Optimal Monetary Policy

Jörg Guido Hülsmann

Ends and Means of Monetary Policy

Mainstream writings on monetary policy typically focus on the goals that are assumed to be the goals of monetary policy makers. Inflation targeting, employment, equilibration of the balance of payments, growth targets for monetary aggregates, the stabilization of exchange rates, GDP, or asset prices—these and similar goals for monetary policy are discussed in more or less detail in present-day textbooks. When it comes to the *means* by which these ends are to be reached, the discussion stops altogether and gives way to a description of the technicalities of open market policies, discount rates, reserve requirements, and so on.

In the present article, we will neglect these technicalities of monetary policy and focus on ultimate means and ends. The rationale for this procedure is twofold.

On the one hand, ends such as inflation targeting and growth rates of monetary aggregates are not ultimate, but intermediate ends. The tacit understanding is that they are more or less closely related to the attainment of the ultimate end—the reduction of scarcity (increase of "prosperity" or "wealth"). Our approach allows us to sidestep the discussion of the validity of this tacit understanding. We will directly address the more fundamental question to what extent monetary policy can and does affect the wealth of the community of money users at all.

On the other hand, the focus on ultimate means allows us to study monetary policy from a far more general point of view than is usually done. In particular, it allows us to interpret the institutional framework of money production as one of the means of monetary policy, and to compare different institutional set-ups. Our approach takes it for granted that central banks, the IMF, the World Bank, and other national and international monetary organizations are not ultimate givens, but creatures of the human will. They are *means* of monetary policy in the fundamental sense in which we understand this word. And as mere means to an end, rather than ends in themselves, they can be compared to other institutional arrangements that are supposed to attain the same ultimate end of reducing scarcity.

Accordingly, we will first study money production on an unhampered market. Then we will turn to the question whether politically induced changes in the money supply are suitable to bring about a *further* reduction of scarcity as compared with the free market. We will conclude that this is not the case. Quite the contrary, such changes actually *aggravate* the situation. Therefore the only logical alternative of politically induced changes in the money supply, namely, *laissez-faire*, is the optimal monetary policy.

Jörg Guido Hülsmann is a senior fellow of the Mises Institute. A previous version of this paper was presented in March 2003 at the Austrian Scholars Conference. He is grateful for comments from Dan Mahoney, Per Hansen, Atilla Antero, and Nikolay Gertchev.

THE QUARTERLY JOURNAL OF AUSTRIAN ECONOMICS VOL. 6, NO. 4 (WINTER 2003): 37-60

It might be objected from the very outset that this approach cannot possibly warrant the conclusion it is supposed to yield, because the focus on the production of money is far too narrow to do justice to the complex issues involved in monetary policymaking. But this objection would miss the mark. The production of money is the essential means of monetary policy, even if we understand monetary policy in the conventional sense of "decision-making by monetary authorities." Nobody contests the importance of the money supply for monetary policy in this sense. Admittedly it can be a tricky task to define monetary aggregates that are most relevant from a political point of view. But this does not alter the fact that manipulating the money supply is the main vehicle of conventional monetary policy. Indeed, *quite irrespective of the goals of monetary policy, there are only two types of means available to the policy maker*.

The first type of means is monetary interventionism—in particular, price controls in the form of domestic price caps or of foreign exchange controls. It is well-known that these means are abortive. Just as price controls in any other market, they do not solve the problem they purport to solve, but merely stifle the market process and the ability of the members of society to adapt to changing circumstances (Mises 1998, chaps. 30–31; Rothbard 1993, chap. 12). We therefore do not have to deal with them now.

The second type of means consists in changing the money supply. This is most obviously the case when the policy of the monetary authority consists in targeting a certain money aggregate (money supply growth rules). But it is also the case when the authority targets a certain inflation rate, or a certain interest rate, and so on. The simple but important truth is that, whenever monetary policy does not command the other market participants to behave in a certain way (interventionism), it has no other means but to change the money supply.[1] In short, *noninterventionist monetary policy in all cases boils down to changing the money supply*. The main reason why this fact is usually not perceived with the necessary clarity is the somewhat exaggerated emphasis that professional monetary economists place on discussing the various possible ends of monetary policy, as well as the various techniques used to change the money supply (open market operations, bank reserve requirements, discount policy, and so on).

Our focus on the production of money is therefore hardly inappropriate to answer the question whether *laissez-faire* is the best monetary policy. Notice that the present study differs from previous works not only through its focus on the production of money. We also take the case of money competition—parallel production and use of several monies—to be the rule rather than an exception on the free market.[2] This approach will prove to be very useful in analyzing "hard cases" such as deflation and the flight from money.

---

[1]We use the term "interventionism" in the narrow sense in which Ludwig von Mises (1977, p. 20) has used it. Murray Rothbard used the term in a larger sense, which includes the government production of money. See for example Rothbard (1977).

[2]In this way we go beyond our own previous study on money competition, in which we had espoused the conventional approach of first analyzing the use of only one kind of money—monopoly money, or "standard" money as it is commonly called—and only in a second step introduced the use of other monies (Hülsmann 1996). In the light of the present study it will appear that the conventional approach makes a comparatively weak case for monetary laissez-faire. Notice that, while other studies of Austrian inspiration (White, Dowd, Selgin, and others) also purported to deal with "currency competition," these works did not deal with our present subject, the production of *money*, but with the production of money substitutes. On the important differences between money and any substitution, see Mises (1980, pp. 63ff.).

The Production of Money on the Free Market

In order to put our analysis into proper perspective, it is useful to first study the main characteristics of unhampered money production. The unhampered market economy is defined by the absence of legal restrictions that prevent the citizens from using their property to produce money or money substitutes. On a free market, each market participant freely chooses to enter, or not to enter, the money production business. Everybody may try to mint and coin precious metals, and everybody may try to produce and offer other things for employment in indirect exchange.

The production of commodity money such as gold is then determined by the same facts that constrain the production of any other good. Gold money will be produced to the extent that this production yields a sufficient return, that is, to the extent that there is a sufficient spread between the quantity of product (in ounces of gold) and the quantity of gold expenditure (in ounces of gold) on the factors of production, in particular, on labor services. Now this spread is in turn determined by the demand for all other goods. Suppose that consumers spend more money on shoes and that there is therefore an incentive to increase the production of shoes. The shoe producer can increase production only if he bids labor and other factors of production away from other businesses, such as the production of gold coins. The shoe producer can offer higher prices for these factors because his selling receipts increase, and as a consequence the other firms will have to cut back production.

In short, on a free market the production of money is constrained within the limits set through voluntary cooperation between the members of society. No other considerations come into play. In particular, for purely technical reasons there is no such thing as monetary policy in the conventional sense. The quantity of paper money can be profitably increased at the whim of its producer, because he produces at virtually zero cost. By contrast, increasing the quantity of commodity money entails significant costs and is therefore much more limited. Additional quantities will be produced only if consumers can be expected to patronize this increase more than increased quantities of the other goods that could also be produced with the same factors of production.

Although on a free market, any person could try to produce paper money, there are compelling reasons to assume that the production of money on a free market would in practice boil down to the mining and coining of precious metals, the physical characteristics of which make them more suitable as media of exchange than all other commodities. Theoretical analysis and historical experience both tell us that this will be the case. Paper money is unsuited to withstand the competition of the precious metals. The essential reason for its inferiority is that it does not attract a nonmonetary demand (Hülsmann 1996, pp. 293–99, 307; 2000, pp. 428–30).

Currency competition on a free market would thus be confined to the competition between precious metals. Here the relative scarcities of the various known metals play an important role in conjunction with certain technological constraints. Suppose that the entire economy uses gold coins for its monetary exchanges, and that silver and copper are used only for ornamental purposes. Now suppose further that the economy grows and that as a consequence the purchasing power of gold constantly increases. There will come a point at which it is no longer convenient to produce and use gold coins that are sufficiently small to be used as payment in small transactions, such as paying for a cup of coffee or for a hair cut.

One solution to overcome this difficulty is the use of gold substitutes, such as tokens. We can for example imagine that a firm issues paper notes, or coins made out of plate, or some other type of signs made out of cheap material, to represent very small quantities of gold—too small to be handled in the form of gold coins. The issuer holds the corresponding quantities of gold, and he will surrender gold upon presentation of

those tokens once a sufficiently great number of them are presented for redemption. Such systems have proven their expediency in many historical cases, for example, in U.S. mining towns in the nineteenth and twentieth century. Still the use of token money is expedient only within fairly narrow limits, because of two disadvantages: it invites counterfeiting, both by the issuer himself and by other people, and it entails the additional costs of token production.

