Monetary Theory: Why Money Matters

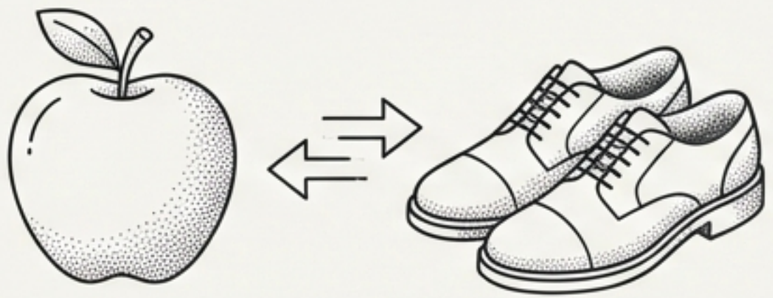
Distilling the macroeconomics of value, inflation, and policy.

In microeconomics, money is merely a numéraire. In macroeconomics, it is the central protagonist.

This presentation traces the intellectual journey to solve a single, profound riddle: Why does an intrinsically useless piece of paper command real goods and services? We move from “money as an assumption” to “money as an outcome.”

The Fundamental Puzzle

The Micro View (Barter)



Money is a veil.
Goods trade for goods.

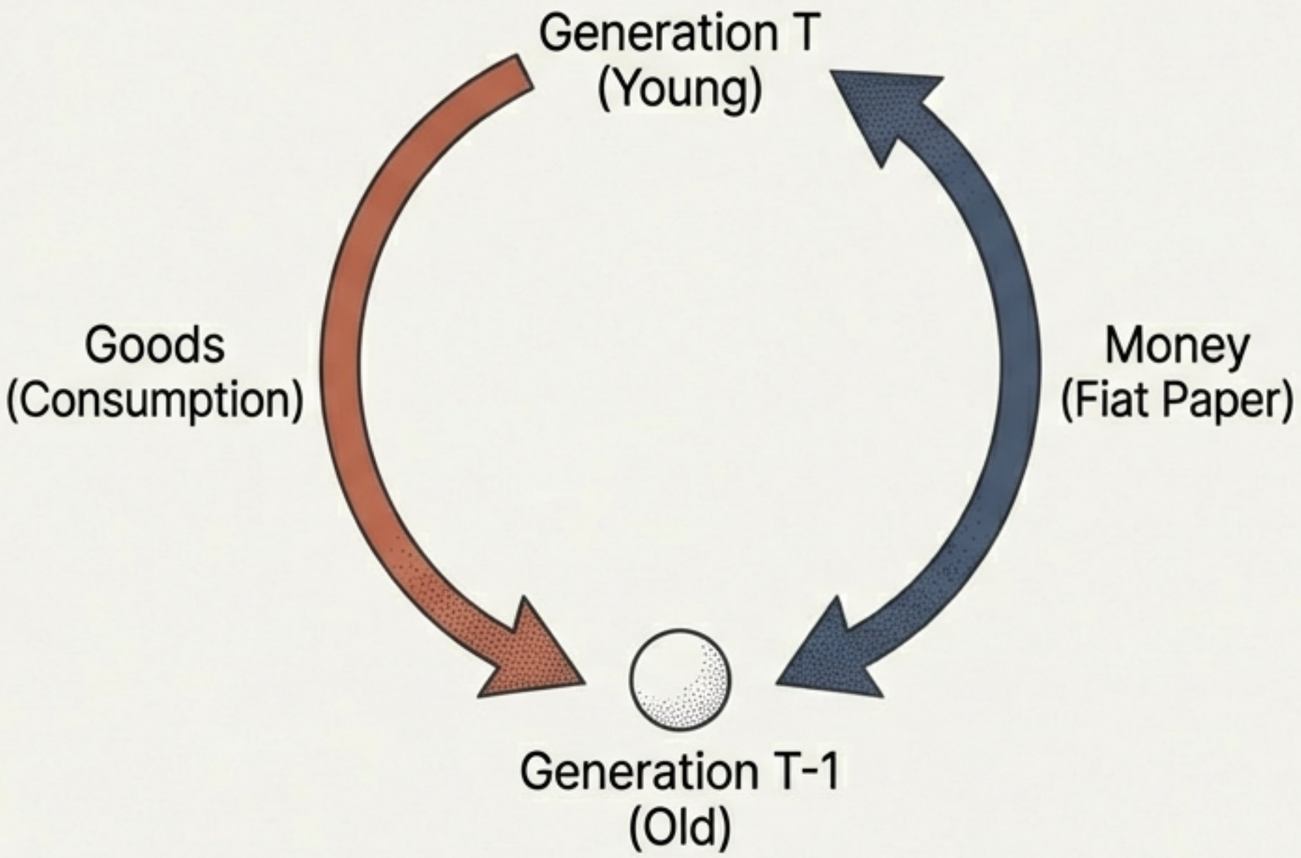
The Macro Reality (Fiat)

