Multiple currencies and their implications for the endogeneity of money.

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Should Greece leave the Euro? Could Greece have a separate currency while still using the Euro? At the heart of the problems of the Euro zone is the weakness of economic theory of multiple currencies. This paper aims to build a theory of multi-currency money, as part of a larger project to develop an understanding of the complex ever-changing nature of money. Differing concepts of money are one of the differences between the various branches of economics. Neo-classical economics considers money to be merely an insubstantial veil, while Post-Keynesian and Marxian economics treat money flows as the core of a modern economy.

Some economists are reluctant to discuss the nature of money, viewing it as too complex. But much of this apparent complexity can be resolved if we start from the obvious, but much neglected fact that money is not a homogenous commodity but is always a selection of many different forms of money.

Money is continuously being re-invented in ever more complex and diverse forms. This is not a process that can be halted. Bitcoins, local currencies and phone credits are all examples of new forms of money. The Euro is the largest and most official example of a recently invented currency. We need to understand money's nature as a selection of the many different currencies and forms of value which are in circulation at any one time.

The first part of the paper sets the context. While we commonly talk about one money (in the singular) and many economics textbooks refer to the origin of money from barter, the reality is that there have always been many different currencies in circulation. Section 2 of this paper looks at the variety of historical and state currencies. Section 3 considers paper and electronic currencies. Section 4 sets out some working definitions.

The variety of currencies affects the working of the economy in many ways. The full range of such issues is beyond the scope of a single paper. Section 5 takes a particular issue; the endogeneity of money. Section 6 uses the definition of currency defined earlier to develop the concept of "intrinsic" endogeneity, that money cannot be measured in a meaningful way and the amount of money may be meaningless. Section 7 concludes.

Section 2 Historical and state currencies

In order to explore the variety of forms of money, this section considers commodity currencies and state currencies. The next section looks at the even larger variety of credit-based currencies

The classical tradition of economic thought developed by Adam Smith, imagines money emerging naturally from barter as a result of trade. If trade is the reason for the existence of money, then a single currency would be the natural result, since it would facilitate trade over the widest area, and the role of the state would be minimal. Recently, numerous anthropologists and other authorities have rejected the barter theory of the origin of money (Graeber 2011 pp21-41). They have also questioned Smith's accounts of other methods of trading (Graeber 2011 p38). Unfortunately, rather than properly considering whether economic theories adequately reflected the real nature of money, early economists dismissed people who used other methods of trading as backward – a tradition that has been continued in more recent times (Williamson 2007).

Neo-classical debates about multiple currencies have perpetuated the bias towards a single currency implicit in the barter myth. The neo-classical Optimal Currency Area theory assumes the desirability of a single currency and then debates the similarity of economies rather than considering the possible differences between currencies (Mundell 1961). As a result, discussion of national currencies has always shown a confused interaction between issues of national interest and a belief in the value of a single currency. (Polanyi 2001 p211)

In fact, there never has been a single currency. Many different objects have been used as money. Professor Davies sets out a list starting with A, amber and ending with Z, zappozats (decorated axes) (Davies 2002 p27). The use of some of these objects continued into the nineteenth and twentieth century.

Moreover, coinage has never been uniform. When the Greeks started using coins, each Greek city state (polis) produced its own coinage, rather than all using one common coinage, as you might expect if a single currency was the natural state of affairs.
Well into the 19th century, there were multiple local currencies as well as national currencies, often several different currencies in use in one town. The nominal value of the coin was decided by the state or local authorities. Though the metal value of the coin was important, it

was always less than the nominal value of the coin. Otherwise coins would be melted down and sold as bullion (Weber 1996, Munro 2009).

The existence of multiple local currencies is consistent with the alternative view that money is created by state authority first put forward by Knapp (1924) and supported by J.M. Keynes (1930 p 4). If money is created by the state then multiple local currencies created by neighbouring city states would be expected. Significantly, archaeology and history show that the state preceded money.

Modern national currencies clearly have different values set by the state and modern coins are entirely cupro-nickel tokens with minimal value as metal. Though this is a comparatively modern development.