Another solution is to use a different metal, the purchasing power per weight unit of which makes it expedient to use coins made out of this metal for buying and selling those goods that can no longer be conveniently exchanged for gold. Let us therefore assume that some market participants start using silver coins in small transactions, and that other market participants imitate this successful behavior. As a consequence, our economy would use two monies—gold and silver—that freely circulate in parallel and overlapping networks. At least at the beginning, the gold network would probably be much larger, and silver coins would be used only in those less frequent cases in which neither gold tokens nor gold coins would be convenient.

If economic growth continues, the substitution process would replicate itself, both in the higher and in the lower echelon of money prices. Thus, at one point silver too might have such a high purchasing power that small transactions could no longer be made in silver coins. The market participants then might decide to use copper coins for these small transactions, thus layering a network of copper exchanges over the already existing networks of gold and silver exchanges. Meanwhile, gold coins could have such a high purchasing power that they might be unsuitable for most daily transactions. In this case, silver coins will replace them as the most widely circulating medium of exchange; the gold coins would be used only in transactions involving very expensive goods; and copper coins would be used predominantly in transactions involving goods of a very small value.

This is how the growth and decline of the economy determine the competition between different monies. And a similar role accrues of course to the production of additional quantities of these monies. On the one hand, in our above example, the production of additional quantities of gold would delay the substitution process, and so would the production of additional quantities of silver and copper. On the other hand, the production of additional quantities might reach such an extent that the metal would be unsuitable to be used in indirect exchanges. If gold were as common as iron, so that a wagonload would be needed to pay for a suit, it would not be used as a medium of exchange. Long before this happens, some other precious metal would replace it.

But however many currencies would be used on a free market, in any case the production of each of them would be narrowly circumscribed, as we have said, within the limits given through consumer preferences. The production of money, and the use of money, would be subject to the very same laws that apply to the production and use of all other goods. On a free market, consumers are the ultimate arbiters of all investment decisions. By buying and by abstaining from buying, they determine the profitability of each line of production. Capitalists would therefore *produce* any kind of money up to the point at which they expect it to no longer be profitable, and then invest all further resources into the production of other goods. And people would *use* any kind of money—that is, own it—so as to maximize the subjective value of their portfolios. If they found they owned too much gold, they would sell the superfluous gold for other things that for them have a higher value (for example, they would sell it for other kinds of money, or for other "real" goods and services). Thus the use of money follows the same principle that governs the use of all other goods: we only own it to the extent that it does not prevent us from owning other goods that for us are more important.

THE NONUTILITARIAN CASE FOR MONETARY *LAISSEZ-FAIRE*

So far we have described how money would be produced on a free market. We were only concerned with the purely factual description of how the system works. In particular, we left out all questions pertaining to the political evaluation of its workings, that is, to the question of whether monetary *laissez-faire* is a good or a bad thing. To this question we now turn. In the present section, we will briefly deal with the nonutilitarian case for laissez-faire in the production of money. The remainder of our study will then take on the utilitarian considerations that here come into play.

The first thing to notice is that the political evaluation of monetary order must be cast in terms of alternatives. It would for example be pointless to argue that monetary laissez-faire was deficient from some absolute point of view, if we lacked a better alternative system that we could put in its place. The relevant consideration is how the free-market production of money *compares* to other monetary regimes.

A second preliminary observation concerns the choice of the standard of comparison. What should be the *criterion* in the light of which the comparison should be made? More importantly, *who* should decide what the criterion should be? The usual approach is to take the judgments of the members of society as an ultimate arbiter. But if we follow this approach, we very quickly reach insurmountable limits because of the ubiquity of conflicts of interest. For example, it is one thing to state that the production of additional quantities of gold delays the substitution of gold by silver. It is quite a different thing to conclude that the production of additional quantities of gold is a good thing. We might grant that the present users of gold coins are interested in maintaining a large network of gold exchanges. But they are *also* interested in maintaining the purchasing power of their present cash balances, and further gold production would reduce this purchasing power below the level it would otherwise have reached. Moreover, one must not ignore the silver producers and silver coin users. These people could be said to have an interest in a more limited production of gold, because in a growing economy this would speed up the substitution of silver for gold, thus enlarging the network of silver exchanges and increasing the purchasing power of their present cash holdings.

Economic science cannot settle the conflicts of interest between these different individuals and groups. There is no common denominator of all individual interests that would allow us to make judgments about aggregate welfare, to the effect that, for example, it would be better to have a larger rather than a smaller quantity of gold or silver or any other medium of exchange. The fundamental problem of trying to make economic reasoning the arbiter in such conflicts is that we would have to weigh and add and subtract individual values. But this approach has no scientific basis at all.

Many Austrians therefore adopt a different approach to tackle policy questions in a context of conflicting interests. They hold that the only defendable welfare criterion is the respect of property rights, because this criterion alone can be justified without self-contradiction.[3] If we apply this criterion to the production of money, then the number of monies spontaneously chosen by the market participants, whatever this number may be, is the optimal number, because the market economy is *defined* as the

[3]See Hoppe (1989, 1987). See also Rothbard (1998, 1997). Rothbard's early work on welfare economics followed a different approach, arguing that the market process is inherently optimal because all parties engaged in exchanges "demonstrate," by the very fact that they exchange, their preferences. See Rothbard (1956). But this argument does not hold water because Rothbard merely assumes that only the use of one's property "counts" in demonstrating one's preferences. The point is to prove the pertinence of this assumption; it cannot be simply taken for granted.

totality of social interaction premised on the respect of private property rights. For the same reason, whatever the quantity produced of any of these monies in a free market is the optimal quantity.

The optimality of monetary *laissez-faire* in the above sense must not be confused with the question whether individuals can produce or hold too much, or not enough, money. Market participants can err and do err when using money, just as they commit errors when using any other good. Notice however that each market participant has strong incentives to avoid error and to produce and use the optimal number of monies. These incentives are lacking when money production is under political control.[4]

The Utilitarian Case For Monetary *Laissez-Faire*

What we have said so far coincides with the conclusions reached in the best treatises on monetary economics, which approach our problem from a utilitarian perspective. Economists from David Hume onward have emphasized that the quantity of money is irrelevant for the wealth of a nation. It is true, however, that Hume and most other economists have defended this proposition with all sorts of qualifications. Only a handful of economists including John Wheatley, Ludwig von Mises (in his mature works) and Murray Rothbard have defended it categorically and consistently.[5] Says Mises: "The quantity of money available in the whole economy is always sufficient to secure for everybody all that money does and can do (Mises 1998, p. 418)."[6] Even more so than Mises, Rothbard recognized the central importance of this point, which made it in fact an axiom of the theory of money. In Rothbard's words: "One of the most important economic laws, therefore, is: *Every supply of money is always utilized to its maximum extent, and hence no social utility can be conferred by increasing the supply of money*" (Rothbard 1993, p. 671; 1990, p. 34; 1983, p. 45). In Rothbard's eyes, the free-market production of money conveyed no *monetary* benefits, but it served the non-monetary demand for the metals used as money. Therefore, he concluded, the free-market production of commodity money was always optimal.[7]

---

[4]For a general discussion of the comparatively superior ability of the market process to bring *ex ante* plans in line with *ex post* realities, see Rothbard (1977, chap. 2).

[5]See Wheatley (1807, chaps. II and III, esp. pp. 35–48). The first chapter of this neglected book contains a brilliant critique of the monetary thought of David Hume, Adam Smith, and James Steuart. For an overview of some of the fallacious monetary arguments that plagued classical economic thought, see Gertchev in the present issue. Today the fundamental insight that the nominal size of the money supply is irrelevant for aggregate wealth lives on in the tradition inspired by Mises. See, for example, Salin (1990, 1991), Reisman (1996), and Huerta de Soto (1998)

[6]In his *Theory of Money and Credit*, Mises had taken certain exceptions to the principle that the money supply is irrelevant. Thus he argued that decreases of the price level were likely to entail "convulsions" (1980, p. 359) and unnecessary production of commodity money (p. 333). He also argued that fiduciary media could spur the accumulation of capital (p. 388).

[7]Rothbard (1990) says:

> We conclude, therefore, that determining the supply of money, like all other goods, is best left to the free market. Aside from the general moral and economic advantages of freedom over coercion, no dictated quantity of money will do the work better, and the free market will set the production of gold in accordance with its relative ability to satisfy the needs of consumers, as compared with all other productive goods. (pp. 34–35)

We have seen that this argumentation is slightly incorrect because technological constraints (convenient coin size) determine currency competition too. But to the extent that we may abstract from these physical constraints, the Rothbardian position is unassailable. A higher money supply goes in hand with higher money prices, whereas a lower quantity goes in hand with lower prices. But the level of money prices has absolutely no impact on aggregate production. At a higher level, entrepreneurs enjoy higher selling prices, but their buying prices are higher too. And similarly, at a lower level of money prices, both selling *and* buying prices are low and therefore do not affect the economic success of production.[8] Increases and decreases of the quantity of money do affect the wealth position of individuals and groups relative to one another. But they do not cause an increase of aggregate wealth and of aggregate production beyond the level it would otherwise have reached.

