NOT IN THE TEXTBOOK?

CONTENTS *30th April 2018*

http://www.lancs.ac.uk/staff/ecagrs/NT.pdf

Preface

PREFACE

These extracts have been compiled for students enrolled for courses taught from the Economics Department at Lancaster University.

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With their focus upon the widest commercial readership, introductory textbooks generally play 'safe'. Their sales are largely dependent upon making their subject appear easy and straightforward; but economics is complex and controversial. Textbooks not only tend to remove detail from seminal presentations, they often fail to make important connections. For example, in referring to Mankiew & Taylor, a student was puzzled by fig. 30.2 (page 646) and sensibly asked how it related to ECON 100 lecture presentations. The response (which should be understood better at the end of the year-1) was as follows:

> I cannot see how M&T find it necessary to use a diagram to show rather obvious points: that a decrease in 'the value of money' is one-and-the-same as an increase in 'the price level'; and that this event is likely to occur when the money supply increases even though money demand is unchanged (classical model). More puzzling is why M&T fail to draw a comparison with fig. 33.4 (page 717). A serious omission is that M&T fail to emphasise that fig 33.4 is a 'fixed price' model, while fig. 30.2 assumes that prices rise *pro rata* with money (*i.e.*, that money is 'neutral'). Also absent is any clear explanation either of the link (i) between the ISLM model (chapter 33) and aggregate demand (chapter 34); or (ii) between aggregate supply and Keynes's definition of involuntary unemployment.

It is sad to report that, Mankiew & Taylor is one of the better introductory textbooks currently on the market. So, make good use of it; *i.e.*, by reading, by asking questions, by commenting upon it critically and by deciding if its arguments and presentations invoke assumptions that are *plausible*.

Not in the Textbook? is one of among many alternative sources that are available. Its content is drawn from musings and writings across years of engagement with macroeconomics issues.

Lecture notes are available to Lancaster students on-line and these are the surest route to success in assessments and examinations; but, without attending those lectures, understanding will be seriously impaired. Although *Not in the Textbook?* is complementary to teaching introductory economics, some of its material extends beyond part 1 (most obviously, the latter half of the section on inter-temporal prices); so, again, the content of lectures must be used as the primary guide to further reading.

G.R Steele

1. ISLM AND SOVEREIGN DEBT

What Keynesian **ISLM** *ignores,*
Change **G** *to see just how quickly debt soars.*

(NB use of the iambic pentameter:
http://www.youtube.com/watch?v=p226OX39OLs&feature=related)

Y = C + I + G **C = £25 + 0.7 (Y - T)** **T = 0.25(Y)**	**I = £100 -10(r)** **G = £100**	**Md = £75 + 0.25(Y) – 5(r)** **Ms =£100** **Md = Ms**

r	Y		Fiscal deficit/GDP
9.1	£282		10%

Open this link:
http://www.lancs.ac.uk/staff/ecagrs/ISLM.xlsx

***NB*. The assumption is refuted that *independent* policy options are represented by IS and LM.**

2. AGGREGATE DEMAND AND INVOLUNTARY UNEMPLOYMENT

Involuntary unemployment exists if workers are impotent in volunteering action to deliver a remedy:

> Men are involuntarily unemployed if, in the event of a small rise in the price of wage-goods relatively to the money-wage, both the aggregate supply of labour willing to work for the current money-wage and the aggregate demand for it at that wage would be greater than the existing volume of employment. (Keynes, 1936)

This explanation invokes demand and supply analysis in a competitive labour market, where labour's marginal product equals the 'money-wage' deflated by an index of 'the price of wage-goods' (*i.e.*, the real wage). In *figure 6.1*, 'the price of wage-goods' rises (***P*****$_1$** to ***P*****$_2$**) 'relatively to the money-wage' (***W***), sets the 'supply of labour' (***c***) and the 'demand for it' (***b***), that are both 'greater than the existing volume of employment' (***a***).

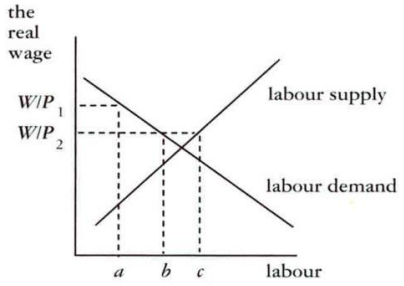


Figure 6.1 Involuntary unemployment.

Keynesian macroeconomics draws disparate themes together within a two-dimensional display of aggregate demand and aggregate supply; but the vital element of involuntary unemployment is neglected by textbooks. The aggregate demand schedule is derived from **ISLM** equilibria.

IS indicates equilibria in real sectors of the economy. Investment (***I***) is negatively related to the interest rate (***r***); saving (***S***) is positively related to real income (***Y***). **IS** traces values (***r$_i$***, ***Y$_i$***) where **I = S** (a locus of equilibria). **IS** shifts with an autonomous change in either the saving function or the investment function.

LM indicates equilibria in financial sectors of the economy. Liquidity preference (***L***) is positively related to real income (***Y***) and negatively related to the interest rate (***r***). The nominal money stock (***M***) is given. **LM** traces values (***r$_i$***, ***Y$_i$***) where **L = M** (a locus of equilibria). **LM** shifts with an autonomous change in either the liquidity preference function or the nominal money stock.

At the intersection of **IS** and **LM** (*figure 6.2a*), real and financial sectors are simultaneously in equilibrium (***r$_1$***, ***Y$_1$***).

With the price level fixed at ***P$_1$***, an increase in the nominal money stock (***M$_1$*** to ***M$_2$***), causes an outward shift from **LM$_1$**(***P$_1$***) to **LM$_2$**(***P$_1$***). If, alternatively, the price level were to rise proportionately (to ***P$_2$***), **LM** would be unchanged; *i.e.*, **LM$_1$** (***P$_1$***) = **LM$_2$**(***P$_2$***). Proportional increases in the nominal money stock and the price level leave the real purchasing power of money unchanged leaving the interest rate and real income unaffected.

