Monetary Equilibrium and Price Stickiness: A Rejoinder

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Abstract: Luther and Salter argue for a regime where aggregate demand is restored by an increase in the money supply in response to an increase in the demand for money. They claim that, 1) monetary equilibrium policy prescriptions do not necessarily rely on sticky prices, 2) Cantillon effects can be neglected without consequence, 3) wealth redistributions from monetary policy are unimportant, 4) monetary disequilibrium theorists strive for a stable price level, 5) fewer price adjustments are necessary in their proposed regime, 6) savings and saving are equivalent, 7) changes in the composition of savings do not alter time preference, and, 8) in the proposed regime economic calculation is easier than in a 100 percent reserve system . All these claims are false. They furthermore misconstrue us as preferring negative quantity adjustments to positive price adjustments. This too is false.

Monetary Equilibrium and Price Stickiness: A Rejoinder

Luther and Salter compare two monetary regimes. In one regime prices fall in response to an increase in the demand for money; in the other an increase in the supply of money prevents prices from falling. Luther and Salter try to show that we have committed errors in our treatment of price stickiness. In this rejoinder we take the opportunity to clarify our original exposition.[1]

Relative prices and increases in the supply of money

Luther and Salter state that we repeatedly mischaracterize the outcome of monetary expansion. They claim that a monetary expansion restores aggregate demand to its original (pre-monetary expansion) level *and* that the original array of prices continues to reflect relative scarcity. To this we are in half agreement – nominal spending can be supported by an increase in the money supply. The question of whether prices will still reflect relative scarcity deserves further attention.

The question on the eve of the bust is not one of all prices being too high, or the general price level being set too low. It is a question of some prices being misaligned with others. Artificially increasing the quantity of money cannot be assured to align these discoordinated prices with

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[1] They furthermore brush aside the chief contribution of our original article, which is the focus on sticky prices. Indeed they claim that any policy norm resulting from monetary equilibrium theory does not depend on prices being sticky, but rather just that the cost of adjusting the money supply be less than the costs of changing prices. They then go on to list examples of the costs of changing prices: menu costs, the opportunity cost of establishing new prices, and "some other source". We would be interested in knowing what the "other source" of these costs could be, as the other two only arise if prices are indeed sticky. If prices were flexible there would be no "cost" to adjust them as they would already be at the market clearing level. Alternatively, since we gave three reasons for sticky prices in our original exposition – long-term contracts, workers not accepting lower wages, and menu costs – it could be that they consider only menu costs when explaining sticky prices. This too would beg the question of why reducing the price of a meal and incurring the associated costs (i.e., printing a new menu) differs from reducing the price paid to labor and the associated costs it incurs (i.e., demoralization, the risk of losing an employee to another employer, etc.).

those necessary for equilibration. An increase in the economy's common denominator – money –

does not increase all prices equally nor does it necessarily leave intact signals of relative scarcity.

This is because, as the authors well note, Cantillon effects prohibit a return to the original price

array.

These Cantillon effects exist for several reasons. First, the physical process through which

spending takes place implies that preferences and scarcities will have changed by the time the

money arrives to the disequilibrated prices. Differing demand elasticities will incite distinct

quantity responses to the increase in nominal wealth via an increased money supply, even if this

money supply is distributed evenly, either in absolute or proportional terms (von Mises 1928:

100-103; 1949: 413, 416, and *passim*). Second, there are epistemic reasons to doubt that the

array of prices will return to its original state (Howden 2010). As new money must enter the

economy at some definite point, knowledge of this money's origin and the sustainability of its

results will continually erode as it works its way through the system.[2]

To use preferred terminology, we can restate Cantillon effects as money's property of non-

neutrality. Yet there are two definitions of non-neutrality, one to which we subscribe (the narrow

definition), and the other which Luther and Salter follow (the broad definition). In our account,

money is non-neutral if supply-side changes to its purchasing power alter the existing array of

prices. Alternatively, one can think of money as non-neutral if increases in its quantity have an

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[2] Luther and Salter think we make a "non-economic explanation" when we discuss the redistribution implications of
Cantillon effects, pointing out that all economic changes result in wealth transfers. We argued merely that changes
to the money supply to offset one set of redistributions leads to an alternative set. In incorrectly indicting us for
judging one set of redistributions as preferred to another, Luther and Salter go on to say that one "should" always
prefer the adjustment process with the lowest costs.   These costs are, however, subjective and advocating one to
another as they do imposes a value statement and an unscientific interpersonal utility comparison.

effect on real output. This latter view is consistent with the New Keynesian consensus that Luther and Salter provide to the reader. Almost no economist today doubts the latter definition of non-neutrality, and yet there are important reasons to agree with the former.