Hence, if we disregard the technological constraints of coin production, changes in the quantity of money do not *alleviate* scarcity within society. And neither do such changes *aggravate* scarcity. To facilitate monetary exchange, there is no reason to prefer any one money supply to another. A constant money supply is not superior, nor inferior to an increasing or to a decreasing money supply.[9]

And if we do take account of the technological constraints of coin production, as we have done above, the conclusion remains the same. To facilitate indirect exchange, it is not necessary to violate the property rights of the market participants through legal tender laws and other institutions, in order to produce a different quantity of money from the one that would have been produced on the free market. Any such policy does not facilitate indirect exchange. At the very best, it boosts the use of one type of money at the expense of other types of money. And it always entails a distribution of resources that differs from the one that would have resulted from the voluntary interaction of the members of society.

To sum up, money production is subject to the same constraints as all other branches of production, constraints that ultimately spring from the value scales of the individual market participants, who consent or do not consent to cooperate. From this point of view, the free market production of money is inherently optimal, irrespective of the number of monies and of their relative quantities. The relevant question is therefore not: *How much* money should be produced? The question is: Are there any legal restrictions that hamper the competitive production of money? And as stated above, there seems to be no economic reason for the establishment or maintenance of such restrictions. Any number of monies spontaneously chosen by the market participants is, at any rate from an *ex ante* point of view, the optimal number, and any quantity produced of any of these monies in a free market is the optimal quantity.

Let us now examine the utilitarian considerations that are typically brought forward against monetary laissez-faire. The problem we have to deal with boils down to the following question: Are there any benefits to be derived from a political manipulation of the production of money? In other words: To what extent could it be expedient to violate individual property rights, in order to bring about changes in the

---

[8]Jean-Baptiste Say has illustrated this point with a famous mental experiment that still serves its pedagogical purpose: Imagine two market economies that are exactly alike, with the sole exception of the quantity of money that is being used. And assume that economy *A* uses twice as much money as economy *B*. In this case, Say argued, the money prices in *A* will be exactly twice as high as the money prices in *B*. Now, the point is that this does not affect the wealth of the nation, and it does not even affect the relative economic status of each individual. Whether we have more money or less is ultimately irrelevant (Say 1841, p. 248). See also Wheatley (1807, p. 37).

[9]For a refutation of the view that increases in the money supply, *per se*, entail business cycles, see Hülsmann (1998).

money supply that differ from those that would have been obtained on a free market? If we find that such infringements of property rights merely benefit one group of individuals at the expense of other individuals or groups, we will have to deny any overall benefits. Such benefits could be said to exist only if politically induced changes in the money supply do in fact reduce scarcity.[10]

Space limitations compel us to deal only with the main arguments leveled against our tenet that all quantities of money produced in a free-market context are equally optimal. We will first examine the question whether politically induced changes in the quantity of money do have any *direct* benefits, and then turn to their alleged *indirect* benefits.

Does printing more paper money reduce, by itself, the scarcity of resources? To raise the question is to answer it. Printing more paper tickets does not make us richer than we otherwise would be, because our welfare does not depend on the quantity of money we use, but on the quantities of real goods that can be purchased with this money. The simple fact is that *printing money is not identical with producing goods that can be purchased with this money*. Additional money does not make the nation of money users better off than it would otherwise have been. If it were otherwise, we would long since have reached Nirvana. The incontestable fact is that printing more paper money *is not* the same thing as producing more of the nonmonetary goods that are offered in exchange for money. It follows that the production of money is in any case not a *direct* cause of those other goods.

Thus the only question is whether there are any *indirect* causal relationships between these two magnitudes. The remainder of our study will examine this question in some detail. Let us notice from the outset that the utilitarian rationale for monetary policy ultimately hinges on an affirmative answer to it. If changes of the money supply cannot even indirectly be of any benefit for society, then there is no use for monetary policy at all, and we would do well getting rid of the institutions in charge of monetary policy as quickly as possible.

Before we proceed, let us, only for the sake of completeness, raise the question of whether monetary policy could be justified in terms of purely *accidental* causal relationships. The answer to this question is patent. If changes of the money supply brought about positive consequences by mere accident, so that negative consequences were as likely to follow from the policy of changing the money supply, it would be meaningless to speak of monetary policy at all, and central banks and other authorities in charge of it should be abolished at once.

THE BENEFICIAL-DISTRIBUTION FALLACY

Our analysis of money production on a free market led us to the conclusion that any quantity of money that comes into existence without infringement of other people's property rights is the optimal quantity under given circumstances. Now let us hasten to point out that this statement must not be confused with the claim that free-market money would be optimal in the sense of being somehow "neutral" with regard to the market process. Changes in the money supply always and everywhere have a permanent impact on the real economy, irrespective of whether those changes result from the market process itself or are politically induced.

In short, changes in the money supply have a real impact, both in the short run *and* in the long run, and this impact exists quite independent of whether the market

[10]Historically, the most important institutions designed to induce political changes of the money supply were (1) paper money (protected by legal tender laws and other monopolistic charters) and (2) fraudulent fractional reserve banking (protected by chartered central banks, legalized suspensions of payments, and paper money).

participants are smart enough to anticipate the ongoing changes in the quantity of money. This is so because changes of the money supply modify the *distribution* of wealth within society.[11] An increase of the quantity of money benefits the individuals who receive the new money units first, because their monetary income increases relative to that of their fellow citizens. In their capacity as consumers and entrepreneurs, they can now bid away consumers' goods and factors of production from other members of society. Those who are last in line in this process are impoverished relative to the wealth they would have had without the increase of the quantity of money. And similarly, a decrease of the quantity of money harms those who first suffer from this decrease, because their monetary income diminishes relative to that of the other market participants.[12]

Now it is conceivable that the money-induced redistribution process will turn out to benefit the best entrepreneurs of the nation. This possibility has been stressed in the doctrine of forced savings.[13] If the redistribution works out to the advantage of those who are best at investing the available resources, then their decisions will have greater weight than they otherwise would have had. Inversely, the decisions of all other people, who are comparatively poor investors, would have less weight than otherwise. Thus the increase of the money supply has a positive net impact.

However, there is no such thing as a mechanism according to which a money-induced redistribution process automatically benefits the best entrepreneurs. There is no reason why an increase of the money supply, as such, should not entail exactly the opposite result, namely, benefiting the less competent at the expense of the more competent entrepreneurs. Inflation-induced forced savings are therefore nothing but a pleasant accident of history. It is a fallacy to elevate the merely accidental connection between inflation and increased production into a principle of monetary policy. The distribution effects of money alleviate scarcity only accidentally.

If anything, we have good reasons to assume that the money-induced redistribution process would usually benefit the less competent at the expense of the more competent entrepreneurs. This is so especially when the production of money is under political control, such as in a central banking system. There is an overwhelming incentive for paper money producers to finance the welfare state and the warfare state with the printing press. After all, it owes its monopoly privileges to the very state that calls on it in times of financial distress. Similarly, which entrepreneurs are more likely to depend on a paper money producer to finance their ventures—competent or incompetent entrepreneurs? The answer seems to be obvious. For highly profitable firms it is

---

[11]Notice that this is a common feature of all changes in society. Any change in the quantity of any good affects the relative wealth positions of all individual market participants. The man who produces and sells new chairs thereby increases his money income relative to the money incomes of all other market participants. The payments he receives are deflected from the payments other market participants could have received for their products. The latter are now forced to sell at lower prices than they otherwise could have realized, that is, which they could have realized in the absence of the new chair production.

[12]The first economist to stress these distributive issues related to changes in the money supply was Richard Cantillon (2001). Subsequent authors such as David Hume, J.S. Mill, and J.E. Cairnes noticed that new quantities of money spread throughout the economy in a time-consuming process, but they tended to downplay or ignore the permanent changes induced by this process. In their view, changes in the quantity of money had no long-run real effects. It was Ludwig von Mises (1912, pp. 222ff.) who rediscovered Cantillon's important insight.

[13]Advocates of the doctrine were, among many others, Mises (in the *Theory of Money and Credit*, not in *Human Action*), Josef Schumpeter, and Friedrich A. Hayek. For the history of this doctrine, see Hayek (1939). Mises (1998, pp. 548f.) seems to use the term in a slightly different meaning.

easy to attract sufficient support from capitalists. Only firms operating at a loss, or ventures that offer a very unlikely promise of future profits, truly need redistribution in their favor through the printing press. Hence, there are compelling reasons to believe that the political control of the money supply will tend to benefit the incompetent rather than the competent members of the nation.

