

**Hayek versus Keynes on  
How the Price Level Ought to Behave**

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## **Hayek versus Keynes on How the Price Level Ought to Behave**

After being out of vogue for several decades, John Maynard Keynes's monetary policy ideals are once again being advocated by large numbers of monetary economists while being actually put into practice by central banks in several nations. I refer to Keynes's belief that government authorities should manage money so as to achieve a stable level of consumers' prices.

My claim may strike some readers as odd--especially if they are used to thinking of Keynes as an advocate of inflationary policies while identifying the goal of price-level stability with conservative critics of "Keynesianism." But, although some of Keynes's writings, and the General Theory especially, may have laid the groundwork for inflationary policies, Keynes himself regarded them as supporting a monetary policy that would stabilize consumers' prices. The desirability of a stable consumers' price index is a persistent theme of Keynes's monetary writings, from the Economic Consequences of the Peace (1919) to How to Pay for the War (1940). In this respect at least Keynes saw eye-to-eye with several of his more important contemporaries, including Irving Fisher and such members of the "old" Chicago School as Loyd Mints and Henry Simons.<sup>1</sup>

If such "proto-monetarists" were at least able to agree with Keynes's price-level criterion for sound monetary policy, others were not. Indeed, the most far-reaching criticisms of Keynes's views on monetary policy came, not from the early Chicago school, but from a separate and large group of theorists, including Friedrich Hayek. These theorists were expressly opposed to the goal of price-level stability, favoring instead versions of what I shall call a "productivity norm" of price-level behavior: they believed that the general level of output prices should be allowed to vary in response to changes in factor productivity, falling in response to both anticipated and unanticipated improvements in productivity, and rising in response to any productivity setback. According to this

logic, sound monetary policy in a progressing economy required deflation at a secular rate equal to the economy's secular rate of productivity growth.

Arguments concerning how the price level ought to behave played a central part in the macroeconomic debates of the '20s and '30s, and in the disagreement between Keynes and Hayek in particular. The true nature and extent of that disagreement has, regrettably, been obscured by false characterizations of Keynes as an outright inflationist on the one hand and of Hayek as an extreme deflationist on the other. This paper attempts to cast new light on the views of both thinkers by taking a close look at the development of their thoughts concerning optimal price-level behavior. The most striking fact to emerge from this study is that, for all their public disagreement, Keynes and Hayek came remarkably close to reaching a consensus on this central theoretical and practical issue.

## **II. Two Kinds of Anti-Inflationism**

Prior to the so-called Keynesian revolution all the more prominent participants in monetary policy debates were anti-inflationists of some stripe. Their major disagreements had to do, not with the desirability of avoiding secular inflation, but with the desirability of avoiding all price-level movements, including short-run changes and changes leading to secular deflation. Many proponents of price-level stabilization viewed all price-level movements as undesirable and favored, for this reason, replacement of the gold standard with a "managed" currency. Proponents of a productivity norm, on the other hand, argued the desirability of price-level movements reflecting opposite changes in productivity and were, therefore, more inclined to accept and defend the price-level consequences of the classical gold standard. By the mid- 1930s, economists advocating short-run price-level stabilization included Irving Fisher, Gustav Cassel, George Warren and Frank Pearson,

Carl Snyder, and John Maynard Keynes; those advocating a productivity norm included Evan Durbin, Allen G. B. Fisher, Gottfried Haberler, Ralph Hawtrey, Eric Lindahl, Arthur Pigou, Dennis Robertson, Gunnar Myrdal, and Friedrich Hayek.<sup>2</sup>

Any pattern of price-level movements can be consistent with full-information general equilibrium provided that agents have perfect foresight or that money prices are always free to adjust to their full-information values. Arguments for stabilizing the price level must therefore assume, implicitly or explicitly, that agents do not correctly anticipate every equilibrium price-level change or that adjustments in money prices (and nominal contracts generally) are costly and time-consuming. One argument based on such assumptions and favoring a stable price level is that price-level movements, and unanticipated movements especially, distort intertemporal contracts. In the absence of perfect indexation, an unexpected decline in prices causes creditors, including holders of money balances, to gain at debtors' expense, while an unexpected increase in prices has the opposite effect. In the first case, interest rates can be said to be above their full-information levels such as might prevail were all price-level movements perfectly anticipated; in the second case, rates can be said to be below their full-information levels.

A second argument for stabilizing the price-level points to more general disruptions of relative prices associated with any overall change in money prices. Money prices best perform their task of directing the allocation of resources when every money price adjustment represents in an unambiguous and accurate manner some corresponding relative price change. Because money prices cannot generally be relied upon to assume their full-information values following a real or monetary disturbance, it is desirable that relative price changes be accomplished in a manner involving as few money price adjustments as possible. In particular, it is desirable that the money supply be managed

so that superfluous changes in equilibrium money prices (i.e., changes beyond the minimum number needed to reflect new patterns of equilibrium relative prices) are avoided. Such a policy seeks to minimize the risk of general shortages or surpluses of goods and of distorted relative prices stemming from nominal rigidities in the price system or monetary misperceptions (the confusion of overall with relative money price changes) or both. Zero inflationists claimed that a monetary policy aimed at stabilizing the general level of output prices achieves, or approximately achieves, this goal.<sup>3</sup>

Taking similar assumptions concerning price-level expectations and real costs of nominal adjustments as their (often implicit) starting point, proponents of a productivity norm admitted the validity of arguments for price-level stability in the case of a stationary economy, that is, one not experiencing any general changes in productivity. But they denied the desirability of maintaining a stable price level in the face of either temporary or permanent general changes in productivity. They argued, for example, that, when the price level is prevented from falling in response to unanticipated improvements in productivity, creditors are not merely prevented from making "windfall" gains at the expense of debtors. Creditors are, rather, denied their pro-rata share of real gains being enjoyed by other economic agents whose nominal incomes are allowed to expand: when productivity increases, a stable price level requires higher nominal factor prices and earnings. Conversely, if the price level is prevented from rising unexpectedly in response to an adverse change in productivity, nominal incomes must shrink, compounding debtors' burden. In general, proponents of a productivity norm argued, a policy allowing unexpected price level movements to reflect opposite unexpected changes in productivity minimizes the risk of either debtors or creditors "regretting" their involvement in fixed nominal contracts, keeping fixed nominal rates of interest

near their full-information or "natural" counterparts.