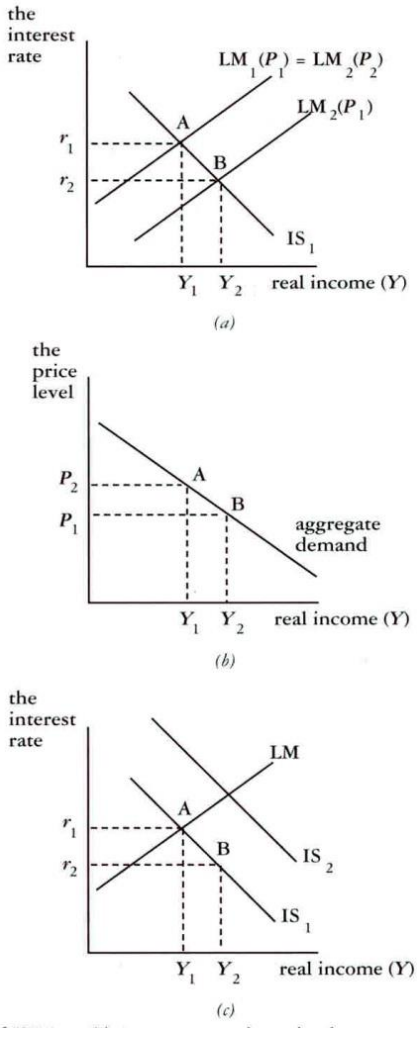


Figure 6.2a-c ISLM

The information in *figure 6.2a* is remapped into *figure 6.2b* (**A** and **B** are corresponding points). The locus in *figure 6.2b* shows the derived relationship between the price level and real income. This is the Keynesian aggregate demand curve.

Figures 6.2c and 6.2d show the impact of an autonomous shift in the investment function (say, fiscal deficit spending upon investment goods). Both **IS** and the aggregate demand curve shift to the right; but, as *figure 6.2d* indicates, the degree to which this affects prices and/or real income is indeterminate without an aggregate supply curve.

The aggregate supply curve is implicit in Keynes's analysis of involuntary unemployment (*figure 6.1*): if labour is involuntarily unemployed, the money wage (***W***) would remain unchanged even as diminishing returns to labour (as employment rises) means that higher unit costs are responsible for a rise in the price level (***P***).

Since the aggregate supply curve (*figure 6.2e*) is drawn under the assumption of a constant money wage(***W***), a rise in the price level (from $\boldsymbol{P_1}$ to $\boldsymbol{P_2}$, in *figure 6.2e*, from **A** to **C**) reduces the real wage. It is by that reduction in the real wage that involuntarily unemployed labour find work.

Alternatively, if money wages (***W***) were to rise *pro rata* the rise in the price level (***P***), the aggregate supply curve would shift to the left. This would represent a 'prices-wages spiral'. In *figure 6.2f*, this is depicted by the movement from **C** to **D**. Employment is unaffected by *pro rate* increases in wages and prices.

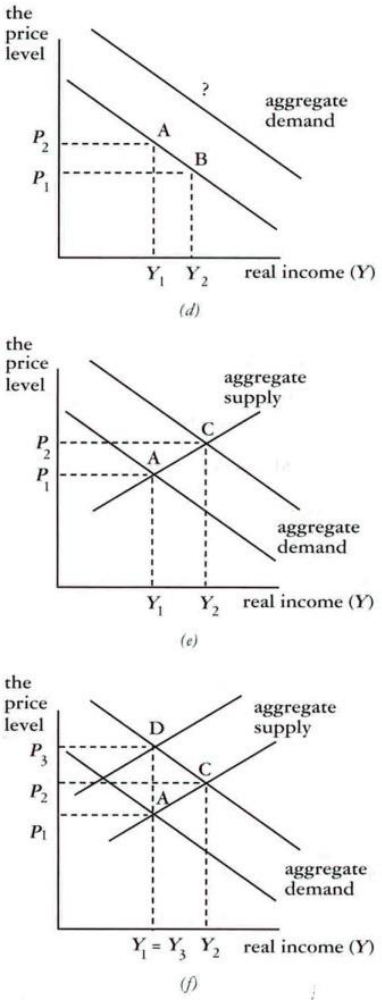


Figure 6.2d-f Aggregate demand and supply

Summary: Keynesian aggregate demand management can raise the level of employment and production, *but only if involuntarily unemployed labour is seeking work*. However, if (with a 'prices-wages spiral') real wages remain above competitive market rates, Keynesian analysis is defunct:

> Of course, I do not want to see money wages forever soaring upwards to a level to which real wages cannot follow. It is one of the chief tasks ahead of our statesmanship to find a way to prevent this. (Keynes, 1944)

3. AGGREGATE DEMAND: GO FORTH AND MULTIPLY

Keynesians argue that, in any recession,

- unused capital and unemployed labour are effectively free resources;
- it is costless to stimulate economic recovery with fiscal deficit spending;
- as the economy recovers, tax revenues rise and the fiscal deficit is eliminated.

The Keynesian income-expenditure model demonstrates this formally: G (fiscal deficit spending) is the amount by which previously unemployed labour and unused capital are remunerated for raising output/income. That output/income is direcet in part to taxation ($T = tG$; $0 < t < 1$), in part to saving ($S = sG$; $0 < s < 1$) leaving the remainder ($G\{1 - s - t\}$) as new consumption expenditure, which delivers a second-stage boost to output/income. Again, previously unemployed labour and unused capital are remunerated for producing still more output; and, so this ('income multiplier') process continues. The impetus to output and employment diminishes at each successive stage. The final outcome is algebraically certain: setting aside that G is 'front loaded', over successive periods tax receipts rise and saving accumulates, which means that fiscal deficit spending is *eventually* matched by tax revenue and private saving.

The implication is that, if private saving can be expropriated by the fiscal authority (Keynesians tend to duck that piece of the narrative) to supplement revenue obtained directly from taxation, the expenditure gap is precisely closed.

To keep output at the higher Keynesian full employment (KFE) level, these processes must be sustained. In each successive period, *additional* deficit spending is necessary to generate tax revenue and saving; and that saving must be used to bridge the fiscal deficit.

More realistically, when KFE is sustained by fiscal deficit spending, sovereign debt grows. Although a sovereign has a unique privilege to raise taxes, savers (as creditors) expect to be repaid. With rising debt, bond yields must rise to offset ever rising concerns of default, either directly (by the imposition of a 'haircut') or indirectly (by 'inflation' as bonds are redeemed by newly printed banknotes).

Thus, market-driven relative price adjustments constrain the *real* value of sovereign debt (as might be indicated, say, by the ratio of debt to national income) at a level no higher than individuals and non-bank agencies are willing to hold. Whenever that level is breached, there is simultaneously an

a) excess supply of government paper: an increasing *unwillingness* to hold currency and/or bonds which drives down their value;
b) excess demand for other items: a drive to purchase goods, services, real assets and other non-government financial assets which drives up their value.

With that debased real value of currency and bonds, sovereign debt falls in real terms to a level that individuals and non-bank agencies are willing to hold. It follows that general price stability can be achieved only if the state accepts the discipline of an upper limit to real sovereign debt; and that the relative proportions of currency and bonds held by individuals and non-bank agencies is irrelevant.

4. KEYNESIAN PARADOXES

Keynes acknowledged that his arguments were limited to the special circumstances of the 1930s. With Bolshevism in mind, *any* fiscal deficit spending was justified to put men into work. For normal circumstances, Keynes only a few *ad hoc* musings: if ever real returns were exhausted, a 'socialisation of investment' might be necessary; and an unresolved task for 'our statesmanship' would be to prevent 'money wages forever soaring upwards'.