The Motivation Fallacy

According to this argument, market participants will work more and/or harder when motivated through rising selling prices. Because paper money producers can very easily bring about such an increase by printing more money tickets, they can stimulate aggregate production. This holds true at least in the short run, that is, in the period during which the additional money spreads through the economy. Luminaries such as David Hume (1985, pp. 286f.) have endorsed this argument. But it is liable to fundamental objections.

In virtually all cases, the additional money is first sold to only a part of the market participants. We may grant that these people will be enthusiastic to obtain higher prices for the goods they sell, and thus set out to produce even more. They buy more factors of production and produce greater quantities than before. However, this comes necessarily at the expense of other entrepreneurs, who can no longer compete with the former on the factor markets and who will therefore produce less and who will—on equal psychological grounds—be discouraged. In short, the additional money would destroy as much motivation and labor on the one hand, as it would entail on the other hand.

Assume now for the sake of argument that all market participants *simultaneously* receive an aliquot share of the increased money supply, in the form of increased prices for their products. In this case, all factor prices would be bid up instantaneously, and again no increase of aggregate production would take place. One could argue that the increased nominal demand would attract certain quantities of "idle" resources that would not otherwise have been offered for sale. However, this would be the case only if the owners of these resources *under*estimated the decrease in purchasing power of money that results from the increase of the money supply.[14] If they *over*estimated it, more resources would lay "idle" as a consequence of the increase of the money supply than would otherwise have been the case. In short, there is again no systematic causation at stake—only accidental causation, which, as we have observed, is irrelevant for the justification of monetary policy.

A motivation theorist à la Hume could still argue as follows: Granted that the increased selling prices would not allow our entrepreneurs to buy more factors of production. But would this price increase not at the very least prompt *them* to *work* more and/or harder than before?

There are three difficulties with this argument. First, it is not at all plausible that entrepreneurs should delight in contemplating the mere level of their selling prices, without relating them to buying prices. Why should an entrepreneur be more motivated than otherwise, just because his selling prices increase, even though the prices

[14]Notice that even in this case the attraction of the "idle" resources into production does *not* mean that production has been stimulated or increased from any overall point of view. There is after all a reason why these resources lay "idle," namely, that from the long-term point of view of their owners, the present use of these resources seemed to be inexpedient. In short, they were not idle at all, but were used as a *reserve* for later periods, and it is probably not necessary to prove that this reservation demand has a very important social function. Consuming one's reserves in the present is, by any meaningful standard, not a reduction of scarcity, but an impoverishment. See on this problem Salin (1991).

of his factors of production increase on equal footing? Second, it is not the case that the profit motive needs to be switched on through the printing press. Entrepreneurs are always seeking profits. They do not need bureaucrats sitting on a printing press to motivate them. Third, we have to consider again that the higher nominal receipts do not reflect a higher purchasing power. Why should entrepreneurs be willing to work more, thus forgoing leisure, for a mere nominal compensation?

The Numéraire Fallacy

According to this argument, a system of competing currencies lacks a common *numéraire* or standard of value for economic calculation and is therefore from an economic point of view inferior to a system endowed with such a common standard. As a consequence, it could be argued, the introduction of a fiat currency could provide significant net benefits. It would not just entail political redistribution, but also contribute to reducing scarcity in society.

This argument is premised on a wrong conception of economic calculation. It overstates the similarities between economic calculation on the one hand, and technological weights and measures on the other hand. The purpose of the latter is to provide the terms in which we subdivide things of the material world. By contrast, the purpose of economic calculation is to provide a common denominator for the comparison of different courses of action. It is a decision-making tool in a much more narrow sense than weights and measures.

The central device of economic calculation is the profitability calculus, which divides total selling receipts by total cost expenditure for each alternative course of action. Physically heterogeneous choice alternatives are thus rendered comparable in common terms, namely, in terms of percentages. This essential service of economic calculation in no way depends on other people calculating in terms of the same unit.

It could be argued that things are not really different as far as the use of physical weights and measures are concerned. Here too each individual could calculate in terms of self-defined units without thereby changing the result of the calculus. However, technological calculations do greatly benefit from common weights and measures, because this commonality facilitates *communication* among the different members of society. By contrast, economic calculation is not primarily a means of communication—in fact, entrepreneurs often take great pains to hide the result of their economic calculations from other people. And even to the extent that they do communicate these results, the relevant information is contained, not in any absolute numbers, but in the bottom-line rates of return on investment. And these rates (percentages) can be compared irrespective of the kind of money used.

One might object that the use of different kinds of money entails more uncertainty for the validity of one's economic calculation than would be the case if only one kind of money were used. This is so because there would be fluctuating exchange rates between the different monies.

While this observation is correct, it does not lend itself to the conclusion that a homogenization of the monetary system would be beneficial. The point is that *any* differences between products, firms, places, and times are sources of uncertainty. If such differences subsist on a free market, then we have good reason to assume that the package greater-heterogeneity-plus-uncertainty ranks higher on individual value scales than a reduction of uncertainty by greater homogeneity. We have already pointed out that, on an unhampered market, everyone may attempt to establish a homogeneous paper money. If he cannot bring the other market participants to accept his product, we may conclude that the citizens prefer the greater variety, and the greater uncertainty, of a heterogeneous monetary system to the increased certainty under a unified system.

The Sticky-Prices Fallacy

According to this argument, inflation is a suitable means to increase the spread between selling prices and buying prices, thus making businesses profitable in those situations when they cannot bid down buying prices far enough to allow for continued production. The main application of the argument is to overcome rigidities in the labor market. Inflation, so the argument goes, reduces real wage rates to the equilibrium level so that full employment is restored and all productive resources (in particular, labor forces) of society can be used.

Ever since the 1920s, this argument has played a prominent role in monetary policy debates, and after World War II it rose to the status of a dogma. But it is a fallacy. It assumes *independence* between monetary policy and the institutions governing the pricing processes on the other markets, whereas these two realms are not in fact independent of one another. Contractual techniques such as the indexing of labor contracts might be rather imperfect vehicles, but in any case they show that market participants try to anticipate changes in the money supply. In many cases labor unions overestimate the future loss of money's purchasing power. The result is even more unemployment than before—a good illustration is given by the evolution of the German, French, and Spanish labor markets since the 1970s. Considering these incontestable facts, economists are well advised to start seeing labor-market rigidities again as a *dependent* variable, rather than as something outside of human control.

The Adjustment Fallacy I: Supply of and Demand for Cash Holdings

Most errors about the optimal quantity of money are variants of a basic confusion that we may call the "adjustment fallacy." This fallacy consists in the belief that the *nominal* quantity of money needs to be adjusted to prevailing economic conditions, lest a disequilibrium situation would occur. We can distinguish two main variants of this fallacy.

The first variant stresses that the quantity of money available for cash holdings must be adjusted to the demand for cash holdings (stocks). The second variant of the fallacy stresses that the supply of and demand for money in market exchanges must be adjusted—the nominal quantity of money offered for sale against other goods must be adjusted to the demand for money in the form of the quantities of commodities offered on the market (flows). In what follows we will deal with the first variant, and in the next section we then turn to the second variant.

The Supply of Cash Holdings

As far as the supply of cash holdings is concerned, we must point out that this supply is, at any point of time, identical with the aggregate quantity of money under the control of the individual market participants. The expressions "supply of cash holdings" and "quantity of money" are therefore synonymous to the extent that all units are liable to be acted upon at all, rather than for example buried at the bottom of an ocean.

Notice that *all units of money are held*, that is, to the extent that they are under the control of some one at all, are part of the individuals' cash holdings. In other words, there is no such thing as "money in circulation" that can meaningfully be distinguished from "money held." Money does not circulate in the sense that it would at some point of time not belong to any person. In exchange, money units are transferred

from one person to another, but even in this case each single unit at each single point of time belongs to someone.[15]

The Demand for Cash Holdings

Why do we seek to own money at all? The essential service of money is in reducing the problem of the double coincidence of wants. This problem is greatest in a system of direct or barter exchanges. A partial solution is to abandon direct exchange and adopt indirect exchange—with money as an intermediary. In developed economies, virtually all indirect exchanges are performed with but one medium of exchange, or at any rate with a very small number of media of exchange. Media of exchange that are used in a great number of transactions are monies.

The services of any given sum of money depend on the quantities of other goods that can be exchanged for it. In 1960, $500 could buy more things than $550 in the year 2000 because the purchasing power of the dollar had considerably decreased in between these two years. Thus the exchange services of money have nothing to do with its nominal quantity, but only with its purchasing power.