Money is an asset. But it pays 0% interest while bonds pay $i > 0\%$.

Wallace's Dictum (1998): Money should *not be an assumption, but an outcome.* The Central Conflict: Rational agents should not hold assets that pay no return. Yet, we do. To understand inflation, we must understand why.

Answer I: The Overlapping Generations (OLG) Model

Hypothesis: Money is a Store of Value for Intergenerational Trade.



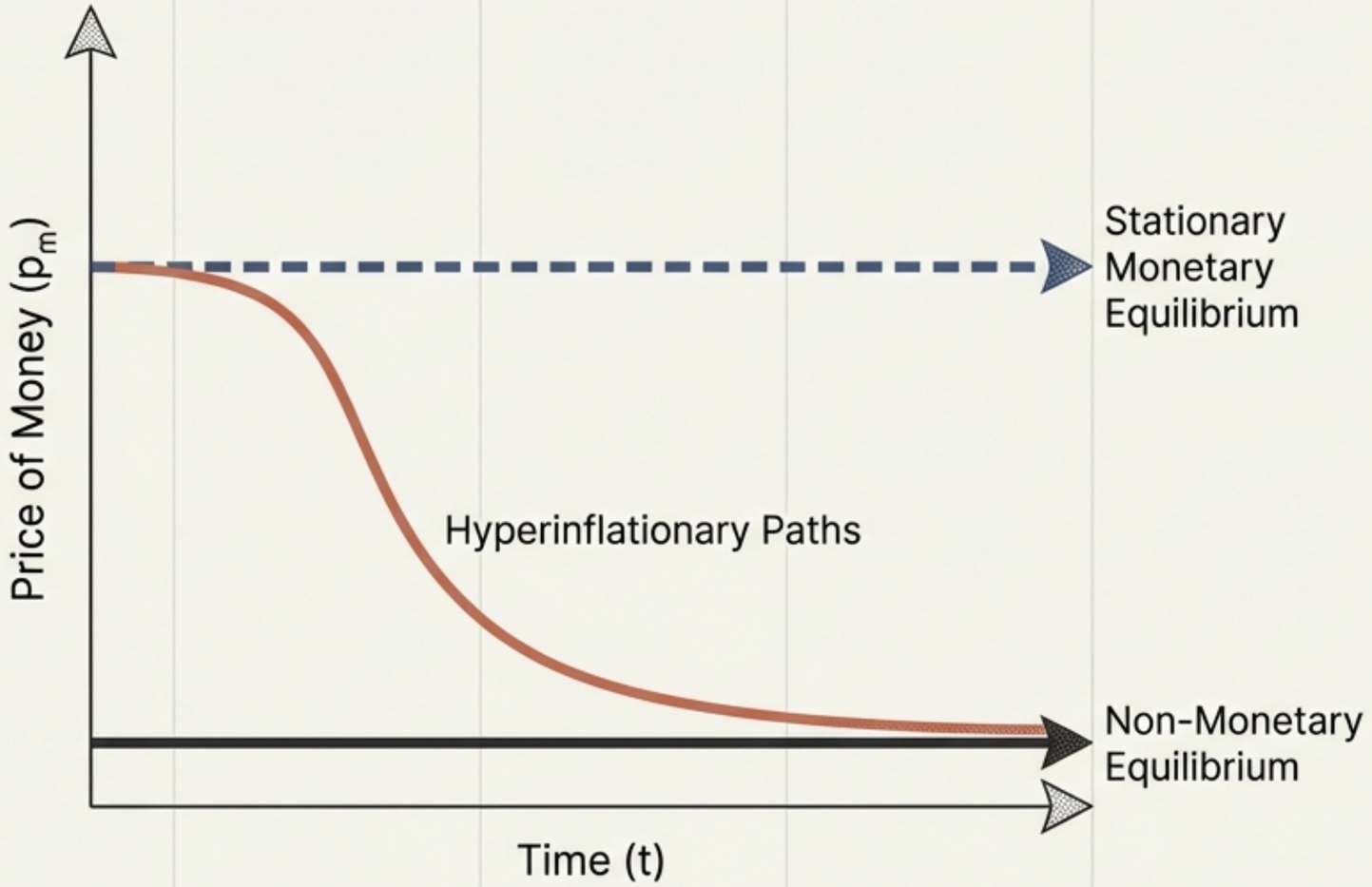
The Friction: In an endowment economy without capital, the Young want to save for old age but have no physical way to store value.

