

# Historical Origins of the Cost-Push Fallacy

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**B**y the end of 1998, the disinflation of the 1990s had brought the U.S. price level close to absolute stability. The same disinflation witnessed a remarkable resurgence of what used to be called cost-push theories of price-level movements to explain it. Such theories, of course, attribute inflation and disinflation to a host of nonmonetary, supply-oriented influences that alter the unit cost and profit markup components of the prices of individual goods.

Cost-push theories form an integral part of the so-called *new economic paradigm*, or *new economy thesis*, which American pundits report predominantly in the popular rather than the scholarly press. Proponents of that paradigm cite such cost-reducing forces as increased global competition and rapid technological progress as the chief factors holding inflation at bay. Other frequently mentioned sources of cost disinflation—all seen as exerting downward pressure on rates of wage increase—include (1) worker job insecurity, (2) increased competition in labor markets, and (3) the declining power of labor unions in the United States.

Even these factors hardly begin to exhaust the list. Deregulation, falling computer prices, falling growth rates of health care costs: all have been proffered as cost-disinflaters. Most recently, cost-push explanations of disinflation have emphasized falling import costs stemming from the Asian financial crisis, with its associated distress sale of Asian goods and plummeting foreign exchange value of Asian currencies. With such pressures holding inflation in check, cost-pushers feel free to recommend that monetary policy become expansionary in pursuit of rapid growth.

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Opposed to the cost-push view is the standard monetary theory of price movements. It sees underlying monetary conditions, manifested in shifts in money supply and demand, rather than real cost-push pressure as the fundamental cause of such movements. The standard theory holds that the price level  $P$  is determined not by real cost-push but rather by the nominal stock of money relative to the real demand for it or, equivalently, by velocity-augmented money  $MV$  per unit of real output  $O$  as expressed in the celebrated equation of exchange  $P = MV/O$ . Conventional monetary theorists have always had a problem with the cost-push view. In their opinion, cost-push can at best explain relative prices. It cannot, however, explain the behavior of the aggregate, or general, price level. That is, it cannot do so unless it can show how cost pressures in specific sectors of the economy can markedly influence the money stock, its velocity, or the aggregate level of output—the three variables that jointly determine the general price level. Since there is no reason to think that sectoral cost pressures would materially affect these aggregate magnitudes for any substantial length of time, there is little reason to believe that cost-push theories offer a valid explanation of general price-level movements.<sup>1</sup> Here then is the cost-push fallacy: it confounds relative with absolute prices and sectoral real shocks with economywide nominal ones.<sup>2</sup> It says nothing about money's role in price determination.

Seasoned scholars accept recent cost-push theories of disinflation with a sense of *déjà vu*. They know that exactly the same theories—albeit with signs reversed—flourished in the 1950s, 1960s, and 1970s. Those decades saw cost-pushers attribute wage and price inflation to such forces as the increased monopoly power of trade unions, oil price shocks, the competitive struggle for relative income shares, crop failures, commodity shortages, and even the disappearance of anchovies (a key ingredient of livestock feed) off the coast of Peru. Indeed, economist George Perry (1987) of the Brookings Institution gives a fine account of the prevalence of such explanations 30 years ago.

Nevertheless, a historian would be remiss in tracing the roots of cost-push theory back no farther than the middle decades of the twentieth century. For the notion that aggregate price movements depend on real disturbances affecting the production costs (and profit markups) of particular goods is of much earlier vintage. Indeed, (1) Sir James Steuart in 1767, (2) antibullionist

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<sup>1</sup> Of course one might argue that upward cost pressure on prices, by reducing output and employment in the affected sector (or elsewhere if demand in that sector is inelastic), may induce policymakers to increase the money stock in an effort to restore full employment. Still, nothing obligates the policymakers to take such action. On the contrary, the greater their commitment to price stability, the less likely they are to do so. The upshot is that there is no necessary, automatic linkage between cost-push and the money stock.

<sup>2</sup> Thus global competition, while lowering the prices of internationally traded goods, should have little effect on the general price level. Especially so as the U.S. value-added component of such goods constitutes less than 15 percent of our gross domestic product.

writers during the Bank Restriction controversy of 1797–1821, (3) the Banking School’s leader Thomas Tooke in the 1840s, (4) gold standard proponents during the late-nineteenth-century bimetallism debate, (5) J. Laurence Laughlin in his 1910 comments on the post–1896 rise in U.S. prices, and (6) Reichsbank spokesmen during the German hyperinflation of 1923—all were cost-pushers with a vengeance. And if cost-push is at least two centuries old, then so too is the opposing monetary view that finds such theories erroneous. Since the early 1800s, a succession of quantity theorists including David Ricardo, John Wheatley, Henry Thornton, Knut Wicksell, Irving Fisher, Gustav Cassel, and others have criticized the theory.

The following paragraphs attempt to sketch the historical development of the cost-push view and the standard monetary critique of it. Three themes emerge. First, current cost-push theories are essentially the same as their nineteenth- and early-twentieth-century counterparts and suffer from the same defect. Second, the critics had it right: monetary policy, rather than cost-push, is what determines the path of the general price level. Third, despite its flaws, cost-push theory survives today because of its simplicity, its appeal to those whose knowledge is primarily microeconomic, and its gratifying implication that the stock of monetary purchasing power can safely be allowed to expand to meet the needs of trade.

## 1. SIR JAMES STEUART AND THE ORIGIN OF COST-PUSH DOCTRINE

The roots of cost-push doctrine go back at least to Sir James Steuart’s 1767 *Inquiry into the Principles of Political Oeconomy*, a book Lionel Robbins describes as a “sort of compendium of all subsequent anti-quantitative theories of money” (Robbins 1971, p. 102). There Steuart enunciated at least three key strands of cost-push theory. First was his concept of the price level as a nonmonetary phenomenon determined by the same forces that determine the individual prices of specific goods. Identifying these forces as competition and cost, Steuart declared that he had “laid it down as a principle,” that they determine “the standard price of every thing” (Steuart 1767, Vol. 1, p. 399; see also Screpanti and Zamagni [1993], p. 52). Increased competition, he said, forces sellers to lower prices just as falling costs also lower them. Here is the notion that real forces drive individual and aggregate prices alike.

