGs)** are a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity. Here's a brief overview of SDGs 1, 2, and 10:

- **SDG 1: No Poverty** aims to eradicate poverty in all its forms everywhere. It focuses on measures to increase income, reduce vulnerabilities, and ensure access to basic services.
- **SDG 2: Zero Hunger** seeks to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
- **SDG 10: Reduced Inequalities** aims to reduce inequality within and among countries by empowering and promoting the social, economic, and political inclusion of all.

International trade can help achieve these goals by:

- Providing access to larger markets, thus increasing income and reducing poverty.
- Facilitating the exchange of agricultural goods and technologies, which can improve food security and nutrition.

- Offering opportunities for developing countries to integrate into the global economy, potentially reducing inequalities.

However, there are potential conflicts, such as:

- Trade can sometimes favor wealthier countries and exacerbate income inequalities.
- Dependence on global markets can make countries vulnerable to market volatility, affecting food security.
- The benefits of trade are not always equitably distributed, which can lead to increased inequalities.

Case analysis: The **Cotonou Agreement** between the European Union and the African, Caribbean, and Pacific Group of States (ACP). It aims to reduce and eventually eradicate poverty while contributing to sustainable development and gradually integrating ACP countries into the world economy. However, it has been criticized for creating dependencies on European markets and not adequately addressing the needs of the poorest countries within the ACP group, thus highlighting both the benefits and conflicts of international trade with respect to the SDGs.

Discussion Question 6:

Briefly outline the content of SDG12 (Responsible Consumption and Production) and SDG13 (Climate Action), explain how international trade can assist in achieving these two goals, and discuss potential conflicts between international trade and these goals.

Provide a brief analysis of a real case (with a credible report or data source) demonstrating the benefits or conflicts of international trade with respect to these two goals, supporting the arguments made in the previous item. (15 minutes)

SDG 12: Responsible Consumption and Production aims to ensure sustainable consumption and production patterns. Key targets include sustainable management of natural resources, reducing waste through prevention and recycling, and promoting sustainable business practices.

SDG 13: Climate Action calls for urgent action to combat climate change and its impacts. This includes integrating climate measures into policies, improving education on climate change, and strengthening resilience against natural disasters.

International trade can assist in achieving these goals by:

- **Facilitating Technology Transfer**: Trade can spread environmentally friendly technologies and sustainable practices across borders.
- **Promoting Efficient Resource Use**: Global markets can lead to more efficient use of resources, reducing waste and emissions.
- **Encouraging Sustainable Practices**: International standards can drive companies to adopt more sustainable production methods.

However, potential conflicts include:

- **Environmental Degradation**: Increased production for trade can lead to overuse of resources and environmental harm.
- **Carbon Footprint**: Transportation of goods across long distances can result in significant greenhouse gas emissions.
- **Inequality**: Benefits of trade are not always evenly distributed, which can lead to increased economic disparities affecting climate action efforts.

A real case that demonstrates both the benefits and conflicts is the **European Union's Emissions Trading System (ETS)**. The ETS aims to reduce greenhouse gas emissions from the power sector, industry, and flights within the EU. It works on the 'cap and trade' principle, giving companies incentives to reduce emissions and invest in sustainable technologies. While the ETS has led to emissions reductions, it has also faced criticism for allowing companies to offset their emissions rather than directly reducing them, potentially undermining efforts to achieve SDG 13. Moreover, the allocation of emission allowances has raised concerns about fairness and effectiveness in achieving SDG 12's targets for responsible production.

This case illustrates the complex interplay between international trade and the SDGs, highlighting the need for careful policy design to ensure that trade contributes positively to sustainable development and climate action.

Discussion Question 7:

List the objectives of SDG17 (Partnerships for the Goals), enumerate the specific sub- goals directly related to international trade, and explain how they help achieve other SDGs (especially SDG1, SDG2, SDG10).

Analyze how real-world international organizations (such as the United Nations Conference on Trade and Development - UNCTAD) or multilateral agreements (such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership - CPTPP) promote international trade to achieve specific goals within the SDGs. (15 minutes)

SDG 17: Partnerships for the Goals aims to strengthen the means of implementation and revitalize the global partnership for sustainable development. Its objectives include enhancing international cooperation, ensuring policy coherence, encouraging multi-stakeholder partnerships, and mobilizing resources for sustainable development.

Specific sub-goals related to international trade under SDG 17 are:

- **17.10**: Promote a universal, rules-based, open, non-discriminatory, and equitable multilateral trading system under the World Trade Organization.
- **17.11**: Increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020.
- **17.12**: Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries.

These sub-goals help achieve other SDGs by:

- **Facilitating Economic Growth** (SDG 1): By promoting fair trade, it helps reduce poverty through job creation and economic diversification.
- **Improving Food Security** (SDG 2): Open trade can lower the cost of food and improve access to diverse food sources.
- **Reducing Inequalities** (SDG 10): Equitable trade policies can help integrate marginalized communities into the global economy.

UNCTAD plays a crucial role in aligning international trade with the SDGs by:

- Providing trade-related assistance to developing countries.
- Offering policy recommendations to ensure that trade contributes to sustainable development.
- Monitoring and reviewing the implementation of trade-related commitments.

The **CPTPP** promotes international trade aligned with the SDGs by:

- Reducing tariffs and non-tariff barriers, which can boost economic growth and support poverty reduction efforts.
- Including provisions for environmental protection and labor rights, which contribute to responsible consumption and decent work conditions.
- Encouraging inclusive trade practices that can help reduce inequalities and promote gender equality.

Both UNCTAD and CPTPP demonstrate the potential of international trade to advance sustainable development across various dimensions, provided that trade policies are designed and implemented in a way that ensures equitable benefits for all.

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