The Solution: The Old possess money. The Young accept this useless paper today solely because they expect the next generation (T+1) to accept it tomorrow.

Source: Samuelson (1958).
Result: Money moves the economy from autarky toward Pareto optimality.

The Fragility of Belief

Indeterminacy and the Threat of Hyperinflation



Money in the OLG model is an asset bubble. It has value only because of belief.

If expectations break, the price of money collapses to zero.

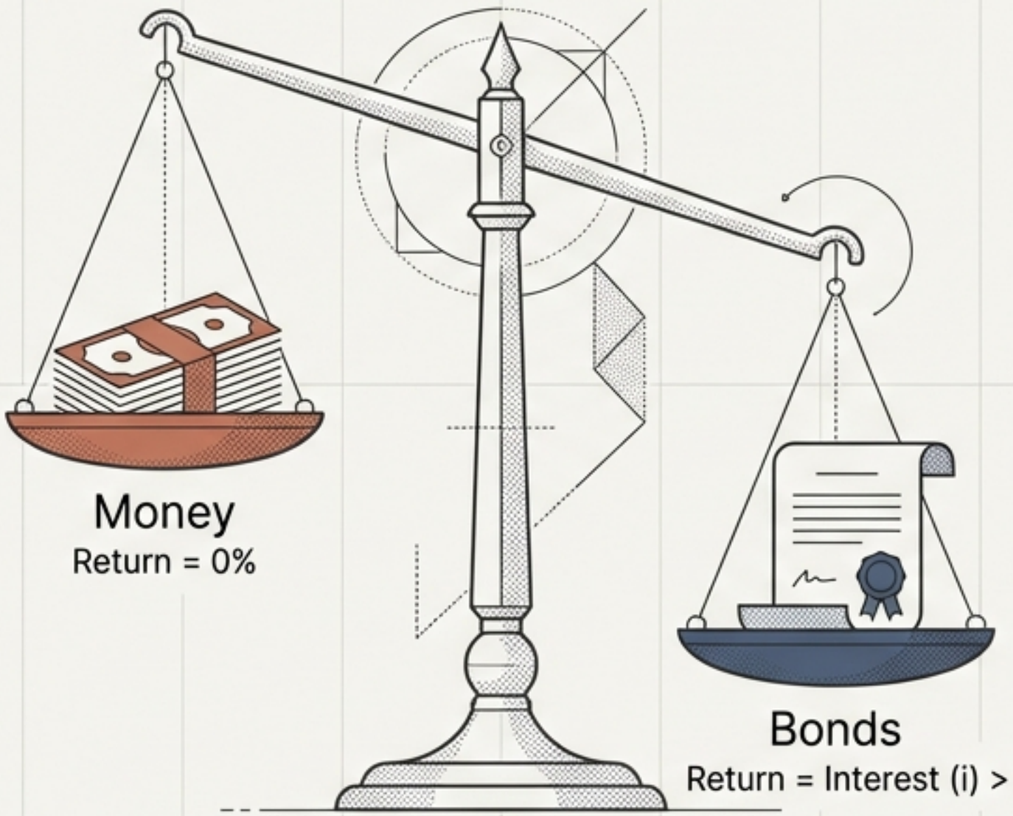
Hyperinflation is not just printing money—it is the collapse of the belief that money will be accepted tomorrow.