That money is non-neutral in the narrow sense is something that readers of this journal will understand well – it is, after all, one base explanation for the Austrian Theory of the Business Cycle. Under the Austrian view, the supply and demand for money has no systematic effect on aggregate growth in an economy – money-side changes affect the structure though not the level of production. If money were neutral in the broad sense, any increase or decrease in its supply could not cause either malinvestment or over-consumption. No discoordination could occur if all prices changed by either: 1) the same proportion, or 2) some differing proportions, but still maintained their signals of relative scarcity.[3]

If prices were fully flexible, no disequilibration would occur. Increasing the money supply in light of any supposed stickiness incentivizes individuals to not reduce important prices – wages and other input factor prices, for example. The goal of fostering an environment where prices are as flexible as possible negates the need for any changes in the money supply, or an institution to do so.[4] As a simple equality, no one doubts that any level of nominal spending can be targeted or

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[3] We further challenge that monetary equilibrium theory is a poor tool for understanding an Austrian Business Cycle (Bagus and Howden 2012: sect. 4).Critics could take recourse in asserting that since the money interest rate would be altered by such an expansionist policy, intertemporal coordination would be skewed accordingly. Yet as the interest rate is just a value spread between goods, this discoordination could not occur unless relative factor prices were also skewed. Rothbard (1962: chap. 11, sect. 5G)) and von Mises (1949: 526-32, esp. p. 527) make a similar point, reminding the reader that the interest rate is determined not through the money side (not even the "loan" rate of interest) but rather by the goods side of the market, through the structure of production and the array of relative prices.

[4] Some prices may be sticky out of preference, as is the case in Hutt (1977) and Rotemberg (1982). Since this stickiness is preference based, we are unsure why monetary equilibrium theorists want to change the money supply to affect the general price level, thus forcing these prices to be reset and entrepreneurial plans frustrated. Consider an

maintained through changes to the money supply. What we are concerned with are changes to the goods side. What benefit does it serve to target a previous full-employment level of output, if the future growth path of real incomes suffers as a result? Pursuing a policy that sets in motion an Austrian Business Cycle – such as distorting relative prices or altering the loan interest rate by expanding the money supply – will solve one superficial yet immediate problem (a decline in nominal income), yet exacerbate a future problem (either lengthen the recession, or reduce the future growth path of real income).

What about "water disequilibrium?

One could make the argument that one advantage of a free banking system would be to overcome the problem of sticky prices when the demand for money increases. Luther and Salter do not, however, use this argument. Rather, they argue that it is not the speed of a price adjustment but its cost that is relevant. Their relevant tradeoff is between the costs of price adjustments (menu costs, time spent devising menu, etc.) and those of adjusting the money supply (printing notes, time spent on thinking how much to print, etc.).

Can an increase in the money supply really reduce price adjustment costs? Consider that when the demand for money increases, prices adjust downwards. Luther and Salter argue these

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investor who thinks the market is overbought (as in Bagus and Howden 2011b). He sells his assets to increase his cash balance, and plans on buying again when the market deflates to a lower level. As he increases his cash balance his fractional reserve bank expands credit, and the market reflates. Not only is a potentially oversold market promoted or prolonged, but the investor´s personal plans have been frustrated. In an extension of this example, Luther and Salter erroneously state that we "view the contraction in output following an exogenous increase in money demand as an optimal response." The actual implication of Bagus and Howden (2012) is that if people want to work less, as in the scenario where people for ideological reasons are harshly opposed to reductions in nominal wages, then a contraction in output is the consequence. They also claim that monetary equilibrium theorists prefer stable output *and* stable prices. Prominent modern equilibrium theorists have gone to great lengths to demonstrate that instead of price stability, their policy norm allows prices to fluctuate inversely with the velocity of money. See Selgin (1988: pp. 103 and 126-29; 1997) for two excellent examples of this reasoning.

