A Meta-Theory of the Demand for Money and the Theory of Utility[1]

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Abstract

This theory postulates that the demand for any good or service is derived from an underlying need. It is the interaction of this need with the functions of the good or service which creates utility. This theory of utility is nowhere better exemplified than in the demand for money. This is since money, in the economic sense, covers the broadest array of needs and the demand for it has previously only been analysed in terms of its functions. This paper takes the needs for money from humanist psychology, namely the Theory of Motivation by Maslow, and relates these needs to the functions of different classes of money to create an ordered meta-theory of the demand for money.

Classification Number: E41

Introduction

This paper has at its core a new theory of utility and this simple theory of utility is equally applicable for all goods and services. So the question of why somebody demands a good should no longer be answered by, "because it provides utility", but by the more elaborate answer that, "there is a need, the function(s) of the good fulfil(s) that need and this creates utility". In most cases this might seem overblown. Yet money is such a diverse good people have difficulty agreeing what it is, yet alone why and how it is demanded. This new theory of utility allows us to have a much better fundamental understanding of the demand for money. Since money is such a diverse good it can be shown to cover all of our needs.

[1] This paper was sent to Charles Bean, the chief Economist at the Bank of England in 2003. Unfortunately the Bank of England does not have the resources to be able to read new research papers on monetary economics.

This paper is not in competition with any particular theory or school of theories. As a meta-theory it encompasses many theories of money as they stand. It also breaks new ground in creating a fully comprehensive framework of these theories and promotes a new function of money and class of money.

Lastly, this paper is concerned with pure theory. Advances in pure theory do not always sit well with the current state of understanding or current empirical research based on that understanding. This does not make it invalid as a theory.

What Determines the Demand for Money?

All theories of the demand for money are in essence attempting to answer this deceptively simple question. Traditionally the view has been held that money is demanded for the functions it performs. The functions of money number but four:

- A Medium of Exchange
- A Measure of Value
- A Standard for Deferred Payment
- A Store of Value.

Out of these four functions it is only “a medium of exchange” and “a store of value” which offer any real insights into the demand for money. Yet even these insights gained proffer no great help in, for example, distinguishing between the motives for holding bonds or shares, two of the classes of money identified by Friedman.

It would, therefore, seem that the emphasis being placed on the functions of money is misplaced. Keynes[2] pointed out that people have motives for holding money, and it is precisely people’s motives which lead them to demand one form of money over another. A commonsense argument should clarify the issue and lay out the basic puzzle behind all theories of money.

[2] Keynes, J.M.

It is a well-known fact that lawnmowers cut grass. Yet people will not demand a lawnmower just because it cuts grass, or even has other functions, such as collecting the grass that has been cut. For starters, people have to have a lawn in order to demand a lawnmower. Furthermore, the type of lawn that the lawnmower is to cut will determine the demand for the type of lawnmower. In short, therefore, the whole theory of utility has to be re-examined by economists. Merely to say that people demand lawnmowers and therefore the lawnmower has a utility for them is not very scientific.

A person's utility is determined by the interaction between their needs and how well an economic good fulfils those needs by performing its function. It is this basic tenet of microeconomic theory which has been overlooked. This might not have grave implications in the demand for the majority of goods. However, money is a special economic good in that it can satisfy, or at least augment, all of our needs in one form or the other.

It is important at the beginning to point out that a good can simultaneously fulfil many needs, as is the case with people who drive off-road vehicles in cities both because of a need for mobility and a sense of security. Money is no different in this respect and so we must therefore try to categorise money according to the main need fulfilled by it, and not concentrate on hybrid forms of money or irrational people.

As students of Development Economics will be aware, Abraham Maslow[3] has conducted extensive studies in the theory of motivation and his book, "Motivation and Personality", provides the central theory of man's needs. Abraham Maslow[4] is in the Humanist tradition and as such his work is readily adaptable to Economics, a subject which by its nature relies on prescribing measurable values to things, even that of utility and the degree of need.

[3] Maslow, A.H.
[4] Maslow, A.H.

Humanism – A Look at the Behavioural Manners of Man

The fundamental point that Maslow recognises in his pyramid of human needs is that humans seek to build upon once satisfied needs in order to achieve more abstract needs, and do not seek to satisfy all their needs at once. This is why it is necessary to start at the bottom of the pyramid. To an economist's way of thinking this can be explained as the marginal utility of the bottom of the pyramid being greatest and the ascending needs having descending marginal utilities.