More generally, proponents of the productivity norm believed that price-level changes connected to changes in productivity served to keep relative prices near their full-information values by minimizing the need for money-price adjustments. They believed this to be true for both unanticipated and anticipated changes in productivity. In either case, a change in productivity necessarily implies a change in the value of outputs-in-general relative to inputs-in-general. Changes in the relative cost of producing particular goods will, furthermore, necessitate changes in relative output prices. Although such changes might in principle be conveyed by letting factor prices and nominal earnings adjust, while holding the output price level constant, the productivity-norm alternative of simply allowing the money prices of individual final goods to adjust along with changes in their real unit costs of production generally minimizes the total number of necessary money-price adjustments, therefore avoiding as far as possible the risk of price rigidities leading to general disequilibrium. Such a policy sacrifices stability of output prices in exchange for enhanced stability of input prices. That factor prices, and money wage rates especially, are generally more prone to rigidity than prices of final goods, and that the latter prices tend to respond readily to underlying changes in real unit production costs, lends further merit to the productivity-norm stand.<sup>4</sup>

### **III. Keynes and Price-Level Stability**

Keynes began his career as an uncompromising proponent of price-level stability. Hayek, on the other hand, began as an equally uncompromising proponent of a constant money stock. Over

time, both writers softened their positions: Keynes came to acknowledge the productivity norm as a worthy alternative to price-level stabilization, while Hayek came to appreciate its superiority to a frozen money stock. The authors thus came very close to sharing identical opinions on this central monetary policy issue--a fact that was obscured both by their rancorous public exchange in 1931 and by later misrepresentations of their positions.

Although a preference for stable prices is evident throughout his earlier professional writings and lectures<sup>5</sup>, Keynes first earned a popular reputation as an ardent opponent of inflation in the Economic Consequences of the Peace (1919). Here occurs the famous passage in which Keynes attributes to Lenin the statement that "there is no subtler means of overturning the existing basis of society than to debauch the currency" (Keynes 1919, 236).<sup>6</sup> Inflation, Keynes continues, "engages all the hidden forces of economic law on the side of destruction, and does it in a manner which not one man in a million is able to diagnose." Although Keynes wrote with particular reference to continental Europe, where inflation had already "proceeded to extraordinary lengths" (ibid., 238), his statements clearly suggest a general opposition to inflation, especially on the ethical grounds that it promotes the "arbitrary rearrangement of riches" (ibid., 235).

The "social consequences" of inflation as well as those of deflation are the principal theme of Keynes's 1923 Tract on Monetary Reform, in which he observes that inflation "means Injustice to individuals and to classes,--particularly to investors; and is therefore unfavorable to saving." Deflation, on the other hand, "means Impoverishment to labour and to enterprise by leading entrepreneurs to restrict production, in their endeavor to avoid loss to themselves; and is therefore disastrous to employment" (Keynes 1923, 39). Of the two, Keynes opines, deflation may be the greater evil, "because it is worse, in an impoverished world, to provoke unemployment than to

disappoint the rentier. But," he adds, "it is not necessary that we should weigh one evil against the other. It is easier to agree that both are evils to be shunned" (ibid., 40).

Keynes thus proceeds to argue the case for making stability of the price level the main objective of monetary policy. He begins by rejecting deflation in favor of devaluation as a means of restoring the pre-war gold standard (ibid., 142-154), but ends by rejecting the gold standard itself--that "barbarous relic" (ibid., 172, 177)--in favor of a paper standard "so regulated as to maintain stability in an index number of [internal] prices" (ibid., 156, 176). The wartime suspension of gold payments therefore constituted, for Keynes, not a deterioration of monetary arrangements but a positive (if "half haphazard") step toward an "ideal" scheme (ibid., 176).

In formulating his ideal Keynes drew upon the writings of Gustav Cassel and, especially, Irving Fisher, whose Purchasing Power of Money he had favorably reviewed in the Economic Journal (Keynes 1983 [1911], v. 11, 375-81); see also Skidelsky 1992, 168-70). The Tract's analysis of inflation and deflation is, like Fisher's, firmly grounded in the quantity theory of money (Keynes 1923, 41-2; 74-87). Keynes's proposed reform differs, however, from Fisher's "compensated dollar" plan, mainly in allowing the monetary authority a greater degree of discretion while eschewing Fisher's effort to "graft" a price-stability scheme "on to the pre-war system of gold reserves and gold-ratios" (ibid., 187).

Although more polemical and less painstaking than Fisher's earlier book, Keynes's Tract remains one of the more noteworthy manifestos for price-level stability. Nonetheless it suffers--like most other briefs for "zero inflation" before and since--from its author's failure to consider how changes in factor productivity affect the validity of many of its arguments. One example of this occurs when Keynes assumes that deflation always "involves a transference of wealth from the rest

of the community to the rentier class" (ibid., 143), when in fact it does so only if the rate of deflation exceeds the growth rate of real factor productivity. Another occurs when Keynes tacitly assumes that falling product prices must be accompanied by falling nominal revenues (ibid., 36).

Although the analytical apparatus of Keynes's 1930 Treatise on Money differs considerably from that of the Tract, the policy conclusions of both books are essentially the same. The Treatise, however, offers a more specific price-level ideal, consisting of a "Purchasing Power of Money or Consumption Standard" which (following Marshall) seeks stability for an index of "retail prices paid by the ultimate consumers of finished commodities" (Keynes 1930, v. 1, 54).

From our perspective, a more important difference between the Tract and the Treatise is that the latter directly addresses the productivity-norm alternative, referred to by Keynes as a "Labour Power of Money or Earnings Standard." Keynes's decision to address the productivity norm appears to have been encouraged by both Dennis Robertson and Ralph Hawtrey during the last stages of the Treatise's completion. On 5 December 1929 Robertson, upon reading the proofs for volume I, wrote Keynes urging him to modify his analysis so as to make it more "suitable for discussing...the policy of stabilizing the price of effort" to which Robertson himself had become a "fanatical" devotee (Keynes 1987, v. 13, 118). Less than two weeks later, Keynes served as a discussant of Hawtrey's pro- productivity norm essay, "Money and Index Numbers," before the Royal Statistical Society. Keynes welcomed this opportunity to address for the first time

the vitally important question...as to whether it would be ideal to stabilize the purchasing power of money in terms of the articles of consumption, or whether we should stabilize the cost of human effort (ibid., 128).