The second strand of Steuart’s cost-push doctrine supplements the first. It states that because general prices are real phenomena, they move independently of money. It denies money (metallic coin in Steuart’s day) any role in price determination. “Let the specie of a country . . . be augmented or diminished in ever so great a proportion,” Steuart wrote, and the prices of “commodities will still rise and fall according to the principle” of competition and cost,

“but never upon the quantity of coin” (p. 345). To explain why money has no effect on prices, Steuart advanced two arguments. First, idle hoards absorb excess coin from circulation just as they release into circulation additional coin to correct a monetary shortage. Consequently, there can be no monetary excess or deficiency to spill over into the commodity market to affect prices. The hoarding-dishoarding mechanism ensures as much. Second, changes in the stock of money that do spill over into the commodity market induce matching shifts in commodity demand and supply. In so doing, such shifts and the resulting changes in output absorb any excess coin that manages to elude the hoarding mechanism. Either way, prices remain unchanged.

The third strand of Steuart’s cost-push doctrine follows logically from the second. Having denied that money drives, or governs, prices, he argued that causation runs in the opposite direction from prices to (velocity-augmented) money. Positing a two-step process, he said that cost and competition first determine prices. Then, with prices settled, the turnover velocity, or rate of use, of money adjusts to render the existing stock of coin just sufficient to accommodate real activity at the given prices. If the stock of coin is excessive, wealth holders will remove the excess (which of course being redundant yields no return in the form of convenience or liquidity) from active circulation, melt it down, and hoard it in the form of utility-yielding plate or “treasures” so that velocity falls (p. 350). Conversely, if coin is deficient, the resulting recourse to “symbolic [paper] money and a thousand other inventions” allows transactors to economize on coin whose velocity therefore rises (p. 345). Via these expedients, velocity adjusts to ensure the stock of coin is just enough to purchase all the goods offered for sale at the predetermined level of prices. In this way, causation runs from prices to velocity-augmented money. Here is the origin of the notion that changes in the stock of circulating media (coin and its paper substitutes) merely validate price changes that have already occurred and do nothing to produce such changes.

## **2. COST-PUSH DOCTRINES IN THE BULLIONIST-ANTIBULLIONIST DEBATE**

Steuart’s propositions—that cost shocks drive prices, that money cannot drive them, and that causation runs from prices to money—resonated again in the famous bullionist-antibullionist debate in England in the first two decades of the nineteenth century.<sup>3</sup> At that time, England, under the pressure of two harvest failures and the exigencies of the Napoleonic War, had left the gold standard

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<sup>3</sup> On the bullionist controversy, see the classic accounts of Viner (1937, Ch. 3), Fetter (1965, Ch. 2), Mints (1945, Ch. 4), and Morgan (1943, Ch. 2). For recent interpretations, see O’Brien (1975, pp. 147–53) and Laidler (1987).

for a regime of inconvertible paper currency. The departure from gold, which released the Bank of England from the obligation to convert paper into gold at a fixed price upon demand, was followed by a sharp rise in the prices of goods, gold, and foreign exchange. Led by quantity theorists David Ricardo, John Wheatley, and Henry Thornton, one group of economists, the bullionists, blamed the Bank of England for creating inflation through excessive issues of paper notes. The Bank, they said, had simply taken advantage of the suspension of convertibility to generate an inflationary overissue of the currency. Seeking to correct this state of affairs, they recommended that England return to gold convertibility at the prewar parity as soon as possible.

An opposing group of practical businessmen and bankers, known collectively as the antibullionists, rejected this monetary explanation. Instead, they attributed the price rises to such real shocks as domestic crop failures, overseas military expenditures, and the wartime disruption of foreign trade. Like Steuart, whose work some of them may have read, they highlighted cost-push influences directly affecting the individual prices of specific commodities, notably grains and other staple foodstuffs that constituted the principal component of workers budgets. These food-price increases then passed through into money wages to raise the price of all goods produced by labor. Here is the Steuart-antibullionist notion that general price disturbances stem from nonmonetary influences affecting the individual prices of key commodities.

This notion, however, hardly went unchallenged. Bullionist writers, especially David Ricardo, criticized it for confusing relative with absolute prices. Ricardo contended that, in the absence of inflationary monetary growth, aggregate nominal demand, as measured by velocity-augmented money  $MV$ , would remain unchanged. With total spending (and full-capacity aggregate output) fixed, a rise in the relative price of food requiring workers to spend more on that commodity would leave them with less to spend on other goods whose prices would accordingly fall. If so, then the rise in food's price would be offset by compensating falls in other relative prices, leaving general prices unchanged.

But Ricardo's argument, with its implication that inflation must be a monetary phenomenon since it cannot stem from cost shocks to the prices of particular goods, fell on deaf ears. Unpersuaded, antibullionists continued to adhere to the cost-push idea that general price inflation stems from real disturbances affecting the particular prices of key commodities. They perceived no monetary cause of inflation.

### **Passive Money and Reverse Causality Propositions**

On the contrary, antibullionists insisted that, since real shocks by themselves fully determine the path of prices, monetary shocks cannot serve as a contributing determinant. Two considerations, they claimed, ruled out excess money growth as a cause of inflation (see O'Brien [1975], p. 152, and Corry [1962], p. 75).

First was their *real bills doctrine*, according to which money can never be excessive if issued against the security of sound, short-term commercial bills drawn to finance real goods in the process of production and distribution. Their doctrine purported to match money creation to the value of real output so that no overissue could occur.

