

Is money exogenous or endogenous?

The question of exogeneity or endogeneity of money is one of the most frequently debated topics within the domain of monetary economics. Neoclassical monetarists typically assert the position of exogeneity, while many post-Keynesian economists tend to lean toward the endogenous position, debating the extent to which the money supply is purely endogenous (Kaldor 1970; Moore, 1988). However, the current argument does not seem to revolve around whether the money supply is purely exogenous or endogenous, but rather on the extent to which the supply of money is determined by exogenous or endogenous factors.

What does history suggest with regard to the exogeneity/endogeneity of money?

It's important to first analyse the dialectics of the history of money before beginning to form an argument about whether money is exogenous or endogenous within the modern economy. Somewhat surprisingly, the original creation of money is heavily disputed. Individuals such as Knapp (1924) argue that money was introduced into the economy by a central authority, placing his argument in the exogenous category. Contrastingly, Menger (1871, 1883, 1892) argues that money developed not as a result of the authorities, but instead that it was created spontaneously as a result of the product of unplanned market mechanisms. In short, his argument suggested that certain commodities became money naturally as they reduced the effort and time needed to trade. The evolution of money is also further disputed as to whether it evolved endogenously or exogenously. According to Thornton (2000), the evolution to fiat money from commodity money was a result of individuals looking to cut down on production and transaction costs, this is because it required significant resources to create commodity money. Hence, society endogenously replaced this commodity money with a cheaper version, i.e. fiat money. Other economists (e.g. Hülsmann, 2008) argue that fiat money didn't appear endogenously as a result of it being seen as a cheaper alternative, but instead as a result of exogenous government intervention.

What are the current arguments for the exogeneity of money?

Monetarists are highly concerned with the development of the Quantity Theory of Money which is strongly linked with the idea of the exogeneity of money supply. Monetarists believe that monetary authorities (namely the central bank) have control over the quantity of high-powered money and that there exists a strong relationship between this money base and the money supply. This management of the money supply is conducted through open market operations and reserve ratios. Keynes (1936) in "The General Theory of Employment, Interest and Money", concluded that the money supply was an exogenously determined variable, his reasoning being that the money supply is represented in the quantity of money supplied by the monetary authority. Moreover, the members of the Chicago School (e.g. Friedman, 1970) concluded that the money supply was an exogenously determined variable with the resurrection of the Fisher equation $MV=PY$, where the money supply (M) is treated as an exogenous variable, the demand for money ($1/v$) remains stable, and any movement in money will proceed a movement in nominal income. The implication of these factors is that any changes made by central banks to the money supply will be the main cause of the fluctuations on the macroeconomic level (Edgmand, 1987).

Moreover, under the gold standard, there is also a strong argument for the money supply being exogenous. This is because the stock of gold within the economy can't be merely increased. In a full-reserve system, there would be no means by which commercial banks would have the ability to create money, and in a fractional-reserve system, the commercial banks would still require gold reserves which can't simply be increased at will, thus within a gold standard system the exogenous argument seems to hold as there is an exogenous restraint upon credit creation (Sieroń, 2019). There is also the suggestion that under a fiat standard, the money supply is an exogenous variable. This is because, when the monetary system is under a fiat standard, the central bank is regarded as a monopolistic producer of money and thus can fix the outside supply of money to be whatever it would deem necessary. Although, in reality, it can decide to respond to the needs of the commercial banks. It would also be remiss to ignore the exogenous view that commercial banks need reserves from the monopolistic central bank before they're able to grant loans on top of them (Sieroń, 2019).

What are the current arguments for the endogeneity of money?

Following the financial instability between the world wars and the abandonment of the Gold Standard in the early 20th century, criticisms of neoclassical monetary economics, and its allegiance to exogeneity, started to become more pronounced. Many of these academics came from the Cambridge School (Kahn, 1972; Kaldor, 1970; Robinson, 1956) and the ideology from these pioneers has been developed by other economists since the 1970s (Davidson, 1978; Graziani, 1984; Parguez, 1984) and most notably Moore (1988). These individuals have mainly supported interest-rate-based, fine-tuning policies, which have come about as a result of empirical findings. This has led to the gradual abandonment of central banks setting monetary targets, with them now favouring interest-rate targets (Blinder, 1997). The main reason behind this finding is typically attributed to the fact that financial markets are considerably more volatile than goods markets (Fontana, 2004). This instrumentalist approach is seen as an integration of mainstream central banking practice with the understanding that monetary aggregates adjust endogenously (Fontana et al., 2020; Laidler, 2002). Furthermore, in dynamic stochastic general equilibrium (DSGE) models, monetary aggregates are often regarded as residual variables within the system of equations, or viewed as highly unpredictable (Bank of England, 1999; Federal Reserve Board, 1996).