Keynes's response to Hawtrey was both tentative and pragmatic. "For my part," he wrote, "I have

come to no clear conclusion [and] I doubt if I should come to the same conclusion in all sets of conditions." In particular, while Keynes appeared ready to admit the advantages of allowing the price level to rise in the event of an adverse supply shock, he believed that during times of progress "social frictions" would best be avoided by holding the price level stable while allowing money wage rates to go up (ibid., 129). But Keynes was far from being unalterably committed to this view, believing it "most undesirable that any acute controversy should arise as to which of the two methods of stabilization is preferable... . If we have to choose between them," he concluded, "it is a case where I would be ready to fall in with the views of the majority" (ibid., 130). In fact, despite his expressed desire, Keynes did allow a controversy to arise, between himself and Hayek, in which differences concerning how the price level ought to behave played a central part. In that controversy Keynes showed none of the spirit of compromise he had demonstrated before Hawtrey, notwithstanding that both Hayek and Hawtrey rejected price-level stabilization on similar grounds.

Keynes's conciliatory response to Hawtrey was, however, repeated in the Treatise, where he opines that the choice between a "Labour Standard" and his Consumption Standard is solely "a question of convenience and expediency":

It might be, of course, that in certain types of social organism there was a strong case on the grounds of expediency for stabilising the Labour Power of Money rather than its Purchasing Power, just as there might be grounds for stabilising the price of wheat or the price of electrical power or the price of gold. In this case the answer must depend on whether...it is better that changes in the efficiency of human effort should be reflected in changed money-earnings or in changed money-prices (Keynes 1930, v. 1, 63-4).

Among practical drawbacks of a productivity norm Keynes lists "the difficulty of finding a

common unit in which to compare different kinds of human effort" (ibid., v. 1, 23). Like other critics as well as some proponents of a productivity norm, Keynes did not consider the possibility of implementing it (or approximately implementing it) by targetting some direct measure of nominal "earnings" or money income.

Elsewhere Keynes offers another practical reason for preferring a stable price level, by way of observing (ibid., v. 1, 169-70; see also v. 2, 393) that aggregate money incomes must rise if a Consumption Standard is stabilized in the face of technical progress. Rather than see this as a drawback to his policy ideal, Keynes views it as an advantage, because it conforms with peoples' natural "inclination to think in terms of money and to feel an increase of money-earnings as a betterment." Keynes here appears to commit a fallacy of composition: holding the distribution of population across age groups constant, an individual can have his "urge toward higher money income" over time satisfied without need for any growth in aggregate money incomes: one group of cohorts can take over the higher wage rates of its predecessor (rates presumably reflecting improved skills) without need for any overall increase in the wage pool. On the other hand, Keynes again makes an important concession to productivity-norm advocates by admitting that, when productivity is declining, it may after all be better "to stabilize labor power" (ibid., v. 1, 170). Ultimately, however, Keynes appears to forget this concession, rejecting even a partial productivity norm and sticking to his Consumption Standard ideal.<sup>7</sup>

Analytically, the Treatise departs from the Tract in adopting aspects of Wicksell's thinking, with its emphasis upon "preservation of a balance between the rate of saving and the value of new investment" (ibid., v. 2, 220) and on interest-rate control as the main instrument capable of achieving that object. This analytical innovation did not, however, provoke any change in Keynes's view

concerning the best intermediate policy target--that is, the best statistical indicator of the appropriateness of actual policy decisions. Wicksell himself had held, after all, that price-level stability went hand-in-hand with ex-ante equality of saving and investment.

But Wicksell's analysis presupposes a stationary economy where stability of output prices and stability of input prices go hand-in-hand (Hayek 1932, 112-116). One may well question, as Hayek and Robertson (among others) did, whether a stable price level continues to keep interest rates at their "natural" levels in an economy experiencing changes in productivity. A negative answer to this question lies at the heart of Hayek's critical reaction to the Treatise:

It is true that in his attempt to establish a direct connection between a divergence between I and S ... and changes in the price-level, Mr. Keynes is following the lead of Wicksell. But it is just on this point that--as has been shown by Mr. D. H. Robertson among English economists, and by the present writer on the Continent--Wicksell has claimed too much for his theory (Hayek 1995 [1931], 145).

Suppose, for example, that holding nominal spending constant, output prices are tending to fall in response to improvements in productivity. If the monetary authority tries to offset this tendency by expanding the money stock, that expansion itself might cause a temporary reduction of interest rates below their natural values, with a corresponding expansion of investment beyond limits consistent with intended real savings--"forced" savings, in other words. Hayek saw the promotion of forced savings, and consequent triggering of business cycles, as the principal drawback of price-level stabilization.<sup>8</sup>

This criticism was not new: Robertson had already expressed it while the Treatise was still in production.<sup>9</sup> Keynes for his part had attempted to deflect it both by downplaying the possible

inconsistency of price stability with ex-ante savings-investment equilibrium and by making a virtue out of forced savings, portraying it as a basis for more rapid accumulation of capital. He even went so far as to claim the exploitation of forced savings as a merit of secular inflation (Keynes 1930, v. 1, 293-97; v. 2, 162-3). In the end, though, Keynes remained devoted to price-level stability, proposing (in a passage that was to be more-or-less repeated in the General Theory (1936, p. 164) that rapid capital accumulation might best be accomplished, not through forced saving, but by making investment "more largely an affair of state, determined by collective wisdom and long views," than a matter of "individual caprice" (Keynes 1930, v.2, 163).

Keynes's close encounter with the productivity norm in the Treatise was followed by a still closer one in the General Theory. Here again, "practical" considerations caused him to cling to his old ideal of a stable price level. This was the case despite the fact, acknowledged by Keynes, that his new theoretical framework suggested the desirability, not of price-level stability, but of a productivity norm.

