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Is There a Stable Relationship between Money Supply and Price Level? Arguments on Quantity Theory of Money

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Abstract

Inflation rate nowadays is one of the main concerns for governments. Having a low and stable inflation rate is beneficial for the whole economy. Quantity Theory of Money provides a direct explanation about the cause and consequences of inflation rate or price level. It relates money supply to the general price level by using a simple multiply equation, which is popular among economists and government officials. This article tries to summarize the origin of money, development of Quantity Theory of Money, and the counterarguments about this theory.

[Keywords]: Money; Inflation; Quantity Theory of Money

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INTRODUCTION

Money is something that is generally accepted by the public. It can be in any form, like metals, shells, papers, etc. Money is like language in some ways. You have to speak English to someone who can speak and listen to English. Otherwise, the communication is impossible and inefficient. Gestures and expressions can pass on and exchange less information. Without money, the barter system, which uses goods to exchange goods, is the alternative way. Double coincidence is needed to make a successful transaction. A farmer needs to persuade a barber to cut his hair by using his potatoes as exchange. In a small economy with few products, it is possible to find someone to make deals. However, it becomes far more difficult when the economy and population expand.

This is why money, acting the function of unit of account, means of payment, and store of value, is needed to facilitate the transaction. Previously, money needed to be durable, marketable, reversible, accountable, divisible, valuable, scarce, etc. (Lewis, Mervyn K. and Mizen, 2000). Hence, gold and silver stood out as the ‘perfect’ commodity money to satisfy these requirements. Following this, gold or silver standard was popular for many centuries. Later, fiat money or legal tender replaced them as the main form of money, which released the restriction of limited amount of gold and silver in the world. Bimetallism tends to incur deflation, as economy and production increase dramatically. The production of gold and silver can sometimes be arbitrary, because luck is often a determining factor to find it. Greater or smaller volumes of gold and silver have the potential to affect the economy in a surprising manner, and it is impossible to implement efficient monetary policy to adjust the macroeconomy – like it was the case during the great depression in 1930s.

After the World War Two, USA became the superpower and had the most amount of gold in the world. Thus, the US dollar was linked to gold by 35 US dollars to one ounce of gold and other currencies were linked to US dollar at a fixed rate by the gold calculation in their own value. This was the famous Bretton Woods system. In 1971, the Bretton Woods system collapsed, and money became credit money. Floating exchange rate is the mainstream now. Government uses their sovereign power to guarantee the legal identity of paper money. Using the interest rate, exchange

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rate, and money supply to treat the inflation rate, balance of payment, unemployment rate, and purchasing power, secures better flexibility and measures to regulate the economy.

The Quantity Theory of Money

As a result of colonization, the quantity theory of money was developed in the 16th century following the influx of the gold and silver from the Americas into Europe. Here, the metals were minted into coins. Inflation is a measure of the general price level. As there were more coins in the market to buy goods and services, price levels increased sharply due to the limitation of production capacity in that time, and inflation followed. The value of the coins dropped. This development led economist Henry Thornton in 1802 to assume that more money equals more inflation and that an increase in money supply does not necessarily mean an increase in economic output.

The Nobel prize winning economist, Milton Friedman, restated this theory and famously said that 'inflation is always and everywhere a monetary phenomenon'(Friedman and Schwartz, 2008). When a country experiences a high inflation, the money supply in that country would also be higher, like it was the case in Germany in the 1920s and Hungary in the 1940s. During the German inflation from August 1922 to November 1923, inflation averaged 322 per cent per month. Inflation averaged 19,800 per cent per month in Hungary from August 1945 to July 1946 (Lewis, Mervyn K. and Mizen, 2000). David Romer thinks in the absence of any type of nominal rigidity or imperfection, a change in the money supply leads to a proportional change in all prices and wages, with no impact on real quantities (Romer, 2012).

Keynes also thought fluctuations in effective demand can be properly described as a monetary phenomenon. In the short run, increases in the money supply lead to increases in output, but in the long run increases in the money supply does not affect the output or real GDP (Keynes, 2018). This is called the neutrality of money, which is a summary expression for the quantity theory of money proposition, which states that a change in the quantity of money results in a proportionate change in the absolute price level, but leaves relative prices, the real rate of interest, real income, real wealth, and finally real output, unaffected (Lewis, Mervyn K. and Mizen, 2000).