Second, since nobody would borrow, at any positive rate of interest, money not needed, banks could never force an excess issue on the market. Borrowers would extinguish any excess immediately by returning it to the banks to pay off costly loans. In this way, interest-minimization considerations would ensure that any excess notes instantaneously would be retired from circulation so no overissue could ever develop to put upward pressure on prices.

Both arguments embodied Steuart's passive-money notion that since real output generates just enough money to purchase it at existing prices, money cannot be an independent source of inflation. Here too is Steuart's reverse causation hypothesis that because the volume of money automatically adjusts to support real activity at predetermined prices it must be the consequence rather than the cause of those prices.

Antibullionists put these ideas to work in an effort to exonerate the Bank from blame for causing the wartime inflation. The Bank, they said, was guiltless since it had restricted its issues to real bills of exchange and so had merely responded to the real needs of trade. The Bank, in other words, could not possibly have been the source of inflation because, by limiting its advances to commercial paper representing actual output, it had merely responded to a loan demand for money already in existence and had done nothing to create that demand. Over and over again, antibullionists relentlessly insisted that money passively supplied in response to a prior demand for it could never be excessive. Indeed, as noted above, they contended that since superfluous money finds no borrowers at any interest rate, the Bank could not have overissued even if it had sought to do so. Borrowers would have thwarted any such attempt by returning the excess money to the Bank to retire loans. Flowing immediately back to the Bank, the monetary excess could never have remained outstanding long enough to cause inflation.

### **Bullionist Critique**

Bullionists, notably David Ricardo and Henry Thornton, had little trouble exposing the fallacy of these views. In so doing, they presented the definitive classical monetary critique of cost-push theorizing.

We have already mentioned Ricardo's critique of the antibullionists' relative price theory of absolute prices. Equally fallacious, bullionists thought, was the real bills doctrine.<sup>4</sup> For it links the nominal money stock to the nominal

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<sup>4</sup> Not to be confused with the doctrine of the same name advanced by Thomas Sargent and

volume of bills, a variable that moves in step with prices and so the money stock itself. By linking the variables, it renders both indeterminate. Far from preventing overissue, it ensures that any random jump in prices will, by raising the nominal value of goods-in-process and so the nominal volume of bills presented as collateral for loans, cause further increases in borrowing, lending, the money stock, spending, and prices ad infinitum in a self-perpetuating inflationary spiral. In short, the doctrine fails to perceive that price increases themselves expand the needs of trade and so generate—and justify—the very monetary expansion necessary to perpetuate them. The doctrine's flaw consists of the dynamically unstable price-money-price feedback loop established when money is allowed to be governed by the needs of trade. Far from prohibiting monetary inflation, the real bills mechanism virtually guarantees it.<sup>5</sup>

As for the argument that the Bank could never, at any positive loan rate of interest, force an excess issue on borrowers, bullionists observed that it overlooks a crucial point. Loan demands, and hence new money advanced to accommodate them, depend not upon the loan rate of interest per se but rather on the difference between that rate and the expected rate of profit on the use of the borrowed funds. When the expected profit rate exceeds the loan rate (as occurred to an extraordinary degree during the Napoleonic wars), borrowing becomes profitable.<sup>6</sup> Such profitability renders loan demands insatiable. With the Bank accommodating these loan demands with fresh issues of notes and deposits—money that spills over into the commodity market in the form of excess demand for goods—prices rise without limit. And with rising prices elevating the nominal value of goods and therefore the nominal volume of bills that represent them, those bills pass the real bills test and are accepted as collateral for additional loans. In such circumstances, the supply of eligible bills becomes inexhaustible and the real bills criterion cannot prevent overissue. Here is the classic refutation of the cost-push notion that money, because it responds passively to the needs of trade, cannot be inflationary.

With these arguments, the bullionists exposed the logical flaws inherent in each component of antibullionist cost-push theory. These components—the relative price theory of absolute price movements, the real bills doctrine, the interest-avoidance reason for the impossibility of overissue—thus emerged from

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Neil Wallace (1982). As David Laidler (1984) notes, the Sargent-Wallace version of the real bills doctrine shares but one feature with its classical counterpart, namely, an inability to guarantee price level stability at a unique, determinate equilibrium level. Otherwise, it is an entirely different theory.

<sup>5</sup> Thornton ([1811] 1962, pp. 341–42) traced this particular real bills fallacy to John Law, who sought to limit the quantity of paper money by tying it to the nominal value of land. On Law, see also Lloyd Mints (1945, pp. 15–16, 18, 20, 30–32), the foremost twentieth-century critic of the real bills doctrine.

<sup>6</sup> Bullionists contended that usury ceilings constrained the Bank's loan rate to 5 percent while wartime boom conditions had raised the expected profit rate well above that level.

the debate with their validity suspect. Nevertheless, they proved impossible to kill. Though flawed, they possessed the advantage of being at once simple, transparent, intuitively appealing, and consistent with the everyday experience of practical businessmen. Illustrating the adage that popular economic theories (no matter how fallacious) never die, they survived to flourish in subsequent monetary debates.

### 3. THOMAS TOOKE AND THE BANKING SCHOOL

Cost-push doctrines surfaced again in the mid-nineteenth-century Currency School-Banking School debate over the need for compulsory gold backing of a currency already freely convertible into gold. (Britain had returned to such a currency when it resumed gold convertibility in 1821.)<sup>7</sup> In opposition to the quantity theory reasoning of the Currency School, leaders of the Banking School, notably Thomas Tooke, author of the monumental six-volume *History of Prices* (1837–1857) and preeminent collector of price data in his day, adhered to supply shock and factor cost theories of price determination.

