Furutsuki Ouki. 2026. "From Regression to Cost Structure: A Misesian Reconsideration of Hayek's *Denationalisation of Money*." *Quarterly Journal of Austrian Economics* 29 (4): 25–34. https://doi.org/10.35297/001c.173532.

ARTICLES

From Regression to Cost Structure: A Misesian Reconsideration of Hayek's *Denationalisation of Money*

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JEL Classifications: B53 Austrian, E31 Price Level - Inflation - Deflation, E42 Monetary Systems - Standards - Regimes - Government and the Monetary System - Payment Systems

https://doi.org/10.35297/001c.173532

Quarterly Journal of Austrian Economics

Vol. 29, Issue 4, 2026

F. A. Hayek's *Denationalisation of Money* relocates monetary discipline from government monopoly to competition among issuers. Its central expectation is that users will abandon currencies whose purchasing power is poorly maintained, making overissue commercially self-defeating. This article accepts Hayek's institutional question but argues that it begins too late in the causal sequence. Starting from Ludwig von Mises's regression theorem, it first develops a necessary-condition hypothesis of monetary emergence: Durable money must rest on a practical utility that is not wholly derived from an already-established monetary status. That utility may be material, consumptive, social, technological, or political-institutional. The article then extends the Misesian backward inquiry into a postmonetization question: Once an object becomes money, what continuing real costs are required to produce, verify, transfer, secure, redeem, govern, and institutionally sustain it, and who bears them? This yields a cost-structure framework distinguishing visible from hidden cost incidence. Inflationary dilution is treated not as the necessary cost of money but as one possible mechanism by which monetary-system costs and issuer benefits can be externalized to holders. Historical commodity monies, money substitutes, the Bretton Woods system, and modern cryptographic designs illustrate the distinction. The resulting critique of Hayek is internal to the Austrian tradition rather than antimarket: Competition can discipline issuers, but competition is only a selection mechanism. It cannot guarantee stable money unless the payoff structure makes the relevant costs visible and forces issuers to bear the consequences of externalization. Denationalization changes who issues money; it does not by itself determine how the costs of money are borne.

F. A. Hayek's proposal to denationalize money was among the most radical twentieth-century attempts to remove monetary production from state monopoly. In *Choice in Currency* (Hayek 1976) and, more fully, *Denationalisation of Money*, Hayek argued that citizens should be free to use competing currencies and that private issuers would have strong incentives to preserve the purchasing power of their units. A badly managed currency, he argued, would lose users to better alternatives; overissue by a competitive issuer would therefore be commercially self-destructive (Hayek [1976] 1990). The proposal is elegant because it replaces discretionary monetary policy with market selection.

Yet the elegance of this institutional substitution can obscure an earlier set of questions. Before asking who should issue money, one must ask what can become money, why users accept it before monetary acceptance becomes self-

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sustaining, what real functions support that acceptance, and what continuing costs arise after monetization. These are not merely semantic preliminaries. If the emergence and maintenance of money depend on structures that precede the identity of the issuer, then changing the issuer cannot by itself resolve failures generated by those structures.

This article therefore approaches Hayek through Ludwig von Mises rather than against the Austrian tradition. Mises's ([1912] 1953) regression theorem was designed to break the circularity inherent in the explanation of monetary purchasing power: Today's demand for money depends on expected purchasing power derived from yesterday, but the regression must ultimately reach a point at which the good was valued for uses other than its monetary function. The article treats this insight as a methodological instruction: Move backward until the monetary phenomenon is grounded in a noncircular practical use.

The argument then moves in the opposite temporal direction. If regression asks how money acquires a value history, the present article asks what happens after monetization. Money does not become costless once accepted. Its production, storage, verification, transport, settlement, security, redemption, governance, and institutional enforcement consume real resources. Different monetary designs distribute these costs differently. Some costs are attached visibly to each user; others are shifted to holders, future users, taxpayers, validators, miners, creditors, or counterparties. The central claim is that the cost-bearing structure is prior to the identity of the issuer in explaining persistent incentives toward monetary dilution.