> "*Territorial currencies are a modern creation, emerging for the first time in the nineteenth century and becoming a standard monetary structure in most countries only during the twentieth century. Moreover, even in this short life, territorial currencies were never as dominant or willingly accepted as conventional wisdom suggests*."
> (Helleiner 2003 p2)

However, it was not the existence of state and local monies but the growing use of bank credit which had the greatest effect on economists' understanding of money.

Section 3 Money and finance

The increasingly widespread use of paper money made the unreality of the metallist view of money as precious metal increasingly obvious and gave rise to the Currency and Bullion debates during the 19th century. In England, country banks could be set up in the spare room of any prosperous local trader, so that by 1810 there were over 750 country banks scattered over England. Most of these banks issued their own notes so that:

> *"at the beginning of the nineteenth century no proper system existed for controlling the flood of notes issuing from a motley collection of many hundreds of banks which were springing up over most parts of Britain"*
>
> (Davies 2002 p285)

In the United States, there were, at the time of the civil war, 10,000 different bank notes in circulation, the products of some 1600 banks (Davies 2002, p483). The natural response to this plethora of different forms of money was government regulation enforced, in England and Wales by the 1844 banking act, and rather later, in the United States, by the establishment of the Federal Reserve in 1913.

However, though banks are restricted from creating money in the form of their own bank notes, they still continue to play an active role in money creation. Under the fractional reserve banking system, bank loans are a form of money

> "*The process by which banks create money is so simple that the mind is repelled. Where something so important is involved, a deeper mystery seems only decent*."
>
> (Galbraith 1975 p29)

It might seem that there is a clear distinction between actual payment in the present and the promise of payment in the future. In practice, though, the distinction is much less clear. Firstly, since money is held with the intention of exchanging it for something else in the future, its value consists in the expectation that it will be possible to exchange it. It is, in effect, a promise of future goods. According to the historian, Niall Ferguson;

> *Money is a belief, even faith; belief in the person paying us; belief in the person issuing the money he uses or the institution that honours his cheques or transfers. Money is not metal. It is trust inscribed and it does not seem to matter much where it is inscribed: on silver, on clay, on paper, on a liquid crystal display*. (Ferguson 2008 p28)

Money is, therefore, an expectation of future consumption, just the same as a credit note. Secondly, credit notes are just as effective and often more convenient in enabling the exchange of goods as is money. In fact the evidence for the use of credit notes goes back to 3500B.C. nearly three thousand years earlier than the use of coins (Graeber 2011 p39).

With the wide use of paper currencies, modern financial markets and computer based trading, the variety of different possible forms of money has become even more extensive. The division between credit and money becomes even less clear. Stock exchanges and international financial markets have used their ingenuity to create yet more varieties of money. Literally anybody can write a note promising payment in the future. A reality reflected in this quote from Minsky

> *"Both the monetarist and standard keynesian approaches assume that money can be identified quite independently of institutional usages. But, in truth, what is money is determined by the workings of the economy, and usually there is a hierarchy of monies with special money instruments for different purposes. Money not only arises in the process of financing, but an economy has a number of different types of money: everyone can create money, the problem is to get it accepted. (Minsky 1986 p255)*

This means that there are almost endless forms of money differentiated by subtle alterations in the terms of credit or the issuing authority. At the large scale, this variety includes many forms of "shadow banking" which may be located in international tax havens. In daily life, it includes many versions of what might be called "near-money", i.e. tokens or means of credit that are commonly used instead of money, but which do not fall into the narrower definitions of money, such as Visa credit cards, the PayPal payment system or Oyster cards used for London public transport.

Section 4 Some definitions

It is difficult to describe money but we need to attempt some definition of terms, in order to enable constructive discussion of the concept. There are various different definitions of money:

“Anything which is generally acceptable as a means of settling debts”

Penguin Dictionary of Economics (Bannock et al 1985)

“An asset that is generally acceptable as a medium of exchange”

Collins Dictionary of Economics (Pass et al. 2005)

“Anything that is widely used for making payments and accounting for debts and credits”

(Davies 2002)

“An agreement within a community to use something standardised as a means of exchange”.

(Lietaer and Dunne 2013)

Acceptance appears to be one of the identifying characteristics of money. These definitions have a common theme of “generally acceptable”, “widely accepted”, currently accepted”. The purpose for which money is accepted is variously described as “payment”, “debt (and credit)”, “means of exchange”. One definition mentions community.