Keynesians transformed Keynes's ideas into a manual for demand management, wherein students are taught that increased saving drives the economy into recession where, with incomes lowered, individuals save less. This paradox of thrift sits among twin claims: that inflation is impossible where spare capacity exists; and that - 'unimpeded by international preoccupations' - a monetary authority is free to reduce domestic interest rates to any level it sees fit. Now Paul Krugman presents a new 'twist'. With his paradox of toil': by giving a greater incentive to work, tax *reductions* cause output to fall. He argues as follows: as (labour) costs fall, competition ensures that prices drop which incites negative 'inflation expectations'; *i.e.*, prices are expected to continue falling. The 'paradox of toil' quickly falls into place:

1. the *real* rate of interest ***equals*** the nominal rate ***minus*** the inflation rate;
2. the nominal rate is at its lower bound ('zero');
3. so the real rate ('zero' ***minus*** the negative inflation rate) rises, which
4. raises the real burden of debts, which causes
5. consumers to cut spending, so that
6. output and employment shrink.
7. tax cuts are, therefore, very bad for economic recovery!

By their shared logic, the twin paradoxes of thrift and toil: (i) discount the force of market prices in bringing coherence to economic readjustments; (ii) view state controls as means to achieve balanced growth, income uniformity and the elimination of poverty; (iii) fail to understand that using interest rates to effect short-term demand management distorts long-term (inter-temporal) price adjustments.

Keynes's *General Theory* was an endeavour to show that, in a deep recession, the laws of economics are held in abeyance. Fiscal deficit spending is then required to restore economic growth. Samuel Brittan has argued the same case: the 'credit crunch' recession placed the economy within 'a kind of parallel universe ... when the normal rules are turned upside down'. Or, as Krugman writes, 'we're really through the looking glass, in a world in which lots of things have perverse effects - and basing your policy ideas on intuition from "normal" times can lead you very much astray'.

The nub: does economics operate by two sets of principles or just one?

Keynes (1933): 'Many people are trying to solve unemployment with a theory that is based on the assumption that there is no unemployment ... these ideas, perfectly valid in their proper setting, are inapplicable to present circumstances';

Hayek (1972): 'An analysis on the assumption of full employment, even if the assumption is only partially valid, at least helps us to understand the functioning of the price mechanism, the significance of the relations between different prices and of the factors which lead to changes in these relations. But the assumption that all goods and factors are available in excess makes the whole price system redundant, undermined and unintelligible.'

5. A KEYNESIAN STIMULUS

A little introspection reveals the inherent absurdities of a Keynesian 'stimulus'. Aggregate demand is too low for you (just you) to find employment. So I offer you work as my gardener for which I pay you £200 weekly, reducing my other expenditures accordingly. If you accept, your new expenditures offset my own reductions, even though their respective patterns are likely to differ; but, as sectors adjust and individuals are fired and hired, market forces bring production into line with expenditures. What happens here is displacement; that is, businesses expand as others contract. There is no income multiplier.

If, instead, I pay you with counterfeit notes, the above effects are repeated except that my other expenditures remain unchanged. This means that expenditures generally increase by the £200 of counterfeit notes. As I pay you each week, £200 new counterfeit notes enter circulation. History shows that (whether counterfeit or genuine) monetary growth causes prices to rise. This time the outcome is price inflation along with its price distortions, but no income multiplier.

The state features large for Keynesians and, in running a fiscal deficit to place you in full-time work as a £200-per-week gardener, your expenditures will trigger multiple sequences of new income and expenditures by others. Recognising that these must push the economy beyond its productive capacity, the state cleverly offers you half-a-day's gardening at £20 which, by the textbook income multiplier, triggers new expenditures across a wide range of goods and services. He takes it that you are multi-skilled and can multi-task into all of those areas, which means that you work full-time.

In parallel fashion, Keynesian economics fosters the belief that deficit state spending can place large numbers of unemployed into occupations requiring skills relevant to a wide range of consumer demand. Of course, this misrepresents the practicality of Keynesian deficit finance, which is to direct the unemployed into make-work schemes with little regard for consumers' preferences. The evidence for this shows in the effects of deficit spending: *X*-inefficiencies in expanded public sector provision and excess demands (and rising prices) elsewhere. Keynes himself certainly conceded the make-work element in the first round of public expenditure -

'[i]f the Treasury were to fill old bottles with bank-notes, bury them at suitable depths . . . and leave it to private enterprise on the well tried principle of *laissez-faire*, to dig the notes up again . . . there need be no more unemployment.' (Keynes, 1936)

- but the subsequent multiple impact would be spread widely as determined by consumers' expenditure patterns:

> '[i]f the consumption psychology of the community is such that they will chose to consume, *e.g.*, nine-tenths of an increment of income, then the multiplier *k* is 10: and the total employment caused by (*e.g.*) increased public works will be ten times the primary employment provided by the public works themselves, assuming no reduction of investment in other directions.' (Keynes, 1936)

However, the big question that is begged by Keynes and Keynesians is: how long can this continue?

Make-work schemes are sustained only by a continuous flow of new ‘paper’; that is, by an unending series of debt-financed primary expenditures. The Keynesian counter-point has been that higher levels of employment and income generate tax revenues that offset that debt. Occasionally referenced as economic ‘pump-priming’, this nonsense is redolent of perpetual motion in physical science. The fallacy is that, as more is reclaimed in taxation, the volume of multiple expenditures becomes ever-smaller to the limit that, if primary expenditure is entirely recovered, the fiscal stimulus vanishes.

Perhaps, the most damning indictment of aggregate demand and the income multiplier is that both are set within a static framework. Keynesian presentations of fiscal and monetary policy - taxation and interest rate changes - have relevance only to immediate job-creation. Their impact in overriding individuals’ choices and in corrupting decisions that determine the flow of inter-temporal production is entirely discounted. This myopia is present across Keynesian income-expenditure models at all levels of sophistication. Yet, by Keynes’s own elucidation of *The General Theory*, he insisted that his ‘suggestions for a cure’ - state-financed public works - were ‘on a different plane from the diagnosis’. Measures that he deemed appropriate for the unique circumstances of the 1930s were ‘not meant to

6. THE INTEREST RATE

Is the interest rate determined by arrangements governing the flow of credit (classical loanable funds theory) or by asset portfolio adjustments (Keynes's liquidity preference theory), or by both?

Keynes realises that he must address the role of the interest rate as a coordinating mechanism in order to argue that an economy might stabilise below full employment. He directs his hostility to the loanable funds theory at its central concept, the natural rate of interest. In arguing that, with every shift in demand (for funds for investment expenditures), there are corresponding shifts in levels of income and saving, Keynes paves the way for the paradox of thrift, the multiplier process and his conclusion that the natural rate 'had nothing very useful or significant to contribute to our analysis'. With different natural rates of interest, each one corresponding to a unique level of income, an expansion of investment (demand for loanable funds) raises production, incomes and saving; but shifts in demand cause shifts in supply, so there is no determinate theory of price (interest rate). By those arguments, the loanable funds theory is defunct!

