

The Value Theory of Money



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Preface

This document presents the latest version of a theory of money that is radically different from the conventional over-a-century-old Quantity Theory of Money (QTM) elaborated by Irving Fisher in 2011.

This new version makes up part of the tenets of the underlying theory to policy propositions of the Real Incomes Approach to Economics. This is the only school of economic thought based on microeconomic business imperatives by devolving the decisions on prices and process productivity to economic units as opposed to centralised macroeconomic policy decisions attempting to influence prices of goods and services through the manipulation of money volumes.

After over a century of monetary policy decisions based on the logic of the QTM it is evident that these have never been able to eliminate inflation. As a result, economic transactions both by government and private sectors have been undermined by an incessant depreciation in the value, or purchasing power, of the currency.

While estimates of the CPI and CPIH do not reflect individual packages of input inflation for either business or households, over the last 50 years alone the purchasing power of the currency has declined by over 90%.

This has led to a constant decline in the value of cash flows, profits and wages making long term public investment prey to constant re-budgeting against a declining purchasing power of revenues often leading to abandonment of final “phases” denying the anticipated benefits associated with these final stages to groups of constituents.

Monetary policy based on the simplistic logic of the QTM has set in motion a rising income disparity and fall in real incomes associated with lower investment and productivity giving rise to deindustrialization. While introducing monetarism in 1975 to shore up the balance of payments, Britain now has the world’s second most negative balance of payments for goods. Poverty involving people in work who cannot afford basic essentials, is increasing..

This paper presents a new theory of money that provides the theoretical and a policy proposition that concentrates on eliminating inflation and stabilizing and increasing the value or purchasing power of the currency.

This theory, The Value Theory of Money, proposed by the British economist Hector Wetherell McNeill is the result of close to 50 years of research into inflation and which has brought back to the fore the role of moderated price setting and a sustained evolution in continuous innovation leading to rising productivity as expressed in terms of declining unit costs.

By stabilizing money volumes and allowing competition to guide both price setting and productivity decisions, it is possible to sustain or increase the value of cashflows, profits and wages and to create a foundation for less precarious long term public investment.

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Introduction

This paper reports on advances in inflation analysis by the economist Hector Wetherell McNeill¹, that go beyond previous explorations undertaken to unravel the inability of the Quantity Theory of Money (QTM) identity to explain the results of the base rate and taxation cycles designed to control inflation.

McNeill has demonstrated that the deterministic or functional relationships that relate money volumes and interest rates to the control of goods and services price inflation do not reside within the QTM.

This is why proponents of monetarism are unable to explain the mechanisms whereby money volumes and interest rates influence price levels in competing companies².

Background

The Quantity Theory of Money (QTM) identity is not a determinant model because it contains no variable as functional components to represent the means to first of all determine the volume of money available for goods and service transactions.

Contrary to assumptions, the QTM possesses no variables that determine the average price associated with a given collection of transacted goods and services or the resulting real income.

This is a logical consequence of inflation having no direct relationship to the volume of money or interest rates, as established by the Real Incomes Approach to Economics. The causes of inflation were described in an essay by McNeill in the very first *Charter House Essays in Political Economy in 1981* under the title of “*Price Performance Fiscal Policy – A Real Incomes Approach*” which was a summary monograph of his original document released by INTERCOMEX, Rio de Janeiro, Brazil in June 1976 under the same title².

In order to explain these statements, it is necessary to examine the Quantity Theory of Money identity and explore rational extensions so as to end up with a new theory of money.

QTM limitations

The current form of the QTM identity remains that elaborated by Irving Fisher in 2011 and which does not account for non-circulating money in the form of savings, asset holdings or overseas flows.

Fisher's QTM identity is as follows:

¹ Hector McNeill is the Director of The George Boole Foundation and is the lead developer of The Real Incomes Approach to Economics based at SEEL-Systems Engineering Economics Lab a division of the Foundation.

² The most up to date and complete version can be found in the recent document McNeill, H.W. “[Achieving sustained real growth in the British Economy](#)” January 2024. Always check for latest version because this is one of the most rapidly evolving fields in economic today.

$$M.V=P.Y \dots (i)$$

Where:

M is money supply;

V is velocity of circulation;

P is average price level;

Y is volume of transactions of goods and services or real income.

