

## **The World Economy from a Distance**

It would be difficult for any country today to completely isolate itself. Even tribal populations may find the trials of isolation a challenge. Most features of any economy are related to the economies of other countries, and as the world economy becomes increasingly co-dependent, most countries must adjust their habits in accord with this increased interdependence.

The goal of international economics is to describe and explain patterns of international trade in goods and services, investment in other countries, and the tremendous volume of global financial transactions. To accomplish this daunting task, we must, as many students learn in macroeconomics (the study of an entire economy as a whole), establish a “metric” (measurement tool, i.e., a yardstick, in English colloquialism). The best measure found to date is the production (output, produce, product), which ultimately becomes the revenue or sales of an individual country. The individual countries productions are then summed to a world total. Once this information is obtained and understood, we can then focus our study to the more detailed level of trade and financial transactions.

The size of the world economy is measured as the sum of this production, called GDP (Gross Domestic Product) for each country. Since every sales transaction involves both a buyer and a seller, we can say that at an aggregate level, GDP measures both the total production and the total income of a country. So GDP per person of a country serves as a crude proxy (substitute) of economic well-being of a country. For many countries, a substantial amount of their GDP consists of the amount of goods and services that they sell (under the label of “trade”) to other countries. This amount is called exports, and is compared to the amount of goods and service that they buy from other countries, called imports. The difference is called net exports (or trade balance), which can be a negative quantity (a trade deficit, and hence lowers GDP), if a country buys more from other countries than other countries buy from it.

Many of the financial transactions in the world are to facilitate trade in goods and services. A significant amount of these transactions are intended as an investment in other countries’ production of goods and services, rather than simply to purchase or sell goods and services. This investment typically occurs in two ways. The first is to buy a share of ownership in a foreign-owned corporation or partnership, while the second is to create a business in another country. The first method is called portfolio investment, while the second method is called FDI (foreign direct investment).

To facilitate the international trade or investment, individuals, businesses, and governments need to make transactions with the money that the foreign country uses in its own transactions. Thus, they must buy the foreign money, using their own money to buy the other country’s money. The individual, business, or government receiving the foreign money will usually sell the foreign money to get their own country’s money. This exchange of one country’s currency for another country’s currency occurs in the foreign exchange market, and most people who make these transactions work with a bank to buy and sell the foreign currency (money). To understand the perspective, daily worldwide financial flows are roughly equal to monthly goods and services flows.

As a final note to an introduction to international economics, one may notice that many discussions of international trade include the term “globalization”. In this sense, globalization is usually taken to imply a worldwide spread of a phenomenon, typically information or a business. Globalization is sometimes taken in a pejorative context to imply a threat to an established culture or practice. After a study of international economics, it is hoped that one would agree with the former interpretation rather than the latter. An accepted measure of globalization is the ratio of exports to total economic activity.

International economics is the study of the worldwide exchange of goods, services, and money. The rate of this exchange has grown at an exponential rate in the 20<sup>th</sup> century, and is expected to continue this pace well into the 21<sup>st</sup> century. However, not all countries benefit equally from this pace of growth. High GDP (output or income) countries account for most of the growth. This historical trend is expected to shift to developing countries as their opportunities expand.

## Goods & Services Markets (Trade)

Modern international trade theory is concerned with the motivation of, patterns of, and gains from trade. The original concept of mutually beneficial trade was based on the relative production efficiency of trading countries. If a country could produce a product more efficiently than another country, then the country was said to have an absolute advantage. Countries would thus have an incentive to specialize in the products for which they had an absolute advantage. Hence, only efficient countries could gain. Later, this concept was shown to be only partly correct. If a country could produce a product at a lower cost relative to another product within its own country, compared to the same ratio in another country, then the country was said to have a comparative advantage. Now, any country could benefit from trade if its opportunity cost of producing a good in terms of another good was lower than in another country. A production possibilities frontier is regularly used to illustrate the gains from trade.