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Irving Fisher formulated the famous equation for the quantity theory of money: MV=PT. M is the money supply. V is the velocity of circulation. P is the average price level, and T is the volume of transaction of goods and services. Using this equation, it is clear that the total money should equal the total value of the goods and services produced. Normally, velocity doesn't change frequently due to the technology, confidence, and so on. Total output of goods and services will change with a small percentage (e.g., 2%.) for most of the country.

Therefore, the main variables would be money supply and average price level. There is a direct relationship between the money supply in the economy and the level of prices of goods and services sold. If we increase the money supply in the left-hand side of the equation, the average price level will increase at the similar pace, which we can observe clearly from the market condition. This is the phenomenon of too much money chasing too few goods. Rising price can give false incentive and motivation to the producers to produce more and earn more profits. Real output or real GDP grows temporarily. However, they will find in the long run that this is just the money illusion, and the profit doesn't increase significantly.

This formula of quantity theory of money makes the direct relationship between money supply and price level evident. In some ways, money supply can also affect the total economic activity. However, this theory has some drawbacks and counterarguments. The main contents are three points summarized below.

The arguments on Quantity Theory of Money

1. Too simple

Quantity theory of money assumes that money supply is exogenously determined by the monetary authority, like central bank, who can make monetary policy independently and effectively. However, Kaldor (1985) points out that the central bank has no direct control over the amount of its bank notes in circulation, because it is the commercial banks who deals with the day-to-day money. They cannot

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refuse payments to creditors and force people to borrow money from the bank. Thus, the money supply is not that easily increased and decreased by the central bank.

2. Not effective or valid in some countries for some periods

Marcuzzo (2017) argues that unlike the influx of silver in sixteenth-century Europe, which is said to have induced belief in the validity of the theory, the unprecedented expansion of the monetary base by the Bank of Japan, Federal Reserve, and European Central Bank have hardly produced any effect on price levels, but only on asset prices.

In the last years, quantity easing (QE) has become popular. Central Banks inject huge liquidity in the commercial banks to increase the money supply. As especially seen during the period of the 2008 Financial Crisis, the US Federal Reserve expanded its balance sheet to support the economy. However, the price level did not change with the growth rate of money supply. The link between M (money supply) and P (average price level) of the quantity theory was severed. Commercial banks were cautious, and people were reluctant to borrow. The money could not circulate in the macroeconomy. These experiments or observations put pressure on the validity of quantity theory of money. Without credit expansion, central bank’s willingness to expand the monetary base will not produce effects on the money supply (Kaldor, 1985). This means the liquidity remains trapped within the financial system, leaving the central bank with no way to expand the money supply in the real economy (Koo 2016). In 1970s, due to the Oil Crisis in the Middle East, many developed countries experienced high inflation, which was not driven by the money supply. This is another case that the quantity theory of money cannot explain. Regarding the current Coronavirus Crisis, governments and central banks are using tremendous amount of money to support the economy. The price level does not respond, but the asset price increases significantly. The gap between High Street and Wall Street deepens further.

3. Price level can be affected by other factors, not only money supply

The determination of the price level is on the basis of aggregate demand and aggregate supply. The rate of interest is on the basis of supply and demand for money (Kaldor, 1985; Marcuzzo, 2017). In the quantity theory of money, there is a direct relationship between price level and money supply.

However, in Keynes's theory, price level is determined by the aggregate demand and supply. There is a concept of effective demand. Money supply cannot be transmitted to effective demand directly nor equally. Whether or how much increasing money supply can be transmitted to effective demand in the economy plays some role in the final determination. As Kaldor (1985) says, the basic error of the quantity theory-based arguments lies in the assumption that money supply is the source of demand for goods and services. During recession, people may not want to spend money because of an uncertain future. Even if the central bank increases money supply, effective demand will not increase dramatically, thus, price level stays low.

Conclusion

In conclusion, quantity theory of money is useful to analyze price level and inflation. The relationship of money supply and price level can be observed in many countries. Policymakers may increase the money supply to try to push output above its normal level (Romer, 2012). However, the complexity of the current financial system and changes in the demand and supply of money make the theory weaker. Central banks now focus more on interest rate instead of money supply, which seems to be more effective.

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