The marginal utilities at each level will of course diminish once they begin to be satisfied, yet until they begin to be satisfied the marginal utility of each step shall aggrandise, as the former levels of needs are satisfied and thus the former marginal utilities diminish. Naturally biological needs are the most basic and we start by satisfying these basic needs before we attempt to satisfy higher level needs.

What should be striking about these needs is the way in which they can easily be satisfied by categories of money, and specifically those categories of money which Friedman[5] put forward. The hypothesis so far is not that different to the motives put forward by Keynes[6], despite being more elaborate. All we can say is that Psychology has come a long way since Keynes lived. I will now postulate that each need can be satisfied to a greater extent by each category of money as put forward by Friedman, with an additional category for the exalted state of transcendence.

1. Biological Needs – Cash
2. Safety and Belonging Needs – Bills and Short-Term Savings Accounts
3. Esteem and Intellectual Needs – Human Capital
4. Aesthetic Needs – Bonds, Property and other Fixed Income
5. Self-Actualisation Needs – Shares and Fixed Business Capital
6. Transcendence Needs – Derivatives, Speculation and Gambling

[5] Friedman, M.
[6] Keynes, J.M.

Plate 1: Pyramid of Human Needs according to Maslow

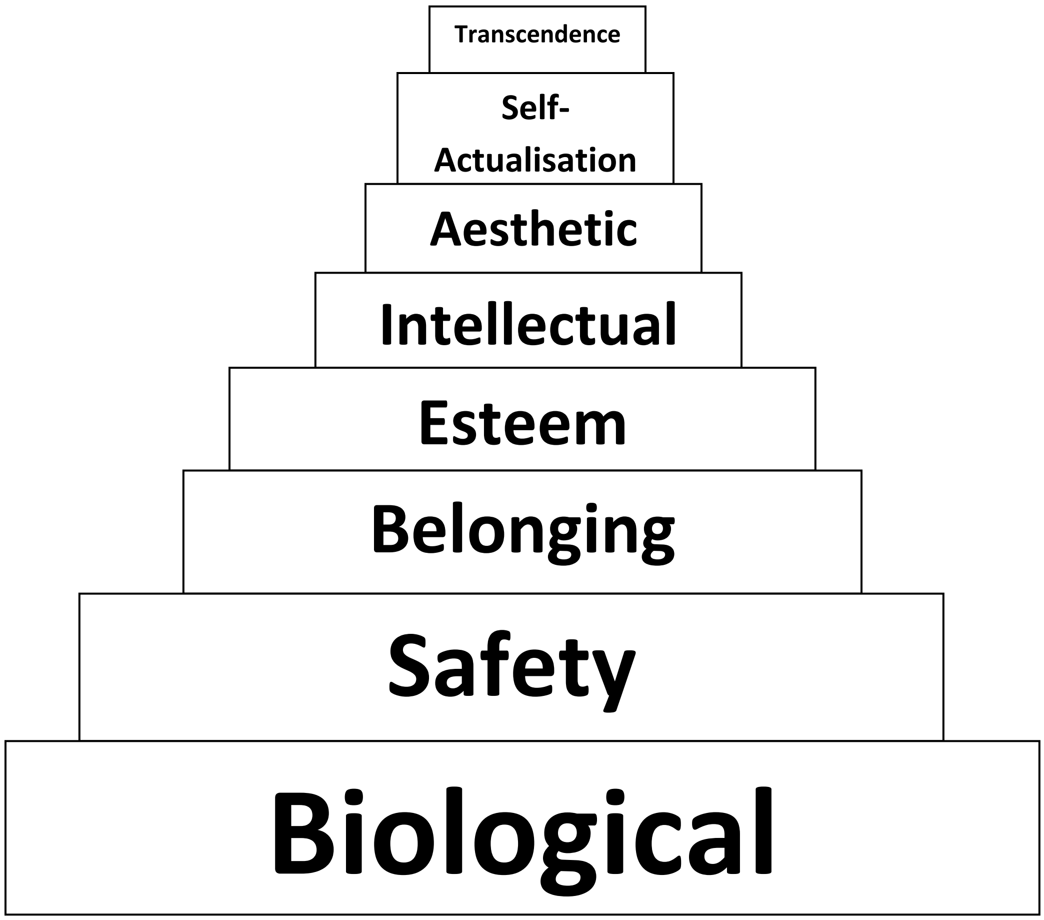
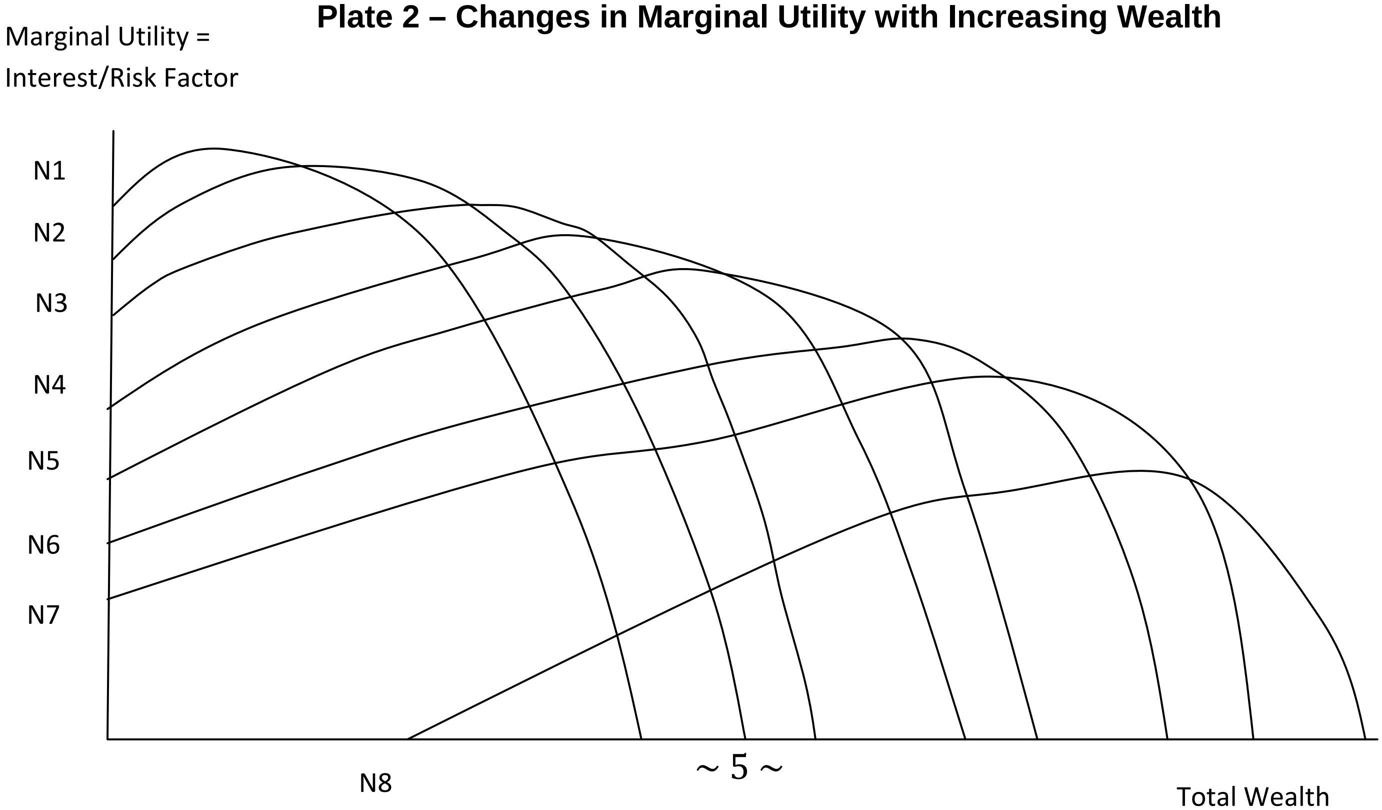


Plate 2 – Changes in Marginal Utility with Increasing Wealth



These categories of money are a combination of those identified by Keynes and Friedman, and also the more modern form of money which is derivatives. It should, though, be noted that before the advent of derivatives there were always a few in society who gambled heavily (notably aristocrats) and those who speculated “on the margin”. That Keynes did not see certain classes of money, or Friedman recognise derivatives, is largely an historical occurrence, which clearly demonstrates the growth in personal wealth over the last century.

The total wealth held in the form of money can be increased through borrowing. This inter-temporal substitution will take place when a need in the present is particularly large and surpasses the cost of the credit and the interest payable. The form of the credit will normally indicate which need is being met. A cash loan from friends or credit card will be used to cover the biological needs, an overdraft the need for safety and belonging and a consumer loan or mortgage will cover the aesthetic need, et cetera. Therefore, total wealth should not be thought of as a static entity but something which is constantly changing and adjusting to needs, returns, risks and expectations.