The article does not attempt to provide a complete sufficient-condition theory of monetization. It advances only a necessary-condition hypothesis and a postmonetization cost framework. That is sufficient for the narrower purpose: to show why denationalization can improve incentives without logically guaranteeing noninflationary money.

Mises, Regression, and the Premonetary Ground of Money

Mises's regression theorem begins from a problem that any theory of money must confront. Money is demanded because it has purchasing power, yet its purchasing power seems to depend on its being demanded. Mises introduced time into the explanation. Market participants form current valuations partly from yesterday's purchasing power; moving backward, one eventually reaches the point at which the object first began to function as a medium of exchange. At that boundary, its exchange value cannot yet be explained by an established monetary function and must therefore rest on nonmonetary demand (Mises [1912] 1953, 110).

Carl Menger's (1892) earlier account of the origin of money is complementary. Goods differ in their salability, and market participants can discover that some goods are easier to exchange than others. Money can therefore emerge through

repeated decentralized selection rather than by decree. The Menger–Mises line is important here because it locates monetary emergence in a process that begins before an object is already generally accepted as money.

This article generalizes the relevant premonetary utility without restricting it to physical consumption. A practical use can be material, social, technological, or political-institutional. Gold may be valued for material and ornamental properties; cigarettes for consumption and social exchange; shells for ornament, status, record, or ritual. A state-issued unit can embody access to an already-existing political structure by discharging taxes, fines, fees, or legally enforceable obligations. The common feature is not physicality. It is that the object or claim does something in a real relationship before its value can be explained solely by the proposition that it is already money.

This formulation is deliberately asymmetric. Premonetary practical utility is proposed as a necessary condition of durable monetization, not a sufficient condition. Many useful instruments never become money. Gift cards, loyalty points, store credit, bills of exchange, warehouse receipts, and redeemable notes may be valuable and may even circulate in payment without becoming independent money. Their acceptance may remain bounded by an issuer, a redemption promise, a platform, a specific good, or an underlying monetary unit. The distinction prevents the argument from collapsing into the claim that anything useful is money.

Payment Instruments, Money Substitutes, and Money

The distinction between a payment instrument and monetary status is essential. A claim can function as a payment instrument while remaining a claim on money rather than money itself. Historically, redeemable banknotes, drafts, and bills could circulate widely while users still understood the final object of redemption to be specie. Mises ([1912] 1953, 50–59) himself distinguished money from money substitutes and fiduciary media, a distinction that is useful for avoiding the common error of equating circulation with monetization.

The same logic applies to modern vouchers and points. A retailer's gift card can buy goods, airline miles can buy travel, and a platform balance can settle internal transactions. Yet their units remain defined by bounded redemption networks and by the issuer's rules. Their payment function is real, but this does not establish them as independent general media of exchange or independent units of account.

R. A. Radford's (1945) famous account of a prisoner-of-war camp shows the transition more clearly. Cigarettes began as ordinary consumer goods and then increasingly became a common price denominator and medium of exchange; even nonsmokers accepted them because they could be reexchanged. Radford (1945, 191) explicitly described cigarettes as rising from commodity status to

currency status. The case is useful not because it proves a universal sufficient condition but because the emergence is observable: A preexisting practical use preceded and coexisted with monetary use.

The empirical research question implied by the necessary-condition hypothesis is therefore straightforward. A genuine counterexample would be an object that achieved durable, broad monetary status without any identifiable practical use, institutional claim, social function, technological function, or other value-generating relation prior to or at the threshold of monetization. The present article does not claim that no such counterexample can ever exist. It claims only that the prominent historical cases considered here do not provide such a counterexample.