In *The General Theory*, and contrary to classical theory, a preference for liquidity - a high level of saving - does not deliver a low interest rate nor any encouragement to new investment expenditure. Rather, it implies a deficiency in aggregate demand, a low level of output and high unemployment.

In Keynes's presentation, changes in investment and saving have no direct impact upon the interest rate. By the key role that Keynes assigns to the investment-income-saving multiplier sequence, it is by ***income adjustments*** that the investment-saving equality is achieved. Liquidity preference and monetary policy govern the interest rate in a manner so bizarre that (for example) an enhanced preference to save sets the economy tumbling towards chronic (if not permanent) unemployment. Here is an economy that - at a given stage of scientific and technological development - can produce only one mix of investment and consumption goods that is consistent with full employment; or, in a dynamic perspective, where only one rate of economic growth is consistent with full employment. This is an implausible basis upon which to examine the dynamics of a money economy.

By Keynes's liquidity preference theory, the interest rate is determined by the choice of assets held as a vehicle for savings. A highly liquid asset (money) bears zero (or low) yield and is held only on the speculative expectation that the prices of bonds (and other securities) are more likely to fall (so incurring a capital loss) than to rise. The balance of speculation in financial markets determines optimum holdings of money and less liquid securities; and the interest rate is determined by transactions between those (selling bonds) who feel that bond prices are more likely to fall and those (buying bonds) who feel that bond prices are more likely to rise.

By adjusting the relative volume of money and bonds in circulation, the authorities can change their relative scarcities and so influence the price (and yield) of bonds. Thereby, the interest rate can be manipulated by action that alters the weight of opinion as to the future price of bonds. The objection that the analysis is deficient in not saying how the interest rate is determined in the absence (or uniformity) of specific thoughts is ignored.

Keynes's crucial idea, that monetary expansion dissipates its force in financial markets (on bond prices) rather than in markets generally -'[t]he primary effect of a change in the quantity of money ... is

through its influence on the rate of interest' - requires the quantity theory of money to be discarded. He does this by asserting that

> an increase in the quantity of money will have no effect whatever on prices, so long as there is any unemployment ... whilst as soon as full employment is reached, it will be the wage unit and prices which will increase in exact proportion to the increase in effective demand. ... So long as there is unemployment, employment will change in the same proportion as the quantity of money; and when there is full employment, prices will change in the same proportion as the quantity of money. (Keynes, 1936)

With such lack of *finesse*, there is no surprise that Keynes overlooks the implication he exposed his liquidity preference theory to the same criticism levelled at the loanable funds theory: at full employment, it has 'nothing very useful or significant to contribute' since an expansion of money supply raises prices which raises the (transactions) demand for money; and, if a shift in supply causes a shift in demand, the theory is indeterminate.

To summarise: the consequence of Keynes's propositions is that, with unemployment, the loanable funds theory is indeterminate and, with full employment, the liquidity preference theory is indeterminate. Keynes is mute on the determination of the interest rate at full employment, except in the notion that it is always capable of being manipulated by state action. It is little wonder that the liquidity preference theory of short-term interest rate determination remains the most unsatisfactory aspect of *The General Theory.* Yet it is crucially important - for the income multiplier process - that the classical loanable funds theory of interest rate determination should be displaced.

7. BONDS

My word is my bond

Dictum meum pactum

The motto of the London Stock Exchange where deals are agreed without documentation

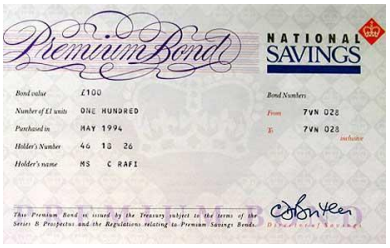
... a creditor might require greater security

... by writing an **'i.o.u.'**

any debtor can issue a **'bond'**

as a **'debt instrument'**

to provide a creditor with a tangible **'security'**



UK Premium Bonds

the yield takes the form of a monthly prizes drawn by lottery

Ten-Year Bowie Bonds - issued in 1997

Sold for **$55 million**
to the Prudential Insurance Company.

offered a **7.9%** yield

Creditors received revenues from twenty-five David Bowie albums (287 songs) recorded before 1990. Royalties reverted to Bowie after **10 years**. David Bowie used the **$55 million** to buy the rights to other recordings owned by a former manager. David Bowie now owns the rights to all of his songs.

Capitalised value $ 55 million = $8.16 mn [1 - (1 + 0.079) $^{-10}$] / 0.079

Variations in yields on government bonds have special relevance to interest rates generally. If the state wishes to raise interest rates, debt instruments are offered for sale at reduced prices, so raising yields to new lenders. In competing for savings, other institutions must match the higher rates. In reverse, where the state buys back existing debt, bond prices rise and yields fall. Other institutions can then arrange their own borrowing at lower rates. By such actions - which alter the composition of the national debt in terms of currency and bonds- the state manipulates interest rates. Typically, this technique is applied at the short end of the market. Less frequently, it is applied at the long end, with dealing in gilts, when it has become known as 'quantitative easing'.

8. SOVEREIGN DEBT: INFLATE AND PROSPER

High-profile Keynesians - such as Samuel Brittan and Martin Woolf of the *Financial Times* and Princeton University's *New York Times* blogger Paul Krugman - insist that austerity is the wrong option for the US, the UK and the eurozone. Even so, current circumstances have forced Keynesians to come clean on one point.

Contrary to their master's own insistence - that inflation is impossible within an economy in recession - some (not all) Keynesians now view inflation, not as a problem, but bas a policy instrument. For them, inflation is the most effective means to eliminate unmanageable levels of sovereign debt.

Martin Wolf raises three questions in his recent interview with Paul Krugman. What did the Federal Reserve get wrong? What did Japan get right? How can the eurozone be saved?

To each question, Krugman has one answer: inflation.

Faced by the sub-prime housing crisis, Krugman believes the US Federal Reserve acted correctly with its aggressive implementation of quantitative easing. Yet, while this stabilised the economy, nothing followed. The critical mistake was in failing to address expectations by signalling that the official inflation target would be no impediment to allowing inflation to rip. Astonishingly, the consequences for policy credibility are entirely discounted. By Krugman's judgment, individuals are the self-same fools as those who (by Keynesian wishful thinking) were expected to suffer money illusion in the 1960s. Keynesian hope then rested upon a stable Phillips curve trade-off between inflation and unemployment. Some hope that proved!