In reference to James Tobin and his famous article “Liquidity Preference as Behaviour toward Risk”[7], the marginal utility of each need shall vary inversely to the risks associated with fulfilling it. This is not merely the risk that the category of money will not produce the desired return as portfolio theory would indicate, but rather the risk that the need cannot be met. In this instance, even if the return is guaranteed by the government, the date of repayment may in itself be considered a risk as to whether the need can be met or not.

It is also, of course, easy to see that the relative returns will play a role in the demand for each category of money, as Milton Friedman set out in his theory of money. This is since a higher return obviously expands the budget constraint of the individual, allowing them to fulfil more of their need, with the class of money obviously satisfying that need better. The level of cross-elasticity of demand is naturally dependent on the relative

[7] Tobin, J. (1958)

returns of each class of money. Since total wealth in the short-term can be taken to be a constant, changes in the relative returns will bring about substitutions between the categories of money. It is important to bear in mind, though, that whilst a difference in the rate of return will bring about substitutions, its affect will be less considerable than that of risk, which will have a multiplied effect. This is since a difference in the return will be a small change to the value of the said class, representing a percentage of the capital value, with the capital left unharmed. Whereas a difference in risk is likely to affect not only the value of the return, but also the capital value of the money in that class.

Naturally some classes of money will be affected by risk to a greater or lesser extent. The divisibility and liquidity of the class of money will to a large degree determine how easy it is to alter the demand for a class of money. Whereas a change in overseas business sentiment might be sufficient for us to radically alter our demand for shares, the demand for a five year degree programme is unlikely to be so sensitive to external risks.

What it is important to recognise from these discussions is not the extent to which variables in CAPM[8], or any other theory, can be specified, but that there is an underlying psychological return from holding money which in the majority of people adds a "psychological premium" to the return that class of money produces. These psychological premiums follow in the majority of people a predefined, though not absolute, pattern, which allows us to explain with some certainty why certain categories of money prove more popular than others and also to model individual behaviour.

[8] CAPM – This model was introduced by Jack Treynor, William Sharpe, John Litner and Jan Mossin, independently building on the earlier work on diversification and portfolio theory by Harry Markowitz.

An Explanation of Dominated Money

The role of cash in the optimal portfolio is often queried. The question is why should anybody want to hold an asset that only loses value? In this sense cash can be said to be dominated by all other classes of money. The answer given is that cash can be used as a medium of exchange, which is of course right. Though why should the function of a medium of exchange take precedence over the function of a store of value? The answer is again not the function that cash provides but the underlying needs that that function fulfils. The most basic need, and therefore the one with the highest psychological premium, is the biological need. Cash, with its superior function as a medium of exchange, satisfies this need so well that people are willing to earn a negative return in holding it (the cost of inflation). Economists have been confused by this since it would not be rational to want to earn a negative return. Yet if there is a positive psychological return that is so great that it more than off-sets the absolute and opportunity cost of holding cash, then this behaviour can be viewed as being entirely rational.

The marginal utility of holding cash is likely to diminish extremely quickly once sufficient cash to cover the biological needs is held. This is because not only is there the loss of potential interest and cost of inflation, which are in themselves important considerations, but there is also the much more important consideration of risk. One of the main reasons given for not holding large sums of cash is the risk of it being lost or stolen, and a bank account is widely regarded as a safer place to hold cash. Any loss or theft of cash is more likely to result in a loss of a lot more than a few percent, so even a small probability will greatly affect the marginal utility of holding cash. Indeed, cash will generally only be held for near term needs.

People will predict how much money they reasonably need if events in the near future take the foreseeable worst turn and hold this as cash. What is considered to be a reasonable need, and how near the near future is, are therefore central questions determining the demand for money.

In the Liquidity Preference Theory by Keynes[9], the need, or motive, for holding cash is to cover current expenditures when they deviate from current revenues. Since the majority of people do not receive cash payments on a regular basis, it is the current expenditures which take prominence. By current expenditures it is to be understood those expenditures which are foreseeable, as opposed to the unforeseen expenditures, for which the precautionary account is held. Foreseeable expenditures can occur irregularly but be known of in advance. Equally, biological needs are not set at the level of subsistence. As total wealth grows all needs will grow and new needs will be satisfied. An example of this is that whereas on a low income and with no savings there may be a biological need to travel, be it privately or on public transport, on a higher income with savings, human capital and a pension fund, this need to travel may be redefined as a need to travel privately. Therefore, needs are always defined subjectively. Another example of a foreseeable expense would be holiday money. Although we may only go on holiday once a year, we can easily foresee that we will need the right form of cash whilst we are on holiday to act as a medium of exchange to cover our biological needs during this period. Whether we will be able to withdraw money from a bank account whilst on holiday will though have a great effect on how much money we consider we need in the near future.

