

NOTES AND REPLIES

A Note on "Desired Money Balances" and Menu Costs

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This note argues that the monetary disequilibrium framework mistakes frustrated plans for genuine market disequilibrium (in the sense of a lack of market clearing) and that these frustrated plans are not needed to explain the endogenous processes instigated by a change in the money relation. I argue that localized monetary equilibria are established in the plain state of rest after every transaction and that an interspatial monetary equilibrium is quickly established in the Wicksteedian (fully arbitrated) state of rest.¹ Monetary equilibrium does not require a final state of rest in which all adjustments to production have taken place. It is not clear in the monetary disequilibrium theory literature which equilibrium construct the theory's proponents have in mind as a requirement for monetary equilibrium. Either way, it is erroneous to consider monetary equilibrium as being established through a costly and/or sluggish adjustment of a mythical aggregate price level. This reality undermines the menu cost rationale for monetary regimes aimed at price level stabilization and supports a regime in which the market process, with the myriad price adjustments it entails, is allowed to operate.

“Desired Money Balances” and Endogenous Change

Monetary disequilibrium theory (MDT) proponents often equate the demand for money with “desired money balances.”

- Steven Horwitz (2000, 67): “Recalling that the demand for money is a demand to hold real balances, suppose the money supply is increased to an amount beyond that which the public *desires* to hold” (italics added).
- George Selgin (1988, 52): “The demand for money, properly understood, refers to the *desire* to hold money as part of a financial portfolio.”

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¹ See Klein (2008, 172–75) for an overview of these equilibrium constructs. The plain state of rest and the Wicksteedian state of rest “describe real-world outcomes” (172), but the final state of rest is never achieved in the real world.

- Leland Yeager (1956, 439): “If people on the whole are *trying* to add more money to their total cash balances than is being added to the total money stock (or are *trying* to maintain their cash balances when the money stock is shrinking), they are *trying* to sell more goods and labor than are being bought” (italics added).

It seems MDT proponents have a view of money demand that is based not on realized transactions, but on unrealized plans or desires divorced from demonstrated preferences.

This conception of money demand has intuitive appeal. We immediately grasp and can relate to the idea that people have plans in mind before interacting with others in markets. Moreover, this conception of money demand is used by MDT proponents to explain the endogenous processes by which changes in the money relation result in a new array of prices. Indeed, MDT literature is replete with explanations of these processes. Consider Horwitz’s (2000, 67–68) continuation of his example quoted above: “As this excess supply of money works its way through the economy, people find themselves with larger money balances than they wish to hold. . . . Assuming that there has been no change in their demand for money, these excesses will be spent on goods, services and/or financial assets driving up the prices of those items.” The idea is that an unanticipated change in the money relation disrupts and alters the plans of market participants, resulting in changed behavior and market outcomes.²

The problem is that divorcing money demand from demonstrated preference results in an inappropriate diagnosis of disequilibrium in the market-clearing sense. Consider an individual who wakes up one morning with the hare-brained desire to sell paper clips for \$1 million each. At the end of the day, his desire is not realized, as the market price for paper clips has remained at one cent per paper clip; but “paper clip disequilibrium theorists” might conclude that there was an excess supply of paper clips—using Horwitz’s language, “he found himself with larger paper clip balances than he wishes to hold.” While this example is fanciful, it reveals that we cannot conclude that a surplus or shortage exists based on frustrated plans. When the constraint on the fulfillment of transactions is other people’s preferences, it represents a lack of a double coincidence of wants. When the constraint on the fulfillment of transactions is a government-imposed price control, we have an uncleared market and can properly diagnose disequilibrium in that sense.

² Technically, it is not spending that “drives up” prices. Spending is a result of realized exchanges that occur at spot prices. Similarly, prices are a result of the interaction of buyers and sellers, whose preferences are revealed in exchange. Logically, then, the causation runs from preferences to negotiation, negotiation to realized prices, and realized prices to expenditure. Of course, all are revealed instantaneously in exchange.

Also, this conception of money demand as “desired money balances” is not needed to explain the endogenous processes set in motion by a change in the money relation. A change in the money relation is brought about by changed demands for goods and services, which result in a succession of plain states of rest. For example, an increase in the supply of money results in a decrease in the marginal utility of money for the first receivers of the new money. This decrease in the marginal utility of money can only be demonstrated in action and exchange.³ These first receivers may now outbid other demanders for specific goods and services, resulting in market-clearing plain states of rest at higher prices in those markets. The process continues as the suppliers of those goods and services increase their demands for other goods and services, and on and on until the later receivers of the new money face an array of generally higher prices (due to the bidding of the earlier receivers).⁴ The process reaches a point where the reduced marginal utility of money relative to specific goods and services on the later receivers’ value scales is not sufficient for these individuals to outbid others at higher realized prices.