The Postmonetization Cost Problem

Regression explains how a monetary value history can begin. It does not, by itself, explain how the monetary system continues to be maintained. Once a good, a claim, or an institutional unit becomes money, real resources remain necessary. Let the continuing monetary cost (C_m) structure be represented schematically as

$$C_m = C_{\text{production}} + C_{\text{storage}} + C_{\text{verification}} + C_{\text{transfer}} + C_{\text{transport}} + C_{\text{security}} + C_{\text{institutional}}$$

The components vary across monetary designs. A gold-based system makes many costs highly visible: Extraction, assaying, transport, custody, insurance, and physical settlement are difficult to pretend away. Commodity money, such as cigarettes, cloth, or other portable goods, also embeds storage, divisibility, spoilage, and transportation costs in the object itself. The person who holds or transfers the object often confronts the cost directly.

Claims and fiat systems can separate the visible monetary unit from the infrastructure that sustains it. A paper note or account entry may have a negligible marginal production cost while the surrounding system still requires clearing networks, legal enforcement, banking infrastructure, cybersecurity, institutional credibility, fiscal capacity, and administrative resources. The low marginal cost of producing the token must not be confused with the absence of costs in maintaining the monetary relation.

This distinction suggests two analytically separate variables: the magnitude of monetary-system costs and the incidence of those costs. The same real cost can be paid by a user through an explicit fee, by an issuer through operating expenditure, by taxpayers through fiscal support, by holders through dilution, by counterparties through spreads, or by future users through deferred maintenance or degraded security. A monetary design is therefore partly a cost-allocation design.

Visible and Hidden Cost Incidence

The visibility of monetary costs affects behavior. Where custody, transport, verification, and redemption are directly priced, users can compare money's service with its price. Where costs are bundled into spreads, interest-rate structures, seigniorage, dilution, reserve risk, or future service degradation, the connection between use and payment becomes harder to observe.

This does not imply that hidden costs are fraudulent or that visible costs are always superior. Financial intermediation can transform costs legitimately. A deposit-taking institution may pay interest because it can lend or invest the deposited funds; explicit storage fees can be replaced by a spread between asset returns and deposit remuneration. The theoretical point is narrower: Competition can move costs away from the location where customers most readily perceive them.

That possibility matters directly for Hayek. Competition is a selection mechanism, but selection has no inherent quality direction independent of the payoff structure. Firms can compete on durability, reliability, or purchasing-power stability; they can also compete on low visible fees, high subsidies, promotional returns, liquidity, leverage, network effects, political access, or the ability to defer costs. Competition may therefore discipline externalization, but it may also reward a design that makes externalized costs less salient.

Inflation as One Form of Cost Externalization

The cost-structure framework does not define every rise in the consumer price level as a monetary cost. War, crop failure, energy shocks, taxes, regulation, and changes in productivity can alter prices without any corresponding expansion of money. The relevant phenomenon here is monetary dilution: an increase in claims or monetary units that allows an issuer or a beneficiary to command real resources while reducing, ceteris paribus, the proportional claim of existing holders.

If a monetary system permits recurring costs or issuer benefits to be financed through new monetary issuance, the cost can be distributed across existing holders rather than charged directly to the immediate beneficiary. In that sense, monetary inflation can function as a hidden payment channel. The cost does not disappear; its incidence changes.

The mechanism can be expressed schematically:

Continuing monetary-system cost → Financing requirement → Cost-allocation rule → Explicit payment or externalized dilution

This proposition is intentionally different from the claim that every monetary cost must produce inflation; commodity systems can sustain substantial costs without monetary dilution. Nor does it claim that every act of issuance is inflationary in the economically relevant sense; an increase in units that

corresponds to an increase in demanded balances can be absorbed without an equivalent rise in prices, a point Hayek ([1976] 1990, 104–5) himself emphasized. The claim is structural: Whether persistent monetary dilution becomes an attractive financing device depends on whether the design allows costs and benefits to be shifted away from the actors who create them.