For the eurozone, Krugman believes a full fiscal union to be the best outcome but, given hat political dimensions make that unlikely, inflation is once again, the best option. The salutary lesson lies with the Japanese crisis of the 1990s and the manner in which it was handled. With a free-for-all bonanza of bank bailouts and stimulus programs, Japan's sovereign debt soared; as it continues to do so. By the end of this 2012 Japan's debt, as a proportion of GNP, is projected to exceed by fifty percent that of Greece, with no obvious solution in sight ... apart from allowing inflation to continue its levelling of the prudent and the prodigal.

Where is the incentive in Krugman's world, for any individual ever to break sweat?

9. QUANTITATIVE EASING

With the (short-term) Bank Rate already set close to its lower limit of zero, the motivation for QE was to stimulate demand: as QE raises the demand for government bonds (and, by portfolio substitution, other financial assets) it causes a general fall in long-term rates.

Nonetheless, QE is presented as printing money with the implication that the large increase in the monetary base (defined as currency plus commercial banks' reserves) is an additional stimulatory force. Based upon the quantity theory of money, some to argue that this 'monetisation' of the national debt will be inflationary: more reserves induce more bank lending via the 'money-multiplier', which in turn raises expenditure and prices.

An essential element of this argument is that commercial banks' reserves earn no interest so that, with excessive levels of reserves, banks are induced to seek profitable lending opportunities. However, with interest now paid on reserves, the distinction between 'money' and 'bonds' becomes blurred and this incentive to lend falls away.

Even with reserves earning interest at market rates, a large increase in the supply of reserves may leave the banks with more liquid assets than they desire. While they might reinstate the desired portfolio balance by disposing of substitute liquid assets such as treasury bills, they might also be inclined to increase lending. In a similar vein, a bank with large reserves might be more inclined to increase lending as it has no need to seek funding by selling other assets or borrowing in the money markets.

When reserves earn interest at market rates, they become close substitutes for treasury bills. They are equally risk free and it is not relevant that reserves are a claim on the Bank, rather than the Treasury. Hence, treating the Bank and the Treasury as a unit called 'the state', and grouping banks with other firms and individuals as 'the private sector', the only material difference between reserves and other state debt is their short maturity.

In this light, QE has simply replaced gilts of maturities of 3 years or more with other 'gilts' of maturity one day. It has reduced the average maturity of state liabilities held by the private sector, causing the adjustment of relative yields on other assets until financial institutions are content with the composition of their portfolios.

Much the same result as QE1 could have been achieved by the Treasury's Debt Management Office if it had shifted £200bn from medium and long maturity gilts to short dated bills as part of its normal operations. The problem is that the DMO has different objectives from the Bank: its brief is to fund government debt as cheaply as possible. So it is inclined to issue long-dated bonds in order to reduce the risk of fluctuations in short rates, and the current climate of low long rates further enhances the attraction of this strategy.

UK debt has an average maturity of 14.5 years (December 2011, including treasury bills and index-linked debt). The Bank of England now owns about 30% of the total issue, with a maturity distribution similar to the debt as issued by the DMO. This implies that, after QE, the average maturity of state debt, including the debt that is now in the form of reserves, has an average maturity of about 10 years. For comparison, the average maturity of government debt is around 5 years (USA) and 6 years (Germany). See also: http://www.politics.co.uk/reference/quantitative-easing

10. CASTING A SHADOW ON BANKING

The public at large takes a very dim view of banking. When the pre-fix 'shadow' is added, matters only get worse. Although 'shadow' refers to credit intermediation occurring outside the banking sector, many of the 'non-banks' are integrated within large banking groups. It is only recently that shadow banking has attracted regulatory attention: the Financial Stability Board (established by the G20 in 2009) is concerned by the association of non-banks with 'systematic risk' and 'regulatory arbitrage'. As a prerequisite to weighing those concerns, the structural similarities and differences between banks and non-banks must be understood.

A beginner's guide might start with the standard representation of fractional reserve banking, where banks hold balances of base money (currency or reserve deposits at the central bank) as a fraction of their illiquid loans. Those balances allow banks to meet demands from their depositors for withdrawals. An associated narrative leads to the 'money multiplier' description of money creation. On the basis of reserves obtained from the central bank, banks make loans which then appear as new deposits. In turn, these facilitate additional bank lending so that broad money increases, round-by-round, to an amount that is in the same proportion as the increase in reserves. Broad money is a fixed multiple of base money.

The money multiplier is a definitional structure, to which behavioural relationships must be added if any insights are to be gained into the institutional niceties of banking. It is but a start: a 'handle on the facts'.

As is true for most bank lending, non-bank lending is secured by collateral: a pawn broker lends against the security of gold watches; a building society lends against the security of property. If the borrower defaults, the security can be sold. Now if it were possible to re-pawn gold watches (*i.e.*, if 're-hypothecation' were possible) pawn-brokers could obtain additional funds to extend their business. Unfortunately, their clients expect to have their original watches returned.

More generally in the world of shadow banking, re-hypothecation *is* possible. Suppose Non-Bank I obtains a loan from Non-Bank II against high-quality collateral (say, a sovereign bond); Non-Bank II might repeat that process by re-hypothecating the security to Non-Bank III; and so on. This creates a collateral chain in which multiple non-banks hypothecate the same security as collateral for their respective loans. At each link in the chain a 'haircut' occurs; *i.e.*, collateral of given worth secures a loan of increasingly diminished worth.

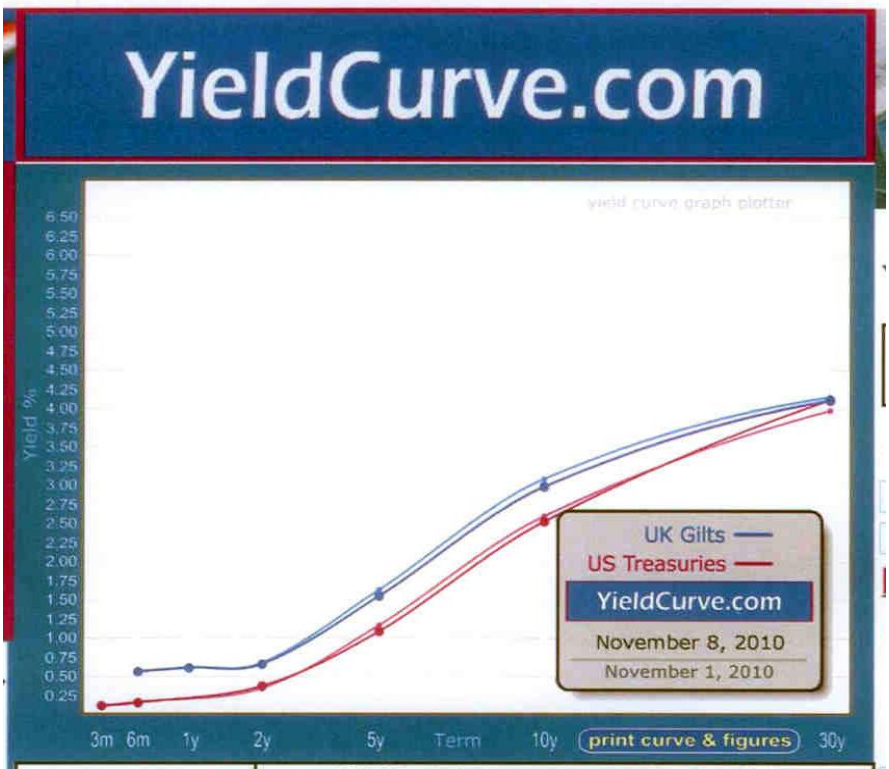
This invites a representation of shadow banking that is analogous to fractional reserve banking. Non-banks are distinct from banks in having no access to central bank reserves. They use collateral instead. As bank loans are a multiple of reserves, so non-bank loans are a multiple of high-quality collateral. At each round of bank lending, the ratio of broad money to reserves increases, but at a diminishing rate. At each round of non-bank lending, the ratio of loans to collateral increases, but at a diminishing rate. As the money multiplier is the ratio of broad money to base money, so 'collateral velocity' is the ratio of loans to hypothecated collateral. And finally, de-leveraging for banks occurs when loans are repaid or reserves accumulate; and for non-banks, when haircuts rise, or collateral falls in value, or the collateral chain shortens.