Answer II: The Infinite Horizon Challenge

Why standard 'Dynastic Models' fail to explain money.

The Rate of Return Dominance

In models with infinitely lived agents, money is strictly dominated by interest-bearing bonds.



The Transversality Condition

Rational agents will not hold an asset with a lower return forever. In the limit (T -> infinity), the value of money must be zero.

Conclusion: To make money matter in modern macro models, we cannot just rely on ‘Store of Value’. **We must introduce explicit frictions.**

Forcing Value: Reduced-Form Liquidity Models

If theory says money is worthless, we assume it provides "Liquidity Services" to force value.

Cash-in-Advance (CIA)

$$c_t \leq m_t$$

Constraint: You must hold money to buy goods. Money is a prerequisite for trade.

Money-in-Utility (MIU)

$$u(c, m)$$

Preference: Holding real balances yields direct satisfaction/utility, like a consumer good.

Transaction Costs

$$\psi(c, m)$$

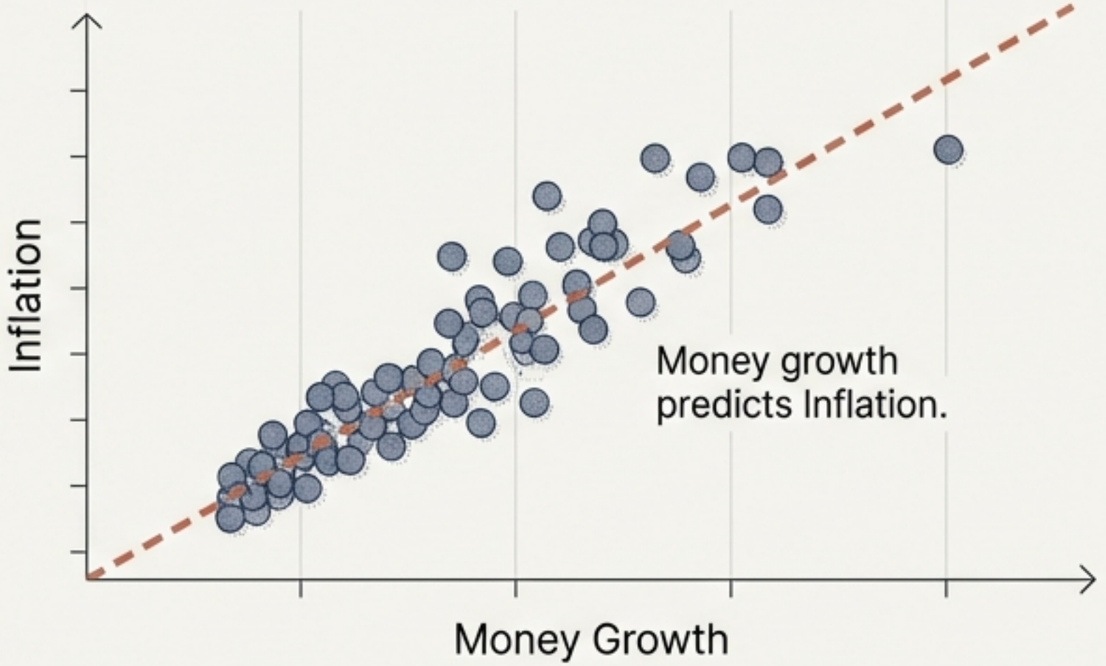
Technology: Money reduces the real resources wasted during purchasing. More money = efficient shopping.