Historical Illustration: Bretton Woods as a Cost Constraint

The breakdown of the Bretton Woods system provides a useful illustration of a monetary constraint making part of a cost structure visible. Under the postwar system, the United States maintained the official gold price at thirty-five dollars per ounce while foreign monetary authorities accumulated dollar claims. Over time, foreign dollar holdings rose relative to the US monetary gold stock, creating a growing convertibility problem. Research on the collapse emphasizes both the accumulation of external dollar claims and the expansionary US monetary and fiscal policies after the mid-1960s, including the financing pressures associated with the Vietnam War and the Great Society (Bordo 2006, 2021).

Gold convertibility did not eliminate the costs of US domestic and international commitments. It constrained one method of distributing them. As external holders exercised or threatened to exercise their conversion rights, the difference between dollar liabilities and available gold became increasingly consequential. In August 1971, President Nixon suspended convertibility of dollars into gold for foreign monetary authorities, ending the operative gold constraint (Federal Reserve Bank of New York 1972).

The example should not be reduced to the slogan that government spending mechanically caused the end of Bretton Woods. The international adjustment problem involved the balance-of-payments structure, reserve accumulation, monetary policy, fiscal policy, and strategic behavior by foreign central banks. For the present framework, the important point is simpler: A redemption rule made some monetary-system costs and liabilities harder to externalize indefinitely. Removing the redemption rule changed the cost-bearing structure.

Modern Cryptographic Systems as Cost-Structure Experiments

Cryptographic assets make monetary cost design unusually visible because protocols frequently specify issuance, validator rewards, developer allocations, fee rules, and supply limits in code or public governance processes. They therefore provide a useful laboratory even where the assets themselves have not achieved full monetary status.

Different designs allocate costs differently. A protocol can fund security or development through continuing issuance; it can distribute newly issued units to validators; it can preallocate units to founders or foundations; it can rely

predominantly on transaction fees; or it can impose a hard supply ceiling and force future security costs into other channels. None of these choices makes the real cost of operation vanish.

A fixed supply limit is therefore not equivalent to a zero-cost monetary system. It closes one financing channel. If security subsidies decline while security, validation, storage, governance, and transaction-processing costs continue, the system must ultimately rely on fees, capital gains expectations, voluntary subsidies, concentration of infrastructure, reduced service, protocol changes, or some combination of these. This is a cost-incidence question before it is a scarcity narrative.

For present purposes, the cryptographic cases are illustrative rather than dispositive. Their strongest contribution is conceptual: They show that identical rhetoric about "sound money" can sit atop radically different arrangements for who pays to maintain the system.

Reconsidering Hayek's Competitive Currency Mechanism

Hayek did not ignore the service character of money. In *Denationalisation of Money*, he explicitly described the provision of a medium of exchange as a useful service, and he argued that a competitive issuer who overissued would destroy the very service for which people held the currency (Hayek [1976] 1990, 104–5). He also recognized that the public's choice among currencies would depend heavily on expected purchasing-power stability (73–74). A fair critique must therefore begin from what Hayek actually argued, not from the weaker claim that he simply forgot that money has a function.

The difficulty lies one level deeper. Hayek's mechanism assumes that the relevant costs of bad issuance are transmitted back to the issuer through loss of customers quickly enough and visibly enough to make overissue suicidal. This may occur. But it is not a logical implication of competition itself. If the benefits of issuance are concentrated while the costs are dispersed, delayed, bundled with other services, hidden by subsidies, or shifted onto holders in ways that are difficult to attribute to a specific issuer, competitive discipline can be weaker than Hayek's conclusion requires.

Historical scholarship on Hayek's proposal confirms that this was already a point of dispute. Milton Friedman objected that there was insufficient empirical evidence that currency competition would automatically produce a stable unit, while other critics questioned Hayek's assumption about what monetary qualities the public would select (McIntosh 2024, 392). Another discussion of Hayekian currency competition similarly emphasized that stable purchasing power is an equilibrium claim generated by specific assumptions rather than a universal property of monetary competition (Issing 1999).