This brings us on to the question of the near future. The ease with which money can be withdrawn from the precautionary account will determine our assessment of the near future. It is right that the longer our assessment of the near future, the more cash we will need to hold. The more difficult it becomes to withdraw money from the precautionary account, the more cash will be used also to cover the need for safety and belonging. As in Keynes's time bank accounts were rare, the precautionary demand for money was seen as being most likely covered also by cash. As times have changed, we are now able to have almost instant access to bank accounts with little or no transaction costs. In this realm, the formula put forward by Baumol-Tobin[10] gives a better explanation of the amount of cash we need to hold in order to be able to cover our foreseeable expenditures:

[9] Keynes J.M.

[10] Baumol, W. and Tobin, J. (1956)

$$\sqrt{YF/2i}$$

F= Cost of the Transaction Y= Total Income for Period Invested in Money Market

i= Interest Rate

The assumption in this model of the demand for cash is that all income is received into the precautionary account and that there are no savings between periods. This is in itself sensible in that for the majority of people they receive their income paid into their bank account and then make regular withdrawals to pay for their consumption. However, this assumption means that we are judging that income to be very small, in that it only just covers the biological and precautionary needs. By not allowing for saving in between the income periods we are not allowing this formula to be used for anybody who might for instance pay a mortgage or save out of their income. Also, the amount of money in the precautionary account may be larger than the income in that time period, allowing spending, for example around Christmas, to exceed income in that income period. For these reasons I would like to suggest using wealth held in the precautionary account instead of income for Y in the above equation. Though this is of course a theoretical point and would probably not have large empirical implications.

Keynes and the Precautionary Demand for Money

As we have seen from looking at the transactional demand for money, which seeks to satisfy foreseen expenditure, the precautionary demand for money will cover non-foreseen expenditure. Non-foreseen payments are those which fall outside of the normal run of expenditure. They are not always of great emergency, such as a fire, but are payments for which from experience people could imagine themselves being confronted with.

The holding of a savings account as a means of providing safety is identified by Maslow[11] himself, as well as insurance. Equally, Maslow sees "the common preference for a job with tenure and protection" as relating directly to the need for safety. It should therefore be seen that the demand for certain categories of money is not independent from the demand for other goods. Somebody who has a large amount of insurance will most probably have a far smaller demand for readily-accessible savings than somebody who has none. The difficulty arises in that it is only the savings account which can be said to perform any of the functions of money. It may be noted that life assurance policies come very close to being seen as performing the functions of money. However, as said at the beginning, a line has to be drawn somewhere and the hybrid forms of money shall be left aside. This leaves us to focus on the savings account, or in other words, the precautionary demand for money.

Whilst it may be clear that a savings account may be demanded in order to fulfil our need for safety, that it also fulfils the need for belonging may be less. It is important to clarify what the need for belonging means in financial terms. I am interpreting the need for belonging as being able to actively contribute and participate in the society around oneself. That is to say that money will be held back so as to be sure of not being socially-excluded when it comes to social, or even business, activity. Maslow recognised that there is an underlying need in people to have a relatively similar lifestyle to those around themselves. Holding back money in the precautionary account allows people to fit in with a continually changing society around them and to adjust their consumption not just in reference to unforeseen payments relating to their own lifestyle, but also to the lifestyle of others. A most common example of this behaviour is always having enough money to be able to go for a drink with somebody, though we may not personally be planning on going for a drink.

The question now arises as to why a short-term savings account and not a fixed-term account or bonds should satisfy this need better, resulting in the greater utility. In this instance Keynes'[12] theory for the demand for money is preferable in that it distinguishes

[11] Maslow, A.H.
[12] Keynes, J.M.

between the use of money for transactions and the precautionary holding of money for unforeseen circumstances. Although Friedman[13] also notes the different uses of cash, failing to separate them as asset classes leads to there being no distinction on the grounds of quite separate underlying needs.