That the argument of the General Theory supports a productivity norm as against a norm of price-level stability becomes apparent upon considering the implications of productivity changes. Keynes, for the most part, abstracts from such changes by assuming, early on, "that the amount of employment associated with a given capital equipment will be a satisfactory index of the resultant output," that is, that output and employment "increase and decrease together" (Keynes 1936, 41). Under such circumstances, the major policy recommendation of the General Theory--that the money stock should be managed so as to maintain the volume of money expenditures and, hence, "effective demand" at levels consistent with "full" employment--seems consistent with both stability of nominal wages and stability of the price level. But this is no longer the case when productivity itself

changes. In that case, one must seek either stability ("rigidity") of wages or stability of the price level. Keynes realized this while also realizing that, of the two goals, the former only was consistent with stability of aggregate expenditures.<sup>10</sup> He therefore concluded that, of the two alternatives, "the maintainance of a stable level of money-wages is...the most advisable policy for a closed system" (ibid., 270, emphasis added).<sup>11</sup>

Keynes understood, furthermore, (ibid., 271) that a rigid-wages policy entails downward price-level adjustments "in response to changes in the cost of production due to new technique and new or increased equipment"; and, although he does not repeat here explicitly the opposite point made earlier in the Treatise, it is reasonable to assume that he also recognized a like need for opposite price-level changes in response to adverse changes in productivity. In short, Keynes appears ready at last to abandon his long-favored ideal of price level stability and to join the ranks of those (including his close associate Dennis Robertson) favoring a productivity norm. But Keynes's apparent change of heart endures only for a heartbeat: a moment later Keynes appears to forget altogether his just-stated opinion concerning the "most advisable policy." "We are," he now writes, "still left with a choice between a policy of allowing prices to fall slowly with the progress of technique and equipment whilst keeping wages stable, or of allowing wages to rise slowly whilst keeping prices stable."<sup>12</sup> Having thus casually forgotten the choice he already made, Keynes proceeds to choose again, with an entirely different outcome:

On the whole my preference is for the latter [price stability] alternative, on account of the fact that it is easier with an expectation of higher wages in future to [avoid unemployment] than with an expectation of lower wages in future, and on account also of the social advantages of gradually diminishing the burden of debt, the greater ease of

adjustment from decaying to growing industries, and the psychological encouragement likely to be felt from a moderate tendency for money-wages to increase (ibid.)

Here we must observe that, even though Keynes may never have invoked chronic money illusion to justify outright inflation (Leijonhufvud 1968, 95, 383-85; 1983, 7, 53, and 60; Meltzer 1988, 197) he did invoke chronic money illusion to argue the superiority of price-level stability to a relatively deflationary productivity-norm alternative. Workers, it seems (according to Keynes), though not necessarily inclined to confuse a mere increase in nominal wages with an equivalent increase in real wages, may nevertheless fail to appreciate a genuine increase in real wages unless it also involves an increase in nominal wages!

While going out of his way to downplay the potential merits of secular deflation, Keynes allowed that some wage-rate and consequent (though less-than-proportionate) price inflation might occasionally be needed to reach full employment: following a collapse of effective demand, expansionary policies might restore full employment in certain sectors of the economy faster than in others. The resulting "bottle-necks" supplied a rationale for expanding demand beyond a level consistent with the avoidance of rising wage rates in "bottle-necked" industries (Keynes 1936, 300-301). Keynes's notion of "full employment" was, moreover, inadequately defined. Still, his arguments in the General Theory are a far cry from later ones explicitly endorsing inflation by proclaiming a long-run inflation-unemployment trade-off. Keynes himself never claimed such a trade-off, and never ceased to be expressly opposed to any policy that might result in lasting inflation. Indeed, by the onset of World War II Keynes (1940, 8-9, 17-19) could be seen arguing against expansionary monetary and fiscal measures. Still, his remarks concerning bottle-necks appear to have laid the groundwork for later Keynesians' wholesale abandonment of Keynes's stable

price level ideal.<sup>13</sup>

The economic consequences of such "Keynesian" thinking were tragically far removed from what Keynes's himself had supported. It was, as Robert Skidelsky (1992, xxiv) has observed, "deeply ironic that a theory which started off by proclaiming the necessity of stable prices for stable production should have degenerated into the dogma that 'inflation doesn't matter'." The irony appears still greater if one considers how close Keynes came to recommending a policy that would have brought secular deflation.

#### **IV. Hayek and the Productivity Norm**

##### IV.1 Before 1931

Hayek's ideas on optimal price-level behavior were closely connected to his insights concerning the information-conveying function of relative prices (Ebeling, n.d.). Changes in the price level are, in Hayek's view, a matter of concern only in so far as they involve some dislocation of relative prices from their general equilibrium values. Like other champions of the productivity norm, Hayek insisted that an overall movement in the level of output prices might or might not involve some distortion of relative prices, depending on whether or not the movement reflected underlying, opposite changes in real output. He believed that attempts to keep the price level stable in the face of changes in real output might well lead to some serious dislocation of relative prices.

Such thinking led Hayek (1984 [1925]; 1984 [1932]) to join ranks with a number of other writers, including Ralph Hawtrey (1933) and Dennis Robertson (1928) who saw important real

maladjustments hiding behind a stable price-level veil during the 1920s. These writers argued that, by preventing the price level from falling despite improvements in productivity after 1925, the Federal Reserve had set the stage for a serious liquidation crisis. This view stood in sharp contrast to that of Keynes who, in assessing the economic crisis in 1931, "inclined to the view that the part played by inflation [i.e. monetary expansion] was surprisingly small." Indeed, while Hayek criticized the Fed for promoting a boom instead of allowing prices to fall, Keynes criticized the Fed for failing to sustain a boom that might, in his view, have continued forever (McCormick 1992, 64).

In making his own practical suggestions for policy, Hayek (1984 [1928], 96-7) favored an "automatic" gold standard to any form of managed money. Instead of faulting gold for failing to maintain a stable price level, as Keynes had done, he faulted it for tending "to stabilize the purchasing power of money even when the general state of supply is changing." The gold standard, in other words, did not allow prices to fall enough! Hayek believed that, despite this shortcoming, "a gold standard ... is unconditionally preferable to a monetary system in which the purchasing power of the monetary unit is maintained as a matter of policy" (ibid., 105; Cf. White 1996, 15, 17).