The cost-structure framework sharpens this criticism without rejecting competition. Competition can be highly effective when users can observe costs, switch at low cost, and impose losses on issuers that externalize costs. But the operative causal chain is then not simply "Private competition → Good money." It is

Competition + Observable cost incidence + Low switching barriers + Issuer exposure to losses → Stronger monetary discipline

Remove one or more of those conditions, and the result can change. Competition can select for stability, but it can also select for the cheapest apparent user experience, the strongest network effect, the largest subsidy, or the most effective transfer of costs away from the immediate customer. Competition is therefore not the final explanatory variable. The payoff structure of competition is.

From Mises to Hayek: An Internal Austrian Critique

The argument can now be stated as an extension of Mises rather than a rejection of Austrian monetary theory. Mises's regression theorem insists that monetary valuation cannot be explained by an infinite circular reference to prior monetary valuation. The explanation must eventually reach a premonetary practical ground. This article applies the same anticircular method after monetization: The continuing operation of money cannot be explained as costless merely because the marginal cost of producing an additional monetary unit is low. The analysis must reach the real resources and institutional relations that keep the monetary system functioning.

Hayek's denationalization proposal begins at a later institutional layer: who may issue and manage monetary units. That question is important, but it does not subsume the earlier and deeper questions of monetary emergence and cost incidence. A private issuer may face stronger market discipline than a government issuer while still operating a design that shifts costs to holders. Conversely, a state-linked monetary arrangement can make some costs explicit. The issuer category and the cost category are analytically distinct.

The resulting Misesian correction to Hayek can be summarized in two propositions. First, a candidate money cannot be assumed into existence merely because an issuer offers it; durable monetization requires a practical value relation not wholly dependent on an already-established monetary status. Second, after monetization, the system must continuously pay its real costs. Denationalization changes the institutional identity of the issuer but does not determine the incidence of those costs.

Scope, Falsifiability, and Open Questions

The argument is intentionally incomplete in three respects. First, it does not specify sufficient conditions for monetization. A unit can have practical utility without becoming money, as vouchers, points, and bounded payment instruments demonstrate. The transition from useful object or claim to generally accepted money remains a separate research problem.

Second, the necessary-condition hypothesis is falsifiable. A durable monetary system that could be shown to have emerged without any antecedent material, social, technological, institutional, or political practical use would challenge it. The definition must not be weakened by treating mere speculative demand or the expectation of future monetary acceptance as automatically equivalent to premonetary utility; otherwise, the hypothesis would become circular.

Third, the cost framework does not assert that inflation is the only form of externalization. Costs can appear as explicit fees, spreads, taxation, reduced security, delayed maintenance, concentration, default risk, or service degradation. The theory is therefore broader than a quantity theory of inflation. Its contribution is to identify the monetary design question that precedes the observed symptom: Who pays for the continued existence of the system, and by what mechanism?

Conclusion

Hayek's great contribution in *Denationalisation of Money* was to make the issuer of money contestable. The present article argues that contestability alone is not enough. Money has a prehistory and a cost structure. Mises's regression theorem provides a method for examining the first; an analogous postmonetization inquiry is required for the second.

A monetary system must continuously consume real resources or institutional capacity. The costs may be visible or hidden, direct or externalized. Monetary dilution is one possible payment mechanism when the design permits issuers or beneficiaries to create additional claims on real resources while dispersing the cost across holders. Competition can restrain such behavior, but only when the competitive environment makes externalization observable and costly to the issuer.

The central conclusion is therefore narrower than a rejection of Hayek and broader than a defense of government money: Denationalization changes who issues money; it does not necessarily change how the costs of money are borne. A theory of sound money must examine not only the identity of the issuer and the quantity of units but the entire cost structure through which monetary existence is financed.

Submitted: September 03, 2026 CST. Accepted: October 19, 2026 CST. Published: December 01, 2026 CST.

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