Critique: These models validate the **"Medium of Exchange"** role but **violate Wallace's Dictum**—they assume the answer rather than deriving it.

Evidence Check: The Quantity Theory of Money

Does MV = Py? The breakdown of a legendary correlation.

1955 - 1980s (High Correlation)

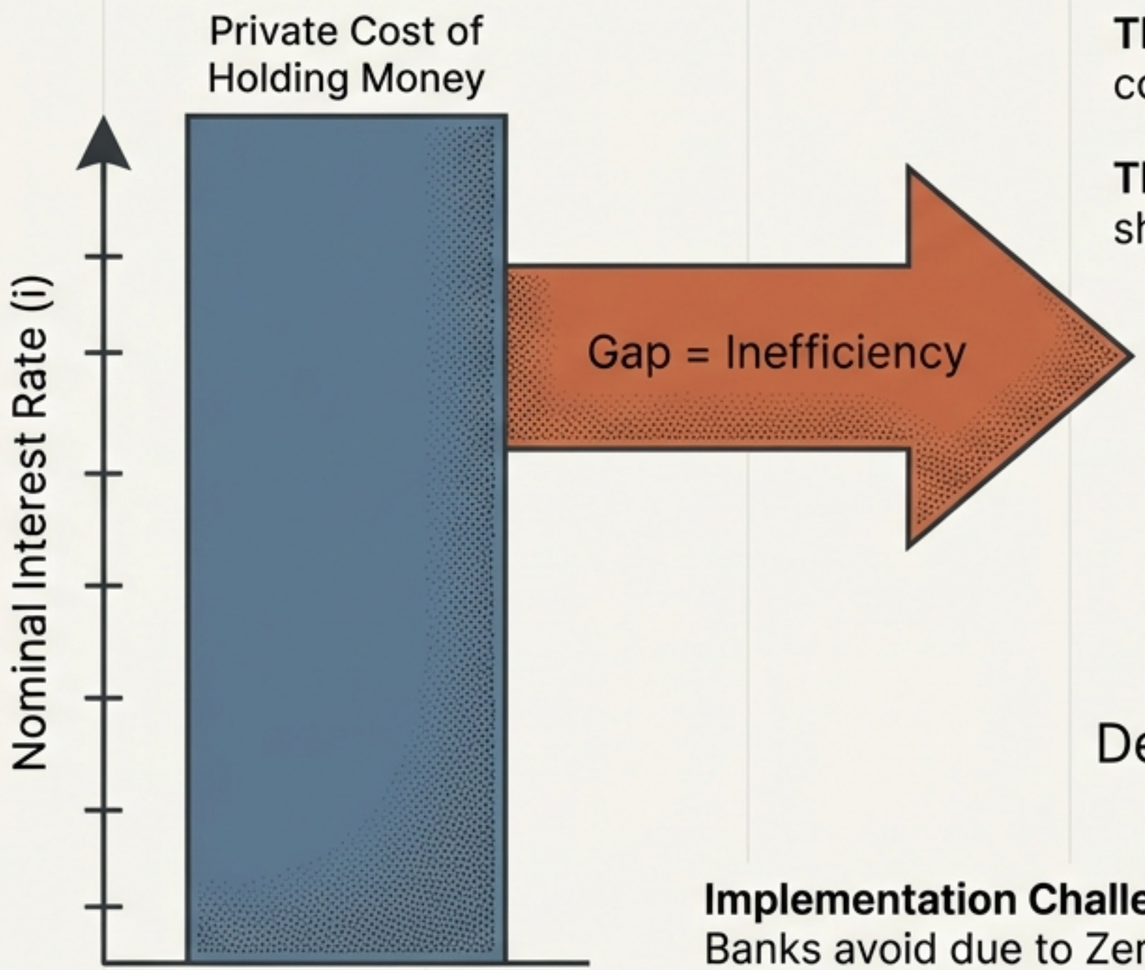


2006 - 2023 (The Breakdown)