There does not seem to be any widely accepted generic term for different forms of money. Many definitions of money use a term like "anything" or "something" so there is no distinction between different types of money. *"Currency*" seems to be the word nearest to "a type of money". According to the Shorter Oxford English Dictionary, "*currency*" is derived from "current". It refers to something flowing. In relation to money, it means something in circulation, the money that is actually in use in a country particularly if this differs in value from the unit of account. In common use it is often used to refer to the money of a particular country, as opposed to money in general as in "foreign currency". But it can also mean money used in still smaller areas, such as local currencies or community currencies.

For the purposes of this paper I am using "*currency*" in a wider sense to refer to any one individual form of money. Any form of money is, in practice used by a community of users and this community need not necessarily be defined geographically. Thus there is a community of visa card users, a community of bank account holders, and a community of people who use phone credit money. These communities are not geographical, but they all include some people but not everyone.

This then leads to the definition of *currency* as

> *An item, article, accounting measure which is used by a community as a means of exchange*

and the definition of *money* as

> *A selection of currencies that are widely accepted*

Note that this very wide use of "currency" would mean that different currencies might – or might not – use different units of account. So that I might carry several different currencies, including Euro notes, pound notes, a Visa card, a debit card and a supermarket loyalty card

It remains to describe more clearly the nature of *"means of exchange*". Some people may think of *"means of exchange*" as a way of avoiding the need for a double co-incidence of needs, as suggested in some economics text books. But there is always likely to be some element of time delay between selling goods to obtain the currency and using the currency to purchase the goods you want. So being an effective means of exchange also implies an ability to store value over time.

Many statistical definitions of money exclude accounts that are intended to store value, but the only way to do this is to define a maximum period e.g. exclude accounts with a notice period of more than 3 months. This is by its nature, an arbitrary dividing line and may not reflect the way that the money is actually going to be used. To avoid such an arbitrary divide and to be as inclusive as possible, I prefer to use a definition that includes as "*currency*" forms of money that are often used to store value, such as bonds. So I suggest a definition of means of exchange as

An item, article or accounting measure which is obtained and held with the intention of exchanging it in the future for some other goods.

This means that the definition of currency is very inclusive. It includes almost anything that is held with the intention of exchanging it. So it includes national and local currencies, but it also includes corporate and treasury bonds, credit cards, store loyalty cards and many other methods of transferring value.

This is offered as a definition of the terminology in this paper for the sake of clarity. Other writers may use similar terms differently. Some people may question whether this is a correct description of "*money*", but it is a fairly accurate description of the nature of financial transactions in reality. In our daily lives, when we are making payment, receiving payment or considering ways of storing value for future use, we choose between a variety of options. In making payment in a store, I choose between cash, credit card, or using tokens in the store loyalty scheme. When receiving payment, I make a similar choice between cash and bank credit. When I save money, I decide between bank savings schemes, government bonds and shares.

These definitions are intentionally inclusive. Some economists will prefer to add their own more exclusive definitions. Certainly people with a doctrinaire view of money, both those who believe that only precious metal can be money and those who believe that only state credit can be money, will find these definitions too inclusive. Within this description of the real nature of daily transactions, some people may chose to adapt the definition of money to suit their preferred view, i.e. rather than defining money as a selection of currencies in common use, some people will prefer to define money as for example "currencies accepted by the government for tax purposes". One of the advantages of some definitions similar to those above is that they form a starting point for considering the value and accuracy of different more doctrinaire descriptions of money.

Section 5 Endogeneity of money

Within a single paper, it is not possible to explore all the ways that the existence of multiple currencies affects monetary theory. This paper therefore concentrates on one particular theoretical theme, the endogeneity of money.

The concept of endogeneity originates from statistics and econometrics. It describes the relationship between one variable and other variables. If X is entirely determined by other variables M, P and Y then it is said to be strongly endogenous. Alternatively if X is entirely independent of the other variables, then it is strongly exogenous. Since X may only be partly independent then it may be weakly exogenous or weakly endogenous. In relation to money, if money is endogenous, the quantity of money is determined within the economic system. Alternatively, if money is exogenous, the quantity of money is determined separately, outside the economic system.