Bonds are to be found as a category of money in both the theories of Keynes and Friedman. While it could be argued that they are also able to satisfy the needs of safety and belonging there are several points which make their demand much more suitable to conservative speculating than anything else. Firstly, bonds have long issue dates and although they can be bought and sold in the secondary market there will always be a degree of speculative risk involved. This speculative risk relates to the level of interest rates, to which a bond's price varies inversely due to the relative value of the fixed rate being paid. This is why, in the absence of widespread holdings of shares at the time, Keynes attributed the speculative motive to bonds. Secondly, unless we are limiting our focus to sovereign bonds (gilts), there is also risk involved in the creditworthiness of the institutions and this will require foreknowledge on the side of the bondholders, something which is not required with banks due to their being a lender of last resort. Lastly, bonds are relatively inaccessible to ordinary investors, who in most cases will not have a stockbroker. They are also expensive to deal in and require relatively large transaction sizes if they are to be at all profitable.

The case for why long-term savings accounts (time deposits) are not suitable for fulfilling the need for safety and belonging is precisely the lack of access to these funds. Though it may be possible to withdraw these funds at no notice the penalty will normally be significant and normally a long notice period is required. This means that for most people a separate short-term savings account (sight deposit) is held in order to satisfy the precautionary demand for money which arises from a need for safety and belonging.

[13] Friedman, M.

Friedman – Human Capital and Self-Actualisation

Many people may see the identification of human capital by Friedman as a form of money as being quite odd. You certainly will not find human capital in any measurement of the money supply. Does this mean that an individual will not count their education and skills as a form of money that can be bought and sold in order to gain cash to cover their biological needs?

The main reason that human capital is often viewed not to be money is that its ability to be used as a medium of exchange is extremely poor. Yet, human capital can relatively easily be converted into cash or precautionary balances in a regular and convenient manner by having a job which uses this human capital. Human capital does though perform the function of a store of value extremely well. There is much in the old adage that “a good education can never be taken away from you”. Naturally, the nature of any human capital runs the risk of becoming obsolete over time, though the holding of cash will with all but certainty do this as well. In general, therefore, it can be said that human capital provides generally very high returns, is accompanied by relatively low levels of risk and is an excellent store of value. It is obviously not only mercenary reasons, though, that cause people to want to accumulate human capital.

In the economic life of man Maslow[14] predicts that there shall come a time, when the individual feels safe and secure and his biological needs are met, when a need for esteem and intellectual stimulus are felt. Naturally, the form of money that best meets these needs is human capital.

There is a distinction here which needs to be drawn between this need for self-esteem and intellectual stimulus and the need for self-actualisation, lest they be confused. With the need for esteem and intellectual stimulus it is not important whether these needs are being met by the very activity which that individual would most like to be doing or if they are just being met by doing the activity which one happens to be doing well and gaining

[14] Maslow, A.H.

an intellectual challenge from this activity. This is clearly seen in somebody in a job he does not enjoy. While he may take extra courses and take pride in having a reputation for doing his job well, or having a particular expertise, it will not be his first choice of a job and may well be regarded merely as a means to an end. This investment in human capital, although it raises the self-esteem and provides intellectual stimulus, will not fulfil the need for feeling that he is in control of his own destiny and doing the things he wants to do. An investment in shares of his favourite football club, however, whilst normally not being bought on the basis of financial acumen, will go a lot further to satisfying his desire to do and be that which he pleases.

Of course the problem with this category of money, as with all the categories of money presented here, is that there are many needs lying behind each level of demand for each category of money. This is probably most highly accentuated in the combination of self-esteem, intellectual and self-actualisation needs in the demand for human capital. Unfortunately, from the point of view of Economics, people no longer grow up wanting to be “robber barons”, but set their sights on one or other of the rungs of the corporate ladder, for example. This makes it a lot more difficult to assess how much value these people are placing on human capital as an indication of their self-worth and for their intellectual needs, and how much it is a by-product of the desire to reach a certain height on the corporate ladder. Conversely, the increased need for qualifications in every type of job shows us the willingness of employers and employees to satisfy the need for self-esteem, when not always satisfying the need for intellectual stimulus.

A lot of human capital is formed early in life and the relative returns and risk to that formation of a store of money may only be known in the vaguest sense. It is therefore very unlikely that changes to the returns and risks of human capital formation will be as pronounced as they would be, say, in the purchase of shares. This fact is compounded by the fact that human capital is used primarily as a store of value and once this human capital is formed it is impossible to reverse this accumulation without writing off the whole value of money (the discounted future income flows) by not using this human capital. This means that very long-run calculations will be used when assessing how much money is given over to the formation of human capital and that this demand for a category of money is very stable over time.

