

There are several websites you have to log into. You can access to all the links below by getting into my website at <http://www.bath.ac.uk/~nw220/> under teaching and EC10007

1. The Big Mac Index

<http://www.economist.com/markets/bigmac/index.cfm>

The above links you into an international news magazine, *The Economist*. It regularly collects data on the price of a good sold in many countries: the McDonald's Big Mac hamburger. There are three hyperlinks onto the Big Mac index, one an explanation, one a video clip, and also the latest index:

2. Measuring GDP

<http://www.statistics.gov.uk/cci/nugget.asp?ID=56>

The above links you into the guide to GDP measuring the UK's economic activity.

3. The explanation of monetary policy from Mervyn King, Governor of Bank of England.

<http://www.bankofengland.co.uk/education/videos/index.htm>

The above links you into the website for 20 minutes video clip by clicking on 'What if'.

The Consumer Price Index (CPI)

The economists need to find some way of turning the pound figures into meaningful measures of purchasing power. That is exactly the job of a statistic called the *consumer price index*. The consumer price index (CPI) is a measure of the overall cost of the goods and services bought by a typical consumer.

The consumer price index is used to monitor changes in the cost of living over time. When the consumer price index rises, the typical family has to spend more dollars to maintain the same standard of living.

Big Mac Prices and Purchasing Power Parity (PPP)

To understand the **PPP**, we consider nominal exchange rates and real exchange rates in the first place. **The nominal exchange rate** is the rate at which a person can trade the currency of one country for the currency of another. If the exchange rate changes so that a pound buys more foreign currency, that change is called an *appreciation* of the pound. If the exchange rate changes so that a pound buys less foreign currency, that change is called a *depreciation* of the pound. **The real exchange rate** is the rate at which a person can trade the goods and services of one country for the goods and services of another. Real and nominal exchange rates are closely related as the equation below

$$\text{Real exchange rate} = \frac{e_{F/D} \times P_D}{P_F}$$

Thus, the real exchange rate depends on the nominal exchange rate (e) and on the prices of goods and services in the two countries measured in the local currencies.

Economists have developed many models to explain how exchange rates are determined. The simplest theory of exchange rates, called **purchasing-power parity**. This theory states that a unit of any given currency should be able to buy the same quantity of goods in all countries. Many economists believe that PPP describes the forces that determine exchange rate in the long-run.

The theory of PPP is based on a principle called the **law of one price**. This law asserts that a good must sell for the same price in all locations. Otherwise there would be opportunities for profit left unexploited. The process of taking advantage of differences in prices in different markets is called *arbitrage*. According to PPP, a currency must have the same purchasing power in all countries.

Now consider the quantity of goods a pound can buy at home and abroad. At home the price level is P , so the purchasing power of 1 pound at home is $1/P_D$. Aboard, a pound can be exchange into e units of foreign currency, which in turn have purchasing power $e_{F/D}/P_F$. For the purchasing power of a pound to be the same in the two countries, it must be the case that $1/P_D = e_{F/D}/P_F$.

Or

$$1 = \frac{e_{F/D} \times P_D}{P_F}$$

Thus, *if the purchasing power of the dollar is always the same at home and abroad, then the real exchange rate-the relative price of domestic and foreign goods-cannot change.*

To see the implication of this analysis for the nominal exchange rate, the preceding equation can be written in the form

$$e_{F/D} = \frac{P_F}{P_D}$$

Thus, a key implication of the PPP is that nominal exchange rate change when price levels change. When the Bank of England increases the money supply and causes the price level to rise, it also causes the pound to depreciate relative to other currencies in the world. In other words, when the central bank prints large quantities of money, that money loses value both in terms of goods and services it can buy and in terms of the amount of other currencies it can buy.

There are two reasons why the theory of PPP does not always hold in practice. The first reason is that many goods are not easily traded. The second reason is that even tradable goods are not always perfect substitutes when they are produced in different countries

The Economist occasionally collects data on a basket of goods consisting of ‘two all-beef patties, special sauce, lettuce, cheese, pickles, onions, on a sesame seed bun’. It is called the **Big Mac** and is sold by McDonald’s around the world. Once we have the prices of Big Macs in two countries denominated in the local currencies, we can compute the exchange rate predicted by the theory of PPP. You can see from the website that the predicted and actual exchange rates are not exactly the same.

The Big Mac index has other problems over and above failures of PPP. First, the Big Mac has more to do with the law of one price than PPP (PPP refers to one commodity rather than a basket of goods). Second, the Big Mac may be identical across countries, but it is not tradable. Third, Big Macs are not identical.

In conclusion, PPP is not a precise theory of exchange rate, but it often provides a reasonable first approximation

Theory as Model Building

Economists also use models to understand the world, but an economist's model is more likely to be made of symbols and equations than plastic and glue. Models have two kinds of variables: endogenous variables and exogenous variables. Endogenous variables are those variables that a model tries to explain. Exogenous variables are those variables that a model accepts as given.

The purpose of a model is to show how the exogenous variables affect the endogenous variables. In other words, exogenous variables come from outside the model and serve as the model's input, whereas endogenous variables are determined within the model and are the model's output.

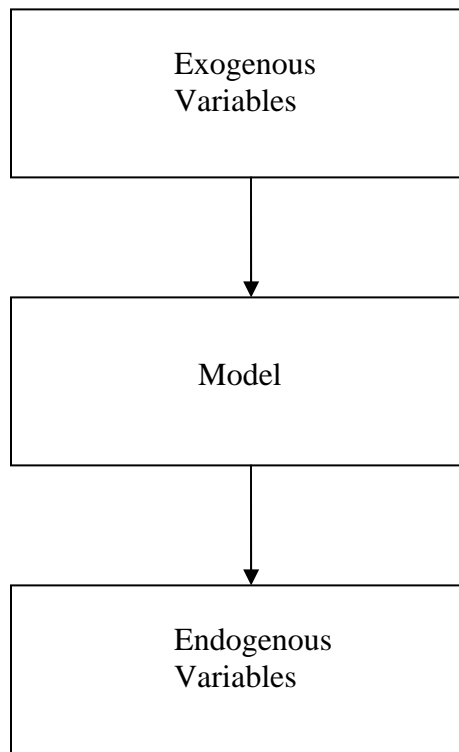


Figure 1

Models are simplified theories that show the key relationships among economic variables.

ESSAY 2 (Due date: Friday May 5, MIDDAY)

You have to log into the IFS website and run the Virtual Economy model of the economy. The web is below

<http://www.bized.ac.uk/virtual/economy/>