The classical tradition of economic thought has been to assume that “proper” money was precious metal either as bullion or as coins and therefore the quantity of money was exogenous (determined by the amount of gold that was available). This “metallist” view of money was an essential element of early theories of prices and international trade. If a country had “too much” gold, it was argued, prices would go up, trade would go elsewhere and then the cost of imports would reduce the amount of gold until the reduction in the amount of gold for local trade, forced prices down and prices became internationally competitive again.

> *"Most of the eighteenth- and nineteenth-century scholars who thought about the subject believed that the "natural order" organised spontaneously around the precious metals, would suffice to ensure a well-functioning monetary system"*
>
> (Arnon 2011 p xix)

During the 19th century it became increasingly obvious that this metallist view was unrealistic, as bank credit became the dominant part of the money supply. The Bullionist and Currency debates of the 19th century saw the steady rise of a credit view of money, resulting in the writings of Knut Wicksell, and the development of an active role for central banking. Summarising in his *History of Economic Analysis*, Schumpeter wrote:

> ………. *practically and analytically, a credit theory of money is possibly preferable to a monetary theory of credit* (Schumpeter 1963 p717)

A helpful outline of the credit view of money appears in the Bank of England Quarterly Review (Mcleay et al. 2014). It describes money as a "special type of IOU". It depicts an imaginary situation in which a berry picker offers a fisherman an IOU, exchanging fish now for the promise of berries during the berry season. This is, of course, a story told for theoretical purposes and is no nearer to the real history of the development of money than the earlier ideas suggested by Adam Smith. It is helpful, for our purposes, however, because it describes the creation of credit without the use of a bank and illustrates how credit money is, in its nature, endogenous.

People offer credit and accept credit because they wish to buy something or to undertake some project. In other words, credit is created as a result of economic activity, that is, endogenously. Or in more common current practice, money is created by bank loans and loans will be requested and approved as a result of planned economic activity. So the quantity of money will be a result of economic activity, rather than a cause of it.

The principal advocates of an endogenous view of money have been Post Keynesian economists, particularly Basil Moore (1988). The various Post-Keynesian views of money have combined credit and state views of money in a slightly uncomfortable combination. State (fiat) money is in principle exogenous, since its quantity is set by state decision, whereas credit money is in principle endogenous.

Keynes' support for the state (chartalist) view of money has already been quoted. Keynes also, at some points, appears to believe in an exogenous money supply set by the state. But he also clearly agreed that loans create deposits, rather than the reverse. (Chick and Dow 2013) He was also writing at a time when national banking and foreign exchange controls were much more common and widely accepted than they are today. Thus the changes between Keynes and later Post-Keynesian thought may be seen as a response to the effects of the growing freedom of the international financial markets.

Central Bank control over bank lending is considered to be ineffective. Attempting to control the quantity of money directly would cause unacceptable variation in interest rates and action to limit bank credit could cause a crisis of confidence that would create unacceptable damage to the payment system; a view well illustrated during the banking crisis of 2007 and 2008. As a result, creation of money through bank loans is determined by bank lending policy rather than the government. So money creation is endogenous to the economy.

This suggests that money is credit money and endogenous, as a result of a lack of control by the state. If the state chose to exercise its control and limit bank lending it could do so, but it chooses not to do this and allows the banks to run the monetary system. In the terms used by Chick and Dow (2013b) the state gives the banks a franchise to create money, but has managed it very loosely, partly because the dominant neo-classical theoretical view believes that the “free” market should run the economy.

Some Post-Keynesian economists believe that limits on bank lending are partially effective, so there is an upward sloping graph of money supply against interest. Others suggest that there is no effective limit so that the money supply against interest graph is horizontal (limitless money supply at a fixed interest rate). This is now widely seen as a debate over the microeconomics of bank lending or a question of timescales. (Fontana & Venturino 2003)

However new classical economists also assert a claim to the endogeneity of money. They point out that money is weakly endogenous because the amount of money is partially determined by the preference of households for holding their wealth as money as opposed to bank deposit accounts or government bonds.