But money's services not only depend on general conditions such as its purchasing power and alternative investment opportunities, but also on strictly personal factors that vary from one individual to another (Mises 1980, chap. 8). A sum of money provides its service not only at the moment when the money owner sells it to purchase any goods he desires, but it serves during the entire period in which its owner keeps it in his cash balance. At each point of time, acting man balances the amount of money he holds against his holdings of all other economic goods. We cannot say on *a priori* grounds how much money any given market participant will choose to hold. But we can say that he will sell money if he thereby acquires what he values more than the sum of money he abandons, and that he will buy money if he prefers this additional quantity to the price he had to pay. Each man's portfolio reflects not only his individual station in life, but also the other aspects of his personality: his virtues and his vices. The spendthrift has ever too much money in his hands, and not enough consumers' goods. The neurotic coward sits on mountains of cash. The adventurous entrepreneur places all money into investments, whereas the prudent businessman keeps a large cash reserve. In short, there are no general rules to determine how much money a man will hold. But this does not alter the fact that each man faces the everlasting trade-off imposed by scarcity: The more money he holds, the more he must forgo the services he could have derived from other goods, and vice versa.

Adjustment of Demand and Supply?

Now back to the problem that was our point of departure. According to a widely held opinion, monetary equilibrium in the sense of equality between the supply of and demand for cash holdings requires that changes in demand be matched by corresponding changes in the nominal supply. An increased demand requires that the supply increase too, and vice versa. But the supply of commodity monies such as gold and silver can only catch up very slowly with such changes and, due to technical limitations, gold and silver production might not deliver the required absolute quantities at all. Thus there seems to be a case for the government to impose a paper money, any quantities of which can be produced at virtually zero cost.

---

[15]We can meaningfully distinguish "money in circulation" from those money units that are not under control of any member of society, for example, money units buried on the sea bed after a shipwreck. But in this case too all units of money in circulation are held at all points of time, and there is no difference between, on the one hand, money in circulation in the stated sense and, on the other hand, money held in individual cash balances.

One way of refuting this argument is to point out that it relies on a misinterpretation of the laws of demand and supply. It is meaningless to speak about demand for and supply of one commodity without reference to the demand for and supply of alternative goods, that is, without reference to market prices. And because market prices can change, demand and supply can be adjusted to one another at any point of time.

Another way of countering the above case for paper money is to highlight its underlying assumption that the supply of cash holdings is *independent* of the demand for cash holdings (Hülsmann 2000, pp. 435, 438-40). Such independence does indeed exist in the case of most other goods, and the reason is that in most other cases the amount of *services* to be derived from the good in question essentially depends on the good's *physical* characteristics. For example, the services typically delivered by a telephone do not depend at all on the demand for this telephone, or on the demand for telephones of this type. Whether market participants hold the telephone in high or low esteem, whether they pay high or low prices for it, has no impact whatever on the amount of services to be derived from a telephone of this type. But in the case of cash holdings, supply and demand are not independent because here demand does depend on supply, and supply does depend on demand.

If the quantity of money is increased, the purchasing power of each unit will decrease below the level it would otherwise have attained. This means that the services that can be derived from each money unit have decreased, and since money owners are only interested in the amount of these services, rather than in the nominal quantities in which these services are embodied, their demand for nominal quantities of money will be higher than it otherwise would have been.[16]

Similarly, if the demand for money held increases, the supply of monetary services increases automatically—that is, without any change in the nominal supply of money. An increase of the demand for money held means that the individual under consideration (1) exchanges the money he owns only at lower money prices than otherwise, and/or (2) that he buys additional money units at higher prices (in terms of his labor and other parts of his property).[17] In both cases the increased demand *ipso facto* increases the supply of services of each money unit, because the increased demand *means* an increased purchasing power of money.

Notice that in the light of these facts it is not only superfluous, but also quite nonsensical to "adjust" the supply of money to be held to changes in demand. An increased nominal supply, far from offsetting the increased demand it was meant to offset, only causes a further increase of the demand for cash holdings. Far from equilibrating the supply of and demand for cash holdings, nominal supply changes merely elicit an additional nominal demand.

The Adjustment Fallacy II: Monetary Exchanges

Let us now turn to the other variant of the adjustment argument. In this variant, monetary policy is needed to adjust the supply of money—this time understood in the

[16]Edwin Cannan points out that it would be more appropriate to say, like Sidgwick, that the increased money supply induces an "extension" rather than an increase of the demand for money. Cannan offers a charming illustration of the principle of extension of demand: "People will take the additional currency as they take additional whiskey when it is watered down and offered to them at a lower rate, but that does not show that, in the absence of increase of demand in the narrower sense, they will take additional whiskey or additional currency at the old rate" (Cannan 1951, p. 10).

[17]See Say (1841, pp. 243f.). Notice that Say here spells out the meaning of Adam Smith's concept of "effective demand." Notice also that we will deal with the impact of sticky prices on the automatic adjustment of demand and supply at the end of the present paper.

sense of the "flow" of money units offered for sale against other goods—to match the demand for money, defined as the quantities of these other goods offered for sale against money. Without monetary policy in place to do the adjustment job, there might be more or less serious mismatches (disequilibria) between the supply of and demand for money, and as a consequence there would be economic crises, most notably when the supply of money proves to be insufficient to buy all the products offered for sale.

Before we set out to examine this argument case by case, it might be useful to point out that the argument is squarely based on what could be called the "correspondence theory" or the "representation theory" or the "assignment theory" of money.[18] According to this theory, the money in some way "represents" the other goods, and the smooth operation of a monetary economy depends on how well the supply of money "corresponds to" the supplies of the other goods. If there is too much money around, inflation sets in and entails various negative consequences. If there is not enough money in the market, there will be more or less serious disruptions of economic activity. The task of monetary policy is therefore to ensure correspondence between money and the other goods, and it pursues this goal by modifying the quantity of money.

This theory is probably the one monetary fallacy that has done the greatest harm in the history of the West.[19] Before we turn to our case-by-case examination, let us emphasize from the outset that money does not represent or correspond to anything but itself. It is meaningless to assert such correspondence as far as market exchanges are concerned because the quantities that allegedly "correspond" to one another are identified only through the market process. Only if there were a nonmonetary unit of value that could serve as a *tertium comparationis* apart from market exchanges would it be conceivable that the money supply could be said to correspond to the supplies of other goods. But no such unit of value exists.

The Case of a Growing Economy

In a growing economy, ever more goods are offered on the market for sale against money. In such a case, an adjustment theorist could argue, one also needs more money to buy these greater quantities of goods, lest money prices would drop and strangle production.

The main problem with this argument is that it is premised on a much too static notion of entrepreneurship. Businessmen do not behave like robots that mechanically react to changes in their environment. They are entrepreneurs, who seek to anticipate relevant future changes. In an environment of decreasing prices, therefore, entrepreneurs *can* run a profitable business by bidding down buying prices or, if this is not possible, by abstaining from investment altogether. And successful entrepreneurs *will do* precisely that. The difference between successful businessmen and incompetent spendthrifts is that the former do base their actions on a correct estimate of future

---

[18]This theory had important champions in John Law, Montesquieu, Simmel, Wieser, Schumpeter, and many others. For a critique of Schumpeter's assignment theory, see Mises (1980, pp. 512ff.).

[19]Not surprisingly the fallacy arose at the end of the seventeenth century, which had witnessed the emergence of bank note currencies and of those privileged banks that should later become "central banks" (Sweden, England). Monetary theory was then still in its infancy and some of the theoreticians were led into wild speculations. They noticed that, in deposit banking, there is a correspondence between the quantity of money substitutes (in particular the bank notes) and the quantity of money proper (gold, silver, etc.), which these substitutes represent by contract between the bankers and their customers. John Law and others started seeing representations everywhere and postulated that not only was there to be correspondence between money substitutes and money proper, but also between money and the other goods.

price changes. At any point of time, an entrepreneur can protect himself against the *future* impact of falling selling prices by either bidding down *in the present* the payments for his factors of production, or abstaining from investment altogether. The latter strategy is the wise course of action whenever he cannot bid down his factor prices, which is usually the case when he is more or less alone in anticipating the future drop of prices, whereas other entrepreneurs do not diminish their offers. If he cannot cut his costs he will not invest at all, but wait until his competitors, who paid the factor prices he believed were too high, eventually go bankrupt. Then he will step in and get the buying prices he needs for a profitable operation, and he might even buy the production facilities of some of the failed competitors.