When the depression began, Hayek (1984 [1932], 118-19) regarded it, not as a by-product of "inherent tendencies of the gold standard," but as a consequence of "persistent and continuous attempts from many sides over a number of years to prevent the gold standard from functioning." He even held Keynes himself partly to blame for the 1929 crisis and the subsequent abandonment of gold (ibid., 120-132): rather than recognize the "futile" nature of the Bank of England's attempt to check deflation following the 1925 decision to restore the pre-war gold standard, Keynes had blamed the Federal Reserve System for "sterilizing" U.S. gold receipts, that is, for not supporting

the Bank of England. The Treatise on Money, according to Hayek, "merely [elevated] to the status of principle the violations of the traditional rules of the gold standard which the Bank of England has been continuously perpetuating for the last six years" (ibid., 128-9).

Although he clearly favored a gold standard over any form of managed money, this fact did not prevent Hayek from considering the theoretical (as opposed to practical) merits of alternative monetary growth (and corresponding price-level) rules.<sup>14</sup> In his writings during the 1920s, Hayek (1984 [1925], 23) recommended a constant money stock--a rule that, had it been put into effect, would have proven far more deflationary than a genuine productivity norm. A constant money stock meant that, not only improvements in real output, but reductions in the velocity of money as well, would be reflected in falling prices. "There is no basis in economic theory," Hayek wrote (1984 [1928], 106), for thinking that the nominal quantity of money should be adjusted in response to changes in the demand for money.

Consistent with this view, Hayek also departed from a genuine productivity norm by not recognizing any need to increase the stock of money in response to growth in the real quantity of factors of production. He insisted that an increase in real output connected to growth in the labor force or the stock of capital should, like increased output stemming from improvements in factor productivity, be reflected in falling output prices and, by implication, falling factor prices as well (ibid., 95).<sup>15</sup>

It is, indeed, difficult to resist concluding that, until 1931, Hayek's policy recommendations embody a general indifference to deflation, whatever its cause. He maintained, for example, that the post-1929 collapse of money prices was a desirable part of the process of reestablishing equilibrium, surpassing even his own severely deflationary monetary policy recommendations by

suggesting that a shrinking money stock was no less acceptable than a constant one. The deflationary bent in Hayek's earlier monetary writings made him a ripe target for criticism, not just from Keynes and his followers, but also from other critics of price-level stabilization, who were prepared to argue for falling prices only to the extent that these reflected corresponding changes in average costs of production.

A similar, deflationary bent is evident throughout most of the first edition of Prices and Production (Hayek 1931). Here, however, Hayek eventually allows two exceptions to his constant money supply "maxim." First, he admits the desirability of changing the quantity of money in response to changes in the "coefficient of monetary transactions" (that is, in the proportion of total transactions requiring payments in money) (ibid., 102-6). Second, and more significantly, he admits that changes in velocity must be compensated by opposite changes in the quantity of money "if money is to remain neutral towards prices" (ibid., 107). It is hard to avoid concluding that at least the latter "exception" to Hayek's constant-money rule was a late addition to an otherwise finished manuscript, reflecting some last-minute second thoughts on Hayek's part: the change in Hayek's thinking may well have resulted from discussions with Robertson, with whom Hayek stayed while making final revisions to his manuscript. Robertson thus appears to have been influential in drawing both Hayek and Keynes towards a productivity-norm middle ground. In any event, the "exceptions" Hayek allows to his constant money stock rule appear to flatly contradict the main message of the rest of his book, which is that the nominal quantity of money should not be allowed to increase in response to changes in the "demand" for money.

Hayek's concessions to monetary accommodation were, however, largely overlooked by critics who instead took his book's early chapters at face value. In his famous reply to Hayek's

review of the Treatise, which he used as an opportunity to criticize Prices and Production, Keynes (1995 [1931], 153) noted, among other things, Hayek's general failure to recognize how savings and investment "can get out of gear" even if "the effective quantity of money is unchanged," and how such a divergence will tend to manifest itself in a changing price level.<sup>16</sup> In his even more unsparring review of Prices and Production Pierro Sraffa (1932, 44) links Hayek's limited concern for deflation to his assumption that prices are "perfectly flexible." According to Sraffa this assumption "allows Hayek to neglect altogether the most obvious [real] effects of a general fall, or rise, in prices." If "perfect" price flexibility is taken to mean that prices adjust instantaneously to their full-information values, Sraffa is of course correct: in a full-information Walrasian framework, any price-level path is as good as the next, so that no basis exists for choosing among alternative monetary policies. Other commentators have implicitly accepted Sraffa's interpretation of Hayek, accusing him of failing to recognize how any argument for some particular monetary policy, including his argument for holding the money stock constant, must ultimately rest on some appeal to price rigidity or imperfect foresight (Hicks 1967, 203-15; Gilbert 1955. Compare Ebeling).

In fairness to Hayek, it is by no means clear that he actually relies on a strict, full-information Walrasian framework. True, his analysis of the business cycle begins and ends in a state of general equilibrium. But Hayek clearly sees the cycle itself as a disequilibrium phenomenon. He recognizes, in other words, that changes in the money stock may be a source of relative price movements inconsistent with a strictly Walrasian model (Hayek 1932, 41-46, 34-51). Yet he also claims his theory to be one in which prices are "perfectly flexible." These seemingly inconsistent claims can be reconciled by observing that, although prices are "flexible" in Hayek's theory, this does not mean that they adjust instantaneously to their long-run, full-information values.<sup>17</sup> Instead of

being determined through tatonnement, money prices respond to expected or realized expenditures, so that trading at "false prices" is not ruled out. Hayek's analysis thus allows for relative price movements in response to short-run monetary distribution or "injection" effects. Such distribution-driven relative price effects--including a temporary reduction of interest rates below their "natural" levels--are responsible for the resource "malinvestments" occupying center stage in Hayek's cycle theory.<sup>18</sup>

