费雪公式的根本性错误

对 MV=PT 的批判性分析

摘要

费雪交换方程式（MV=PT）长期以来为"印钱刺激经济"等货币政策提供了理论背书。本文从逻辑和数学两个层面对该公式展开批判性分析，指出其存在多个重大错误：1.V（货币流通速度）并非独立变量，而是 GDP 与货币总量的比值，是推导出的残差而非因果变量，即 V 是某种 GDP,而非某种速度；2.V 是物价的倒数，没有任何逻辑意义；3.公式中的 P 是重复计算、概念错误、循环论证。4.V 来自对货币乘数无知；5.V 的解释违反经济现实：尤其是价格存在下行刚性，需求萎缩首先冲击产量 Y 而非价格 P，印钱在经济衰退时只会加剧通胀而非缓解通胀，这与现实高度吻合，费雪理论的结论却完全相反。本文认为，费雪公式本质上是一个循环恒等式，不具备独立的预测力和政策指导意义，其对货币政策的误导极具系统性危害。

一、引言

费雪交换方程式 MV=PT，由美国经济学家欧文·费雪（Irving Fisher）于二十世纪初提出，此后成为货币理论的核心表达式。该公式将货币总量（M）、货币流通速度（V）、价格水平（P）与交易总量（T）四个变量联系在一起，并由此衍生出一系列货币政策主张，其中最具影响力的是：当经济衰退时，货币流通速度 V 的下降可以抵消货币数量 M 的增加，因此政府可以通过增发货币来刺激经济而不必担忧通胀。

这一广为接受的理论框架存在根本性的逻辑错误。本文将从多个层面逐

一剖析，并指出费雪公式不仅在数学构造上存在循环论证，在经济学解释上也存在因果倒置，最终得出的政策结论在现实中不仅无效，甚至有害。

二、错误 1：v 是一种 GDP，不是货币流通速度

货币流通速度，其实是对费雪的公式的误读。或者说全世界都被费雪给误导了。费雪本人就是错误的源头。MV=GDP=PT。V=GDP/M。就像 GDP 总量和人均 GDP。V 是钱均 GDP，而不是钱的流通速度。或者说用速度 V 表示本身就是错的。我们可以把人均 GDP 定义为人的流通速度吗？人均 GDP 为什么会发生变化，是因为人的流通速度在变化，荒谬。人均 GDP 就是一种 GDP，人均只是修饰。所以 v 就是 GDP 本本身，而不是什么速度。

三、错误 2：v 只是物价的倒数

MV=总产量，V=总产量/货币总量。物价公式:物价=货币总量/商品总量。所以费雪公式根本就是物价公式的倒数。V=1/物价，这个 V 有意义吗？是货币流通速度的意义吗？

四、错误 3：P 的逻辑错误

3.1 P 是重复计算

MV=PT(价格 x 产量)。问题就出在这个产量上。请问：生产了 1 辆汽车和 1 台电视，产量是 2 吗？所以计算产量的时候，我们必须引入价格，其实计算的是产值。价格其实是一个数量单位，或者是数量的折算系数。T 里面本身就包含了 P。如果再多乘以一个 P，就变成了 P^2。

3.2 P 是概念错误和循环论证

现代经济学为了修正 P^2 这个错误，对这个公式进行了补充。但用一个极

端假设的例子简化逻辑后，可以很轻易地发现P依然是概念错误和循环论证。

假设一年就生产了2个产品，1个苹果和1支笔。苹果的价格，去年（基准期）5元/个，今年(当期)6元/个。笔的价格，去年1元/支，今年1.2元/支。

(1) P=1.2。P不是价格，是价格泡沫的系数。今年比去年苹果和笔都上涨了20%，所以通胀率是20%。P=1+20%=1+通胀率，所以P通胀指数。用P表示就完全是概念错误。

(2) TP=1x5元（去年价格）x1.2（P）+1x1元（去年价格）x1.2（P）=1x6元（今年价格）+1x1.2元（今年价格）。去年价格乘以P就是今年价格，那T为什么不直接用今年价格去计算？先用去年的价格和今年的价格去计算出P,再用去年价格和P去计算已经知道的今年价格。这是循环论证。