Referring to Tooke's supply shock theory, the English banking scholar Sir Theodore E. Gregory describes how a "preoccupation with the special factors influencing particular prices" of key commodities led Tooke "to take full account of particular [price] variations" while simultaneously rejecting "the rigid connection between the quantity of money and the state of the price level postulated by the Currency School" (Gregory [1928] 1962, p. 121). Gregory notes that Tooke's list of special supply shock factors included harvest failures, extraordinary weather changes, freight rate alterations, changes in tariff rates, the erection and removal of wartime trade blockades, exchange rate movements, import cost variations, and cost-reducing technological progress embodied in machines. Modern cost-pushers updated this list in the mid-1970s when they attributed the rampant inflation then occurring to such random shocks as crop failures, the disappearance of anchovies off the coast of Peru, and the OPEC-imposed quadrupling of the price of oil. Still later, in 1997–98, cost-pushers expanded the list to include favorable import price shocks emanating from the financial crisis in East Asia.

As for Tooke's factor cost theory, it asserted that general prices owe their determination to *factor incomes* consisting of "rents, profit, salaries, and wages," rather than to money per unit of real output (Tooke [1844] 1964, p. 123). Tooke did not explain how these price-determining factor incomes themselves were determined. Instead, he left their origin open to a variety of possible causes. His theory of price movements is therefore suggestive of recent theories

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<sup>7</sup> For classic accounts of the Currency School-Banking School debate, see Viner (1937, Ch. 5), Fetter (1965, Ch. 6), Mints (1945, Ch. 6), Morgan (1943, Ch. 4), and Robbins (1958, Ch. 5). For recent interpretations, see O'Brien (1975, pp. 153–59) and Schwartz (1987).

attributing disinflation to any one of a multiplicity of nonmonetary elements in the institutional environment such as deregulation, the removal of production bottlenecks and particular supply inelasticities, increased global competition, a decline in the power of trade unions, reductions in the nonaccelerating inflationary rate of unemployment, and the like. It is also reminiscent of theories that see inflation as the outcome of the competitive struggle for relative shares in the national income (in which the claimants' shares initially total more than 100 percent). In any event, since factor incomes are simply factor quantities multiplied by factor prices, it is obvious that Tooke came perilously close to explaining prices in terms of prices.

To illustrate how factor prices drive product prices, Tooke concentrated on falling and rising interest rates. Arguing that falling rates meant lower costs of doing business, he reasoned that these cost reductions would be passed on to buyers in the form of lower prices. The result would be price deflation even if the money stock per unit of output remained unchanged. As he put it in the famous fourteenth thesis, or conclusion, of his 1844 *An Inquiry into the Currency Principle*, "a reduced rate of interest has no necessary tendency to raise the price of commodities. On the contrary, it is a cause of diminished cost of production, and consequently of cheapness" (Tooke [1844] 1964, p. 123). Conversely, Tooke noted that rising interest rates inflate prices by boosting business costs. And they do so independently of the behavior of money.

We will return to Tooke's interest cost-push argument and its definitive critique later. Suffice it to say here that it survived into the 1950s when long-time Congressman Rep. Wright Patman of Texas, economist John Kenneth Galbraith, Council of Economic Advisers Chairman Leon Keyserling, and other populist writers argued that Federal Reserve interest rate increases are inflationary because they raise the businessman's cost of capital.

### **Monetary Assumptions of the Banking School**

Tooke and the Banking School required one final step to complete their theory. Having attributed product price determination to real shocks affecting factor prices, they had to show why monetary shocks could not also be a contributing determinant. They ruled out money by asserting the real bills doctrine and the law of reflux, both of which they took from the antibullionists and applied to convertible-currency gold standard regimes. Arguing (1) that the stock of money could never be inflationary or deflationary if issued by way of loans made to finance real transactions in goods and services, and (2) that overissue was in any case impossible because excess notes would be returned to the banks for conversion into coin and repayment of loans, Banking School writers reiterated the antibullionist doctrines of passive money and reverse (price-to-money) causality.

Indeed, it was Tooke who stated the reverse-causality proposition most forcefully as the famous twelfth thesis of his *Inquiry*. "The prices of

commodities,” he wrote, “do not depend upon the quantity of money indicated by the amount of bank notes, nor of the amount of the whole of the circulating medium; . . . on the contrary, the amount of the circulating medium is the consequence of prices” (Tooke [1844] 1964, p. 123). Elaborating, Tooke argued that factor price shocks and the resulting cost-push pressure on product prices induce corresponding shifts in the demand for bank loans to finance real activity at the altered level of prices. Banks then accommodate these loan demands via variations in the note and deposit issue. In this way, prices determine the note and deposit components of the money stock, the expansion or contraction of which are the result, not the cause, of price movements. In sum, money stock movements are validating, not causal. They merely underwrite, or validate, price changes produced by other means.

### **Tooke Versus Wicksell on Interest Cost-Push**

It would be difficult indeed to overestimate the importance of cost-push theorizing in Banking School writings. We have seen how it led Tooke, in the fourteenth thesis of his *Inquiry*, to conclude that, no matter what happened to the money stock, a reduced rate of interest per se is deflationary rather than inflationary because it lowers business costs.

Tooke’s error went largely unchallenged until the Swedish economist Knut Wicksell identified it 50 years later in his 1898 *Interest and Prices* and in Volume 2 of his 1905 *Lectures on Political Economy*. Tooke had simply failed to perceive that monetary contraction—namely, shrinkage in the stock of velocity-augmented money per unit of output—and not interest rate reduction per se is the true cause of deflation. For without such contraction, aggregate monetary expenditure  $MV$  on the nation’s full-capacity output of goods and services  $O$  would remain unchanged. In such circumstances, interest rate reductions would exhaust themselves in lowering relative, not absolute, prices. The prices of capital-intensive goods—goods in which interest expense forms a relatively large share of total cost—would fall, to be sure. But such falls, by reducing the amount spent on those goods so that more could be spent on non-capital-intensive goods, would produce a compensating rise in the prices of the latter. The prices of capital-intensive goods would fall relative to the prices of non-capital-intensive goods. There would be a change in the structure, but not the overall level, of prices.<sup>8</sup> Absolute or general prices would remain unchanged (Wicksell [1898] 1965, p. 99; [1905] 1956, p. 180).