In abstracting from price "rigidities" Hayek did not, therefore, rule out the very possibility of monetary disturbances to real activity, justifying in the process any and all monetary policies. Nevertheless the fact remains that Hayek's original ideal of a constant money stock--which appeared to most readers, including Keynes and Sraffa, to be upheld in Prices and Production--was in fact not at all well-suited towards avoiding the kind of nominal disturbances to relative prices that play a central role in his theory of the business cycle. Close consideration of that theory suggests, in fact, that the dislocations of relative prices it entails are most likely to be avoided, not by means of a constant stock of money, but only by means of Hayek's "afterthought" ideal of a constant flow of money income, which is equivalent to a constant stock of money only when money has a constant velocity. This is especially evident in considering the nature of forced savings which, according to Hayek, are the source of capital malinvestments during the boom phase of the cycle. Forced savings are sponsored, not by expansion of the money stock per se, but by expansion of the aggregate demand for factors of production relative to the real supply of such factors. Such an expansion of aggregate demand, based on increased bank lending, at first allows bank borrowers to bid-away resources from other economic agents, but ultimately exhausts itself in the bidding-up of factor prices. An increase in the money stock serving merely to accommodate either an opposite change

in the velocity of money or growth in the real supply of productive factors would not, therefore, sponsor any forced savings. Given that velocity does in fact vary in practice, for Hayek to insist (until the last few pages of his book) upon a policy norm that would work only if velocity were absolutely fixed was, rhetorically at least, a serious blunder.

#### IV.2 After 1931.

Pursuing those "second thoughts" ending the first edition of Prices and Production, and in response to criticisms of that work, Hayek continued to reformulate his monetary-policy ideal. In his 1933 article on "Saving," prepared for the Encyclopedia of the Social Sciences, Hayek further emphasized the desirability of expanding the stock of money to offset "hoarding," including attempts to "hoard" bank deposits:

Unless the banks create additional credits for investment purposes to the same extent that the holders of deposits have ceased to use them for current expenditure, the effect of such saving is essentially the same as that of hoarding [of currency] and has all the undesirable deflationary consequences attaching to the latter (1939 [1933], 165, emphasis added).

In 1935, a second edition of Prices and Production appeared, revised throughout to reflect Hayek's modified thinking. In the preface to this work Hayek apologizes for the "one-sided treatment" found in all save the last several pages the first edition. That treatment, Hayek admitted, effectively "excluded considerations of changes in the velocity of money," thereby giving the false impression that business cycles could only be caused by changes in the money stock "and not by every change in the money stream." In truth, Hayek now wrote, cycles "in the real world are probably caused at least as frequently, if not more frequently, by changes in the velocity of

circulation [of money] than [sic] by changes in the actual quantity" (Hayek 1935, xii-xiii). He therefore felt obliged to reformulate his major policy recommendation by stressing up-front what in the earlier edition appeared only as an afterthought, namely, that "any change in the velocity of circulation would have to be compensated by a reciprocal change in the amount of money in circulation if money is to remain neutral towards prices" (ibid., p. 124).<sup>19</sup>

Hayek continued to insist, nonetheless, "that the simple fact of an increase of production and trade forms no justification for an expansion of credit." The money stock was, in other words, to be expanded in response to downward movements in money's income velocity but not in response to upward movements in real output. Hayek remained as opposed as ever to "the widespread illusion that we have simply to stabilize the value of money in order to eliminate all monetary influences on production" (ibid., 126). He also remained committed to the gold standard, which must have appeared to him even more acceptable than before (when he judged it insufficiently deflationary).

In 1933 Hayek also began to consider the bearing of real-world price "rigidities" upon the proper conduct of monetary policy. The presence of price rigidities, and rigid wages especially, favored a true productivity norm over either a constant  $M$  or a constant  $MV$  policy: unlike a genuine productivity norm, the latter policies would require general changes in money wages in response to changes in the labor force. Hayek now confronted this practical issue (which the first edition of Prices and Production had ignored), observing that "[t]he cases of an increase of productivity of a given supply of factors and of an increase in the supply of these factors [are] fundamentally different":

in a society where population and capital are growing credit expansion could only be avoided

at the price of a continuous fall not only in the prices of consumers' goods but also of the factors of production, i.e., incomes, which would undoubtedly create serious frictions (1939 [1933], 47n, 179-80).

Thus Hayek embraced at last a genuine productivity norm, more-or-less identical to what was being championed at the same time by Hawtrey, Robertson, Pigou, Haberler, Myrdal, and many others (Selgin 1995b). Hayek's new stand was, moreover, one that Keynes had been "ready to fall in with" several years before, in the interest of avoiding "acute controversy." Unfortunately the transformation in Hayek's thinking came too late: the "acute controversy" had already erupted, and the two authors would never again engage in a public exchange of views on monetary policy.

## **V. Keynes' Ultimate Triumph**

While Hayek struggled to soften the deflationary tone of his arguments, moving closer to Keynes in the process, his audience was swept away in the "avalanche" triggered by Keynes's latest theoretical venture (McCormick 1992). Yet the victory of "Keynesian" theory did not prove a victory for Keynes's own monetary policy ideal. The very term "Keynesian" came to represent, not Keynes's own preferred goal of a stable price level, but the more inflationary inclinations of some of Keynes's enthusiastic followers.

Many aspects of this "Keynesian" thinking--including the idea of a stable unemployment-inflation trade-off--would ultimately fall victim to the Monetarist Counterrevolution. An ironic achievement connected with this victory over "Keynesian" thought has been the revival of Keynes's own ideal of internal price-level stability, made more practicable than ever by the move from fixed to floating exchange rates. The irony of this outcome is, however, seldom noted: today's proponents

of price-level stabilization are for the most part self-styled critics of "Keynesian" policies, many of whom are oblivious to the fact that their "zero inflation" ideal is one Keynes himself championed.

Just as ironic is the fact that Hayek himself eventually came to support a zero-inflation ideal. During the last decades of his career, and after having said little on the matter of price-level policy for several decades, Hayek began to distance himself from the productivity-norm: in The Constitution of Liberty (1960, 337) he recommended stabilization of an index number combining prices of both factors of production and final goods--a measure half-way between a productivity norm and zero inflation. Still later, in Denationalisation of Money (1978, 66-70) Hayek joined advocates of zero inflation, quietly abandoning his earlier arguments against such a policy together with the business-cycle theory connected to those arguments: attempts to stabilize the price level in face of productivity changes may lead to forced savings, but the problem is, after all, "of minor practical significance" (ibid., 83; see also White 1998, 17-20). In summary, Hayek came at last to accept a view of optimal price-level behavior that was practically the same as the one he had found wanting in Keynes almost half a century before. As we have seen, Keynes, on the other hand, acknowledged on more than one occasion the merits of a productivity norm, which Hayek had embraced in the early 1930s. The vast chasm that appeared in the 1930s to separate the two economists' views on the optimal price path seems in retrospect to have been a much smaller rift. A more significant difference between their views had to do, not so much with how the price level ought to behave, as with how best to make it behave as desired. The enduring controversy was, in other words, more about means than ends.