If the terms of trade (price differences of goods between countries) between two countries lie between the production possibility frontiers (comparative costs) of the two countries, then both countries will gain from trade in the goods. These gains are considered static gains from trade, and in addition to these static gains from trade, dynamic gains from trade can be realized through: (a) faster economic growth; (b) increasing returns to scale; (c) an increase in the quality and variety of the goods we consume; and (d) an increase in competition within the domestic market.

To explain why countries may have different opportunity costs associated with producing different goods, we can form a basis for argument by considering the relative factor proportions of the countries. This factor-proportions theory (also called the Heckscher-Ohlin-Samuelson theory) is based on the following assumptions: (1) two countries, two goods, two factors of production; (2) identical production technologies under constant returns to scale; (3) perfectly competitive product and factor markets, and prices of the two goods and factors of production are determined by supply and demand; (4) no transportation costs, tariffs, or other obstructions to trade, and after the introduction of international trade, neither country completely specializes in producing a particular good; (5) equal tastes and preferences of consumers; (6) labor and capital can move domestically but not internationally; (7) the production techniques are such that one good is everywhere capital intensive, and the other good is everywhere labor intensive; and (8) full employment of resources both before and after trade.

The basis for trade can be determined by differences in relative factor endowments between countries. Hence, a country that has an abundant factor of production (labor or capital—leading to a comparative advantage) will use that abundant factor predominately to produce its export good. Conversely, a country will import the good that intensively uses the country's relatively scarce factor of production. As trade continues to the long run, factor prices between countries will tend to equalize. This phenomenon is aptly called factor-price equalization.

If the relative prices of commodities change, an increase in this relative price raises the real price of the factor used intensively in one commodity and reduces the real price of the other factor. This phenomenon is called the Stolper-Samuelson effect. These changes in factor prices tend to increase the percentage of national income the abundant factor receives, and the reverse is true for the scarce factor.

The factor-proportions model was tested in 1947 by Vassily Leontief. He found that, paradoxically, the production of US goods which were substitutes for imports, were more capital intensive than US exports. The findings became **known** as the Leontief paradox. Explanations for this perverse result have been proposed over the years. Resolution of the paradox is achieved by considering human capital and technology as separate factors of production.

## Growth and Trade

Economic growth and development of a country is usually defined as an increase in the standard of living of a country, measured by GDP per capita. Economic growth usually stems from any of a number of stimuli: increasing a country's labor force via immigration; increasing its stock of capital through value

creation; improving technology. Economic theory suggests that diminishing returns are normally realized as increasing input factors are applied to production. Thus, output increases at a decreasing rate as more labor is used. Before growth can be motivated, however, a country must establish a legal infrastructure to insure incentives. Property rights and contract enforcement are essential parts of this infrastructure.

Economies grow faster when they are more open. Empirical studies, in Ireland for example, have borne out this assertion. This openness leads to capital flows and technology transfers, usually increasing the rate of economic growth. Some development strategies used by developing countries with respect to international trade are: primary products, import substitution, and export promotion. In addition, the World Bank Group and other regional development banks provide loans to low- and middle-income countries for specific projects.

## **Factor (Capital and Labor) Movements**

An alternative to international trade in goods is the movement of the factors of production between countries. In the case of capital movements, part is directly invested in the foreign country. This investment is called FDI, or foreign direct investment. Most of the world's foreign direct investment goes to developing countries, and the remainder to developed countries. Capital movements to foreign countries occur for a variety of reasons and forms. Some examples include purchase of land, structures, equipment, or software. Another form entails a domestic corporation opening a foreign subsidiary or buying control of an existing foreign firm.

The owners of capital in the source country expect to benefit from these capital flows, but the labor effect is typically negative, since the capital is usually intended to supplant labor. Historically, and as one might expect, organized labor in the US has almost always opposed the investment of US capital in plant and equipment in other countries. The effects on the country receiving the capital are the reverse.

Labor movements are expectedly more controversial, since labor migration is generally in search of higher-wage opportunities. For the country that loses laborers, immigration will benefit the remaining workers. The country that gains laborers has a mixed effect in that immigration may lower the return to existing labor within the country, but a larger labor force can expand the production possibilities frontier, leading to increases in GDP (and hence, income).

