A Framework for the Analysis of the Price Level and Inflation

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Introduction

The purpose of this chapter is to present a framework for the analysis of the price level and inflation. MMT (Modern Monetary Theory) is currently the only school of economic thought that, in direct contrast to other schools of thought, specifically identifies and models both the source of the price level and the dynamics behind changes in the price level with MMT offering a unique understanding of inflation as academically defined as part of its general framework for analysis that applies to all currency regimes.

I was asked to do a chapter on ‘inflation’ under the textbook definition which is ‘a continuous increase in the price level.’ However, under close examination this turns out to be elusive at best. At any point in time the price level is presumably both static and quantitatively undefinable. That’s why even the most sophisticated central bank research uses abstractions, the most familiar being the Consumer Price Index (CPI) which consists of selected goods and services designed to reflect a cost of living rather than ‘the price level.’ Nor can central banks determine a continuous rate of change of this abstraction. They can only tell you how the CPI has changed in the past, and they can attempt to forecast future changes. Even worse, they assume the source of the price level to be entirely historic, derived from an infinite regression into the past that, in theory, predates the birth of the universe.

I. The MMT Money Story

The MMT money story presumes a state that desires to provision itself via a monetary system sequenced as follows:

1. Imposition of coercive tax liabilities
2. State spending[1]
3. Payment of taxes and purchase of state securities

Again, with a more extended narrative:

1. The state imposes tax liabilities with penalties for non-payment. The tax credits required for the payment of taxes are units of the state's currency, issued only by the state.

2. The tax liabilities, by design, create sellers of goods and services seeking the appropriate tax credits in exchange, the latter by definition being unemployment.[2]

3. The state then provisions itself by spending its currency to purchase the goods and services it desires.

4. Taxes can then be paid and, if offered for sale by the state, state securities can then be purchased.

5. State spending in excess of tax receipts remains outstanding as the net financial assets in the economy that fulfill savings desires until used to pay taxes.

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[1] Lending is the purchase of a financial assets such as a promissory note, and therefore is a subset of spending in general, which includes purchases of non financial assets

[2] Unemployment defined as those seeking work in exchange for the state's currency

II. The MMT Micro Foundation- The Currency as a Public Monopoly

The MMT money story begins with the imposition of coercive tax liabilities to create a notional demand for that currency. That notional demand is the sum of units of the currency needed to pay taxes and fund residual savings desires, as evidenced by what is offered for sale by agents seeking that currency in exchange for their goods and services. With today's state currencies, for example, the non-government sectors offer goods and services for sale until they have satisfied their need to pay taxes and their desires to net save.

The state monetary system is a public monopoly with the state the sole supplier of that which it requires for the payment of taxes. The state therefore necessarily dictates terms of exchange when spending to purchase goods and services, with the quantity that it can buy inversely related to the prices it pays. For example, if the tax liabilities are $100 and savings desires are $20, and the state offers to pay $1 per day for labor, the state will be able to obtain 120 days of labor. If instead the state pays $2 per day for labor, it will obtain only 60 days of labor. In both examples the non-government sectors are selling labor at the state's price to the point where agents of those sectors have sufficient funds to comply with their tax liabilities and to net save as desired.

For a given fixed nominal tax liability and savings desire, when paying higher prices the state both redefines the value of the currency downward and purchases less in real terms. Therefore, the state can, as a matter of arithmetic, when paying higher prices only buy more real goods and services by increasing tax liabilities or through increased savings desires. That is, to return to the prior example where tax liabilities were $100, savings desires $20, and the labor wage was increased from $1 per day to $2 per day, a tax increase to $200 or an increase of savings desires to $140 would result in the state obtaining the same 120 days of labor as it received with the $1 wage.

In the US, tax liabilities tend to increase as the US government pays higher prices due to federal, state, and local transactions taxes that are based on prices. These include income taxes where higher nominal incomes result in higher tax liabilities, and sales taxes where higher prices also result in higher tax liabilities.

Additionally, savings desires are based on real rather than nominal considerations. Retirement savings desires, for example, are based on the presumed cost of living during retirement years. As prices rise, those nominal savings desires rise accordingly. Business liquidity needs and inventory and receivables financing needs also rise as prices rise.

Therefore, in general, an economy experiencing a continuous increase in prices requires a continuous nominal increase in what is casually called ‘the money supply’ that constitutes the economy’s net savings of financial assets. Without this increase, real savings desires cannot be achieved, as then evidenced by unemployment and excess capacity in general. This, in fact, is my narrative for the 1979 recession. Fiscal balance tightened as tax liabilities increased faster than government spending, and the real public debt growth further decelerated due to the increases in the price level, with the combination driving the economy into a severe recession.

III. The Source of the Price Level

With the state the sole supplier of that which it demands for payment of taxes, the economy needs the state’s currency and therefore state spending sets the terms of exchange; the price level is a function of prices paid by the state when it spends.

There are two primary dynamics involved in the determination of the price level. The first is the introduction of absolute value of the state’s numeraire, which takes place by the prices the state pays when it spends. Moreover, the only information with regard to absolute value as measured in units of the state’s currency is the information transmitted by state spending.

Therefore, all nominal prices can necessarily be traced back to prices the state pays when spending its currency.

The second dynamic is the transmission of this information by markets allocating by price as they express indifference levels between buyers and sellers, and all in the context of the state's institutional structure.

The price level, therefore, consists of prices dictated by government spending policy along with all other prices subsequently derived by market forces operating within government institutional structure.