Section 6 Intrinsic Endogeneity

The considerable literature on monetary endogeneity (Setterfield 2002) has concentrated on whether bank credit is endogenous. This is understandable because bank credit forms the vast majority of the current money supply (97% in the U.K.) (Ryan-Collins et al. 2011)

The idea of "Intrinsic" endogeneity attempts to explore how far the endogeneity of money extends beyond bank credit. Is money, in its nature, endogenous?
Making the distinction between forms of money (currencies) and the generic term, money, meaning a selection of currencies which are in current use, provides the concepts which enable us to pose this question.

The quantity of money is the aggregate of the quantities of a selection of currencies, so the quantity of a currency can be exogenous, while the aggregate amount (money) is endogenous. For example, the quantity of notes and coins is clearly exogenous because it is decided by the Central Bank. However it does not follow that the quantity of money is exogenous. In fact, it is now widely accepted that current money supply is endogenous, because the quantity of bank credit is endogenous and bank credit is currently the dominant form of money.

However, what would happen if bank credit were made illegal? If bank credit was abolished by law, i.e. by requiring full-reserve banking or making all bank lending a function of the state, as some people have suggested. Would this make the money supply exogenous? Or, to be less extreme, if a greater use of state fiat money or community currencies was to reduce the dominant position of bank credit?

To some economists, this will seem a hopelessly hypothetical question. But the widespread disenchantment with banks following the 2008 financial crisis, the increasing use of quantitative easing and the growing importance of the Chinese renminbi which is under state control, mean that this may become a practical as well as a theoretical question. In the 1930's Irving Fisher suggested that bank credit should be controlled as a way of preventing a repeat of the Great Depression (Fisher 1935) . This suggestion is currently being revived by a campaign for "Positive Money" in the U.K. (Wolf 2014 pp 209-213). Whether such proposals are viable depends on whether money is just endogenous by accident or design, or whether it is intrinsically endogenous, by its very nature.

There are two alternative assertions that assume the exogeneity of money.

- The classical assertion that the quantity of money affects the level of prices

- A more modern assertion, variously defined, that the availability of money affects the level of economic activity and possibly the type of economic activity.

The classical economists believed that money was essential for trading to take place. This is the underlying theoretical point behind the double co-incidence of needs and the barter theory of money. The first few chapters of the Wealth of Nations argue that specialization increases productivity, specialization requires trade and trade requires money. This is, it is argued, the reason for the invention of money. If money is a unique invention required for trading, then a shortage of money might limit the amount of trading and a shortage of money might push prices up.

Alternatively in more modern theories, if money is exogenous, limiting the amount of money might reduce the amount of activity and lead to unemployment. An excess supply of money may lead to inflation, or in some theories, to unwise investments. Since the idea of purely metal money is no longer tenable, modern theories of exogenous money concentrate on the role of the central bank in limiting the money supply

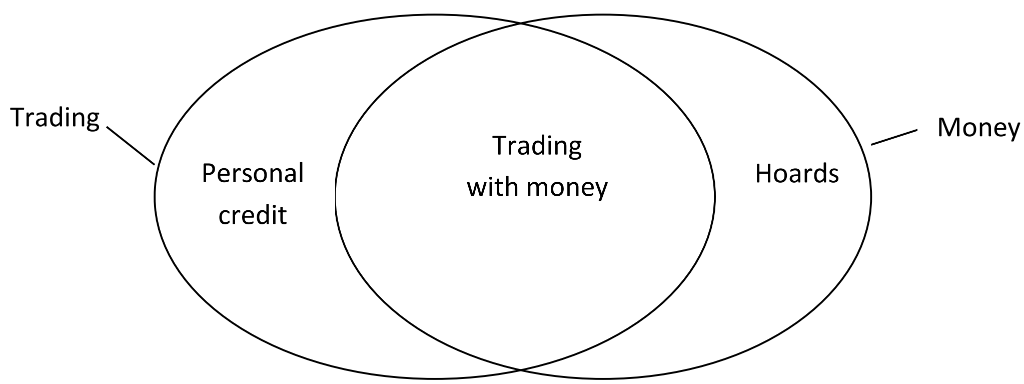
Both the classical and modern ideas assume that

- Money is used for trading
- The quantity of money can be defined and measured
- The supply of money is limited

The terms defined above can help to clarify these propositions. Starting with the relation between money and trading; Money was defined as: *"a selection of currencies which are widely accepted".* It was implied that money is accepted for the purposes of trading. So all money can be used for trading. Also all currencies are intended for exchange – this is a consequence of the definition of "means of exchange" as "*An item, article or accounting measure which is obtained and held with the intention of exchanging it in the future for some other goods."*

This leaves the possibility that some money is not intended for immediate exchange, what Marx might have termed as "a hoard". This is what happens. People hold on to money and currencies with the intention of exchanging them at a later date. There is not space here to discuss the different theories about why it happens. Using our definitions above bonds would be a currency and they are usually held as "hoards" with the intention of exchanging them at a later date.