Those businessmen who merely react to changes in market prices will of course be negatively surprised when they have to confront the growth-induced drop of the price level. They have bought their factors of production at prices that were not justified in the light of this subsequent event, and thus their profits are considerably reduced and more than often they will even incur losses to the point of bankruptcy. Now the point to stress is that there would be nothing wrong with these bad entrepreneurs going out of business.

Suppose that (a) their firms could operate profitably at the lower (possibly further decreasing) price level, and they only go bankrupt because they went into debt at the previous higher price level; in this case, the former owners—who turned out to be bad entrepreneurs—would be replaced by new owners, usually the former creditors, who could then go on to run the business profitably and produce for the market.

Or suppose that (b) these firms could no longer operate profitably at the lower (decreasing) prices level;[20] then our firms are unprofitable because other entrepreneurs can employ the factors of production that these firms need at even greater profit—thus they bid up the prices to such an extent that our firms become unprofitable. Yet in this case, it would be all right and good to close shop and make the factors of production available for other firms.

Because our assumptions (a) and (b) cover all possible cases, we can conclude that growth-induced declines of the price level do not entail any disadvantages for society as a whole.[21] There is no rationale for offsetting economic growth with a parallel increase of the money supply. Such a policy would affect the distribution of wealth within society, and only accidentally have a positive impact on aggregate production. Moreover, it would encourage entrepreneurial recklessness, because it rewards businessmen who speculate precisely on such a policy bailing them out in the future; and it punishes the prudent and self-reliant entrepreneurs who anticipate growth-induced declines of prices and therefore do not invest as much as they would have otherwise invested, thus making factors of production available for other lines of production.

The Case of a Shrinking Economy

In a shrinking economy, ever less goods are offered on the market for sale against money, and as a consequence money prices rise. What would be the policy implications from the point of view of the adjustment fallacy? Probably an adjustment theorist would argue that the increasing price level would somehow be harmful to society. But increasing prices are not more harmful than declining prices.

---

[20]This could be the case, for example, because the growth process went in hand with a different distribution of wealth within society, which in turn changed the aggregate demand for the various types of products to the detriment of our firm, and to the advantage of other firms.

[21]Monetarist scholars have illustrated this economic law through empirical studies of growing economies with a shrinking price level. Two important cases are Germany and the U.S. in the last quarter of the nineteenth century—a period that is often misleadingly called a "depression." See Nocken (1993, pp. 157-89); Friedman and Schwarz (1963); Bordo and Redish (2003).

Below, we will even go beyond this proposition and argue that the same thing holds true for decreases or increases of the money supply. In a market economy, there are strong incentives for the market participants to minimize the negative impact that changes of the quantity of money may have on production. As soon as these changes become excessive, profit opportunities arise that make it expedient to use *other* monies in lieu of the volatile one.

The Case of "Hoarding"

"Hoarding" is a pejorative expression for an increase in the demand for real cash balances. Let us first remind ourselves that all quantities of money are "hoarded" because each single money unit is held in the "hoard"—that is, in the cash balance—of some individual. Therefore it is impossible to hold money more intensely than it otherwise would have been held. Money held is money held is money held.

So what is the emotional prejudice, evident in the expression "hoarding," ultimately all about? As we have said, it is about the resentment that some people feel against other people's increased demand for real cash balances. The essential reason for this resentment is that "hoarding" brings about a decline of the money price level. It therefore threatens all business ventures that are based on the expectation of higher prices.

Above we have explained what an increased demand for cash balances means: the money owner parts with his money only at lower prices than he would otherwise have had to pay, and he is ready to offer more goods than otherwise in exchange for additional quantities of money. In both cases, all money units are held or "hoarded" as they are always held or hoarded. The difference is that the money owners value them higher than before.

We have already explained that such increases in the demand for real cash balances *cannot* be offset through a countervailing increase of the nominal money supply. Any such neutralizing policy would intensify the problem it was meant to solve. The additional money dilutes the purchasing power of all money units, thus prompting a further increase in the demand for money.[22]

It is true however that a paper money supply can also be increased at such a rate that a deterrent effect sets in. If the market participants anticipate a steady absolute decline of the purchasing power of money, they will decrease their demand for real cash balances even though their nominal cash holdings increase. In such cases, the nominal supply of money often grows at breathtaking rates, while at the same time the aggregate purchasing power of the money supply declines.[23] It follows that a paper money producer determined to fight "hoarding" at any cost may indeed succeed in this endeavor. The question is of course whether the attainment of this goal was worth sacrificing the currency—for nothing else but a collapse or at least a near collapse of monetary exchanges is usually involved.

Even more fundamentally, we need to raise the question of whether there is anything bad about hoarding. It is certain that "hoarding" will produce winners and losers—all changes in society do that. But hoarding will not *necessarily* disrupt production, because it can be anticipated. And even to the extent that it does disrupt the business of those entrepreneurs who did not so anticipate it, there is, as we have

---

[22]It might be argued that this policy does at least stabilize the level of purchasing power at which the demand for and supply of money equilibrate. In this case the argument no longer turns around adjustment *per se*, but around the old ideal of a stable purchasing power of money. For a critique of the attempts to measure and stabilize the purchasing power of money see Rothbard (1993, chap. 11).

[23]This phenomenon has been observed especially in the later stages of a hyperinflation, such as in the German hyperinflation of 1923.

explained above, no rationale for bailing out these bad entrepreneurs, rather than letting the creditors take over their firms, or letting other firms take over the factors of production that hitherto were employed in these firms.

The Case of Inflation

So far we have studied the impact nonmonetary changes have on the relation between the demand for and supply of money. We now turn to changes emanating from the side of money—increases and decreases of the money supply, which for the purposes of our analysis we may call "inflation" and "deflation" respectively.

First of all it could be argued that the production of money could be excessive in comparison to the growth of the "goods side." We have already discussed the main fallacies involved in this argument. The services of monetary exchange do not depend on how the money supply changes relative to the supplies of the goods that are exchanged against money. An increased production of money entails higher money prices than would otherwise have been paid on the market. Under certain conditions, such increased money production will also lead to an absolute increase of money prices. But neither the absolute nor the relative increase of money prices (relative to the level they would have attained in the absence of the inflation) does, *per se*, imply any insurmountable negative consequences for the economy.

It is conceivable that on the free market the supply of a precious metal increases at such a rate that it becomes inexpedient to use it as a medium of exchange. Imagine for instance that somebody would suddenly find a mine containing more than a million times the quantity of gold in existence. As a consequence, gold might no longer be used as a medium of exchange. Other commodities would then replace it in this role. But as this example clearly shows, on a free market the money users can contain the damage done by unwarranted increases of any precious metal within fairly narrow limits. After all, to have a free market means that nobody is prevented from trying out supposedly beneficial alternatives. This is why inflation in a paper money system, in which only the authorities may experiment with alternatives, tends to be much more harmful, especially when we consider the fact that paper money producers have actually many incentives to spur inflation, rather than to reduce it.

But quite apart from the incentive issue, paper money entails several severely negative consequences that would not exist on a free market. For example, paper money producers have an almost unlimited ability to bail out any market participant. This entails the problem known as "moral hazard"—market participants with good personal and professional connections to the paper money producer invest in excessively risky ventures. When these investments turn sour, the paper money producer bails them out, that is, he rescues them at the expense of the other money users. This is one reason why paper money entails more waste than free-market money and thus creates more scarcity than would have existed on the free market.

Another reason why paper money inflation is qualitatively different from increases of the supply of commodity money is that it allows governments to finance all kinds of wasteful projects through debt. In particular, welfare and warfare are much larger and much more wasteful under government control of money production than on an unhampered market. They are presently so wasteful that it is completely out of the question to ever pay back the debts used to finance them. Why, then, can governments always find new creditors for more debts? Because all market participants know that these debts are backed up by the printing press of the government-controlled (often government-owned) paper money producer.

A third reason why paper money creates more scarcity of goods and services than would have existed on the free market is that the virtually costless production of paper money allows for arbitrary and huge increases of the money supply. It is virtually impossible for the market participants to adapt quickly enough to these changes.

There is the very real danger that the interest rate on the loan market will drop below its equilibrium level. This would entail the boom-bust cycle that we know from the Misesian business cycle theory.

To sum up, increases in the supply of any money are not liable to be more harmful, *per se*, than a decreasing or stable money supply. The traditional focus of monetary economists on changes of quantifiable aggregates such as the money supply proves to be very inappropriate in this case, as in many other cases. The negative consequences that are commonly associated with inflation—in particular, the waste of resources due to adjustment problems—do not primarily spring from increases of the quantity of money, but from the lack of currency competition. And as we have seen, the very existence of a (government-protected) paper money entails problems that are unknown on a free market. Alas, for the same reason it is comparatively easy to handle these problems, at any rate from a purely technical point of view. All that is necessary is to abolish the monopoly privileges of the paper money producers, who would then quickly be driven out of business.