Bear in mind, however, the caveat that applies to these conceptual representations. They provide merely a structure upon which analysis and argument may be based. However, to end with moot points: banks and non-banks are vital in extending credit to the real economy and**, while the large-scale purchase of high-quality securities by the central bank (quantitative easing) leaves banks awash with reserves, shadow banking is constrained by the diminished availability of** high-quality **collateral.** And the activities of both are inhibited by the salutary experience of recent defaults and the potential toxicity of outstanding debt**.**

11 BONDS, YIELDS AND INTEREST RATES

Variations in yields on government debt have special relevance to interest rates generally. If the state wishes to raise **interest rates**, debt instruments (Treasury bills, bonds) must be sold at **reduced prices**, so raising **yields** to new lenders. Given the **competition** for savings, other institutions are forced to match those higher yields. Hence, **interest rates rise** generally.

In reverse, where the state initiates the repurchase of existing debt, bond prices rise and yields fall. Other institutions are then able to arrange their own borrowing requirements at lower rates. By such actions - which alter the **composition of the national debt** in terms of currency and interest-bearing securities - the state manipulates interest rates. Conventionally, this technique is applied at the short end of the market. Less often, it is applied at the long end, with dealing in gilts, when it has become known as 'quantitative easing'.



YieldCurve.com	Yield Curve figures updated weekly since October 2003 For historical & animated yield curve data use drop-down menu					
UK Gilt	6 Month	1 Year	2 Year	5 Year	10 Year	30 Year
November 8, 2010	0.56	0.61	0.66	1.55	2.98	4.11
November 1, 2010	0.57	0.62	0.68	1.63	3.08	4.15
US Treasury	3 Month	6 Month	2 Year	5 Year	10 Year	30 Year
November 8, 2010	0.11	0.15	0.37	1.09	2.53	4.12
November 1, 2010	0.11	0.16	0.34	1.17	2.60	3.98

http://www.yieldcurve.com/marketyieldcurve.asp

Whether the state initiates action at the short end ('**open market operations'**) or at the long end (**'quantitative easing'**), wider readjustments occur as market traders, fund managers, *etc*. adjust the composition of their asset portfolios.

Such adjustments both affect and are reflected in the **yield curve**.

The yield curve (the **'term structure of interest rates'**) shows the respective maturity dates of benchmark fixed-income (*i.e*, fixed annuity or fixed **'coupon'**) securities.

The yield curve reflects market expectations of future interest rates given current market conditions.

US Federal Reserve: 'Operation Twist':

If a central bank sells short-dated bonds and buys more long-dated bonds, their relative price is altered: as yields on short-term bonds rise, yields on long-term bonds fall, the yield curve is twisted

http://www.npr.org/blogs/money/2011/09/21/140643696/operation-twist-explained-in-4-easy-steps

12. PHILLIPS CURVE

In 1958 A.W. Phillips published a study based upon UK wage and employment data, 1861-1957. A *negative* non-linear relationship existed between the proportionate rate of change in money wages and the percentage rate of male unemployment. The data also tracked *anti-clockwise loops* around a fitted *curve*. The *negative non-linear relationship* was explained as follows;

> When the demand for labour is high and there are few unemployed we should expect employers to bid up rates quite rapidly ... On the other hand it appears that workers are reluctant to offer their services at less than the prevailing rates when the demand for labour is low and unemployment is high so that wage rates fall only very slowly. The relationship between unemployment and the rate of change of wage rates is therefore likely to be non-linear. (Phillips, 1959, p. 283)

The *anti-clockwise loops* were seen to reflect a difference between periods of rising business activity and periods of decline: at (say) a 3% unemployment rate, the average experience of wage increases would lie between a higher rate (in a growth period) and a lower rate (in a period of decline).

The most revealing of subsequent theoretical developments came from Milton Friedman and Edmund Phelps. Their framework not only accommodated Phillip's original findings, but also anticipated the break-down of the relationship during inflationary periods.

A distinction was drawn between periods of monetary stability: individuals recognise that price rises in a boom are offset by price reductions in a recession. An entirely different experience - where prices have risen, are rising and are expected to continue to rise - causes individuals to react quite differently.

All job seekers have specific aspirations. For example, they might initially be interested in a wage at least equal to that in their previous job. Alternatively, welfare benefits might set a lower limit. That *real* wage minimum is termed the *reservation wage*.

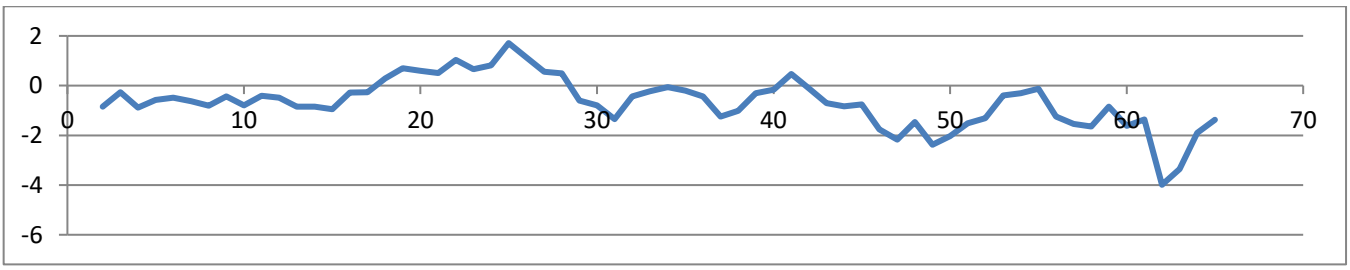
In the context of the original Phillips curve, prices rise and fall to the same degree across boom and recession, while the trend of *real* wages is in line with labour productivity growth. Labour turnover then produces the normal frictional unemployment of a dynamic economy. Friedman termed this the 'natural rate of unemployment'; that is, unemployment associated with unanticipated price inflation. However, where workers have experienced the erosion of their money wages by persistent price inflation, they begin to anticipate and set their reservation wage to accommodate rising living costs. Thus the Phillips curve must shift upwards: at any given unemployment rate, the rate of increase in money wages is higher, the higher is the expected rate of price inflation.