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<sup>8</sup> This same relative price effect admits to an alternative explanation. The fall in the price of capital-intensive goods induces consumers to demand more of them. To supply the extra quantity demanded, producers bid labor and land away from labor- and land-intensive goods-producing industries whose costs and therefore prices must rise under the impact of bid-up wages and rents. In this way, labor- and land-intensive goods become dearer relative to capital-intensive ones and the latter cheaper relative to the former.

Having identified the foregoing flaw, Wicksell proceeded to attack Tooke's theory on three additional grounds. First, he challenged its implicit assumption that all noninterest costs remain unchanged when interest rates fall. For if this assumption were true, then indeed aggregate costs and prices would, as Tooke asserted, fully register underlying reductions in the interest rate. But Wicksell denied the validity of the assumption. Instead, he appealed to the logic of his original charge to argue that rate reductions would induce compensating rises in noninterest costs, leaving total costs unchanged. Let rate reductions initially lower costs relative to prices, thus giving entrepreneurs an incentive to expand their operations. To expand operations, entrepreneurs must hire more labor and land. Given that those resources are already fully employed, the resulting increased demand for them bids up their prices and so raises the wage and rent components of total costs. The result is a fall in interest costs counterbalanced by a rise in wage and rent costs, leaving aggregate costs and prices unchanged (Wicksell [1905] 1956, p. 183).

Wicksell's second criticism was that Tooke's theory could not explain why bank rate increases tend to correct trade balance deficits and reverse gold outflows. For according to Tooke, such rate rises should, by pushing up domestic costs and prices relative to foreign ones, check exports, spur imports, and so worsen the trade balance rather than improving it. "If Tooke's view were correct . . . the banks would take steps which, on his theory, would lead to higher prices and to a further restriction of the already too limited export of goods" (Wicksell [1905] 1956, p. 186). The widened trade deficit and the ensuing external drain of gold to cover it would force banks to raise rates again in an effort to protect their reserves. Boosted by the rate increase, prices would rise still higher, thereby exacerbating the trade deficit. Conversely, when the trade balance is in surplus, Tooke's notion that low rates cause low prices "leads to equally absurd consequences." If he were right, then lower rates should, by reducing domestic relative to foreign prices, induce additional export surpluses paid for by inflows of gold. Banks receiving the gold on deposit would, upon finding their gold reserve augmented, reduce their rates in an attempt to work off the excess reserves. "The result according to Tooke would be a still further *fall* in domestic prices . . . so that the balance of payments would become more and more favorable and money would flow in on an ever-increasing scale" (Wicksell [1898] 1965, p. 99). In short, Tooke's interest cost-push doctrine implies, contrary to fact, that the trade balance is perpetually in unstable equilibrium, with trade deficits or surpluses progressively expanding in a monotonic explosive sequence.

Wicksell's third criticism was that money and credit markets would, like the balance of payments, be dynamically unstable if Tooke's theory were true. For if falling interest rates do indeed produce falling prices, then, with lower prices, less money is required to effect a given full-employment volume of real transactions. Their money needs diminished, transactors cut back borrowing

and pay off loans. In so doing, they return the superfluous money to the banks to swell reserves. The resulting excess reserves then induce banks to lower their rates still further, causing further falls in prices, borrowing, lending, and money circulating outside the banks. Via this sequence, a flood of excess reserves would continually inundate banks, and the rate of interest would eventually fall to zero. Conversely, rising rates, by boosting prices, would lead to greater loan demands for extra money to mediate real transactions at the higher prices. Banks, accommodating these demands through note and deposit creation, would find their reserve ratios falling. In an effort to forestall reserve deficiencies, banks would raise their rates. The result would be further price and rate increases in an endless upward spiral. "In other words, the money rate of interest would be in a state of unstable equilibrium, every move away from the proper rate would be accelerated in a perpetual vicious circle" (Wicksell [1905] 1956, p. 187). That rates in fact have been spared such dynamic instability, Wicksell wrote, is clearly a stumbling block for Tooke's theory and ample reason to reject it.

Reject it, however, is hardly what Tooke's heirs did. On the contrary, we have seen how Patman, Galbraith, and other twentieth-century American populists rehabilitated Tooke's theory to complain that the Federal Reserve spurs rather than arrests inflation when it raises interest rates. The upshot is that Wicksell's devastating critique had absolutely no impact on modern populist thinking, where Tooke's theory survives today.

#### **4. COST-PUSH DOCTRINES IN THE BIMETALLISM DEBATE**

Cost-push and conventional theories of the price level competed again during the bimetallism controversy over the proposed monetization of silver in the latter decades of the nineteenth century. At issue was the cause of the secular price deflation of 1873–1896. Bimetallists generally attributed the deflation to the failure of the gold-backed money supply to grow as fast as real output. They thought a money stock backed jointly by silver and gold circulating at a fixed ratio of 15 to 1 would have a stabler value than one backed by gold alone. Supported by two precious metals, such a stock might expand sufficiently fast to reverse the price decline and restore money's value to its pre-deflation level.

Orthodox monometallists, or gold standard advocates, however, denied that slow money growth had been the cause of falling prices. Like cost-pushers of today's new paradigm persuasion, they ascribed deflation instead to cost-reducing technological progress and to increased competition. In the words of W. W. Rostow (1948, p. 60), they

mustered enormous evidence attesting to new methods and machines, cheapened transport costs, new raw material sources, and increased competition. They tended to deprecate the alleged monetary forces. They insisted, in short,

that individual cost curves had fallen far and shifted to the right: that the average cost of producing a given output had decreased, and that diminishing returns—rising marginal costs—set in at a further point, requiring a higher level of demand to yield rising prices. They found in the case of each market no residual movement to be explained after its unique conditions were examined. No monetary factor was required.

