

**M.A. & B.A., Economics**  
**International Economics**

**Terms of Trade: Concepts**

E-Content in PPT format prepared by

Dr. Bharti Pandey

Head, Department of Economics,

SJNMPG College, Lucknow



➤ The terms of trade of a nation are defined as the ratio of the price of its exports to the price of its imports. Since in a two-nation world, the exports of a nation are the imports of its trade partner, the terms of trade of the latter are equal to the inverse, or reciprocal, of the terms of trade of the former.

➤ In a world of many (rather than just two) traded commodities, the terms of trade of a nation are given by the ratio of the price index of its exports to the price index of its imports. This ratio is usually multiplied by 100 in order to express the terms of trade in percentages. These terms of trade are often referred to as the commodity or net barter terms of trade to distinguish them from various other measures of the terms of trade.

➤ An improvement in a nation's terms of trade is usually regarded as good for the nation in the sense that the prices that the nation receives for its exports rise relative to the prices that it pays for imports.



# Various Concepts of Terms of Trade

There are various concepts of terms of trade, these are:

1. Net barter terms of trade
2. Gross barter terms of trade
3. Income terms of trade
4. Single factorial terms of trade
5. Double factorial terms of trade



## **Net Barter Terms of Trade**

The most widely used concept of the terms of trade is what has been called the net barter terms of trade which refers to the relation between prices of exports and prices of imports.

In symbolic terms:

$$T_n = P_x / P_m$$

Where

$T_n$  stands for net barter terms of trade.

$P_x$  stands for price of exports (x),

$P_m$  stands for price of imports (m).




➤ When we want to know the changes in net barter terms of trade over a period of time, we prepare the price index numbers of exports and imports by choosing a certain appropriate base year and obtain the following ratio:

$$\left( \frac{P_{x_1}}{P_{m_1}} \right) / \left( \frac{P_{x_0}}{P_{m_0}} \right)$$

where

$P_{x_0}$  and  $P_{m_0}$  stand for price index numbers of exports and imports in the base year respectively, and  $P_{x_1}$  and  $P_{m_1}$  denote price index numbers of exports and imports respectively in the current year.

➤ Since the prices of both exports and imports in the base year are taken as 100, the terms of trade in the base year would be equal to one  
$$\frac{P_{x_0}}{P_{m_0}} = \frac{100}{100} = 1$$



➤ Suppose in the current period the price index number of exports has gone up to 150, and the price index number of imports has risen to 125, then terms of trade in the current period would be:

$$(150/125)/(100/100) = 1.2/1$$

Thus, in the current period, terms of trade have improved by 20 per cent as compared to the base period. Further, it implies that if the prices of exports of a country rise relatively greater than those of its imports, terms of trade for it would improve or become favourable.

➤ On the other hand, if the prices of imports rise relatively greater than those of its exports, terms of trade for it would deteriorate or become unfavourable. Thus, net barter terms of trade is an important concept which can be applied to measure changes in the capacity of exports of a country to buy the imported products. Obviously, if the net barter terms of trade of a country improve over a period of time, it can buy more quantity of imported products for a given volume of its exports.



➤ But the concept of net barter terms of trade suffers from some important limitations in that it shows nothing about the changes in the volume of trade. If the prices of exports rise relatively to those of its imports but due to this rise in prices, the volume of exports falls substantially, then the gain from rise in export prices may be offset or even more than offset by the decline in exports.

➤ In order to overcome this drawback, the net barter terms of trade are weighted by the volume of exports. This has led to the development of another concept of terms of trade known as the income terms of trade which shall be explained later. Even so, the net barter terms of trade is most widely used concept to measure the power of the exports of a country to buy imports.



## Gross Barter Terms of Trade

This concept of the gross terms of trade was introduced by F.W. Taussig and in his view this is an improvement over the concept of net barter terms of trade as it directly takes into account the volume of trade. Accordingly, the gross barter terms of trade refer to the relation of the volume of imports to the volume of exports. Thus,

$$T_g = Q_m/Q_x$$

Where


$T_g$  = gross barter terms of trade,  $Q_m$  = quantity of imports

$Q_x$  = quantity of exports

To compare the change in the trade situation over a period of time, the following ratio is employed:

$$(Q_{m_1}/Q_{x_1})/(Q_{m_0}/Q_{x_0})$$

Where the subscript 0 denotes the base year and the subscript 1 denotes the current year.