Quantitative easing

According to the QTM, increasing money volume increases P.Y. Quantitative easing (QE) was an extreme form of monetary expansion combining very large rise in M and low, close to zero, base interest rates.

The “theory”, according to monetarists, was that QE would help banks build up their balance sheets following the 2008 financial crisis and that investment and growth would take place with a probability of a tail end inflation which would be “controlled” by raising interest rates.

The “logic” of these forecasts was the QTM.

However, the outcome in terms of the goods and service economy was no initial price rises, an insipid economic growth, falling investment and productivity and falling real incomes in the real productive economy.

On the other hand, the most direct outcome of QE has been a significant investment and price rises in assets (land, buildings, commodities, precious metals, rare objects and art, shares, financial assets and crypto-currencies) for speculative rather than productive reasons.

In addition, the diversion of QE funds into offshore investment was significant.

Because of exceptionally low interest rates, savings volumes and returns declined.

Clearly the QTM possesses no variables that represent assets, savings or offshore investment to explain this combination of circumstances and it is therefore of doubtful value as a transparent deterministic model upon which to base the likely impacts of a large increase in M associated with very low interest rates.

The Cambridge equation

In the development of a more realistic substitute for the QTM, to reflect the actual outcomes of changes in money volumes, the Cambridge equation, based on contributions from Alfred Marshall, Arthur Pigou and John Maynard Keynes, was a modification of the QTM where an additional determinant “k” representing savings was included to account for savings as a non-circulating asset.

$$M = k. P. Y \dots (ii)$$

On further examination this equation makes “k” a component of M but its functional

relationship is not explicit. It appears as a variable generating a product M of k, P and Y. k was probably a “propensity to save” acting as a coefficient to reduce the value of money in circulation.

Before introducing an extended version of the Cambridge Equation, McNeill, in consideration of the standpoint of a determinant decision analysis model, able to simulate and project the impact on real incomes, proposed a more appropriate format as:

$$M = (P.Y) + k \dots (iii)$$

This is because k would be an absolute quantity that reduces the “active” or “transactional funds” for goods and services in the economy which are to be found in (P.Y).

The Cambridge equation did not include V.

In order to isolate and quantify the resulting real incomes element, the savings component needs to be transferred to the left of the equals sign as an amount that reduces M.

McNeill placed the Fisher V back into the identify as:

$$(M - k).V = P.Y \dots (iv)$$

The real economy

The real economy is made up of the productive activities and the transactions between economic units within factor supply, produce and consumer markets for goods and services.

Savings and asset holdings do not feature in this goods and services transactional economy and remain separate until disposed of to generate liquidity or used as a guarantee for a loan, as cash to be spent, within the real economy.

The real economy is essentially the physical goods and services transacted (Y) and their average prices (P). This being the case, it is evident that the greater the level of saving the lower will be the size of the real economy measured as P.Y.

Quantitative easing and real incomes

McNeill observed that with quantitative easing QE demonstrated the flow of money into assets was the notable feature under this policy. This was associated with lower investment and depressed real incomes and stagnating goods and service prices

The fact that the QTM and the Cambridge Equation could not account for the outcomes of quantitative easing QE was that they did not include any variables for assets to expand the non-circulating money categories.

Towards a Value Theory of Money

A deterministic model of this relationship needs to replace the QTM, of the general form:

$$M.V = (P.Y) + (a + k) \dots (v)$$

or

$$(M - (a + k)).V = P. Y \dots (vi)$$

Where:

M is the quantity of money;

P is the price level;

Y real income;

a is assets;

k is savings.

As can be observed, by moving "a" and "k" to the left, as a deduction from M, the very obvious depressive impact of rising asset holdings on the availability of money to goods and service transactions can be seen in a reduction of P.Y.

This has been the experience of countries who have applied QE, including the early introduction in Japan in the late 1980s. The universal impact has been depressed transactions and real incomes Y and insipid growth. This explains how the exogenous funds, that were not generated by the supply side in the form of bank loans at very low interest rates, were diverted in such a manner as to be inaccessible by the supply side for use as good and services investment or transactions.

With low interest rates, savings become less significant and assets become more significant.

As a result, rather than see economic growth, in spite of close to zero interest rates, the result was lower real incomes, lower substantive investment and deficient growth in productivity.