adjustment costs can be prevented when the money supply increases and aggregate demand is restored.[5] Can an offsetting increase in the money supply really reduce price adjustment costs? Bear in mind that the additional money is always introduced at specific points in the economy, i.e., not all economic agents receive the same amount of new money at the same time. As a consequence relative demands change. Thus, the reduction of price adjustment costs by introducing more money in the economy is an illusion, as there are rather more adjustments necessary as there is a revolution in the whole structure of relative prices.[6]

Consider the "water disequilibrium" problem Luther and Salter´s supposed drought in Arizona poses.[7] An increase in the water supply in Maine can offset the decline in Arizona, and maintain the total level of water at its pre-drought level. In doing so the relative quantities will be skewed, with more water being produced in the northeast to offset the decline in water production in the southwest.

This analogy abstracts from several key issues.

First, after the natural disaster the relative price of water increases (as does the price of money when its demand increases). A more diligent use of water and an incentive to allocate it to

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[5] Note the Keynesian terminology of "aggregate demand". We think that the majority of Luther and Salter´s errors stem from a too aggregative approach to economic theory that inhibits them to see microeconomic problems of adjustments of individual cash balances or relative prices. Further note that no one argues that an aggregate nominal variable can be maintained by money supply changes – what is up for debate are the microeconomic implications that result from such a policy.

[6] It is also an illusion, as Luther and Salter claim, that entrepreneurs can ignore changes in the demand for money in their proposed alternative, thus making economic calculation easier. In their alternative, entrepreneurs must forecast changes in consumer demand for their product, the impact on the increase of the money supply on relative prices, and the amount of the increase of the money supply that depends on the increase in the demand for money.

[7] Their example distils to a two-sector, one good economy with one relative price to equilibrate. This over-simplification and disregard for a full array of relative prices obscures the equilibration process, as we explain below. Salerno (2012: sec. 3) provides an overview of the errors of this type of simplistic model building.

Arizona would be the consequence. If someone wanted to prevent the increase of the price of water, water could be produced in Maine and transported to Arizona. In the same way a fractional reserve bank could produce money in Maine giving a new loan to a local business for eventual distribution to Arizona. The increase in Maine´s water production will finally solve the shortage. But it would have been solved more directly if the price of water would have been allowed to rise in Arizona.

The same is true for another economic good: money. If person *A* abstains from going to the movies to increase his real cash balance, movie prices fall. Imagine that as a response to the increased demand for money, a fractional reserve bank produces more money granting a loan to person *B* who is an opera lover. As she goes to the opera more often, ticket prices, income and the real cash balance of the opera singer increases. Opera singer *C* may buy a car, increasing its price. This in turn reduces *A*´s real cash balance through upward pressure on both opera and car prices. We could continue the example, but it is easy to see that even though the additional money may at some point reach person *A*, it is less direct than the adjustment of his real cash balance through falling prices.

Second, the water example is not perfect because water represents real wealth. The increase in production in one area to offset a drought in another can maintain, in theory, total water utility.[8] Regardless of its price, some level of water consumption is required. Fiat money is different –

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[8] We suspect that this "water disequilibrium" example is influenced by Yeager (1994: 159-60). Yeager notes that a "chairs" version of the equation of exchange can be written, whereby $CV_c = PQ$, with P an Q given as per convention, C the average number of chairs in existence in a given area during a time period, and V_c the "velocity" of chairs (or, more correctly, the ratio of nominal income to the average number of chairs). Although the example does correctly extend the tautology, it is not relevant on any level other than the formal truism. Any increase in the number of chairs does confer a social benefit, as chairs are directly able to confer utility and thus increase our wellbeing. Money, particularly fiat money, has no direct use value and as such cannot change the total utility of a system.

although it facilitates the creation of utility, its quantity cannot directly alter the utility of an economic system. Increasing its quantity in one area can thus confer no greater real wealth. Society is not wealthier when more money is issued, but it is potentially wealthier when more drinking water is bottled. While the issuance of water may keep the array of relative water prices intact (higher in Arizona, and relatively lower in Maine), the complex of relative prices *viz*. water and other goods is skewed. In Maine, the relative price of water will be depressed relative to other Maine goods due to its increased production. This signals to Mainers that they should increase water consumption relative to, say, opera, movie or car consumption. Note that this would not occur if the price of water would have been allowed to rise, as it would have when the drought in Arizona stimulated total water demand. The increase in water production solved the apparent problem of a disequilibrium in the water market between two places, but it disrupts the balance that exists between all other goods.