The Case of Deflation

Next to hoarding, deflation is the great scapegoat of monetary economics. The fight against deflation is today widely considered to be the most basic mission of monetary authorities, the bare minimum of economic statesmanship. It is the *prima facie* justification of inflationist monetary policy and of the institutions designed to apply it—in particular, monopolistic paper money producers.

But surprisingly this rationale does not stand on stronger ground than the other theories justifying present-day monetary institutions. The case for preventing deflation is not so much based on argument, but on a long tradition of demonizing it.[24] We therefore need to deal with this rationale in more detail than the other arguments.

We have already shown that the anti-deflation argument is untenable insofar as deflation is meant to mean a drop of the price level. The remaining question is whether the fight against deflation in a slightly different definition—a decrease of the money supply in the wider sense—has any better foundations. As we shall see, it is true that deflation in the latter sense entails a more or less dramatic fall of the price level. But it is unwarranted to jump from this fact to the conclusion that deflation destroys the division of labor, or that it can be offset through an inflationist policy.

What does it mean concretely when we say that the "money supply decreases"? Four forms of deflation can be distinguished and we will deal with them in turn.

1. Free Market Deflation

Deflation can mean that some market participants, for whatever reason, decide to destroy their money holdings, or at least parts thereof. This physical-destruction scenario has of course no practical significance; it has never led to a large-scale deflation of the sort that would cause sleepless nights to policymakers.

2. Confiscatory Deflation

Much more relevant in practice is deflation in the form of a confiscation of money holdings through the government. Confiscatory deflation has a long tradition. It is usually part and parcel of monetary reforms, for example, in Germany 1948, Brazil 1990, Russia 1990, and Argentina 2001. And fighting it is of course no problem for a government, because all it would have to do is *not* to confiscate the money of its subjects.

---

[24]It is a revealing fact that there is virtually no literature on deflation in modern economics. A recent exception is Kumar et al. (2003). While this work has the merit to finally bestow some attention to the phenomenon of deflation, it does little more than restate the untenable commonplaces that form the present-day mythology of deflation.

3. Credit Money Deflation

Historically, deflation often occurred when monetary authorities redeemed credit money without neutralizing these redemptions through new issues, or when they destroyed paper money received as taxes. The usual purpose of these deflations was to bring inflated credit money back to parity, in particular, after wars. Such deflations took place in Britain after the publication of the Bullion Report, in the U.S. after the Civil War (the driving force was Secretary of the Treasury, Hugh McCulloch), and in Britain, Sweden, Holland, the U.S., and other countries after World War I.

As in the case of confiscatory deflation, it is very easy for governments to "fight" credit money deflation by simply not engaging in it or, better still, by never having created inflationary credit money in the first place. Still we might raise the question of whether the decrease in the quantity of money would, *per se*, have any negative consequences for aggregate production. The answer is in the negative. Decreases in the quantity of money have very much the same effect as increased hoarding, and businessmen and other market participants can adjust to them. Successful entrepreneurs will anticipate both the deflation itself and its impact on the price system. They will profit from their superior forecasting abilities at the expense of other entrepreneurs, who fail to bid down the prices of their factors of production in time to provide for a sufficient spread between these expenditures and their future selling proceeds. Again, there is no reason why this redistribution should have negative consequences for overall production. If anything, it can be expected to have a positive impact because it weeds out the less efficient entrepreneurs.

One might argue that credit money deflation entails more complications than increased hoardings. In particular, this form of deflation might provoke spiraling bearish expectations. When prices have dropped for a while, more and more people might assume that there is some sort of automatism in this trend and start increasing their demand for money. This will decrease prices even further, thus reinforcing the bearishness of these people, who then increase their demand for money even more, and so on.

Notice that such bearish expectation spirals can be very beneficial if they merely speed up the process whereby the market participants correctly anticipate the rock bottom provided by the minimum money supply at which the deflation stops. It is however possible that an expectation spiral overshoots. People might panic and hold on to their money even when prices have reached such a low level that it would be worthwhile to start spending money again. This can conceivably lead to a situation in which indirect exchanges with the deflationary money become impossible for technical reasons. The decreasing prices would require ever-smaller money units, but these cannot be produced in time (with the printing press) or cannot be handled at all in daily transactions (for example, microscopically small gold coins). In other words, great credit money deflations can raise the spectre of monetary disintegration, especially in the absence of entrepreneurial leadership.

How does the free market handle this problem? The solution is the same one that usually comes to be applied in the case of the inverse problem of hyperinflation. The name of the solution is money competition. As soon as the bearishness of the market participants on behalf of the deflationary money becomes excessive—that is, as soon as there is disequilibrium—other means of exchange are used in substitution of that money. The simple reason is that disequilibrium is tantamount to profit opportunities. Excessive deflations are therefore usually accompanied by the spontaneous adoption of *other monies*. The market participants would still find it profitable to engage in indirect exchange, and they could do this because they still have real assets to offer, most notably their labor services and other tangibles. As a consequence, they would start using other things as media of exchange, in particular, foreign paper monies and money substitutes provided by sound banks, but also commodity money

such as gold and silver coins. The spontaneous adoption of currencies has been observed again and again in historical deflation processes, although government intervention usually prevented it from running its full course. Of course such processes go in hand with a substantial redistribution of wealth within society, but, as we have argued in some detail, this is not *per se* detrimental from an overall point of view.

4. Price-Control Deflation

In many historical cases, deflation set in when governments imposed price controls on the exchange rates between monies used in parallel circuits, most notably in bimetallist regimes. Economists know that these price controls activate Gresham's law—the bad (undervalued) money drives out the good (overvalued) money. The bad money continues to be used in monetary exchanges, while the good money is either completely withheld from the market or sold to residents of places where the price control does not apply. This disappearance of the good money means nothing else than that the overall quantity of money has been reduced in the territory subject to the price control.

Again, it is obviously very easy for governments to fight this form of deflation. And let us also repeat that interventionist deflations are condemnable, not because they entail a reduction of the quantity of money *per se*, or because certain market participants might not be able to successfully pursue their productive activities in this deflationary environment, but because they result from the violation of property rights.

Flight From Money

One of the most haunting emergency scenarios—for monetary policy makers at any rate—does not feature any physical disappearance or destruction of existing money units, but the *loss of their monetary nature*. Two main cases must be distinguished.

In the first case, money substitutes (for example demand deposits held at commercial banks) lose their status as money substitutes because no market participant wishes to buy them anymore. This is usually the case when the issuer of these money substitutes (the bank) is unable to redeem them against money (for example, against the paper bank notes issued by a "central bank"—that is, by a paper money producer).

In the second case, a paper money loses its status as money because no market participant wishes to buy it anymore. This usually happens in the terminal stage of a hyperinflation. But it could also happen, even without any previous period of price increases, if our present-day fiat money producers were stripped of their monopoly status and had to compete with "natural monies" such as gold and silver on equal legal footing. In any case, the resolution of the market participants not to use the paper money as a means of exchange makes it lose all of its value. The formerly cherished tickets become wastepaper.

In both cases *the flight from money sets in as a reaction to a previous inflation*. It does not drop out of the clouds as an entirely uncaused plague, but is the natural consequence of a previous regime of more or less extended inflation. It follows that the conventional bias against it gets things exactly upside down. The truth is that *the flight from money is a great force of liberty*. It destroys the institutional embodiments of inflation: fractional reserve banking and paper money. It stops inflation and thereby puts an end to the rechanneling of income in favor of the happy few with good connections to the politico-monetary establishment, and to the detriment of the politically unconnected rest of society. This consideration alone would be reason enough to welcome it.

The flight from money involves a disruption of the division of labor that cannot be prevented through entrepreneurial anticipations of the event. Quite to the contrary, such anticipations have the character of a self-fulfilling prophecy. If the market participants

expect a future run on the fractional reserve banks, they will withdraw their money in time. But this very preventive action reduces the cash balances of the banks (the so-called "reserves") and thus precipitates a run in the present. Similarly, if the market participants expect the future evaporation of a presently existing paper money, they will as far as possible stop using it now. But this will reinforce the increase of the price level in terms of that money, and other people might therefore also be induced to abandon its use. Hence, a cumulative process involving an ever-lower purchasing power of this paper money might set in and ultimately lead to its complete abandonment.