The other logical possibility is that trading might occur without the use of money. This also occurs through informal credit arrangements of many different sorts. As discussed above, credit is not only created by banks, but by any arrangement which involves a promise to pay later. If this is a personal agreement between two people, it would fall outside our definition of currencies (because it does not involve a community), but it would enable trading.



This diagram can also help to explain why the quantity of money is so difficult to define. We want to find a set of currencies that are always used in transactions and never used for any other purpose. This distinction does not exist in practice. There are no currencies which are always and only used for trading. And transactions can take place without the use of any formally recognised currency - if one of the parties is ready to accept a promise of future payment. At the other extreme, even cash, which is probably the form of money most commonly used in transactions, can also be stored under the bed as a store of value.

> *"The distinguishing characteristics of that set of assets which may be described as money is that they perform the function of a medium of exchange. This does not, however, allow for a clear distinction in practice between those assets which should be regarded as money and those which cannot be so treated………"* (Goodhart 1984 p21)

Goodhart's use of "medium of exchange" in this quote means something more limited than the "means of exchange" as defined above. Something much nearer to "money used in trading" is meant. What we want to measure for the purpose of monetary management, is the amount of different currencies that are used for trading and though it may be possible to measure the quantity of a particular currency, how much of it is used for trading is difficult to determine.

It has always proved difficult to control the money supply. Central banks have, in practice, managed the economy through interest rates. Attempts to control the amount of money even indirectly (between 1971 and 1983 in the U.K.) failed in practice. This is discussed in detail in Goodhart (1984) which also includes as an aside, the first statement of "Goodhart's law"

> *"That any observed statistical regularity will tend to collapse once pressure is put upon it for control purposes"*

This is similar to the better known Lucas critique that economic actors will tend to counteract any official management of the economy. It is an effect of the many endogenous forces affecting both the quantity and the use of currencies including the decisions of individual people as well as commercial bank policy.

The neo-classical theory that people can vary the amount of cash that they hold has already been mentioned. So we have two sources of endogeneity, firstly the banks can vary the total amount of bank credit, depending on their confidence (and, in the light of recent experience, the state of their balance sheets), secondly, individual people can vary both the proportion of a particular form of money which is used for trading and the proportion of different currencies which they hold.

If I am worried about whether I will receive next week's wages on time, I am likely to

a) hold more cash, since I may have to fund two weeks expenses instead of one
b) Use a smaller proportion of the cash I do hold for purchases, for the same reason.

Furthermore, value can easily be transferred between currencies. So the amount of value that is held in a particular form can vary depending on the terms of use of that particular currency. There are many forms of currency which are "near-money", i.e. similar in function to money but just outside some definitions of money and most of these near-money currencies can be exchanged with other currencies within the subset of "money". The result is that the amount of money is changeable, because value can be moved across the "money" borderline at will.

So there is a double or even triple source of endogeneity,

The amount of different currencies that are created and held vary depending on

- Bank confidence
- Consumer preference
- The way that holdings of currencies are used varies depending on consumer confidence.

Not only does the way that currencies are used vary, the total amount of currencies varies endogenously. The barter theory, implicitly suggests that money was invented, or discovered on one occasion in the past. But once we recognise that there are multiple currencies this suggests that money creation is a continuing process, rather than a one off event. On the simplest level, people will create currencies when the official currencies are not valid, not available or inappropriate.

- The first settlers in Australia created their own money, when no official money was supplied. (Butlin 1953)
- When banks closed in Ireland for several months, people created their own credit systems (Murphy 1978)
- When the Argentinean peso collapsed, people created shop token systems (Ingham 2004 pp 165-167)
- Prisoners of war used cigarette currency (Radford 1945)
- Baby sitting circles created their own token currency

More routinely, people probably find ways of making best use of the currency they have got, for example, by using informal credit arrangements. Bank credit money, it is now generally accepted, is created endogenously, in response to demand. But the same effect, of creating additional demand, also applies to much trading on credit. So it is clear that money (meaning money used for trading) is endogenous, created by people in response to their wish to trade.