As we have noted here and in Bagus and Howden (2011a) fiat money issuances will result in troublesome wealth transfers and potentially provoke a costly business cycle. Better to let prices do the work then to explore the complex issues with changing the money supply that might go awry.

Savings and saving

Luther and Salter ascribe to us an inconsistency that falls apart once it is acknowledged that they misquote us, writing: "[i]n an earlier critique of fractional reserve free banking theory, Bagus and Howden (2010[a], p. 43) asserted that 'cash holdings do not represent *savings*'" (emphasis added).

What we actually wrote was that "cash holdings do not represent saving." Indeed in the very same paragraph we define savings as a stock variable represented by cash holdings and saving as that part of income not consumed in a given period. We distinguish the two in order to show that when gold is transferred from under a mattress into a fractional reserve bank, savings (cash balances) may increase when the bank expands credit as a response, while saving remains constant. Similarly, the printing of fiat money notes deposited at a bank increases savings (cash balances) but does not imply an increase in real saving (the flow of real goods available to sustain production processes). Unfortunately, fractional reserve free bankers tend to confuse an increase in cash holdings with an increase in real saving and regard the credit expansion of a fractional reserve banking system as unproblematic (Bagus and Howden 2010a: 38-44).

Luther and Salter misconstrue our argument when they write: "If, on the other hand, economic agents change the *composition* of their savings without changing the *amount* of their savings, such as by liquidating equity holdings and holding the proceeds as cash, the resulting issuance of additional fiduciary media is necessary to prevent signaling a change in time preference where one has not occurred." They neglect that there is a time dimension of savings.

Consider an individual who sells a 10-year bond for $1,000 and buys a 5-year bond for the same price because he wants to increase his consumption earlier (after 5 years instead of 10). Has his time preference changed? Luther and Salter would argue that just the composition but not the amount his savings has changed, and as such time preference remains constant. We argue that time preference and savings have a temporal dimension (Bagus and Howden 2010b). If

economic agents want to increase their consumption earlier and wait less, time preference has increased and the structure of production should be commensurately shortened.

The same is true if an individual disinvests by reinvesting less capital than is necessary to offset depreciation (thus reducing equity) and thereby physically shortening the structure of production. He may now hold cash (which we may call savings if we like) because he plans to buy consumer goods this summer. Instead of revinvesting in his machine, the individual wants to increase his consumption. His time preference has increased and the structure of productions shortens by this very action. Even if we call his cash holdings savings, the time dimension of these savings has changed. As a response to an increase in the demand for money, fractional reserve banks may expand credit and lower interest rates. There is a tendency to lengthen the structure of production despite the increase in time preference. When the individual finally demands consumers´ goods in the summer, it will become obvious that some of the projects financed by credit expansion are malinvestments due to a lack of real savings.

Conclusion

Luther and Salter have provided a standard New Keynesian justification for a fractional reserve free banking policy. We have demonstrated that: 1) Cantillon effects in the narrow Austrian sense matter more than in the broad New Keynesian sense, 2) relative price distortions affect the future growth path of an economy, 3) a business cycle is not solved by propping up nominal aggregate demand through monetary policy, 4) saving matters, and increasing savings artificially has ill effects on the economy, and finally, 5) an appeal to faulty analogies, no matter how

erudite, yield non-relevant results.

We take their response as indicative of ambiguities in our original exposition, and welcome this opportunity to clarify the misunderstandings. Since we all agree that central bank induced inflationary policies enact the business cycle through relative price maladjustments, the question we leave them with is: what makes fractional reserve free banks operating under the same structure any different?

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