### Wicksell's Critique

These late-nineteenth-century cost-pushers found a worthy adversary in Knut Wicksell, whom we have already met in his role as Tooke's principal critic. Ferreting out cost-push fallacies wherever he could find them, he spared his monometallist targets no more mercy than he had spared Tooke. Noting that cost-push theories were already "so widespread" that merely to question them "would seem almost paradoxical," he proceeded to describe how they had been used to explain "the fall in commodity prices in recent decades."

The decrease in the cost of production of commodities, the improvement of transport, etc. are often put forward without further explanation as independent causes of the fall of commodity prices . . . . It is as though this kind of explanation replaces every other theory of the value of money. The reasoning is somewhat as follows: Technological progress results in a fall in the cost of production, and so in the price, first of one group of commodities then of another. The extension of this fall in price to all, or to most, groups of commodities means a fall in the general level of prices. . . . (Wicksell [1898] 1965, p. 25)

Conversely, when inflation is the problem, cost-pushers seek the explanation "in bad harvests, in an increase in the demand for particular commodities of which the supply remains unaltered, and in the effect of tariffs and indirect taxes in raising the prices of such commodities" (Wicksell [1898] 1965, pp. 25–26). Other "alleged causes of a rise in prices" in which cost-pushers "take refuge" include "the supposed screwing up of prices by cartels and trusts, the greed of middlemen, trade union claims for higher wages, etc." (Wicksell [1905] 1956, p. 154).

As he had done for Tooke, Wicksell exposed the monometallists' confusion between relative and absolute prices. Something is wrong, he declared, "when the same causes . . . cited to account for a rise or fall in the price of *any single commodity* are put forward . . . as the source of changes in the general level of prices" (Wicksell [1898] 1965, p. 26). He proceeded to identify the error: "The proposition that prices of commodities depend on their costs of production and rise and fall with them, has a meaning only in connection with *relative* prices" (p. 99). To "apply this proposition to the general level of money prices involves a generalization which is not only fallacious but of which it is in fact impossible to give any clear account" (p. 99). According to Wicksell, there is but one way

for sectoral relative price changes to affect the general price level. That way is through the velocity-augmented stock of money per unit of output. Unless relative prices alter this monetary variable, they will have no consequence for general inflation or deflation.

Wicksell commented at length on the passive-money, reverse-causality presuppositions of cost-push theory. Modern cost-pushers, he wrote, typically regard money “as a kind of amorphous, infinitely elastic, or plastic mass which adapts itself without any pressure to any price level and is therefore entirely passive in relation to the pricing mechanism whilst the latter is regulated only by circumstances concerning the commodities themselves” ([1905] 1956, p. 154). So accustomed are these observers “to seeing in the modern credit and banking system a means of satisfying any demand whatever on the part of society for a medium of exchange that they cannot conceive of money influencing prices in one direction or the other” (p. 154). Monometallist cost-pushers, Wicksell argued, simply fail to understand that it is only through accommodative money growth (or restrictive growth in the case of deflation) that relative price changes can be translated into overall price level changes. In such cases, it is precisely the monetary accommodation (or restriction) itself rather than cost-push that changes the price level. Cost-pushers accordingly are wrong in holding that monetary accommodation merely validates price changes produced by other means. Accommodation (or the lack thereof), not cost-push, is the one absolutely necessary and sufficient condition for price changes to occur.

In overlooking this point, monometallists erred in attributing the post-1873 price deflation entirely to cost-reducing productivity shocks. It was not the shocks that produced deflation. On the contrary, prices fell because the money stock failed to grow as fast as real output.

For all its cogency and persuasiveness, Wicksell’s critique of the monometallists proved no more successful than had his critique of Tooke in disposing of cost-push doctrine. Thus when J. Laurence Laughlin revived the doctrine in the early decades of the twentieth century, his critic, the quantity theorist Irving Fisher, saw the need to attack it on the same grounds Wicksell had cited. It was as if Wicksell had never written a word against it.

## 5. LAUGHLIN VERSUS FISHER ON COST-PUSH

If Wicksell was the harshest nineteenth-century critic of cost-push, then surely its foremost early-twentieth-century champion was J. Laurence Laughlin, the first chairman of the Economics Department of the University of Chicago, founding editor of the *Journal of Political Economy*, and leading American opponent of the quantity theory of money. The deflation of the last quarter of the nineteenth century had given way to inflation when Laughlin presented his views, first in a 1909 article in the *Journal of Political Economy* and again at a

1910 American Economic Association round-table discussion dealing with the cause of the rising prices from 1896 to 1909.

Confronting Laughlin were quantity theorists who traced inflation's cause to the Transvaal and Klondike gold discoveries and to the introduction of the cyanide process for extracting gold. They argued that the resulting huge increase in the monetary gold base and the stocks of circulating media erected thereupon had, when spent on goods, forced up prices. Laughlin, however, rejected this explanation. "The causes for the remarkable rise in prices," he declared, "cannot be looked for in those influences directly affecting gold" (Laughlin 1909, p. 263). Instead, they "must be sought in the forces settling particular prices" (Laughlin [1911] 1916, p. 178). These forces included "increased wages, higher cost of materials, higher customs-duties, and monopolies, or combinations" (Laughlin 1909, p. 266).

Laughlin described three types of cost-push mechanisms, namely, wage-push, administered pricing, and commodity shortage. On wage-push, he wrote that, with the "marked advance in wages," one "of the main elements entering into the expenses of production of all kinds of goods" has "risen in cost, and had its effect in raising prices" (p. 268). He stressed the role of ratchet effects and unilateral wage setting by trade unions. Ratchet effects imply that once "a high rate of wages has been granted, it is not easy for employers to force a reduction" (p. 268). Unilateral wage setting means that there is "an influence independent of prices which has acted to raise the rate of wages. And this influence undoubtedly is" the "pressure of labor-unions, which have been very active in recent years" (p. 269). Both phenomena imply the existence of a substantial degree of labor monopoly power even though unionized workers constituted only 6 percent of the labor force at the time Laughlin was writing.