## References

- Chick, Victoria. 1983. Macroeconomics After Keynes: A Reconsideration of the General Theory. Cambridge, MA: MIT.
- Ebeling, Richard. N.d. "Reflections on John Hicks' 'The Hayek Story.'" Unpublished.
- Davies, J. Ronnie. 1972. The New Economics and the Old Economists. Ames, Iowa: Iowa State University Press.
- Fetter, Frank W. 1977. "Lenin, Keynes and Inflation." Economica 44.173: 77-80.
- Hawtrey, Ralph. 1933. "Speculation and Collapse in Wall Street." In idem, The Art of Central Banking. London: Longmans, Green, and Co., pp. 41-83.
- Hayek, F. A. 1931. Prices and Production, 1st. Ed. London: Routledge.
- \_\_\_\_\_. 1935. Prices and Production, 2nd Ed. London: Routledge.
- \_\_\_\_\_. 1937 [1929]. Monetary Theory and the Trade Cycle. Tran. N. Kaldor and H.M. Croome. New York Harcourt, Brace. & Co.
- \_\_\_\_\_. 1939 [1933]. "Saving." In Profits, Interest, and Investment. London: George Routledge & Sons, pp. 157-70.
- \_\_\_\_\_. 1960. The Constitution of Liberty. Chicago: University of Chicago Press.
- \_\_\_\_\_. 1978. Denationalisation of Money: The Argument Refined. London: Institute of Economic Affairs.
- \_\_\_\_\_. 1979 [1975]. Unemployment and Monetary Policy. San Francisco: The Cato Institute.
- \_\_\_\_\_. 1984. Money, Capital, and Fluctuations. Chicago: University of Chicago Press.
- \_\_\_\_\_. 1994. Hayek on Hayek: An Autobiographical Dialogue, ed. Stephen Kresge and Leif Wenar. Chicago: University of Chicago Press.

- \_\_\_\_\_. 1995 [1931]. "Reflections on the Pure Theory of Money of Mr. J. M. Keynes." In Bruce Caldwell, ed., Contra Keynes and Cambridge (vol. 9 of The Collected Works of F. A. Hayek), pp. 121-46.
- Hicks, John. 1967. "The Hayek Story." In idem., Critical Essays in Monetary Theory. Oxford: Clarendon, pp. 203-15.
- Hutchison, T.W. 1977. Keynes Versus the Keynesians' ...? London: Institute of Economic Affairs.
- Gilbert, J. C. 1955. "Changes in Productivity and the Price Level in a Closed Economy." Yorkshire Bulletin of Economic and Social Research 8: 61-79.
- Keynes, John Maynard. 1919. Economic Consequences of the Peace. London: Macmillan.
- \_\_\_\_\_. 1940. How to Pay for the War. London: Macmillan, 1940.
- \_\_\_\_\_. 1930. A Treatise on Money. New York: Harcourt, Brace.
- \_\_\_\_\_. 1923. A Tract on Monetary Reform. London: Macmillan.
- \_\_\_\_\_. 1936. The General Theory of Employment, Interest and Money. London: Macmillan.
- \_\_\_\_\_. 1983. The Collected Writings of John Maynard Keynes, ed. Donald Moggridge. London: Royal Economic Society.
- \_\_\_\_\_. 1995 [1931]. "The Pure Theory of Money: A Reply to Dr. Hayek." In Bruce Caldwell, ed., Contra Keynes and Cambridge (vol. 9 of The Collected Works of F. A. Hayek), pp. 147-58.
- Leeson, Robert. 1997. "The Eclipse of the Goal of Zero Inflation." Forthcoming in HOPE.
- Leijonhufvud, Axel. 1968. On Keynesian Economics and the Economics of Keynes: A Study in Monetary Theory. New York: Oxford University Press.
- Leijonhufvud, Axel. 1981. Information and Coordination: Essays in Macroeconomic Theory.

- New York: Oxford University Press.
- Meltzer, Allan H. 1988. Keynes's Monetary Theory: A Different Interpretation. Cambridge, U.K.: Cambridge University Press.
- McCormick, B.J. 1992. Hayek and the Keynesian Avalanche. New York: St. Martin's.
- Robertson, Dennis. 1915. A Study of Industrial Fluctuations. London: Aldwych.
- \_\_\_\_\_. 1926. Banking Policy and the Price Level. London: P.S. King & Son.
- \_\_\_\_\_. 1928. Money. 3rd ed. Cambridge, U.K.: Cambridge University Press.
- Selgin, George. 1995a. "The Case for a 'Productivity Norm': Comment on Dowd." Journal of Macroeconomics 17.4: 733-40.
- \_\_\_\_\_. 1995b. "The 'Productivity Norm' vs. Zero Inflation in the History of Economic Thought." HOPE 27.4: 705-35.
- \_\_\_\_\_. 1997. Less than Zero: The Case for a Falling Price Level in a Growing Economy. London: The Institute of Economic Affairs.
- Skidelsky, Robert. 1992. John Maynard Keynes, vol 2: The Economist as Savior. London: Macmillan.
- Sraffa, Pierro. 1932. "Dr. Hayek on Money and Capital." Economic Journal 92.1: 42- 53.
- White, Lawrence H. 1998. "The Evolution of Hayek's Monetary Economics." Forthcoming in the Journal of Money, Credit, and Banking.

### Notes

1. See J. Ronnie Davies (1972).
2. Many of the above-named writers, including Hawtrey, Pigou, and Robertson, "converted" to the productivity norm only in the 1930s, having been advocates of price-level stabilization beforehand.

Francis Edgeworth, Robert Giffen, Alfred Marshall, and David Davidson were some of the more important, earlier proponents of a productivity norm. For details see Selgin (1995b).