The Great Moderation & Quantitative Easing broke the link.
Implication: The money demand function became unstable due to financial innovation.
We can no longer rely on simple monetary aggregates.

Optimal Policy: The Friedman Rule

Minimizing the social cost of money.



The Logic: Money is costless to society to create, but costly for individuals to hold (opportunity cost).

The Optimization: To maximize welfare, the Central Bank should set the nominal interest rate to zero.

$$i = 0$$

Deflation Rate = Real Interest Rate

Implementation Challenge: This requires persistent deflation, which Central Banks avoid due to Zero Lower Bound constraints.

The Cashless Limit & New Keynesianism

Modeling an economy without money.

$$\lim_{(\omega \to 0)}$$

(ω is the weight of money in utility)

Money Balances
$(M/P) \to 0$

$$i_t = \varphi(P_t)$$

How can we control prices if money vanishes?

Modern New Keynesian models omit money entirely.

Insight: Even as money balances go to zero (cashless limit), price levels remain determinate if the Central Bank commits to an active interest rate rule (Taylor Rule).

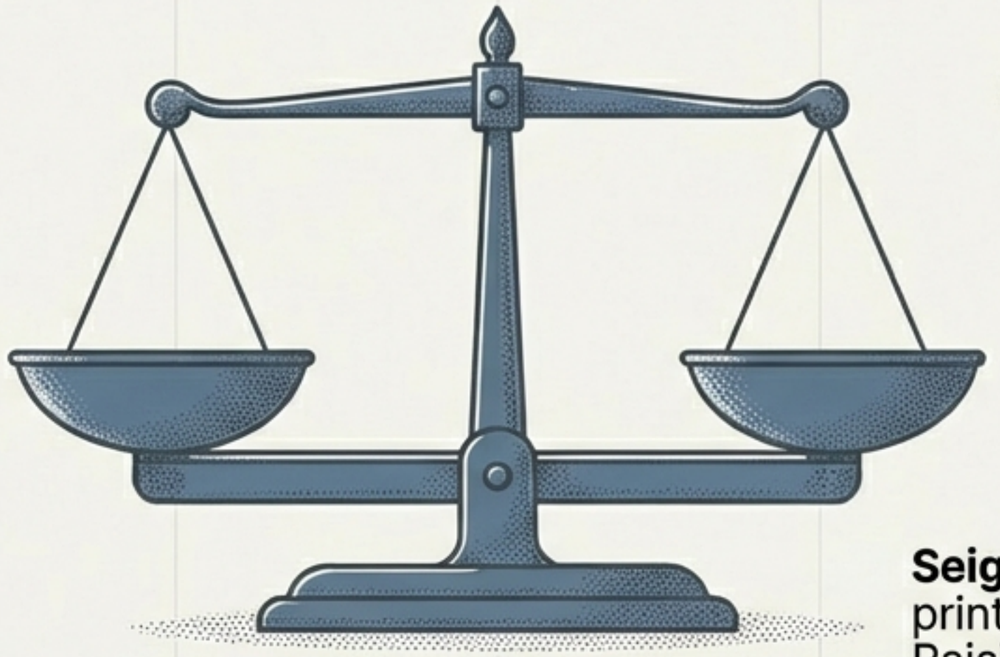
This is the foundation of modern Inflation Targeting. We control 'i' directly, bypassing 'M'.