Laughlin did not stop at wage-push. Describing the second type of cost-push or markup inflation, namely that stemming from monopoly-administered pricing, he wrote that "the formation of combinations is unquestionably the strongest force in this period working for higher prices" (p. 270). The "whole *raison d'être* of monopolistic combinations is to control prices, and prevent active competition" which tends to drive profit markups toward zero ([1911] 1916, p. 185).

The third type of cost inflation Laughlin identified is that arising from raw material shortages, crop failures, and the like. He noted that commodity shortages drive up prices directly by reducing supply and also indirectly through their feedback into wage demands. For example, a price-wage-price feedback cycle occurs when a shortage-induced rise in the price of food "wipes out all the gains of previous increases of wages, and drives laborers to repeat their demands for higher pay, thus working again to increase expenses of production" (p. 184).

Finally, Laughlin employed his theory of *antecedent pricing* to deny money a role in price determination (see Skaggs [1995]). According to Laughlin, price

setting precedes the sale of goods. With prices settled, the stock of bank money passively adapts as required to effect the sales at the predetermined prices. Causation runs from prices to money with the latter responding endogenously to meet the needs of trade.

### Irving Fisher

Laughlin found a perfect foil in Irving Fisher, America's leading quantity theorist and perhaps the greatest economist this country has yet produced. In his classic *The Purchasing Power of Money*, his remarks at the 1910 American Economic Association session on the causes of inflation, and his *Stabilizing the Dollar* (1920), Fisher took Laughlin as his target and criticized cost-push theories on four main grounds.

First, he argued that such theories fail to distinguish between changes in relative prices and changes in absolute prices. The result is confusion, with cost-pushers erroneously ascribing real and sector-specific causes to what is essentially a monetary and economywide phenomenon. In Fisher's own words, cost-pushers "have seriously sought the explanation of a general change in price levels in the individual price changes of various commodities considered separately. Much of their reasoning goes no farther than to explain one price in terms of other prices" ([1911] 1963, p. 176). Elsewhere, he listed 41 frequently cited nonmonetary causes of inflation and noted that "while some of them are important factors in raising particular prices, none of them . . . has been important in raising the *general* scale of prices" (1920, p. 11). Fisher pointed out that "no explanation of a general rise in prices is sufficient which merely explains one price in terms of another price" (p. 14).

Second, Fisher argued that anything that affects the price level must do so through changes in the stock of money, its circulation velocity, or the physical volume of trade. If these magnitudes remain constant, the price level cannot change. There is no reason to believe that changes in the specific wages of unionized labor or the prices of monopoly products will affect these macroeconomic variables. Therefore, if "trade unions seek to raise prices of labor while trusts raise prices of commodities," the general price level "cannot change" ([1911] 1963, pp. 179–80). True, the individual prices of union labor and monopoly products might rise. But these changes in particular "parts of the price level may occur only at the expense of opposite changes in other parts" (p. 180).

Fisher's third criticism referred to the tendency of cost-pushers to resort to ad hoc explanations stressing temporary disturbances, random events, and other special factors. "Mere graspings at the first straw in sight that seems to offer any explanation" is how he disparaged this practice (1920, p. 16). Cost-pushers typically "pick out some particular cases with which they happen to be familiar and drag them before the public." A crop failure renders corn dear, a firm raises

its price, a union demands higher wages—“and immediately someone hails the event as a representative cause of the high cost of living” (p. 16). Fisher termed this practice “the error of selecting special cases.” He argued that because such alleged causes of inflation occur only sporadically, are short-lived, and affect only a limited range of commodities, they could not explain a sustained rise in the level of all prices. As he expressed it, “special causes working on selected commodities” would not “be general enough to explain the concerted behavior of . . . changes in the *general* scale or level of prices” (p. 16). Only excessive monetary growth could account for sustained inflation. Or as he put it, “in almost all great and prolonged price movements the chief factor is the quantity of money” (p. 52).

Finally, Fisher opposed cost-push inflation theories because they lead to what are now called price and wage controls, or incomes policies. Such “vicious remedies” he wrote, “are not only futile, but harmful” (p. 75). He further noted that while incomes policies focus directly on “the problem of the size of our incomes, they are expected to solve the second problem too,” that is, the problem of inflation (p. 81). Unfortunately, since incomes policies per se cannot permanently reduce inflation if money growth remains excessive, the inevitable result is that “disappointment follows their application.” In short, “unless a genuine solution” to inflation is found, “a bewildered and infuriated public is apt to keep on trying every sort of alleged remedy, good, bad, or indifferent, often with disastrous results” (p. 81).

## 6. COST-PUSH THEORIES IN THE GERMAN HYPERINFLATION

No sooner had Fisher offered his advice than European central bankers chose to ignore it. It was only shortly after he published a particularly blistering version of his critique in his *Stabilizing the Dollar* that Reichsbank officials were employing cost-push theories to account for the German hyperinflation debacle of 1923. That episode saw the cost of a postage stamp and a newspaper rise to 90 billion marks and 200 billion marks, respectively. At the peak of the inflation, when the money supply was expanding at a rate of 1300 percent per month and 30 paper mills were working around the clock just to supply the Reichsbank with paper for its note issue, the institution’s spokesmen were insisting publicly that money growth had nothing to do with the inflation.<sup>9</sup>

On the contrary, they blamed inflation on external real shocks and declared that money growth was the consequence not the cause of inflation. Balance

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<sup>9</sup> On the German hyperinflation debate, see Bresciani-Turroni’s classic study ([1931] 1968) and also Ragnar Nurkse’s account for the League of Nations (1946). For a recent interpretation, see Holtfrerich (1986).