As is self-evident, the rise in exogenous money did not have any practical impact on "aggregate demand" for goods and services and even less so on real economic growth because funds were diverted into assets and offshore investment.

Interest rates were so low as to discourage saving.

Expansion of the asset variables in 'a' to distinguish between asset classes

McNeill divided the variable 'a' in equation (vi) into the basic asset classes as follows:

- Land - I

- Buildings - r
- Precious metals - p
- Commodities - m
- Art & rare objects - a
- Shares - h
- Financial instruments - f
- Crypto-currencies – c

To these factors were added:

- Offshore flows – o
- Savings - k

By transcribing these additional variables to replace 'a' in the modified theoretical money identity, we get the following:

$$(M - (l + r + p + m + a + h + f + c + o + k)).V = P.Y \dots \text{ (vii)}$$

Money sinks

All of the assets remain in encapsulated markets which in effective terms remain isolated from the goods and services markets often involving distinct markets in terms of the numbers of constituents involved in transactions and holding of assets.

These markets as well as overseas flows and savings act as money sinks drawing funds away from goods and services markets.

Therefore, these money sinks determine the volume of money available or "left over" to serve the goods and services markets.

Exogenous model

Monetary theory and policy is based on the QTM logic is an **Aggregate Demand Model (ADM)** which relies on the introduction of additional money beyond the current volume of nominal turnover of the real economy or its removal, to control inflation.

This is an exogenous lever based on finance (loans and credit).

Endogenous model

The Real Incomes Approach to Economics framework makes use of a **Production Accessibility and Consumption Model (PACM)**³ in which the actions on the supply

³ The spirit of the PAC model are is similar to the economic model expounded by the French economist Jean-Baptiste Say (1767-1832)

side determine the prices, investment from savings, payment of worker incomes and establishment of consumption levels.

This endogenous and real incomes growth model depends upon rises in productivity and price setting rather than exogenous financial levers.

The PAC model and logic is a supply side logic

However, this should not be confused with "supply side economics" which is a fiscal variant of the ADM developed largely by the Canadian economist, Robert Mandell.

Inflation

As observed during the last 75 years monetary policy has never eliminated inflation⁴ so the reality has been an oscillation in inflation rates and a default termination of the inflation rate at around 2% at the end of high base rate and taxation phases in the counter-inflation cycles.

During expansionary phases such as under QE with low base rates and taxation the cause of goods and service inflation is not money volumes or aggregate demand but rather the rise in asset prices such as land, buildings and commodity positions including food, fibre, feedstocks, biofuels, hydrocarbon-based fuels (petroleum & gas) as well as the 6,000 derivatives of petroleum including plastics and fertilizers.

When the raised land and building prices and rentals begin to impact goods and service production as inputs along with the listed commodities, input costs rise requiring increases in output prices not related to "demand-pull" or money volumes but rather to cost-push.

Because charges for rentals of land and buildings, tend to be based on contracts, the impact of the rapid rise in these asset prices tends to be lagged when turning up as cost-push items in goods and services production or as raised household expenditures.

Anticipatory pricing

When goods and service production faces rising input costs, the normal strategy is for companies to adopt anticipatory pricing involving raising prices in order to protect their profits to ensure future activity and employment.

The fundamental objective is to ensure that corporate cash flow rises sufficiently to be able to purchase the next period's inputs which are experiencing price rises. Because managers do not know the likely movements in input prices there is a tendency for those engaged in anticipatory pricing to over-estimate likely input inflation in order to reduce the risk of underestimating it.

⁴ During the last 75 years much inflation was imported, especially as a result of reactions to military events impacting the price of petroleum, gas and some 6,000 derivatives affecting most sectors. Where such pressure has been less of an issue monetary policy has never eliminated inflation.

As a result, the common practice of anticipatory pricing tends to actually increase inflation. Some have referred this practice as “greed-flation”.

Because this affects business to business as well as business to consumer transactions the generalised cause of inflation transitions from the original land, buildings and commodity position price rise impulses to a generalized cost-push effect resulting from anticipatory pricing.

Erroneous QTM logic

It therefore becomes evident that the assumption that inflation is sustained by a demand-pull effect resulting from excessive money volumes and rising aggregate demand is erroneous because the generalised cause is cost-push.

Policy instruments

The policy instruments of monetarism in the form of interest rates and taxation are designed to vary the access to and the volume of funds in the economy to conform to the logic of the QTM.