Some countries have instituted policies that allow market forces to allocate labor efficiently on a global basis. US and Europe have guest worker programs, and the US has encouraged off-shore assembly provisions. Services, such as radiology, have also expanded through improved communications capabilities, i.e., over the WWW.

Much of transnational business is conducted by MNCs (multinational corporations). These firms may also decide to form foreign subsidiary business for reasons consistent with the firm's competitive advantage. Competitive advantage can result from ownership of an intangible asset, such as a patent or copyright, a locational advantage, or to internalize certain aspects of the business, such as culturally driven production. Regulation and taxation are major issues that governments must resolve for MNCs.

## **International Financial Markets**

The main network of the worldwide foreign exchange market has major hubs in the form of commercial banks located in New York, London, Zurich, Frankfurt, Paris, and Tokyo. As discussed in the factor movements section, large amounts of capital move from one country to another in the form of portfolio capital. As with any type of investment, these capital movements seek higher rates of return than those perceived to be obtained domestically.

Financial markets are usually divided in categories concerned with the maturity of the asset. The maturity is when the original investment is returned, although not necessarily at the same value. Money markets deal in financial assets that typically mature in less than 1 year. Markets for longer term assets, called capital markets, usually deal in assets with maturities of more than 1 year. As with any market, the purpose is to bring buyers and sellers together. This function is called intermediation, and is handled primarily by any of several types of financial institutions. As mentioned above, commercial banks are the hubs of the

international capital markets. Non-bank institutions, such as corporations, have found additional sources of capital by issuing equities or bonds in these markets. Other nonbank financial market participants are investment banks and insurance companies.

The Eurocurrency markets are deposits of U.S. dollars and major currencies located outside the home country. These deposits occur because much of world trade is financed and paid for using one of the major currencies. As such, Eurocurrency markets are advantageous to all parties in reducing the transaction costs of international trade.

## **Supply and Demand for Foreign Exchange**

As with any good or service, a price unit must be specified. The price unit of one country's money (currency) in terms of another country's money (currency) is specified as the exchange rate. This rate can be expressed as the inverse of the specified exchange rate. For example, the exchange rate can refer to the number of dollars necessary to buy one unit of a euro, or the number of euros necessary to buy one dollar. If the price of one currency changes relative to another currency, the currency is said to have appreciated or depreciated. If more of one currency is now required to purchase a second currency, the first currency is said to have depreciated, while the second currency is said to have appreciated. The gain of one currency is the loss of another, and of course, these gains and losses are not limited to a pair of currencies.

The demand for a specific foreign exchange is derived from changes in domestic GDP (recall output = income), investment opportunities, and changes in relative price levels between countries. Increased demand for imports and hence foreign exchange will rise with increasing income of a country, and vice versa. A similar argument applies with domestic prices and price levels. If domestic prices (or the general price level) rise relative to foreign prices, then the demand for imports and hence foreign currency will tend to rise, and vice versa.

The supply of specific foreign exchange arises from changes in foreign GDP, investment opportunities, and changes in relative price levels between countries. If incomes of foreigners rise, they will increase their demand for imports. These foreigners will require currencies from the countries whose products they are buying, which means that foreigners (buyers) will need to sell their domestic currency, which is offered up as a supply of foreign exchange. The same effect occurs with increase in foreign prices or price levels relative to domestic prices or price levels. The opposite effect occurs with decreases in price levels.

## **Equilibrium in the Foreign Exchange Market**

As with the free market for any good or service, and equilibrium price and quantity (quantity supplied = quantity demanded) will result from the interaction of the supply and demand for foreign exchange.

## **Growth in GDP and Exchange Rates**

If no other variables change, and considering the results of the section on Supply and Demand for Foreign Exchange, a country that has faster economic growth (increases in GDP = increases in income) than its trading partners will usually see its currency depreciate relative to the currency of its trading partners, and vice versa (slower economic growth results in an appreciating currency). A similar argument holds for relative price level changes (inflation): A country that has higher inflation than its trading partners will usually experience a depreciating currency, and vice versa for countries with lower inflation than its trading partners.