3. Zero inflationists writing in the 1930s were somewhat less inclined than their counterparts today are to distinguish the effects of anticipated price level movements from those of unanticipated movements. In part this stance may reflect the relative unimportance of secular price level movements at the time their writings appeared; but it also reflected a heavy emphasis on nominal rigidities. In the presence of such rigidities, the real consequences of anticipated, equilibrium price level changes differ in degree only, rather than in kind, from those of unanticipated changes. Similar appeals to nominal rigidities must also underlie modern arguments for zero inflation also.

4. Selgin (1997) offers a modern defense of the productivity-norm view.

5. See, for example, Keynes's 1912-1914 lecture notes on money, where he observes (1983, vol. 12, 717-18) that "unforeseen changes in the price level...lead to miscalculation, and miscalculation to waste." Keynes adds, significantly, that "There is no sufficient ground for preferring rising prices to falling prices, and even some reasons [sic] for thinking the latter to be preferable."

6. As Frank W. Fetter (1977) first showed, the quoted passage does not actually occur in Lenin's published works.

7. "Ideal," that is, for any individual country. In forming his final policy recommendation Keynes (1930, v. 2, 338) felt obliged to forego "the ultimate good" of separate and autonomous national Consumption Standards in light of the fait accomplis of a revived international gold standard and the "frontal attack on the forces of conservatism" that any proposal to do away with it would involve. As a less-radical compromise, Keynes proposed an International Standard involving only prices of internationally traded goods (ibid., v. 2, 337-8 and 388-94). Such a compromise, Keynes believed, might prepare the way for "the management of the value of gold by a Supranational Authority, with

a number of national monetary systems clustering round it, each with discretion to vary the value of its local money in terms of gold within a range of (say) 2 per cent" (ibid., 338 and 395-405); but this international scheme presupposing the continuation of an international gold standard of some kind should not be allowed to obscure the fact that Keynes's first-best ideal had not changed since the Tract. As if to settle any doubts about this, Keynes writes, in the preface to his Essays in Persuasion (1931, vi, note), that "any one who wishes to know the general outline of how the author would settle our currency Problem, as it presents himself to-day" (when gold payments had once again been suspended) could find it in his 1923 essay on "Positive Suggestions for the Future Regulation of Money" (ibid., 213-19). This essay reproduces the concluding chapter of the Tract, including its view that money should be managed "with a view to maintaining, so far as possible, the stability of the internal price level."

8. Unlike Keynes, Hayek insisted that "forced saving" could only sponsor temporary changes in the stock of capital, the eventual reversal of which would mark the downturn phase of the business cycle. Interestingly, Keynes had once criticized Robertson's (1915) Study of Industrial Fluctuations along similar lines. In the General Theory Keynes (1936, 328) appears to reject the concept of forced savings. But, as Victoria Chick (1983, 238) has observed, this apparent change of heart actually represents "not so much an argument against the proposition" but a belated reaction to the negative normative connotations of the word "forced."

9. In a March 1930 letter to Keynes, reacting to the page proofs for the Treatise, Robertson observed that he "did not see how to reconcile" Keynes's claim that price-level stability implied equality of planned saving and investment with Robertson's "conviction that a policy of stabilizing prices when efficiency increases involves forced saving, whatever its other merits" (Keynes 1987, 123).

10. Keynes (1936, 289). Here Keynes treats "money-wages," aggregate "expenditures," "effective demand," and "MV" (where V stands for income-velocity) as closely-related if not identical measures.

11. And also, Keynes believed, for an open one, assuming flexible exchange rates. Keynes goes on to observe that "There are advantages in some degree of flexibility in the wages of particular industries so as to expedite transfers from those which are relatively declining to those which are relatively expanding. But the money-wage level as a whole should be maintained as stable as possible."

12. Keynes here attempts to minimize the significance of any choice between the two alternatives in question by implicitly assuming that all changes in productivity and related changes in wages or the price-level are "slow" and, hence, easy to anticipate. A more complete approach would take into account the possibility of productivity "shocks."

13. "During the war," Hayek has observed (1994, 91), "I was fighting on Keynes's side against his critics, because Keynes was very much afraid of inflation." Among the critics were such "Keynesians" as Richard Kahn and Joan Robinson. On "Keynesians'" abandonment of the zero inflation norm see Leeson (1997).

14. At times, though, Hayek appears to reject any price-level ideal for monetary policy. For example, he remarks that "an index of the general price level cannot yield any relevant information as to the course of the cycle" (1984 [1925], 17). Keynes, interestingly, makes similar remarks in both the Treatise and the General Theory (e.g. 1936, 41-3).

But to reject an explicit price-level rule or target for monetary policy is not to deny that any chosen policy must imply some definite price-level path. Thus, although Hayek may have had good

reason for preferring a money stock ( $M$ ) or money-income ( $MV$ ) target for monetary policy, any such target necessarily implies some corresponding pattern of price movements. It is this pattern I have in mind in discussing and assessing Hayek's views concerning "how the price level ought to behave."

15. Instead of offering any convincing defense of this view, Hayek merely makes the trite observation that the case in question is one in which "an equilibrium will emerge only with the establishment of a quite particular set of relative prices."

16. Keynes observes here that, "costs of production being unchanged," a changing price level "merely redistributes purchasing power between those who are buying at the changed price-level and those who are selling at it, as compared with what would have happened if there had not been a change in the relation between savings and investment" (1995 [1931], 153). Note the qualifying phrase, which in effect suggests that changes in the price level do not necessarily imply any saving-investment inequality and consequent redistribution of income (forced savings) under conditions of changing productivity.

17. The argument here is identical to Leijonhufvud's (1983, 5) response to the claim that the General Theory depends on "rigid" wages: "The strong assumption of 'rigid' wages is not necessary... It is sufficient to give up the equally strong assumption of instantaneous price adjustments."

18. Contemporary theorists, in equating perfectly anticipated changes in  $M$  with neutral changes, neglect to allow for the difference between  $M$ -changes driven by a general anticipation of higher prices, so that they impinge uniformly on all markets, and  $M$ -changes that are merely anticipated.

19. One might, of course, agree with the last statement without accepting Hayek's newfound understanding of the empirical importance of changes in velocity relative to that of changes in the nominal quantity of money.