The fundamental assumption is that inflation is proportional to money volumes (monetarism) or aggregate demand (Keynesianism) when it is evident from the review in this paper that this demand-pull assumption is not correct and inflation is caused in general by cost-push factors.

Therefore, attempting to manage money volumes will have no effect of goods and services inflation.

The damage imposed by QTM logic

In 1979, challenging the logic of what was then a “New Monetarism” Nicholas Kaldor calculated that for every 3% rise in interest rates there is a 2% increase in inflation. A remarkable observation given that raising rates was designed to lower inflation.

However, this effect is self-evident once it is realised that most inflation in goods and services is, in reality, caused by a cost-push effect. Thus, low interest rates and taxation have the asset price rise transition impact of land, buildings and commodity positions with these becoming rising input prices and the main drivers of cost-push inflation. Then when monetary policy raises base rates and taxation to restrict money volumes and demand, this only raises costs still further and with falling consumption, production throughput falls raising overhead costs.

Therefore, over the whole monetary policy base rate and taxation cycle the result is a fall in real incomes from inflation being converted into a continued decline in real incomes as a result of policy-induced raised costs and restricted disposable incomes.

Even as inflation rates fall they do so at a significant cost in terms of lower real incomes.

Cost-push mechanics

The observation of anticipatory pricing was made by McNeill in Brazil in 1975 leading to the development of means to measure the impact of different companies on inflation. McNeill developed this in order to establish analyses to establish what form policies should take to reduce inflation that, as explained, is mainly cost-push in origin.

Price Performance Ratio

In order to analyse corporate impacts on inflation rates McNeill made use of a simple measure of the degree to which any company contributes to inflation by measuring the Price Performance Ratio (PPR) or the ratio of the percentage change in unit prices in response the percentage change in aggregate unit costs in a pre-set period. Aggregate unit costs are the total costs per unit of output of all inputs used in the production of a unit of output.

The formula for the PPR is as follows:

$$PPR = \Delta UP / \Delta AUC \quad \dots \quad (viii)$$

Where:

ΔUP is the percentage change in unit price

ΔAUC is the change in aggregate unit costs.

Although the PPR only refers to price movements it is evident that companies with lower PPR under conditions of cost-push inflation demonstrate a higher productivity than those that have higher PPRs.

There is a distinct and useful set of relationships between PPR values and the degrees of to which firms contribute to inflation as show in the table below:

Table 1: Price Performance Ratios, Profits and Consumer Purchasing Power

PPR	Profit	Impact on inflation	Consumer purchasing power
>1.00	Rises	Rises above input rate	Declines
=1.00	Rate remains	Remains at input rate	Declines
<1.00	Falls	Falls below input rate,	Rises

With PPRs in excess of unity (>1.00) a company raises the rate of inflation, raises profits and reduces consumer purchasing power

With a PPR of unity (=1.00) a company maintains inflation at the input rate, maintains the profit rate and reduces consumer purchasing power.

With a PPR of less than unity (<1.00) a company reduces inflation below the input rate, reduces profits but raises the purchasing power of consumers.

Clearly across the economy such individual company PPRs can be summed up to gain a measure of an average price performance across the economy.

Currency value

It is evident that lower PPRs reflect the collective ability of companies to alter the value or purchasing power of the currency.

The ability of companies to achieve PPRs of less than unity and to raise the purchasing power of the currency depends upon productivity which in turn depends upon technical and operational changes.

For example, a wide range of digital technologies have seen unit prices decline as a direct function of advances in the technology involved⁵. Other operations need to apply medium to longer term transitions in changing technological designs of products and production processes to lower their PPRs so as to achieve a contribution to raising currency value or purchasing power.

There is a natural process of productivity gains that result from the process of learning referred to as the Learning Curve⁶ where the accumulation of tacit knowledge (human capabilities) and the collection of explicit knowledge (data on production and knowledge in general) combine to lower unit costs and augment productivity over time.