Even here, the nonneutral effects of changes in the money relation must be remembered. The later receivers, now facing an array of higher prices, may increase their demands for money (facing a lower purchasing power of money, individuals may begin to rank the money unit more highly relative to nonmoney goods). This would hasten the equilibrating tendencies toward a Wicksteedian state of rest, since fewer price adjustments are required. Thus, even if MDT proponents insist that monetary equilibrium is only established in this equilibrium construct, it is also achieved “relatively rapidly,” according to Joseph T. Salerno (2010, 102). Salerno continues: “Thus, the interspatial equalization of the purchasing power of money does not wait upon the culmination of the overall monetary adjustment process [final state of rest to final state of rest], which may take years, but is a powerful tendency exhibiting itself at every step of the process” (104). If MDT proponents hold that monetary equilibrium is only established in a final state of rest, they must explain why changes in the production of nonmoney goods are required for equilibrium in money, an exchange commodity. According to Murray N. Rothbard (2006, 210, quoting Edward Copleston), “Copleston was perceptive enough to point out that the path toward equilibrium is faster in monetary than in real matters. In monetary affairs, he noted, ‘the level is found *almost immediately*. Other commodities require some time to produce them. . . . [Money] is always afloat, waiting only the impulse of profit to determine its direction to the best market.’”

3 I do not deny that plans, expectations, and desires change. But these psychological phenomena are distinct from the praxeological categories of action, preference, ends and means, etc. We can only diagnose a lack of market clearing based on the latter.

4 See Salerno (2010, 93–103) for an illuminating discussion of this process through plain, Wicksteedian, and final states of rest.

MDT proponents see a sluggish change in the price level and conclude that monetary equilibrium is not reestablished until the price level reaches its ultimate height, but a closer look reveals a sequence of plain states of rest and localized monetary equilibria. The endogenous changes are driven by changes in the marginal utility of money relative to nonmoney goods on each individual’s value scale as each individual receives the new money. The sequence of plain states of rest involves a rapid annihilation of interspatial price discrepancies, meaning that an interspatial monetary equilibrium does not require production changes or a change in the money supply.

Menu Costs and the Choice over Monetary Regimes

MDT proponents emphasize the costs of the endogenous changes described above. They might respond that no matter what label we attach to the static outcome (equilibrium versus disequilibrium), the endogenous process of price adjustments remains costly. For example, Horwitz (2000, 69) writes, “If movements from one supply of money to another were completely costless, then indeed it would not matter what the money supply was as any increase or decrease in that supply could be costlessly adjusted to by changes in the price level.” Note that this conclusion does not require (at least not explicitly) the assumption of non-market-clearing sticky prices. Along the same lines, William J. Luther and Alexander W. Salter (2012, 264) argue that the choice of a monetary regime should be informed by the costs associated with changing prices (c_p) and the costs associated with changing the money supply (c_m). They “show that sticky prices are not a necessary condition; even if all prices were perfectly flexible, changes in the money supply to offset changes in money demand might still be desirable.” That is, a flexible money supply is desirable when $c_p > c_m$.

The costs associated with changing prices, however, are choice variables for market participants. Restaurants, for example, may use a single chalkboard menu if they anticipate frequent price changes or menu offerings depending on the availability of ingredients, on consumer demand, or on any other variable market conditions. Online retailers, gas stations, and vendors with digital price tags may update prices algorithmically or with a single keystroke. Other vendors choose to change prices infrequently or never.⁵ This choice depends on the price setters’ anticipations regarding the profitability over the foreseeable future of changing posted prices, which in turn depends on a bafflingly large number of factors, only one of which is the demand for money.⁶ It is likely that an instance in which a vendor recognizes the

⁵ Consider AriZona iced tea (Palm 2024) or Costco hot dogs (Treisman 2024).

⁶ Changes in the demand for money are unlikely to have an overriding or overwhelming influence on the costs associated with changing prices. While there is no consensus on this claim between MDT proponents and those who hold the Misesian-Rothbardian view that fiduciary media instigate boom-bust cycles, if it is true then the demand for money is subject to larger swings in a fractional reserve banking regime than in a full reserve banking regime (Bagus and Howden 2011, 168–69). Bagus and Howden note that some proponents of fractional reserve banking “at least implicitly” recognize this point.

profitability of changing a price due to a change in money demand would coincide with an instance in which it is profitable to change the price due to one or more other changes in market conditions. Responding to the change in money demand would not add to the vendor’s menu costs in these cases.⁷