Though human capital is not seen to be a form of money in the conventional sense as bonds or shares are, and its treatment should rightly by its nature be viewed as being distinct from other forms of financial assets, it does none the less fulfil two important needs of humans which cannot easily be said not to exist. Its inclusion in this theory of the demand for money helps to explain under which conditions people will be willing to study or attend courses, something which could be very helpful in giving people the right incentives to add to their human capital.

The Difference between Shares and Bonds

Keynes recognised only bonds in his theory of the demand for money and saw these as a speculative instrument. This of course should be considered in the historical context and no doubt the emission of derivatives by Friedman can be seen in this light as well. Though Friedman draws on the relative returns o bonds and shares and the risks associated with their ownership it is not clear why people first open a long-term savings account or take out a life assurance policy before buying shares on the stockmarket. Equally, homeownership is normally considered a priority before the purchasing of shares. Is it conceivable that somebody would rent a house and use the capital downpayment proportion of the mortgage money to play the stockmarket in the good years and the bondmarket in the bad years?

The answer is that bonds, long-term savings accounts (time deposits) and property all pay a fixed return, either as interest or rent. The fact that they do makes them very attractive to people with aesthetic needs. The definition of an aesthetic need is any need which falls outside of the regular run of foreseen expenditure. It may be foreseen that an expensive foreign holiday will be taken in a few months time, yet the question is not whether this is foreseen or not, but whether the expenditure can be covered by the regular flows into and out of the cash and the precautionary account. Another example of this is if a luxury villa can be rented out of the income of somebody, or paid for in cash outright, although it may be aesthetically pleasing to most of us, to this person it is merely covering their biological need. The ability of goods to fulfil our aesthetic needs will require long-term saving or borrowing, as if it were a mere biological need we would have paid for it with cash.

In these circumstances this category of money offers certainty and long-term horizons around which can be planned. They are largely standardised commodities and it is really not necessary to know how your money is being invested, or where the lent money comes from, further than that which may impinge on the creditworthiness of the institution. Due to the safe and stable returns on bonds, property (including the stable negative return of a mortgage) and long-term savings accounts it is not surprising that they are favourites with pensioners, couples who are planning families and generally anybody putting money aside to save up for something. All of these needs can be described as aesthetic because they are primarily formed around lifestyle decisions and intended for eventual consumption, whether now using credit or in the future when the required amount has been saved.

Maslow, through his observational work, managed to identify defining characteristics of individuals who showed themselves to have at least partially satisfied their need for self-actualisation, the next step in the pyramid of needs. Although it is relatively rare that people satisfy their self-actualisation need in life in general, for example play for their favourite sports team or be an astronaut, in financial terms it is somewhat easier. Despite the small number of people who Maslow[15] found who he recognised as having met their need for self-actualisation in life, he was able to define some striking characteristics from these people. They are more efficient at perceiving issues and are comfortable accepting the unknown. They in fact seek to challenge the conventional and are attracted by the unknown. Furthermore, these people are self-assured and in all their appetites “lusty”, though seeking to avoid improvable shortcomings. They are spontaneous and creative as well as being more focused on the problem than the

[15] Maslow, A.H.

means for solving it. However, most importantly these people live in the real world, dealing with issues, problems and seeking out new opportunities.

Obviously the type of person who is best resembled by this description is the entrepreneur and Friedman very astutely points out that fixed capital can also be considered a category of money. This might be the most pure form of person who seeks to satisfy this need by looking for ventures or projects in which they can invest. In financial terms though, the most common and convenient way of doing this is to purchase shares. This is since the purchase of shares is a purely financial decision (not involving any job/lifestyle decisions) and because there is a large degree of divisibility and with that the opportunity for diversification. Whilst investment funds and trusts (open and closed ended investment schemes) can be classed as buying shares, though with considerably less involvement in the state of worldly affairs, shares held in pension funds without individual input on their selection by the individual in charge of the funds cannot. This is since it is not merely the acting of somehow owning shares that is relevant, but whether an underlying need is being met. With a pension fund, though it may hold exclusively shares, if there has been no involvement in the selection of the shares, then the only need which can be said to be being met is the need for a stable and predictable increase in savings for a future need that cannot be met outside of the holding of cash and precautionary balances. Even though investment funds or involvement in the selection of shares in a pension fund might not fulfil the need for self-actualisation in financial affairs perfectly, for many people the need is only ever marginally agented, and so this weaker function of these categories of money will suffice.

