ANGLO-CHINESE JUNIOR COLLEGE
Economics

H1/H2 Introduction to Macroeconomics: Annex

1. Breakdown of Components of AD

In the "Introduction to Macroeconomics" lecture notes, the components of AD were introduced in the following equation:

$$AD = C + I + G + (X - M)$$

Where C = Consumer Expenditure, I = Investment Expenditure, G = Government Spending, X = Export Revenue, and M = Import Expenditure.

Note that the "M" component above is made up of import expenditure by households, firms, and governments. For example, the consumer's expenditure can be further broken down as follows:

$C = C_D + C_M$, where C_D = consumption expenditure on domestic goods, and
C_M = consumer expenditure on imported goods.

The same can be applied to investment expenditure and government spending, for example if a firm imports machinery or a government imports sand to reclaim land. This would give us the following breakdown of AD:

$$AD = (C_D + C_M) + (I_D + I_M) + (G_D + G_M) + (X - M)$$

Since M is made up of the total import expenditure by all economic agents, this can be shown by:

$$M = C_M + I_M + G_M$$

This gives us the complete AD equation:

$$AD = (C_D + C_M) + (I_D + I_M) + (G_D + G_M) + (X - (C_M + I_M + G_M))$$

This implies that any change in imports does not directly affect the AD. Take for example a situation where consumer's demand for imported goods has increased. This would be an increase in C_M. Since the C_M value applies twice in the equation above, once as a positive and once as a negative value, any increase would be cancelled out and there would be no change in AD.

Recall the definition of AD: the total amount of demand for all finished goods and services produced in an economy. Since imports are not produced in an economy, it makes sense that any change in import expenditure would not influence the aggregate demand.

Learning point: A change in M has no direct impact on AD

2. Substitution Effect when M changes

Although import expenditure has no direct impact on AD, there might be an indirect impact. Using the same example of an increase in demand for imports, let us assume that this increase in demand is due to a change in consumer tastes and preferences. Consumers have switched from consuming domestically produced goods to consuming imported substitutes. How would this affect the AD?

Recall the full equation:

$$AD = (C_D + C_M) + (I_D + I_M) + (G_D + G_M) + (X - (C_M + I_M + G_M))$$

Consumers switching from domestic goods to imported goods would mean an increase in C_M and a simultaneous decrease in C_D. Mathematically, the increase in C_M would be cancelled out, while the decrease in C_D would remain, causing a fall in AD through the C component.

Thus, the increase in M has led to a decrease in C, decreasing AD.

Learning point: A change in M could lead to a change in C through substitution, affecting AD.

3. Impact of depreciation of currency on AD

One important factor that could affect (X – M) is the exchange rate. Exchange rate changes affect the prices of exports and imports, thus influencing the export revenue and import expenditure. Take for example, a depreciation of Chinese Yuan (RMB) and its impact on China's AD:

3.1 Impact on Export Revenue:

The depreciation of RMB leads to a decrease in the price of China's exports in terms of foreign currency. However, the price of exports remains **unchanged** in home currency.

As China's exports are now cheaper for foreigners, there will be an increase in quantity demanded for exports.

Recall that:

Export Revenue = Price (in RMB) x Quantity

Since the **price in RMB is unchanged**, and quantity has increased, this would mean that export revenue (X) would **always increase** when an economy's currency depreciates.

You might have noticed that PED analysis is sometimes included in the above explanation. What then is the relevance of PED? Recall that PED is used to determine the extent to which price affects quantity demanded.

Thus, PED can be used to evaluate the extent of change in X. If PED > 1, the decrease in price (in foreign currency) leads to a more than proportionate increase in quantity demanded, and there would be a larger increase in X. Conversely, if PED < 1, the decrease in price (in foreign currency) leads to a less than proportionate increase in quantity demanded, and there would be a smaller increase in X.

Learning point: Depreciation of currency will always lead to an increase in X and AD. The higher the PED of exports, the greater the increase in X and AD.

3.2 Impact on Import Expenditure:

The impact of a depreciation on import expenditure is not as certain as for export revenue. Let us use the example of the depreciation of Chinese Yuan (RMB).

As the Yuan depreciates, imports become more expensive in terms of RMB. Since the price change is in domestic currency, PED would be needed to determine the direction of change in M (i.e. whether M increases or decreases).

As price of imports in terms of RMB increases, there will be a fall in quantity demanded.

- If $PED_M > 1$, the increase in price leads to a more than proportionate fall in quantity demanded, and thus a decrease in import expenditure.
- If $PED_M < 1$, the increase in price leads to a less than proportionate fall in quantity demanded, and thus an increase in import expenditure.

However, as we learnt earlier, a change in M does not affect the AD directly. Unless there is a substitution effect between imports and domestically produced goods, the AD will remain the same regardless of how M changes.

Learning point: The impact of depreciation on import expenditure depends on the PED, however this has no direct implications for AD.

4. Overall Conclusion:

In explaining how exchange rate changes affect AD, the use of PED is not usually required. Depreciation will always increase AD, while appreciation will always decrease AD. However, PED can be used as an evaluation of the extent of change in AD.

In a future topic, you will learn more about how exchange rates affect a country's **balance of trade** and why PED analysis is required in such cases.