五、错误4：V来自对货币乘数的无知

V的解释混淆了货币乘数现象。费雪公式似乎完全忽视货币乘数，把货币乘数的上升解释为V的上升，把经济危机时的货币乘数崩溃即M的下降解释为V的下降。似乎认为货币总量是M0。所列举的具体案例充分暴露了这种无知。

六、错误五：V的解释违反经济现实

5.1 价格下降只是价格波动，不是v下降。

长期来看，根本不存在货币数量上升价格却下降的情况。短期内的价格下降只是正常的价格波动。货币数量一直都在增加，但明天的金价一定上涨吗？价格不是一条直线，而是震荡向上的曲线。费雪公式把这种价格波动的原因简单地定义为货币流通速度的变化，因为价格存在波动就否定物价=货

币总量/商品总量的常识。

5.2 减少消费不会必然导致物价下跌

费雪公式认为减少消费即 V 下降，价格必然下跌。这是错误的。当人们预期货币总量一直在上升，货币必然贬值的情况下，无论买方是否增加购买，卖方提高售价是必然的，卖方必然会把未来的通胀损失包含在价格里让买方承担。你明明知道货币要贬值，你为什么会愿意用房子去换取贬值的纸币呢？除非我能获得更多的纸币对抗纸币的贬值风险。

5.3 V 上升不会导致物价上升

比如：老百姓愿意花钱，工厂也能挣到钱，老百姓赚钱容易，花钱大方，于是正循环，物价就会上升。这么想对不对呢？我发现这是片面的单向逻辑。为了简化推理，我们可以进行思想实验：把所有人简化化为 2 个人，这 2 个人都有买方和卖方两种身份。经济好是双向的，卖买双方的生意都好。A 卖给 B 东西，B 需求大，A 想涨价。B 也有 A 需要的东西，A 的需求也很大，B 也想涨价。AB 都想涨价就没有意义了。要么价格同步涨，要么维持原状。但是在货币数量固定的坏境中，价格不可能都上涨，只能维持原状。

5.4 V 下降时，不是 P 下降，是 Y 下降

商品价格取决于成本和利润。没有合理利润，谁愿意去做卖方。当消费减少时，商品会第一时间停产。新产品的供应会稀缺，价格暴涨。库存产品快过期了，所以会降价。所以消费者只能购买价格更高的必需品，或者价格低，但品质也低的库存。这是降价吗？听说过倒牛奶事件吗？为什么卖家宁

肯倒掉牛奶，而不是降价？所以费雪公式假设M不变Y不变，V下降则P下降，这是非常荒谬的。V下降，Y必然下降，增加M,自然状态下只会增加P。印钱强制去增加生产，只会增加库存。国家印钱补贴消费，因为不是v的真正改善，于是只是去了库存，没有增加新的供给，库存还少了，货币更多了。更少的产品，更多的货币，就是更大的通胀。

5.5 没有v下降

人们赚钱是为了存钱吗？那叫有病。所以赚钱的唯一目的是花钱，无非是什么时候花而已。所以花钱才是自然倾向，存款不是。不存在只存款不消费的情况。就算短期内倾向存款，未来必然会有更大的反弹。当大家都倾向存款时，印钱也只会增加存款，并不能刺激消费，最终在未来引发更大的通胀。所以不是简单的印钱刺激消费，而是找到导致存款倾向的原因。

七、结论

费雪公式MV=PT的根本问题在于：它是一个循环恒等式，而非具有独立预测力的经济理论。V作为推导残差，能够事后解释任何价格异常，这种"万能解释"等同于没有解释。

更为严重的是，费雪公式为"印钱刺激经济"这一危险的政策主张提供了看似严谨的数学背书，使得政策制定者得以在理论掩护下推行实际上只会积累风险的货币扩张政策。这不是一个中性的学术错误，而是一个具有系统性危害的理论工具。