Allow us now to consider the primary class of money satisfying these needs, shares. By buying shares people are not only taking part in an enterprise, but the individual is embracing the unknown; using his perception and knowledge of events in selecting them and also challenging the conventional way of saving of working. Certainly the certainty of being able to buy a new car, or take an expensive holiday, with the regularity of clockwork is not uppermost in the mind. For most shares the dividend payment is not the most important aspect of the share, as it is with a bond. Since shares differ from bonds in reinvesting the retained profit in operations, the value of the capital of the company will vary starkly over time with the level of profits and the successful employment, or not, of not only capital from subscribed shares but also capital employed through the reinvestment of retained profit. This makes the purchase of all shares something which cannot be done blindly but with thorough knowledge and research.

The Need for Transcendence –
The World of Derivatives

The last step in Maslow's[16] pyramid of needs, transcendence, is difficult to describe, partly due to the rarity of its occurrence, but combines two elements: the abstraction from the physical environment and the need for supremacy.

The abstraction from the physical environment takes the form of no longer caring about links and relationships within the environment, but much more the individual's place within it. Projects and tasks become abstract concepts and it is by far more important for these people to have theoretical success than physical achievements.

The need for supremacy relates to the individual's place within their environment. Individuals seek to gain position and power from winning. They have the need to feel that they understand and comprehend the world around them better than others.

From these two elements it should be easy to see that once an individual has established himself doing that that he wants and chooses he will seek to do it better, and bring "the game" to a higher form. This inevitably takes on the form of gambling, either directly or in the financial form of derivative instruments.

The banks that "provide" these derivative instruments like to insist that they make money whilst perfectly hedging their side of the contract. All derivative instruments represent a "zero-sum game", meaning that there always has to be a winner and a

[16] Maslow, A.H.

loser. As well as providing this ability to achieve supremacy, by their nature derivatives allow for an abstraction and partial detachment from the underlying physical environment.

The holder of a derivatives contract is primarily concerned with increasing the value of that contract. The contract becomes less a store of value and more a measure for increasing value. This is since the likelihood of the value of a derivatives contract remaining roughly constant or stable is very small. This has to do with the limited time frame of a derivative contract accentuating the moves in the underlying object's price. Since the rational individual possessing all relevant knowledge will not seek to lose money, it can be assumed that he is seeking to gain it. In this way the need for supremacy is fulfilled.

It will no doubt be argued by those that "provide", or in other words sell as principal, derivatives, that these instruments are designed to cover the need for safety and should be viewed in the same way as a savings account. Although the application does of course exist, the structure of the derivatives market does not allow this to be the primary use. This is since the writers of derivatives are largely unhedged, since it is more expensive to write and sell derivatives only then to buy more derivatives to hedge them, than not to write so many in the first place. Furthermore, delta hedging only ever hedges a proportion of any position. If you then add to this the speculative intentions of many of the buyers of derivatives, it should be clear that this is the main role for these financial "products".

Conclusion

What have we learnt from this paper? Firstly, for the first time economists have a theory of utility which shows an increased depth of understanding of fundamental matters can lead to markedly different results and a thoroughness of understanding previously unknown, just as the loanable funds theory by Keynes[17] had such a dramatic effect. Secondly, it is clearly shown, as any rational non-economist of reasonable intelligence would be able to ascertain, that psychology does play a part in the class of money

[17] Keynes, J.M.

people choose to hold. That economists will still probably dispute this until their dying day only serves to highlight the narrow-mindedness, irrationality and self-serving bureaucracy that the current economics profession is. Thirdly, the provision of a meta-theory for the disparate and incongruous theories for the demand for money brings some semblance of order to the muddled thinking in this area and provides the “proof” for the asset classes and methodology put forward by such economists as John Keynes and Milton Friedman, in the case of Milton Friedman with no attempt at any proof and no interest in discussing someone else’s attempt at a proof. Fourthly, this paper highlights a further class of money than those already identified and also a further function of money than those already identified. The fact that nobody else has bothered to point these out in a formalised way reflects, in my opinion, on the languor and risk-aversion currently seen in the economics profession, in accordance with my above point about a self-serving bureaucracy. Lastly, the theory of utility put forward in this paper will serve as a microeconomic fundamental covering all areas of economics and the multitude of advanced understanding throughout the subject through this simple common-sense comprehension of understanding can only be guessed at.

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