The Fiscal-Monetary Knot

The Consolidated Government Budget Constraint

Uses of Funds

- Spending (G_t)
- Debt Service $(1+i)B_t$



Sources of Funds

- Taxes (T_t)
- New Debt (B_{t+1})
- **Seigniorage ($M_{t+1} - M_t$)**

$$G_t + (1+i)B_t = T_t + B_{t+1} + (M_{t+1} - M_t)$$

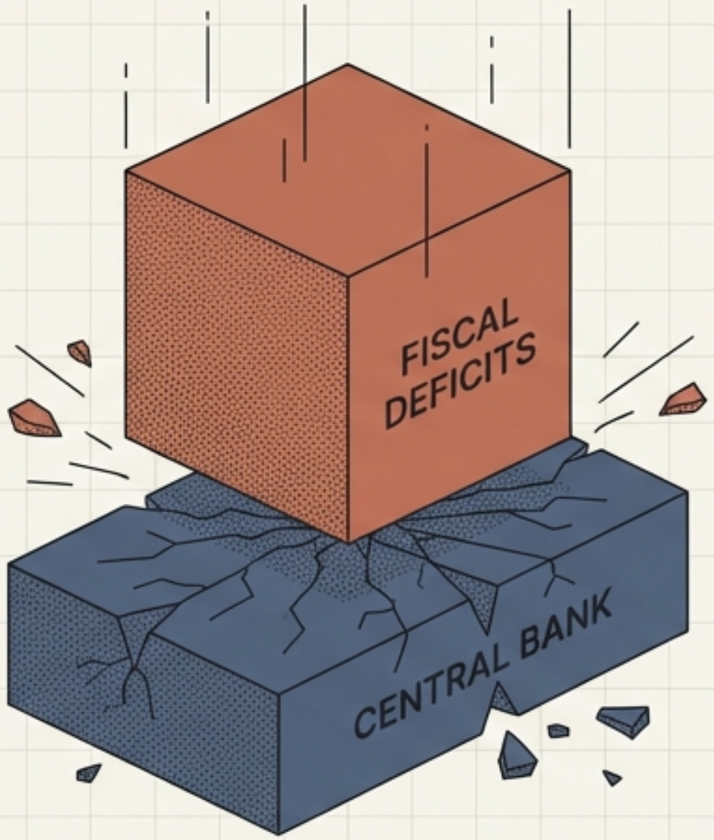
Seigniorage: Revenue from money printing. It functions as a Laffer Curve: Raising interest rates increases the opportunity cost of holding money, eventually shrinking the tax base (real balances).
Takeaway: Monetary and Fiscal policy are mathematically linked via the government's balance sheet.

Fiscal Dominance & Unpleasant Arithmetic

The Fiscal Theory of the Price Level (FTPL)

Sargent & Wallace's "Unpleasant Monetarist Arithmetic"

If the Fiscal Authority commits to deficits that must be financed, the Monetary Authority must eventually print money to pay the debt.



The Paradox of Tight Money

Under Fiscal Dominance, raising rates today increases debt service costs, forcing *more* money printing tomorrow.

Result: Higher inflation.

You cannot fight inflation if the fiscal house is not in order.

International Money & Exchange Rates

The Consolidated Government Budget Constraint

Kareken-Wallace Indeterminacy

If two fiat currencies are perfect substitutes, the exchange rate is indeterminate. Any constant rate is an equilibrium.

Gresham's Law Revisited

The currency with the higher growth rate dictates the real value of the total money stock.

Reality Check: Purchasing Power Parity (PPP) holds in the long run but fails in the short run. Why? Why? Real-world frictions like legal tender laws prevent perfect substitution.

The Crypto-Currency Puzzle

Applying OLG and Friction Theory to Bitcoin

OLG Perspective

Pure Asset Bubble.

Value depends entirely on Generation T+1's acceptance. Fits the "Store of Value" narrative.