真正有效的经济政策，必须直面经济问题的真实病因。

The Fundamental Errors of the Fisher Equation

A Critical Analysis of MV = PT

Abstract

The Fisher equation of exchange (MV = PT) has long served as the theoretical backing for monetary policies such as "printing money to stimulate the economy." This paper undertakes a critical analysis of the equation from both logical and mathematical perspectives, identifying several major errors: (1) V (the velocity of money) is not an independent variable but rather the ratio of GDP to the money supply — it is a derived residual, not a causal variable; in other words, V is a form of GDP, not a velocity; (2) V is simply the inverse of the price level and carries no logical meaning whatsoever; (3) P in the equation involves double counting, a conceptual error, and circular reasoning; (4) V reflects ignorance of the money multiplier; (5) the interpretation of V violates economic reality — most critically, because prices exhibit downward rigidity, a contraction in demand strikes output Y before prices P, meaning that printing money during a recession only worsens inflation rather than relieving it, a conclusion consistent with real-world experience but diametrically opposed to what Fisher's theory predicts. This paper concludes that the Fisher equation is fundamentally a circular identity, possessing no independent predictive power or policy guidance value, and that its distortion of monetary policy constitutes a source of systematic harm.

I. Introduction

The Fisher equation of exchange, MV = PT, was proposed by American economist Irving Fisher in the early twentieth century and subsequently became a cornerstone expression of monetary theory. The equation links four variables — the money supply (M), the velocity of money (V), the price level (P), and the volume of transactions (T) — and gives rise to a series of monetary policy prescriptions. The most influential of these holds that during an economic recession, a decline in the velocity of money V can offset an increase in the money supply M, and therefore the government can stimulate the economy by issuing more currency without fear of inflation.

This widely accepted theoretical framework contains fundamental logical errors. This paper examines them layer by layer across multiple dimensions, demonstrating that the Fisher equation not only involves circular reasoning in its mathematical construction but also reverses causality in its economic interpretation. The policy conclusions it generates are not merely ineffective in practice — they are actively harmful.

II. Error 1: V Is a Form of GDP, Not the Velocity of Money

"The velocity of money" is in fact a misreading of Fisher's own equation — or rather, Fisher himself was the original source of the confusion, and the entire world has been misled by him. The identity holds: MV = GDP = PT, which means V = GDP / M. Consider the analogy to GDP per capita. Just as GDP per capita is a measure of GDP adjusted for population size, V is GDP adjusted for money supply — it is GDP per unit of money, not a velocity in any physical or meaningful sense. Can we define GDP per capita as the "velocity of people"? Of course not — that would be absurd. GDP per capita is simply a type of GDP; "per capita" is merely a modifier.

Likewise, V is a form of GDP, not a velocity. Representing it with the symbol V is itself a conceptual error.

III. Error 2: V Is Simply the Inverse of the Price Level

MV equals total output, so V = total output / money supply. The standard formula for the price level is: Price = money supply / quantity of goods. It follows directly that V = 1 / Price. Does this V carry the meaning of monetary velocity? No — it is nothing more than the reciprocal of the price level, repackaged under a different label.

IV. Error 3: The Logical Errors in P

4.1 P Involves Double Counting

Consider the formulation MV = PT (price × quantity of transactions). The problem lies in how "quantity" is measured. If one car and one television are produced, is the total quantity 2? To aggregate transactions across different goods, we must introduce prices — what we are actually measuring is output value, not raw quantity. In this sense, price functions as a unit of measurement or a conversion coefficient. T therefore already incorporates P within it. Multiplying by an additional P yields P^2.

4.2 P Involves Conceptual Error and Circular Reasoning

Modern economics has attempted to correct this P^2 problem by modifying the equation. However, using a simplified extreme example, we can easily show that P still embodies a conceptual error and circular reasoning.

Suppose only two goods are produced in a year: one apple and one pen. The price of the apple in the base year is 5 yuan, and in the current year is 6 yuan. The price of the pen in the base year is 1 yuan, and in the current year is 1.2 yuan.

(1) P = 1.2. P is not a price — it is a coefficient representing price inflation. Since both the apple and the pen rose by 20% compared to the base year, the inflation rate is 20%, and P = 1 + 20% = 1 + inflation rate. P is therefore an inflation index, and using P to denote it as "the price level" is a conceptual error.

(2) TP = 1 × 5 yuan (base year price) × 1.2 (P) + 1 × 1 yuan (base year price) × 1.2 (P) = 1 × 6 yuan (current year price) + 1 × 1.2 yuan (current year price). Multiplying the base year price by P yields the current year price. But then why not simply use the current year price to compute T directly? Instead, the current and base year prices are first used to compute P, which is then applied back to the base year price to recover the current year price — a value already known. This is textbook circular reasoning.

