Quantity Theory of Money

Equation of exchange and the quantity theory of money:

- This is the "monetarist school" view of the role of money in the economy.
- They believe that money directly affects prices, output, real GDP and employment in the economy.
- As money supply (Ms) changes, so do these macroeconomic variables.
- This is in contrast to the "Keynesian" view which believes that changes in the money supply directly affect interest rates, and through it indirectly income, employment and output in the economy.
- To establish their claim they propounded the identity equation called the "equation of exchange" and then established the "quantity theory of money."

The Eq. of exchange:

- MV=PQ
- where
- M= money supply in the economy, mainly M1
- V= velocity of circulation.
- P=price level in the economy
- Q= output produced by the economy
- The velocity of circulation "v" is defined as the average number of times a dollar bill circulates in the economy per year.
- Assume on average a dollar bill does ten transactions (buying and selling of goods and services) per year.
- Thus velocity of circulation "v" in this case is 10. Here, a one dollar bill does the equivalent of ten dollars worth of transactions.
- So, M x V=1x10=10 dollars
- P x Q = Price level x quantity of output = nominal gross domestic product (GDP).
- This is the amount of money people spend in buying goods and services.
- So assuming GDP is 12 trillion dollars, it means that people are spending 12 trillion dollars.
- Now comes the question: How much money do you need to buy 12 trillion dollars worth of goods and services.
- Answer: 12 trillion dollars.
- In other words you need 12 trillion dollars to buy 12 trillion dollars worth of GDP.
- Thus (M x V) has to equal 12 trillion dollars.
- Thus, MV=PQ
- This is true by definition, and so the equation of exchange is called an identity equation.
- Example: M = 1trillion dollars
- Nominal GDP = 13 trillion dollars.
- Since, M x V=P x Q
- 1 x V= 13
- Thus V=13, or velocity of circulation is 13, meaning a dollar bill on average does 13 transactions in the economy per year.
- This equation MV=PQ is an identity equation, and is called the equation of exchange.
- It was then transformed into a theoretical economic model by making some (2) assumptions.
- This is called the quantity theory of money.

The Quantity theory of money:

- It explains the direct relationship between money supply and the price level in the economy.
- The 2 assumptions are:
- 1) V is fairly stable over time and can be assumed to be constant.
- It is also predictable over time because it is so stable by nature.
- This is true because the velocity of circulation is dependent on peoples saving and spending habits, which are by itself fairly stable.
- The saying "old habits die hard" applies well in this context. These habits are very slow to change.
- This has been true for the USA where over the last 5-6 decades, M1 and M2 have been fairly stable over time.
- 2) Output "Q" was assumed to be stable since the classical school assumed that wages and prices were flexible enough to keep employment and by extension output at the economy's full employment level, as a rule.
- Deviations from it were temporary and the exception to the rule.
- Thus it is valid to assume that both V and Q are stable and thus can be assumed to be constant in the equation of exchange.
- Thus, in MV=PQ, V and Q are constant.
- Thus, M α P
- or, M is directly proportional to P
- or, money supply is directly proportional to the price level.
- Thus as the money supply changes, according to the quantity theory, so will the price level (and hence the level of inflation) in the e economy.

In simple terms:

- If the money supply doubles, so will the price level.
- If the money supply increases by 10%, so will the price level.
- If the money supply decreases by 20%, so will the price level.
- Thus changes in the money supply will have a direct and proportionate effect on the price level.
- In reality neither is V not Q constant over time.
- They are fairly stable, but not constant.
- Thus money supply does directly affect the price level, but not proportionately.
- Empirical evidence from the USA shows that over time as the money supply has increased, so has prices.
- Every rise in money supply was followed by inflationary pressures later on.
- So the quantity theory does hold true about the direct (and positive) correlation between money supply and prices, but not about the proportionate effect.