It is obvious that the gross barter terms of trade for a country will rise (ie., will improve) if more imports can be obtained for a given volume of exports. It is important to note that when the balance of trade is in equilibrium (that is, when value of exports is equal to the value of imports), the gross barter terms of trade amount to the same thing as net barter terms of trade.

This can be shown as under:

Value of imports = price of imports x quantity of imports =  $P_m \cdot Q_m$

Value of exports = Price of exports x quantity of exports =  $P_x \cdot Q_x$

Therefore, when balance of trade is in equilibrium.

$$P_x \cdot Q_x = P_m \cdot Q_m$$

$$P_x \cdot Q_m = P_m \cdot Q_x$$

However, when balance of trade is not in equilibrium, the gross barter terms of trade would differ from net barter terms of trade.



## Income Terms of Trade

In order to improve upon the net barter terms of trade G.S. Dorrance developed the concept of income terms of trade which is obtained by weighting net barter terms of trade by the volume of exports. Income terms of trade therefore refer to the index of the value of exports divided by the price of imports. Symbolically, income terms of trade can be written as

$$T_y = P_x \cdot Q_x / P_m$$

Where


$T_y$  = Income terms of trade

$P_x$  = Price of exports

$Q_x$  = Volume of exports

$P_m$  = Price of imports

Income terms of trade yields a better index of the capacity to import of a country and is, indeed, sometimes called 'capacity to import. This is because in the long run balance of payments must be in equilibrium the value of exports would be equal to the value of imports.



Thus, in the long run

$$P_m.Q_m = P_x.Q_x$$

$$Q_m = P_x.Q_x/P_m$$

It follows from above that the volume of imports ( $Q_m$ ) which a country can buy (that is, capacity to import) depends upon the income terms of trade i.e.,  $P_x.Q_x/P_m$ . Since income terms of trade is a better indicator of the capacity to import and since the developing countries are unable to change  $P_x$  and  $P_m$ .

Kindleberger thinks it to be superior to the net barter terms of trade for these countries, However, it may be mentioned once again that it is the concept of net barter terms of trade that is usually employed.



## Single Factoral Terms of Trade

$$T_s = (P_x/P_m) Z_x$$


where

$Z_x$  is a productivity index in the country's export sector. Thus,  $T_s$  measures the amount of imports the nation gets per unit of domestic factors of production included in its exports.

For example, if productivity in the country's export sector rose from 100 in 1980 to 130 in 1998 then the country's single factoral terms of trade increased to:

$$T_s = (95/110) \cdot 130 = (0.8636) \cdot (130) = 112.27$$

This means that in 1998 the nation received 12.27% more imports per unit of domestic factors embodied in its exports than it did in 1980. Even though the nation shares part of its productivity increase in its export sector with other nations, the nation was better off in 1998 than it was in 1980 (by more than indicated by the increase in/and even though  $T_n$  declined).



## Double Factoral Terms of Trade

The concept of the single factoral terms of trade can be extended to measure the country's double factoral terms of trade (Td) given by:

$$Td = (P_x/P_m) Z_x/Z_m).100$$

where  $Z_m$  is an import productivity index. Thus, Td measures how many units of domestic factors embodied in the country's exports are exchanged per unit of foreign factors included in its imports.

For example, if  $Z_m$  rises from 100 to 105 between 1980 and 1998 then D rises to:

$$Td = (95/110).(130/105) = (0.8636).(1.2381) (100) = 106.92$$



➤ Of the five terms of trade defined  $T_n$ ,  $T_g$ ,  $T_y$ ,  $T_s$  and  $T_d$  are the most important.  $T_d$  does not have much significance for developing countries and is not usually measured. The most significant terms of trade for developing countries are  $T_y$  and  $T_s$ . However, since  $T_n$  is the easiest to measure, it is  $T_n$  widely used. Indeed,  $T_n$  is often referred to simply as “the Terms of Trade”.

➤  $T_y$  and  $T_s$  can rise even when  $T_n$  declines. This is generally regarded as favourable to a developing country. Of course, the most favourable situation is when  $T_n$ ,  $T_y$  and  $T_s$  all increase. On the other hand, the worst possible situation from the point of view of a developing country occurs when all three terms of trade deteriorate at the same time.



# Study Material Source

1. <http://www.yourarticlelibrary.com/economics/terms-of-trade-concepts-determination-and-effect-of-tariff-on-term-of-trade/37603>
2. <http://www.economicdiscussion.net/trade/various-terms-of-trade-economics/26218>