V. Error 4: V Reflects Ignorance of the Money Multiplier

The interpretation of V conflates the money multiplier phenomenon. The Fisher equation appears to ignore the money multiplier entirely, attributing a rise in the multiplier to an increase in V, and interpreting the collapse of the money multiplier during a financial crisis — i.e., the contraction of M — as a decline in V. The equation seemingly treats the total money supply as equivalent to the monetary base M0. Specific examples invoked in support of the Fisher framework reveal this

ignorance plainly.

VI. Error 5: The Interpretation of V Violates Economic Reality

6.1 A Price Decline Is Price Volatility, Not a Fall in V

Over the long run, there is no scenario in which the money supply rises while prices fall. Short-term price declines are simply normal price fluctuations. The money supply has been rising continuously, but does that mean the price of gold will necessarily rise tomorrow? Prices do not move in a straight line — they fluctuate upward over time. The Fisher equation attributes this volatility to changes in the velocity of money, and in doing so denies the common-sense truth that the price level equals the money supply divided by the quantity of goods.

6.2 Reduced Consumption Does Not Necessarily Cause Prices to Fall

The Fisher equation holds that a decline in V — interpreted as reduced consumption — must cause prices to fall. This is incorrect. When people expect the money supply to keep rising and monetary depreciation to be inevitable, sellers will raise prices regardless of whether buyers increase their purchases. Sellers will embed future inflation losses into their prices and pass them on to buyers. If you know that currency is depreciating, why would you be willing to exchange your house for devaluing paper money — unless you could obtain enough of it to hedge against the depreciation risk?

6.3 A Rise in V Does Not Cause Prices to Rise

Consider the argument: when people are willing to spend, factories earn profits, incomes rise, spending becomes generous, a virtuous cycle ensues, and prices increase. Is this reasoning correct? It is one-sided and unidirectional. To simplify the analysis, consider a thought experiment: reduce the entire economy to two people, each of whom is simultaneously a buyer and a seller. A good economy is bilateral — both sides flourish. A sells to B, B's demand is high, and A wants to raise prices. B also has something A needs; A's demand is high, and B wants to raise prices too. If both want to raise prices, neither action has any effect. Prices either rise in tandem or remain unchanged. In an environment where the money supply is fixed, prices cannot both rise — they can only stay the same.

6.4 When V Falls, It Is Y That Declines, Not P

The price of a good is determined by cost and profit. Without a reasonable margin, no one is willing to be a seller. When consumption declines, goods are pulled from production immediately. The supply of new products becomes scarce, and prices spike. Inventory goods nearing expiration are discounted. Consumers are thus left choosing between higher-priced necessities and lower-quality clearance items. Is that a price decline? Consider the "milk dumping" phenomenon: why would sellers pour milk down the drain rather than cut prices? The Fisher equation's assumption that when M and Y are held constant and V falls then P must fall is therefore deeply absurd. When V falls, Y inevitably falls. Printing money in this environment will naturally increase P. Forcing production through money printing only creates inventory. Government subsidies to consumers funded by newly printed money do not represent a genuine improvement in V — they merely clear existing inventory without generating new supply, while leaving the money supply higher. Fewer goods and more money: the result is greater inflation.

6.5 V Does Not Actually Decline

Do people earn money in order to save it indefinitely? That would be irrational. Earning money exists for the purpose of spending it — the only question is when. Spending is the natural tendency; saving is not an end in itself. There is no scenario in which people save indefinitely without ever consuming. Even if spending is temporarily deferred, a stronger rebound is inevitable. When everyone tends toward saving, printing money only increases deposits — it does not stimulate consumption. The result is simply larger inflation in the future. The real question is not "print money to stimulate spending" but rather: what is driving the tendency to save in the first place?

VII. Conclusion

The fundamental problem with the Fisher equation MV = PT is that it is a circular identity, not an economic theory with independent predictive power. Because V is a derived residual, it can post-hoc explain any price anomaly — which is the same as explaining nothing at all.

More seriously, the Fisher equation provides an ostensibly rigorous mathematical backing for the dangerous policy prescription of "printing money to stimulate the economy," enabling policymakers to pursue monetary expansion under theoretical cover — expansion that in reality only accumulates risk. This is not a neutral academic error. It is a theoretical instrument with systematic, real-world harm.

Genuinely effective economic policy must confront the true underlying causes of economic problems.