## **Trade and the Price of Foreign Money (Exchange Rates)**

Different countries have different levels of exchange rate risk, typically due to political concerns, but these risks can be more market specific. Variations in this risk factor will usually induce variation in exchange rates, which will in turn depress the amount of international trade in goods and services relative to domestic trade in goods and services.

## **The Price of Money Rental (Interest Rates) tied to the Price of Foreign Money**

Interest rates and exchange rates are tied together as a result of interest rate differences between countries. If a country increases its money supply faster than the economy can grow, the excess supply of money will not only increase domestic prices, but will also lower the domestic interest rates for borrowers on loans. As a result, savers will seek higher interest rates outside the country and induce a capital outflow. Since the savers have chosen to save in a foreign country, they must exchange their money. This need to change causes an increase in the demand for foreign money, and because more savers wish to surrender their money for the foreign money, the domestic currency from the savers will depreciate. The opposite effect occurs from a contraction of (or a slow-down in the expansion of) the money supply. As this exchange process continues, differences in the interest rates get smaller and the foreign exchange market will reach equilibrium, where the inflow of foreign exchange equals the outflow of foreign exchange.

## **The Price Level of Goods and Services tied to the Price of Foreign Money**

If certain assumptions like trade barriers (tariffs and quotas), transportation costs, and the availability of close substitutes can be ignored (idealized conditions), then one could presume that world prices for identical or nearly-identical goods would be the same or almost the same in any country where competitive markets exist. Even if the prices are significantly different due to some short-run fluctuation, the at least one could expect world price equalization in the long run. This concept of price equalization must be modified to consider that differences in money values exist between countries. Thus, exchange rates must be factored into the determination of this incipient equalization or parity of prices.

The name given to this ultimate (long-run) parity of world prices for equivalent goods under these idealized condition is PPP, or purchasing power parity. PPP holds that the ratio of the prices (or price levels) between two countries is the same as the ratio of the prices of their money, which is the exchange rate. PPP takes two forms: absolute PPP and relative PPP. Absolute PPP holds that at any time the goods price ratio will equal the exchange rate, while relative PPP holds that changes in the goods price ratio (due to inflation or deflation) will equal changes in the exchange rate. Empirical studies have shown that short-run exchange rate fluctuations can be much different than price ratio fluctuations, leading to the dismissal of a short-run case in support of PPP, either absolute or relative. However, long-run empirical studies have supported both versions of PPP, especially relative PPP.

Just as nominal GDP is distinguished (and adjusted) from real GDP by price level changes (inflation), and nominal interest rates are distinguished (and adjusted) from real interest rate by inflation, real exchange rates between countries must be distinguished from nominal exchange rates. As with GDP and interest rates, nominal exchange rates, adjusted for changes in the price level between the two countries, become real exchange rate. Trade flows have been shown to be much more responsive to real exchange rates than nominal exchange rates.

The three major factors that would cause the real exchange rate between countries to change in the long run identical in concept to those that affect domestic prices: changes in the foreign demand for domestically produced products, changes in a country's productivity, and changes in the real interest rate between countries.

## **Exchange Rate in the Short Run tied to Production (Output, Income) of a Country**

As mentioned above, real exchange rate affects the level of international trade. It also affects the rate of growth of income and output of a country in the short run. The AS/AD model (aggregate supply/aggregate demand) is typically used to analyze the effects of real exchange-rate changes on domestic output and the price level

The trade balance of a country was mentioned in the Introduction section above. Production and income in a country are affected by changes in the trade balance because the quantity of exports changes if foreign incomes change or the real exchange rate changes. A symmetric statement can be made for changes in the quantity of imports.

A connection between the trade balance of a country and its output in the short run is made through its aggregate demand. A deficit trade balance will result from a currency that appreciates, and hence the aggregate demand curve declines (shifts leftward to lower output quantities due to reduced exports). This change in aggregate demand causes the output of the country to decline and the price level to fall. The opposite argument is made for a depreciating currency.

The aggregate supply curve of a country will shift leftward in the short run due to higher input prices to the production process if the currency undergoes a significant depreciation. As a result, the output or GDP of a country will decline and the price level will rise.