The Value Theory of Money (VTM)

Because this measure of productivity is applied to prices at the microeconomic level, this same measure, as an average, can be applied to the price factor P at the aggregate macroeconomic level, to the last version of the theory of money formula (vii) on page 8 as a weighting 'w' as follows to create a Value Theory of Money (VTM):

$$(M - (I + r + p + m + a + h + f + c + o + s)).V = (w . P) . Y \dots (xi)$$

Where:

w is the average PPR

s is savings⁷

Therefore, this money relationship to prices now contains a measure of the aggregate corporate performance or productivity that through its impact on prices, raises or

⁵ Moore's Law states that the number of logical elements (transistors) able to be placed on an integrated circuit would double approximately every 2 years. Moore, Gordon E. (April 19, 1965). "Cramming more components onto integrated circuits" Intel.com. Electronics Magazine.

⁶ Wright discovered and set out the proof of the learning Curve Theodore Paul Wright (1936) – Factors affecting the cost of airplanes. J. Aeronaut. Sci., 3 (4) (1936), pp. 122-128

⁷ K is substituted by s to conform to other earlier publications on the VTM.

lowers the value of the currency or purchasing power thereby raising or lowering real incomes Y for any given value of funds.

Therefore, this is no longer a Quantity Theory of Money but is a **Value Theory of Money** because the weighting 'w' or the PPR, depending upon its average value, will raise, maintain or lower the value of the currency as a function of unit prices as calculated with the parentheses ($w \cdot P$).

The impact of 'w'

The 'w' weighting raises or lowers the average price leading to an inverse movement in real incomes. For example, a 'w' of 1.2 results in a 20% higher price and therefore a fall in real income (Y). A 'w' of unity ($=1.00$) leaves real incomes as is and a 'w' of 0.80 is a 20 % fall in price thereby augmenting real incomes (Y).

Therefore, this identity provides a means of determining target PPRs or 'w' to manage monetary affairs to maintain the value of the currency.

To tackle inflation given that the money sink effects of the main assets, savings and overseas flows are unknown it is more rational for policy to provide incentives to lower the price weighting or PPR as 'w' to less than unity.

The appropriate policy framework

As previously shown a PPR of less than unity (<1.00) results in an increase in real incomes. In order for a company to achieve this state it is evident from the Table 1 that profits decline.

Therefore, the policy to encourage companies to effectively reduce their prices needs to compensate for this reduction in profit.

Price Performance Fiscal Policy

The Real Incomes Approach policy proposition, Price Performance Fiscal Policy (3P), adopts an approach of applying business rules already commonly applied as observed in the practice of anticipatory pricing. Therefore, the use of price-setting to ensure cash flow and profits are considered to be an adequate basis for future operations remains the basic strategy. However, 3P introduces a variable corporation tax levied according to corporate PPRs. This variable corporation tax is referred to as a Price Performance Levy made up of a Base Rate (B), for example 20% which is adjusted by a surcharge or rebate depending upon the value of the PPR.

Therefore, companies with PPRs of less than unity pay a lower PPL and the extent to which the PPR falls below unity the company can end up paying no tax at all.

The operation of 3P

1. 3P only benefits companies who increase their competitiveness by lowering the rate of increase in their prices or, indeed, lowering their unit prices so the effect is immediate and short term.

2. 3P avoids the type of incentives that provide grants and subsidised loans or tax deductions associated with investments as yet with no established beneficial outcomes.

3. In order to justify lowering the rate of inflation or lowering prices, forward projections on unit costs trajectories making use of Learning Curve metrics or introducing cost reduction technologies and reorganization can establish future viable target prices, against projected unit costs, which are in fact applied at the beginning of the unit costs reduction period.

4. The size of the PPL rebate rises with degrees of price moderation and productivity investments to as to compensate reduced margins.

5. The degree of price rise rate reductions or absolute price reductions will increase the market penetration of products and services according to the specific product or services income price elasticity of consumption.

6. Sales volumes should therefore increase resulting in the price-setting business model emphasising cash flow as opposed to marginal cost pricing, thereby further lowering unit costs and helping disseminate lower priced goods and services..

6.The funds involved are those of the corporation and PPL is not considered to be a source of government revenue.

7. This logic is, in part, similar to the “supply side economics” proposals adopted by both Reagan and Thatcher where the lower marginal taxation for high earners was supposed to result in higher investment and growth. However, this did not happen because most tax windfalls were not invested; 3P avoids this policy error.

8. 3P is supply side but investment and the results of investment are combined to ensure funds are applied according to policy objectives to stabilise the value of the currency and help raise real incomes.

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