Another reason why the flight from money always involves disruptions is that, under paper money and fractional reserve banking, the division of labor is to a more or less large extent geared toward satisfying the needs of the groups in control of the inflation. Yet let us hasten to point out that, for this very reason, those disruptions seem to be rather unobjectionable. They resemble the disruptions shaking a former slave economy after the institution of slavery is abolished, or the disruption of a totalitarian society once the despot has been dethroned. Like any other large-scale change, a flight from money destroys the value of certain factors of production, and it makes other factors of production valuable. Economic theory does not provide any grounds on which we could prefer the use of the former production factors to the use of the latter. Notice however that the new values reflect the preferences of free men (or at least: of men who are more free than they were before), whereas the old values gave much more prominence to the preferences of the ruling classes.

So far we have argued that the traditional emotional bias against the flight from money has no rational foundation. There is nothing wrong with it, lest one were to assume that the interests of the happy few who thrive on the perpetuation of the inflationary regime were identical with the interests of all members of society. The next question is: How would the free market handle such situations? On a free market, nobody would be coerced into accepting monies or money substitutes he does not wish to own. As a consequence, a flight from money would run its course, eradicating fractional-reserve notes and deposits, and evaporating paper monies.

How long will this process last? Does it entail long-winding depressions and unemployment? Not necessarily. There is no reason that would make it impossible, for example, that people adjust to the new circumstances instantaneously. If the market participants, at the very onset of the flight from money, anticipated how much each price would eventually drop, they would reach "rock bottom" in a second. Fractional-reserve notes and paper monies would disappear instantaneously from circulation, and everyone would be aware of the new prices of all existing goods in terms of the other monies. This is of course an unlikely scenario, but notice that it is not a physical impossibility that prevents instantaneous adjustment. The bottleneck is anticipations. Some businessmen are very good at anticipating future states of affairs that are radically different from the present ones, and these persons will turn their ability into profit during the flight from money (just as they reap profits in inflationary periods, for the same reason). But the great majority of market participants lack this ability, and therefore a flight from money is a time-consuming process that not only brings about a redistribution of resources, but also certain other problems.

Among these problems, unemployment is usually cited in the first place. But it is not an *essential* aspect of this process. Workers and entrepreneurs certainly *can* find wage-rate agreements that make the continued operation of the firm possible. This is so even if neither the entrepreneurs nor the workers correctly anticipate the end of the process.

Can monetary policy successfully counteract a flight from money? Again, the easiest way to do this is by not letting it come to inflation in the first place. The secure road around the flight from money is to abolish inflation here and now. But once this flight has set in, *it cannot be prevented with the conventional means of monetary policy*. Increasing the money supply would only pour fuel on the flames, because the new

money units merely amplify the very reason why the money is abandoned—its absolute loss of purchasing power. On the other hand, a policy of decreasing the money supply on a massive scale might conceivably prevent the money from being completely abandoned. But this policy would require that the monetary authority seize major parts of the cash holdings of the citizens. Such situations have often led to a change of the monetary constitution. Banks then usually are granted the privilege to refuse redemption, thus turning their tickets into paper money. In other cases, the money threatened by extinction has been replaced by a new currency as in Germany in 1923 and 1948. More recently, currency boards have played a similar role (Gertchev 2002). The offshoot of all of this is that flights from money are times of dramatic changes. But if radical policy shifts are necessary anyway, why not liberalize the production of money right away?

Conclusion

The competitive production of money can work and, we might add, has worked well in all known historical cases. We have shown that from a normative point of view that stresses the integrity of private property, it is superior to its logical alternative: government control of the money supply. And we have argued at some length that there is no tenable utilitarian case to be made for modifying the free-market production of money through political means. Conventional monetary policy and its institutional underpinnings in the form of central banks and similar monetary organizations are therefore useless at best, and should be abandoned. Politically induced changes in the money supply—the very essence of noninterventionist monetary policy—do not alleviate the problem of scarcity. Their main effect is to enrich some groups at the expense of other groups, and to create several grave problems that are unknown in the market economy.

Our analysis has also shown the importance of a competitive production of money. It is an error to equate the free market in money with the prevalence of commodity money. The late-nineteenth-century gold standard was a *fiat* standard! Problems start as soon as any type of money enjoys the legal privilege of being the "standard" money, and thus is immunized from competition. We have shown that competition is essential for the smooth replacement of one (technologically inferior) money by other commodity monies. It is equally essential for a fast adjustment process in times of hyperinflation or deflationary spirals. In the light of this, the nineteenth century standardization movement appears as one of the burdensome legacies of classical liberalism.

References

Bordo Michael D., and Angela Redish. 2003. "Is Deflation Depressing? Evidence from the Classical Gold Standard." *NBER* Working Paper #9520. Cambridge, Mass.: NBER.

Cannan, Edwin. [1921] 1951. "The Application of the Theoretical Apparatus of Supply and Demand to Units of Currency." *Economic Journal* 31. Reprinted in *Readings in Monetary Theory*, F.A. Lutz and L.W. Mintz, eds. Homewood, Ill.: Irwin.

Cantillon, Richard. 2001. *Essay on the Nature of Commerce*. New Brunswick, N.J.: Transaction Publishers.

Friedman, Milton, and Anna Schwartz. 1963. *A Monetary History of the United States* Chicago: University of Chicago Press.

Gertchev, Nikolay. 2003. "The Case For Gold." *Quarterly Journal of Austrian Economics* 6 (4): 117–26.

——. 2002. "The Case Against Currency Boards." *Quarterly Journal of Austrian Economics* 5 (4): 57–76.

Hayek, Friedrich A. 1939. *Profits, Interest, and Investment.* London: Macmillan.

Hoppe, Hans-Hermann. 1989. *A Theory of Socialism and Capitalism.* Boston, Mass.: Kluwer. Chap. 7.

——. 1987. "Vom Konzept der Wohlfahrtsmessung zur Theorie der Gerechtigkeit." In *Eigentum, Anarchie und Staat.* Opladen: Westdeutscher Verlag.

Huerta de Soto, Jesús. 1998. *Dinero, Crédito Bancario y Ciclos Económicos.* Madrid: Unión Editorial.

Hülsmann, Jörg Guido. 2000. "Economic Principles and Monetary Institutions." *Journal des Economistes et des Etudes Humaines* 10 (2/3): 428–30.

——. 1998. "Toward a General Theory of Error Cycles." *Quarterly Journal of Austrian Economics* 1 (4): 1–24.

——. 1996. *Logik der Währungskonkurrenz.* Essen: Management Akademie Verlag.

Hume, David. [1752] 1985. "Of Money." In *Essays.* Indianapolis, Ind.: Liberty Fund.

Kumar, Manmohan S. et al. 2003. "Deflation: Determinants, Risks, and Policy Options: Findings of an Interdepartmental Task Force." International Monetary Fund Occasional Paper #221. Washington, D.C.: International Monetary Fund.

Mises, Ludwig von. 1998. *Human Action.* Scholar's Edition. Auburn, Ala.: Ludwig von Mises Institute. Chaps. 30–31.

——. 1980. *The Theory of Money and Credit.* Indianapolis, Ind.: Liberty Fund.

——. 1977. *Critique of Interventionism.* New Rochelle, N.Y.: Arlington House.

——. 1912. *Theorie des Geldes und der Umlaufsmittel.* Munich: Duncker and Humblot.

Nocken, Ulrich. 1993. "Die Große Deflation: Goldstandard, Geldmenge und Preise in den USA und Deutschland 1870–1896." In *Geld und Währung vom 16. Jahrhundert bis zur Gegenwart,* Eckart Schremmer ed. Stuttgart: Franz Steiner.

Reisman, George. 1996. *Capitalism: A Treatise on Economics.* Ottawa, Ill.: Jameson Books.

Rothbard, Murray N. 1998. *The Ethics of Liberty,* 2nd ed. New York: New York University Press.

——. 1997. "The Myth of Efficiency." *Logic of Action One.* Cheltenham, U.K.: Edward Elgar.

——. 1993. *Man, Economy, and State.* 3rd ed. Auburn, Ala.: Ludwig von Mises Institute.

——. 1990. *What Has Government Done to Our Money?* 4th ed. Auburn, Ala.: Ludwig von Mises Institute.

——. 1983. *The Mystery of Banking.* New York: Richardson and Snyder.

——. 1977. *Power and Market.* 2nd ed. Kansas City: Andrews and McMeel.

——. 1956. "Toward a Reconstruction of Welfare and Utility Economics." In *On Freedom and Free Enterprise.* Mary Sennholz, ed. New Haven, Conn.: D. Van Nostrand.

Salin, Pascal. 1991. *Macroéconomie.* Paris: Presses Universitaires de France.

——. 1990. *La vérité sur la monnaie.* Paris: Odile Jacob.

Say, Jean-Baptiste. 1841. *Traité d'économie politique.* 6th ed. Paris: Guillaumin.

Wheatley, John. 1807. *An Essay on the Theory of Money and Principles of Commerce.* London: Bulmer.