Not only can money be created informally, it may also disappear. In the continuing discussions about the mechanism of monetary endogeneity among Post-Keynesian economists, there have been several interventions arguing that money does not just vanish (Howells 2002). In the light of the experience of the financial crisis of 2007/8, we need to review this assertion. The experience of the ordinary person suggests that money did indeed vanish in that period.

It is worth revisiting the events of the financial crisis and the distinction between money and currencies is helpful in describing the process. People invested their money with banks and the banks used that money to purchase other, more risky, currencies, Collateral Debt Obligations (CDOs) which in our terminology were still currencies and exchangeable, but because those currencies were not immediately exchangeable they were not within the group of currencies considered to be money. Because the risks were calculated on false assumptions, CDOs turned out to be much more risky than expected and became worthless. The collapse in CDO value had a ripple effect on the value of all other currencies, so that bank credit money from certain banks would have become valueless, if the government had not stepped in. This illustrates both the difficulty in isolating “money” currencies from other currencies and the way that money can indeed vanish.

Taking these ideas even further, the existence of multiple currencies illustrates the indefinable nature of money. Some authorities suggest that money may be as ephemeral as an idea

(Dodd 2014 p6) or trust (Ferguson 2008). If money is trust or a social convention, then it is not clear how it can be measured or numerically controlled.

To approach the same idea in a different way, money, according to most definitions, is something that is accepted. Acceptance is also something that is very difficult to define numerically. Decision to accept or refuse a currency for trading can be determined by individual preference and sentiment, which can occasionally change sharply.

In summary, money does appear to be endogenous. More specifically,

a) money cannot be measured in any meaningful way that would enable its use as a policy variable

b) money is created as a result of economic activity rather than causing economic activity – and is therefore endogenous in statistical terms

Section 7 Conclusion

Most fields of study must simplify reality in some way, in order to make it comprehensible. The obvious danger is that reality may be simplified too much and the concepts become too far from reality. One of the aims of this paper is to explore the effects of a more realistic description of money and how this might affect economics.

The effect of describing money as a selection of currencies was considered. The first two sections outlined the wide range of different forms that money has taken. This led to some working definitions of money, for the purposes of this paper. In reverse order:

A means of exchange was defined as:

> *An item, article or accounting measure which is obtained and held with the intention of exchanging it in the future for some other goods.*

A currency or form of money was described as:

> *an item, article, accounting measure which is used by a community as a means of exchange*

and the definition of money

> *as a selection of currencies that are widely accepted*.

This leaves open the possibility of a variety of definitions of money, depending on the intellectual preference of the economist or the actual situation that is being considered.

These concepts were then applied to the idea of the endogeneity of the quantity of money. For the purposes of this topic, it seemed that the appropriate definition of money would be "currencies that are used for trading". This immediately led to the conclusion that it is impossible to identify such a set of currencies and therefore, for this purpose money cannot be measured in any reliable and consistent way.

Three sources of the endogeneity of money were identified

The amount of different currencies that are created and held vary depending on

- Bank policy and confidence determines the creation of bank credit

- Consumer confidence determines the demand for bank credit
- Consumer preferences decide how holdings of currencies are used.

In essence, money may be as intangible as an idea or trust and therefore essentially immeasurable.

This led to the suggestion that the quantity of money may not be a useful economic concept and it may be better to consider the quantity of money to be a result of economic activity rather than a cause of it. This was given the name of “intrinsic endogeneity”.

If the quantity of money is intrinsically endogenous, the existence of a particular currency or unit of account may still be an important influence on the economy. However, the assertion that money is intrinsically endogenous would mean that the actually quantity of money is impossible to measure and probably also unimportant.

Money is best conceptualized as a result of economic activity, not a cause of it. When governments act to increase the amount of money, what they are actually doing is increasing the amount of economic activity, by easing the terms of credit. The amount of money increases as a result of increased economic activity, rather than being the cause of it.