Friction Perspective

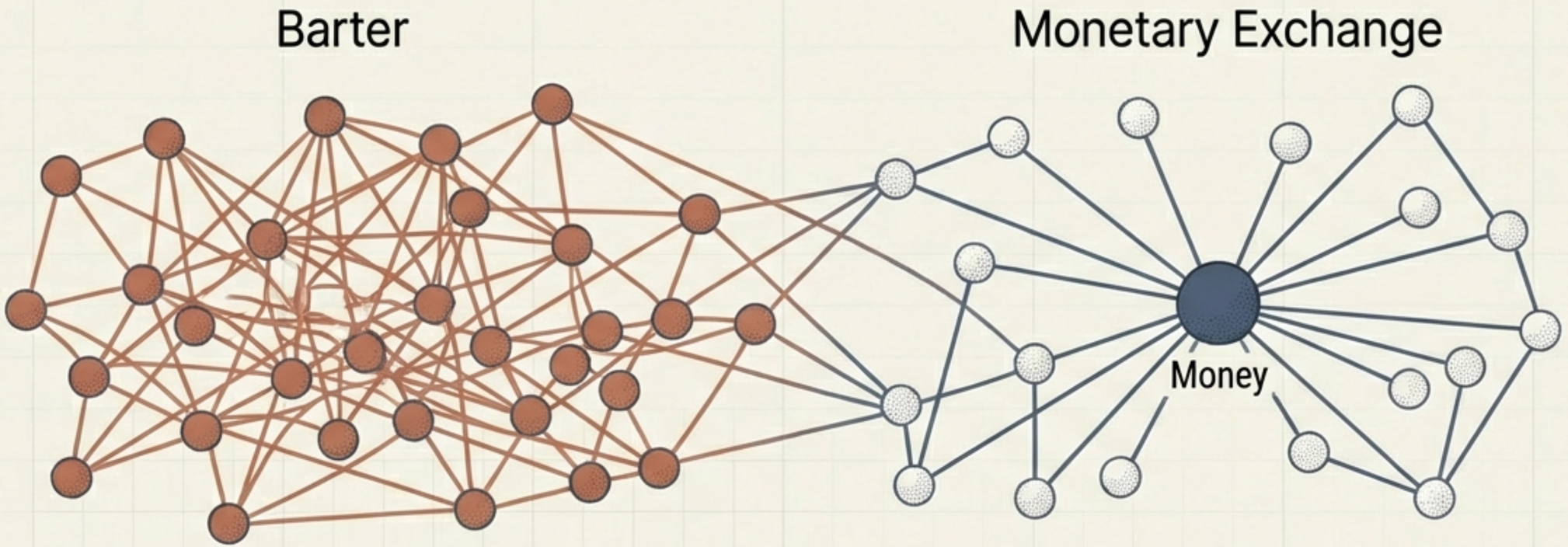
High transaction costs.

Lacks the "Medium of Exchange" friction (taxes, legal tender) that anchors fiat money.

Without a friction to force its use in trade, Crypto remains susceptible to the collapse dynamics of the OLG model (Slide 4).

Answer III: Search, Matching, & Frictions

The deepest justification: Money as a solution to a trade problem.



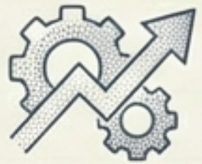
Absence of Double Coincidence of Wants
(I have apples, you want shoes).

Money minimizes search costs.

Source: Kiyotaki & Wright (1989). Trade is decentralized and anonymous. Money emerges endogenously because it has low storage costs and maximizes the probability of a successful trade. This satisfies Wallace's Dictum: Money is an *outcome*.

Synthesis: Choosing the Right Framework

There is no single 'Theory of Money'.

To understand...	Model	Role of Money
BUBBLES / CRYPTO 	OLG Model	Asset Bubble (Store of Value)
INFLATION / RATES 	New Keynesian / CIA	Constraint / Tool (Medium of Exchange)
EXISTENCE OF MONEY 	Search & Matching	Solution to Friction (Facilitator)

Inflation and value are not just monetary phenomena—they are fiscal, behavioral, and structural outcomes.