of payments disturbances, they claimed, had depreciated the foreign currency value of the deutsche mark, thereby raising the prices of imported commodities. Here then was the source of the cost-push pressure. For, given the foreign currency prices of Germany's food and raw material imports, the exchange rate depreciation had raised the deutsche mark price of those specific items and therefore the prices of finished goods embodying them as ingredients. Like those who attribute our current price situation to disturbances emanating from East Asia, Reichsbank officials located the root cause of the hyperinflation in the post-World War I punitive actions of the Allies. More specifically, they traced a chain of causation running from reparations burdens (and the expropriation of German export facilities) to balance of payments deficits to exchange rate depreciation to rising import prices and thence to general price inflation onward to rising money demand and finally to the money stock itself. That is, they argued that external shocks operating through the balance of payments caused the inflation, that the resulting rise in prices created a need for more money on the part of business and government to carry on the same level of real transactions, and that it was the duty of the Reichsbank to accommodate this need, a duty it could fulfill without affecting prices. Far from seeing currency expansion as the source of inflation, they argued that it was the solution to the acute shortage of money caused by skyrocketing prices.

Critics of the Reichsbank, including Costantino Bresciani-Turroni, Gustav Cassel, Walter Eucken, Gottfried Haberler, Fritz Machlup, Ludwig von Mises, L. Albert Hahn, Karl Schlesinger, Alfred Lansburg, and others, however, had little trouble demolishing these views. With respect to the link between reparations payments and exchange depreciation, they argued that Germany could pay reparations through increased exports and reduced imports with only temporary disruptions to the balance of payments. Reparations therefore should have no lasting effect on the exchange rate whose long-run depreciation must, according to the theory of purchasing power parity, be entirely due to excessive monetary growth. Similarly, with respect to depreciating exchanges and rising import prices, they noted that neither phenomenon could persist indefinitely unless sustained by inflationary money growth. Finally, with respect to import price increases and general price inflation, they denied that the former could be transmitted to the latter provided that the money stock and hence total spending were held in check. For in the absence of monetary excess, a rise in the particular prices of imported commodities would be offset by compensating reductions in other prices leaving the general price level unchanged. The critics further noted that import prices constituted too small a fraction of total prices to affect them more than minimally, anyway. With these arguments, the critics effectively severed all the links in the cost-push chain running from reparations payments to exchange rate to import prices to general prices.

Reichsbank spokesmen, however, had one card left to play. They cited empirical evidence showing that the rate of price increase had continually

outstripped, and temporally preceded, the rate of money growth throughout the hyperinflation. The temporal lead of prices over lagging money seemed to indicate that the former caused the latter, contrary to the predictions of the monetary theory.

But anti-cost-pushers replied that this state of affairs was entirely consistent with the monetary view. Prices were advancing faster than the money stock because the public had formulated expectations of higher future rates of money growth and inflation.<sup>10</sup> These expectations, by raising the anticipated depreciation cost of holding marks, had greatly reduced the demand for them and had stimulated a corresponding rise in their circulation velocity. This expectations-induced rise in velocity had caused prices to rise faster than the money stock.

Reichsbank officials, however, refused publicly to acknowledge as much and continued to adhere to their cost-push, passive-money, reverse-causation doctrines. Citing the real bills theorem, they insisted that their duty was to supply the growing sums of money required to conduct real transactions and support the needs of trade at the skyrocketing (and predetermined) level of prices.

## 7. CONCLUSION

The longevity of cost-push theory challenges the very notion of economics as a progressive science. Any scientific discipline addressed to popular and professional audiences alike should be able to rid itself of discredited ideas once and for all. In the case of cost-push, however, economics has been unable to do so. For at least 200 years, critics have repeatedly exposed the fallacies of the theory. Yet each time it has bounced back with its popularity intact. Why does it refuse to die? What accounts for its remarkable resiliency despite its defects?

One reason, of course, is the theory's simplicity, a characteristic that renders it at once transparent, intuitively plausible, and easy to grasp by those untrained in economic analysis who ask of a theory only that it conform to everyday experience and rudimentary common sense. A related reason is its appeal to observers whose practical knowledge is micro- rather than macroeconomic. Untrained in general equilibrium macromodels, such observers may commit the fallacy of composition and so mistakenly assume that what is true for the part is necessarily true for the whole when reasoning from the particular to the general. Consider a pragmatic businessman or banker keenly attuned to the forces operating in his own market but unaware of how all markets interact. He knows how costs and competition affect the individual price he can charge. He

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<sup>10</sup> Howard S. Ellis in his classic *German Monetary Theory 1905–1933* (1934) cites Cassel, Eucken, Machlup, Mises, Palyi, Pigou, and Robertson as holding this view.

generalizes from his own firm- and industry-specific experience to assume that these same conditions drive prices economywide as well. He becomes a cost-pusher. Lacking a macroeconomic perspective, he sees no need to understand that monetary policy actually determines prices.

A more fundamental reason for the doctrine's appeal derives from its teaching that the price level is a nonmonetary phenomenon determined by the real forces of cost and competition. With these forces holding prices in check, the doctrine implies that monetary policy is free to pursue desirable nonprice objectives such as boosting growth and achieving full employment. The doctrine, in other words, promises to liberate the central bank from its price-stabilization constraint to concentrate on other goals. Here is the latest manifestation of Sir James Steuart's idea that money stock changes unabsorbed by idle hoards induce matching shifts in commodity demand and supply such that quantities alter at unchanged prices. Here too is the old real bills idea that the money supply should be free to adapt itself to the needs of trade. Finally, here is the source of the ever-popular notion that central banks should pursue low interest rate (expansionary) policies to achieve noninflationary gains in real activity and incidentally to lower the interest component of business costs. Any borrower standing to benefit from low interest rates is tempted to subscribe to a theory that justifies them.

The enduring appeal of these ideas despite evidence of their invalidity represents a triumph of hope over experience and the source of the doctrine's long life. The doctrine seems unlikely to disappear. It will persist as long as people continue to see the price level as a nonmonetary phenomenon.

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