IV. Agents of the State

The US Congress has designated agents to work on its behalf. These include the Federal Reserve Bank which operates the monetary system, commercial bank members of the Federal Reserve System that are federally regulated and supervised, and the US Treasury which executes purchases and sales as directed by legislation, by instructing the Federal Reserve Bank to debit or credit appropriate accounts.

Commercial bank Fed members have demand accounts at the Fed called reserve accounts. Federal tax liabilities are discharged by either the payment of Federal Reserve Notes (cash) or by the Fed debiting a member bank reserve account, and, if it is a bank client initiating the payment, by the member bank simultaneously debiting the bank account of the client making the payment. Non-bank entities can only make payments to the Fed indirectly through a Fed member bank as a correspondent, or by using cash.

Banks, as agents of the government, likewise influence the price level, as bank lending supports client borrowing to spend on goods and services. Government regulation and supervision controls the prices paid with funds borrowed from the commercial banks. And, with the unlimited liquidity inherent in a floating exchange rate policy, without regulation banks could

lend without limit and without collateral requirements or other means of controlling the prices paid by borrowers, which could quickly impair the government's ability to provision itself and catastrophically devalue the currency.

V. The Determination of the Price Level

The state sets the terms of exchange for its currency with the prices it pays when it spends, and not per se by the quantity of currency that it spends. For example, if the state has an open-ended offer to hire soldiers at $50,000 per year, the price level as thereby defined will remain constant regardless of how many soldiers are hired and regardless of the state's total spending. The state has set the value of its numeraire exogenously, providing that information of absolute value that market forces then utilize to allocate by price with exchange values of other goods and services determined in the marketplace. Without the state supplied information, however, there would be no expression of relative value in terms of that currency.

Should the state decide, for example, to increase the price it pays for its soldiers to $55,000 per year, it would be redefining the value of its currency downward and increasing the general price level by 10%, as market forces reflect that increase in the normal course of allocating by price and determining relative value. And for as long as the state continues to pay soldiers $55,000 per year, assuming constant relative values, the price level will remain unchanged. And, for example, the state would have to continually increase the rate of pay by 10% annually to support a continuous annual increase of the price level of 10%.

VI. Inflation Dynamics

I begin with an academic definition of the rate of inflation:

“The continuous increase in the term structure of prices faced by economic agents today for purchases and sales for future delivery dates.”

This can also be referred to as forward pricing, and it’s an expression of the policy rate of interest determined by central bank policy.

MMT makes a distinction between changes over time of the price level, vs the rate of inflation which is expressed by the current term structure of prices.

The price level changes with prices paid by the state when it spends (fiscal policy) while changes in the term structure of policy interest rates (monetary policy) alter the term structure of prices. And while the term structure of prices is not a forecast of changes in the price level, that is not to say it doesn’t influence the future direction of the price level.

Interest rate policy also functions as a fiscal transfer as the state is a net payer of interest to the other sectors of the economy. With public debt levels in excess of 100% of GDP, for example, a 1% rate hike, ultimately adds interest income payments of over 1% of GDP to the economy. This increase in state spending directly increases nominal incomes, and, to the extent agents receiving the interest payments increase their spending, state interest payments support sales, output, and employment.

State interest expense also reduces fiscal space as it partially satisfies the need to pay taxes and to net save that is created by state tax liabilities, which means there will be that many fewer goods and services offered for sale to comply with the remaining tax liabilities. This means the state’s real purchases of goods and services are reduced by interest payments as per the same framework for analysis discussed in the previous examples.

Therefore, as described above, I conclude that the state's payment of interest, implemented by the state to slow the rate of growth and work to counter price increases, is far more likely to do the reverse.

Also of note is that interest payments are necessarily to those who already have money, and are also paid proportionately to the amount of money one has. In prior publications, I've labeled a positive interest rate policy 'basic income for those who already have money' which, when stated as such, has no political support whatsoever. Yet, as monetary policy that, presumably, fights inflation, central bank rate increases receive widespread support.

To summarize, I see interest rate policy as both backwards and confused. First, the rate of inflation academically defined is an expression of the central bank's policy rates, so rate hikes directly increase that measure of inflation.

Second, rate hikes constitute additional state deficit spending, which tends to also be an inflationary bias given currency institutional structure.

And third, for me the payment of funds only to those who already have money as a cure for what's believed is inflation does not serve public purpose.

VII. Interest Rates and Wages

An increase in the Central Bank's policy rate in the first instance increases state deficit spending and total income in the economy. This means wages are then a smaller percentage of total income which to some degree, depending on propensities to spend, implies that the relative value of wages has decreased.

This further implies that if wages are indexed to the general price level in the context of a positive policy interest rate, an increase in the wage will

cause a larger increase in the general price level, which will then trigger a higher wage, in an accelerating spiral.

However, in the context of a 0% rate policy, a wage increase would not be magnified by this process.

What I'm suggesting is that this combination of wage indexation and high policy rates of interest selectively observed in nations experiencing undesired increases in the price level ironically contributes to accelerating rates of increase the interest rate policy is meant to contain.

VIII. The Hierarchy of Demand

Demand originates with the state. Without state spending the value of the currency is unspecified and there is no aggregate demand. Only subsequent to state spending can the currency obtain absolute value and non-government spending take place.

IX. Conclusion

This chapter provides a framework for the analysis of the price level and inflation. The framework is that of the currency itself as a public monopoly, with the state setting nominal demand with its tax liabilities, as well as providing the tax credits that allow compliance with those tax liabilities.

This understanding entirely explains the source of the absolute nominal value price level over time. Also implied is the role of interest rates with regard to the academic definition of inflation and the influence of policy rates on market-determined expressions of relative value.

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