To those Keynesian economists who had interpreted the original Phillips curve as promising a permanent trade-off between inflation and unemployment, the experience of stagflation - the coincidence of high inflation and high unemployment - in the 1970s, came as a heavy blow. It became clear that employment could not be raised by fiscal deficit spending that is necessarily financed by monetary expansion.

13. ADAPTIVE EXPECTATIONS

UK Monthly Inflation 1970 - 1973							
Adaptive Expectations: *e.g.*			$(\Delta P/P)^e = 0.4(\Delta P/P)_{t-1} + 0.3(\Delta P/P)_{t-2} + 0.2(\Delta P/P)_{t-3} + 0.1(\Delta P/P)_{t-4}$				
	$(\Delta P/P)$	$(\Delta P/P)^e$	$(\Delta P/P) - (\Delta P/P)^e$		$(\Delta P/P)$	$(\Delta P/P)^e$	$(\Delta P/P) - (\Delta P/P)^e$
Jan-70	5			Apr-73	9.2	7.96	**-1.24**
Feb-70	4.9			May-73	9.5	8.49	**-1.01**
Mar-70	5.1			Jun-73	9.3	8.99	**-0.31**
Apr-70	5.6			Jul-73	9.4	9.23	**-0.17**
May-70	6.1	5.25	**-0.85**	Aug-73	8.9	9.37	**0.47**
Jun-70	5.9	5.63	**-0.27**	Sep-73	9.3	9.19	**-0.11**
Jul-70	6.7	5.82	**-0.88**	Oct-73	9.9	9.2	**-0.7**
Aug-70	6.8	6.23	**-0.57**	Nov-73	10.3	9.47	**-0.83**
Sep-70	7	6.52	**-0.48**	Dec-73	10.6	9.84	**-0.76**
Oct-70	7.4	6.77	**-0.63**	Jan-74	12	10.24	**-1.76**
Nov-70	7.9	7.09	**-0.81**	Feb-74	13.2	11.03	**-2.17**
Dec-70	7.9	7.46	**-0.44**	Mar-74	13.5	12.03	**-1.47**
Jan-71	8.5	7.71	**-0.79**	Apr-74	15.2	12.82	**-2.38**
Feb-71	8.5	8.09	**-0.41**	May-74	16	13.97	**-2.03**
Mar-71	8.8	8.32	**-0.48**	Jun-74	16.5	14.98	**-1.52**
Apr-71	9.4	8.56	**-0.84**	Jul-74	17.1	15.79	**-1.31**
May-71	9.8	8.95	**-0.85**	Aug-74	16.9	16.51	**-0.39**
Jun-71	10.3	9.35	**-0.95**	Sep-74	17.1	16.79	**-0.31**
Jul-71	10.1	9.82	**-0.28**	Oct-74	17.1	16.98	**-0.12**
Aug-71	10.3	10.03	**-0.27**	Nov-74	18.3	17.06	**-1.24**
Sep-71	9.9	10.19	**0.29**	Dec-74	19.1	17.56	**-1.54**
Oct-71	9.4	10.1	**0.7**	Jan-75	19.9	18.26	**-1.64**
Nov-71	9.2	9.8	**0.6**	Feb-75	19.9	19.06	**-0.84**
Dec-71	9	9.51	**0.51**	Mar-75	21.2	19.58	**-1.62**
Jan-72	8.2	9.23	**1.03**	Apr-75	21.7	20.34	**-1.36**
Feb-72	8.1	8.76	**0.66**	May-75	25	21.01	**-3.99**
Mar-72	7.6	8.42	**0.82**	Jun-75	26.1	22.74	**-3.36**
Apr-72	6.3	8.01	**1.71**	Jul-75	26.3	24.4	**-1.9**
May-72	6.1	7.24	**1.14**	Aug-75	26.9	25.52	**-1.38**
Jun-72	6.1	6.66	**0.56**	Apr-73	9.2	7.96	**-1.24**
Jul-72	5.8	6.29	**0.49**	May-73	9.5	8.49	**-1.01**
Aug-72	6.6	6	**-0.6**	Jun-73	9.3	8.99	**-0.31**
Sep-72	7	6.21	**-0.79**	Jul-73	9.4	9.23	**-0.17**
Oct-72	7.9	6.55	**-1.35**	Aug-73	8.9	9.37	**0.47**
Nov-72	7.6	7.16	**-0.44**	Sep-73	9.3	9.19	**-0.11**
Dec-72	7.7	7.47	**-0.23**	Oct-73	9.9	9.2	**-0.7**
Jan-73	7.7	7.64	**-0.06**	Nov-73	10.3	9.47	**-0.83**
Feb-73	7.9	7.7	**-0.2**	Dec-73	10.6	9.84	**-0.76**
Mar-73	8.2	7.77	**-0.43**	Jan-74	12	10.24	**-1.76**
http://www.guardian.co.uk/news/datablog/2009/mar/09/inflation-economics#data							

Plot: $(\Delta P/P) - (\Delta P/P)^e$ .... the systematic under-estimation of inflation, when inflation is rising.



14. MONEY AND BANK CREDIT

The Textbook Presentation

Although they have no status as legal tender, cheques drawn upon bank deposits (and, with new technology, the use of bank debit cards, BACs payments schemes, *etc*.) are close substitutes for base money, *i.e.*, banknotes and coins ('currency'). The manner in which commercial banks conduct their business and the form in which the public chooses to hold its 'money assets' have implications for the supply of 'broad' money. To explain further: first assume that individuals and corporate bodies hold money assets (**M**) partly in the form of currency (**CP**) and partly in the form of bank deposits (**BD**). Then,

$$\mathbf{M \equiv CP + BD} \qquad \mathbf{(1)}$$

Thus, of the total currency issued by the monetary authority (**C**), part is held by the general public (**CP**) and part is held as reserves by commercial banks (**CB**):

$$\mathbf{C \equiv CP + CB} \qquad \mathbf{(2)}$$

Assume also that the general public decides upon a given ratio (**a**) of currency to bank deposits; and that commercial banks do likewise (**b**):

$$\mathbf{a \equiv CP/BD} \qquad \mathbf{b \equiv CB/BD} \qquad \mathbf{(3, 4)}$$