MDT proponents emphasize the costs of price adjustments in response to a change in the money relation as if these costs are larger or categorically different from the price changes that occur in the constant flux of market conditions. Invoking Thomas Sowell’s famous question, we may ask, regarding the extent of the costs associated with changing prices due to a change in money demand, “Compared to what?” For example, Judith Hillen and Svetlana Fedoseeva (2021, 67) analyzed daily prices of over three thousand Amazon Fresh grocery items and found that “on average, a single product undergoes 20.4 price changes in one year.” High-frequency trading on stock exchanges exploits price changes over the course of a few microseconds. Günter J. Hitsch, Ali Hortaçsu, and Xiliang Lin (2021), using Nielsen Retail Measurement Services data from 2008 to 2010 for 47,355 products,⁸ found that stores employed price promotions every 6.8 weeks, on average, for the median product. Regarding the heterogeneity of promotion frequency, which supports the claim that the frequency and costs associated with changing prices are choice variables, they found that it “varies strongly across products, ranging from 0.011 (once in 91 weeks) at the 5th percentile to 0.370 (once in 2.7 weeks) at the 95th percentile level” (Hitsch, Hortaçsu, and Lin 2021, 304). Blanco et al. (2024, 9, 32) found that standard models “result in implausibly large menu costs” and propose a model that more closely aligns with price index data, one that “predicts very small menu costs, 0.1% of total revenues.” MDT proponents correctly note that there are costs associated with changing prices but do not explain why or by how much the costs associated with changing prices due to a change in money demand differ from the costs associated with changing prices due to the bewildering number of other factors that change constantly. Since the costs associated with changing prices due to a change in money demand are a tiny (perhaps negligible) fraction of the costs associated with changing prices for all reasons,

⁷ “Consider for example, the problem of a restaurant whose prices are quoted on a single menu. If a single item on the menu is subject to a large idiosyncratic shock and needs repricing, the restaurant might find it optimal to pay the fixed cost and reprint the menu. Conditional on having [paid] this fixed cost, changing any other price on the menu is costless: the restaurant will then reprice all its other items, even if some need only small price changes” (Midrigan 2006, 3). Blanco et al. (2024, 1) also note that “idiosyncratic shocks, as opposed to aggregate shocks, drive the bulk of price changes, even when inflation rates are high, so the fraction of price changes fluctuates little.” This means that changes in market conditions result in numerous price changes that overlap the instances in which an “aggregate shock,” like a change in the money relation, spurs price changes.

⁸ “In each year we observe more than 6 billion prices. In total, there are 18.81 billion price observations corresponding to 434 billion dollars in revenue” (Hitsch, Hortaçsu, and Lin 2021, 295).

the monetary regime decision criterion based on c_p versus c_m seems to favor allowing prices to change when c_p is properly restricted to the costs associated with changing prices due to a change in money demand.⁹

The high level of aggregation in MDT analysis leads to a fixation on the price level—what I call the “price level illusion.” The entire macroeconomy is summarized in one supply and demand graph for money (similar to the Keynesian IS-LM and AS-AD models), which yields the conclusion that with a constant money supply, changes in money demand can only be accommodated by a costly and painful adjustment of the price level. Reality is both simpler and more complex than this illusion. It is simpler in the sense that the money relation and other market conditions are in constant flux and so individuals already react on a daily basis to the nonneutral effects of changing preferences for money and goods. There is nothing especially costly, complex, or insurmountable about a change in money demand, since preferences and prices change all the time.

Reality is also more complex than the price level illusion. Changes in the money relation are always nonneutral, which means that reestablishing what might be considered the equilibrium price level via monetary injection involves preventing and distorting the changes in relative prices that occur when individuals change their buying and selling decisions.¹⁰ The only way for an individual to increase his demand for money is to restrict his purchases of specific goods and services and/or increase his sales of specific goods and services. Money is ranked against other goods on an individual’s scale of preferences, which means that it is impossible to conclude that the occurrence or nonoccurrence of some exchange is due to what economists conceptualize as a change in money demand or a change in demand for the good. Thus, economists should prescribe letting the market process run its course after a change in preferences, not applying monetary injections that are intended to arrest price changes.

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⁹ Of course, if one accepts that c_m includes the costs associated with financial crises, bank runs, business cycles, and distorted redistributions of income and wealth due to Cantillon effects, the monetary regime choice becomes all the more obvious.

¹⁰ According to Rothbard (2009, 818), “It is necessary to remember that money can never be neutral. One set of conditions tending to raise the PPM [purchasing power of money] can never precisely offset another set of factors tending to lower it. Thus, suppose that an increase in the stock of goods tends to raise the PPM, while at the same time, an increase in the money supply tends to lower it. One change can never offset the other; for one change will lower one set of prices more than others, while the other will raise a different set within the whole array of prices. The degrees of change in the two cases will depend on the particular goods and individuals affected and on their concrete valuations. Thus, even if we can make an historical (not an economic-scientific) judgment that the PPM has remained roughly the same, the price relations have shifted within the array, and therefore the judgment can never be exact.”

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