References

Arnon, A. (2011) *Monetary Theory and Policy from Hume and Smith to Wicksell* Cambridge University Press, Cambridge

Bannock, G.,Baxter, R.E., & Rees, R. (1984) *The Penguin Dictionary of Economics* (3rd Ed.) , Penguin, London

Butlin, S.J. (1953) *Foundations of the Australian Monetary System 1788 – 1851* Sydney University Press, Sydney

Chick, V. & Dow, S.(2013) Post-keynesian theories of money and credit in *The Oxford Handbook of Post-Keynesian Economics Vol1* (ed. Harcourt, G.C. & Kriesler, P.) Oxford University Press Oxford

Chick, V. & Dow, S.(2013b) "Financial institutions and the State: A re-examination." *Monetary Economics of Production: Banking and Financial Circuits and the role of the State* L-P Rochon & M. Seccareccia, Eds. Edward Elgar, Cheltenham pp 99-111

Dodd, N. (2014) *The Social Life of Money* Princeton University Press, New Jersey

Ferguson, N. (2008) *The Ascent of Money*, Allen Lane, London

Fisher,I (1935) *100% money* Adelphi New York

Fontana, G. & Venturino, E. (2003) Endogenous money: an analytical approach *Scottish Journal of Political economy* Vol5 no4 pp398 – 416

Galbraith, J.K. (1975) *Money whence it came and where it went*, Penguin, Harmondsworth, Middlesex

Goodhart, C.A.E. (1984) *Monetary theory and management* Macmillan London

Graeber, D. (2011) *Debt* Melville House, New York

Helleiner, E. (2003) *The making of National Money* Cornell University Press, Ithaca,

Howels, P. (2002) "The demand for endogenous money" in *Complexity, Endogenous Money and Macroeconomic theory* Setterfield M (ed.) Edward Elgar Cheltenham UK pp 187 -201

Ingham, G. (2004) *The Nature of Money* Polity Press, Cambridge

Keynes, J.M. (1930) *ATreatise on Money* Harcourt Brace New York

Knapp, G.F.(1924) *The State Theory of Money*, London

Lietaer,B. & Dunne,J. (2013) *Rethinking Money* Berrett Koehler, San Francisco

McLeay, M., Radia, A., & Thomas,R. (2014) "Money in the Modern Economy:an introduction", *Quarterly Bulletin,* Bank of England, Quarter1,pp 4-13

Minsky, H. (1986) *Stabilizing an unstable economy* McGraw Hill New York

Moore, B.J. (1988) *Horizontalists and verticalists :the Macroeconomics of credit money* Cambridge University Press, Cambridge

Mundell, R.A. (1961) A Theory of Optimum Currency Areas, *American Economic Review* 51, 509-17

Munro,J.H. (2009) Warfare, liquidity crises and coinage debasements in Burgundian Flanders 1384 – 1482: Monetary or Fiscal remedies?, Working Paper no 355 Department of Economics, University of Toronto

Murphy, A.E. (1978) Money in an economy without banks: the case of Ireland *The Manchester School* 46(1) pp 41-50 (see also Lietaer and Dunne)

Pass, C., Lowes, B. & Davies, L. (2005) *Collins Dictionary of Economics* (4th ed), HarperCollins, Glasgow

Polanyi, K. (2001) *The Great Transformation* Beacon Press, Boston, Mass.

Radford, R.A. (1945) The economic organisation in a PoW camp *Economica* 12

Ryan-Collins, J.,Greenham, T., Werner, R. & Jackson, A. (2011) *Where does Money come from* New Economics Foundation, London

Schumpeter, J.A. (1963) *History of Economic Analysis* George Allen & Unwin, London

Setterfield M (ed.) (2002) *Complexity, Endogenous Money and Macroeconomic theory* Edward Elgar Cheltenham UK

Weber, E.J. (1996) "Imaginary" or "Real" Moneys of Account in Medieval Europe? An Econometric Analysis of the Basle Pound 1365 – 1429 *Exploration in Economic History* 33, pp479-495

Williamson,J. (2007) "The future of the international Monetary system" in *Global Imbalances and Developing countries* Ed Teunissen J.J. & Akkerman, A. Forum on Debt and Development, The Hague

Wolf, M. (2014) *The Shifts and the Shocks* Allen Lane London