Another important area to analyse in terms of the argument in favour of endogeneity is the area of unconventional monetary policy. When the short-term interest rate is at, or close to, the zero lower bound, the options of a central bank are extremely limited as they're unable to lower the cost of money further. This has led to the proposition that monetary policy is almost entirely ineffective at the zero lower bound (Krugman et al., 1998). Central banks then believe they have to resort to quantitative easing to solve this issue. Quantitative easing programmes, introduced originally in the wake of the GFC of 2007-2008, were evidently of monetarist origin, as the reasoning behind the programmes would be that increasing the liquidity of financial institutions would lead to a boost in lending and hence consumption. However, these programmes demonstrated that the worry of inflation following an expansion in the money supply was groundless (Lavoie, 2017). For example, the

expansion of the money supply in the UK after quantitative easing programmes initially lagged behind the increase in monetary reserves. During this period, the US money multiplier had also fallen below unitary (Mankiw, 2009) as banks were piling up their excess reserves. Hence, the quantitative easing programmes are a great counterexample to exogenous-based, monetarist thinking, as this increase in the liquidity of commercial banks didn't lead to an immediate increase in the money supply as banks were unwilling to lend due to low animal spirits. In short, banks do not lend more simply because of an increase in their reserves (Sieroń, 2019). Extending this idea further, the supply of money can also be determined by firms' requirements to finance the costs of production. Hence, the demand for loans is generated by the production choices made by firms (Moore, 1988). Commercial banks establish the interest rate for loans on top of the base rate and then meet the loan demand, thereby rendering money endogenous. This chain of reasoning acts as an explanation for the failure of the monetarist-based quantitative easing programmes; whilst banks had high levels of liquidity, demand for credit by firms was extremely dire due to low animal spirits, thus the money supply stagnated over this period.

Some have also proposed that quantitative easing could be accompanied by a reduction in the interest rate that central banks pay on the excess reserves of commercial banks. This argument is predicated on the idea that commercial banks would not be incentivised to hold on to excess reserves if the return on the excess reserves were to be reduced. Thus, commercial banks would likely lend out more of their excess reserves, stimulating economic activity. However, as previously noted, banks will not extend loans if there is no demand for them. During periods where central banks would be carrying out these measures, demand for credit would be extremely low, hence even if the banks wanted to extend loans there would likely be no firm to extend one to. In such situations, expansionary fiscal policies appear to be the sole method to revive an ailing economy (Lavoie, 2017). This has brought into question the independence of central banks, as to function effectively, the central bank would be required to coordinate itself effectively with the government in order to successfully undertake unconventional monetary policies (Fontana et al., 2020). It seems that, under independence, a central bank is only capable of carrying out 'defensive' operations, as they have no power in controlling the demand for reserves (Bindseil, 2004; Fullwiler, 2003). This has led to many central bank officials stressing the endogenous nature of monetary reserves and bank loans.

The arguments undermining the exogenous theory of money aren't just limited to the above. Many other prominent economists have proposed arguments against exogeneity, such as the fact that loans have a large role over deposits (Disyatat, 2011) and how the deposit multiplier view isn't necessarily the correct one (Carpenter & Demiralp, 2012; Kydland & Prescott, 1990; Lombra 1992). Jakab & Kumhof (2015), who work for the Bank of England and the IMF respectively, also seemed to have openly accepted endogenous-based thinking, with the distinction they made between the ILF (Intermediation of Loanable Funds) banking model and the FMC (Financing through Money Creation Model). The FMC model is more akin to the model developed by Moore (1988). This is evidence that the view of money as an endogenous variable is no longer constrained by heterodox thought, with the Bank of England and IMF seemingly beginning to accept the principle tenets of endogenous monetary theory.

Conclusion

The question does not seem to be about the extent to which money is exogenous, but rather the extent to which money is endogenous. A clear distinction must be made as the direction of economic thought seems to be heading towards endogeneity rather than exogeneity – and with good reason. The exogenous approach to money feels outdated, with the classical theory of the interest rate, the money-multiplier story and the quantity theory of money seeming more applicable to an early 20th-century economy under the gold standard rather than a modern 21st-century economy under a fiat currency system. The failures of unconventional monetary policy are proof enough to show the failures of exogeneity, proving that external authorities (namely the central bank) seem to have little control over the money supply. Moreover, the acceptance of endogenous monetary theory by supra-national institutions, such as the Bank of England and the IMF, is further proof that the endogenous side of the argument holds stronger than that of the exogenous. It should also be noted that the endogenous side isn't just being accepted but is being actively implemented in a new generation of endogenous-money-like DSGE models (Fontana et al., 2020) which will reshape standard macroeconomic modelling in the future. This is not to say that money is completely an endogenous phenomenon, the money supply is still certainly influenced by exogenous factors. Central banks still set interest rates and engage in large-scale asset purchases which have effects on the money supply. Hence, the money supply is neither perfectly exogenous nor endogenous, but it certainly seems the debate is leaning further towards the endogenous side of the argument than ever before.

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