In substituting within equations (1, 2, 3, 4):

$$\mathbf{BD \equiv C/(a + b) \equiv k(C)} \qquad \mathbf{(5)}$$

where

$\mathbf{k = 1/(a+b)}$ is the ***bank credit multiplier*.**

Example: with C = £900 and commercial banks holding 20% reserves (**b** = 0.2); and with **a** = 0.25:

BD	≡	£900/0.45	≡	£2000
M ≡ CP + BD	≡	£400 + £2000	≡	£2400

Thus, given a base ('narrow' money) of £900 and a ***bank credit multiplier*** of 2.22 (**k**), 'broad' money is £2400. Alternatively, the ***money multiplier*** (**m**) is 2.77:

$$\mathbf{M \equiv C(1 + a)/(a + b) \equiv mC} \qquad \mathbf{(8)}$$

If **a** and **b** were fixed constants, a monetary authority could control broad money by exercising control over 'narrow' money (also referred to as 'high-powered' or 'base' money). However, the values of **a** and **b** vary with commercial, technological and market factors. The general public's choice (**b**) is affected by relative costs and advantages that change with market conditions and the evolution of commercial banking practices. Similarly, commercial bank reserve ratios (**b**) are affected by markets and by the legal framework relating to banking.

In Practice

The notion of a trusted high-street bank branch manager waiting patiently for deposits to be made before agreeing to lend to local business and to other clients is a myth. Instead, a bank typically credits a business account with a deposit (the bank's liability) as it simultaneously records the loan as an asset held by the bank. The ratio of deposits to reserve assets then falls.

If it is considered appropriate to expand the business, the bank might then bid for short-term wholesale deposits (of liquid assets) in order to extend the process of bank credit creation. However, if wholesale deposits are committed for a shorter term than the term for loans, the bank implicitly relies upon deposits being 'rolled over'. If that ever becomes a problem so that a bank finds that its reserves are falling below a 'safe' level, it can (if the facility is available) obtain funds from the central bank.

By the 'lender of last resort' facility that was established in the UK during the nineteenth century, the central bank refinances 'good' collateral; i.e., the bank obtains the liquidity it requires, but pays a higher rate that than previously paid on wholesale deposits

15. MONEY & INFLATION

Outside money - banknotes and coins issued by the state - is otherwise known as **'high-powered money'**, **'exogenous money'**, the **'base money'**, **'narrow money'** and **M0**. Outside money is part of the national debt. It is debt upon which the state pays no interest. Banknotes and coins are debt tokens (liabilities) that, in earlier times, could be redeemed as gold (assets). In the modern era, they are non-convertible.

Inside money is created by banks. Inside money is **bank credit money**. Every deposit that is placed with a commercial bank is a bank asset that is precisely matched by the bank's liability to repay that deposit. A commercial bank's double-entry book-keeping shows precisely matched assets (deposits of outside money) and liabilities (deposit accounts in credit). Thereafter, in extending a proportion of its outside money as loans, a commercial bank operates a system of 'fractional reserve banking'. Again, double-entry book-keeping shows precisely matched assets, but now it is the bank's liquid assets (outside money) *plus* its illiquid assets (loans) that precisely match its liabilities (deposit accounts in credit). In extending loans, a process is instigated that is known as bank credit creation (the creation of 'inside money'). Inside money (exchanged by means of bank cheques) is redeemable as outside money; *i.e.*, a cheque can be presented to withdraw cash from a commercial bank. Unlike outside money, inside money *is* convertible: into outside money!

Different relationships are hypothesised: between outside (exogenous) money and prices; and between inside (endogenous) money and prices. Monetarism focuses upon outside money and the state's unique ability to determine the amount of outside money in circulation. The monetarist argument is that, if the supply of outside money is excessive (*i.e.*, if it exceeds individuals' demand to hold outside money), expenditures will increase as individuals rid themselves of their excess money holdings. By this simple adjustment, monetarism concludes that inflation is symptomatic of an excess supply of outside money. The extra demand for goods and services that is the direct consequence of individuals ridding themselves of excess money holdings causes prices to rise. The excess supply of outside money is matched by an excess demand for goods and services, so that demand 'pulls' up prices (hence, ***'demand pull inflation'***). Excess growth in outside money is the explanation for prices rising.

A different view is associated with Keynesian economics and its focus upon inside money. During a cyclical business boom, supply shortages and production bottlenecks cause unit costs and then prices to rise (hence, ***'cost-push inflation'***). This leaves businesses and consumers with too little money to undertake their transactions. Commercial banks respond to the 'needs of trade' by extending bank credit. Rising prises are the explanation for the growth of inside money.

Monetarism assumes: (1) a money supply exogenously determined by the state authorities; and (2) a stable demand to hold money. This leads to the conclusion that inflation is a ***demand-pull*** phenomenon.

Keynesianism assumes: (1) a money supply endogenously determined by the decisions of commercial banks in facilitating trade; and (2) recurring cyclical activity. This leads to the conclusion that inflation is a ***cost-push*** phenomenon.

The monetarist - Keynesian controversy was particularly heated in the UK during the early 1970s.

16. FISCAL MONETARISM

FISCAL MONETARISM

It is both revealing and practically relevant to consider the central bank and the sovereign treasury of a nation as 'two-in-one'; *i.e.,* for the central bank and the treasury to be combined (and referenced as the 'sovereign'). In taking this perspective, sovereign debt consists of sovereign currency and sovereign bonds. Respectively, these are: (i) short-term base money (banknotes and bank reserves, *i.e.,* claims on the central bank); and (ii) longer-term debt (sovereign bonds, *i.e.*, claims on the treasury).

Base money and the value of sovereign bonds are measured in the same currency unit; and maturing sovereign bonds are redeemed in base money. Clearly, the unit value of base money and the unit value of maturing sovereign bonds are identical.

The tenet of Monetarism is that the root cause of inflation is an excess supply of money, the corollary of which is an excess demand for goods and services. Fiscal Monetarism is a derivative of Monetarism. The conceptual change is both minimal and fundamental. The tenet of Fiscal Monetarism is that the root cause of inflation is excessive sovereign debt. The *leitmotif* of Monetarism is that 'inflation is always and everywhere a monetary phenomenon'; but with Fiscal Monetarism that becomes 'inflation is always and everywhere a sovereign debt phenomenon.'

The capacity to raise tax revenue (the 'tax base') is limited by wealth and income within the nation. As an approximation, gross national income (GNI) is the source of tax revenue. Therefore, the sovereign-debt-to-GNI-ratio ('sovereign debt ratio') is an approximate indicator of sovereign solvency. As that ratio rises, the exchange risk of sovereign debt also rises; *i.e.,* it becomes ever more problematic for the sovereign to raise sufficient tax revenue to service and/or redeem sovereign debt.

For any given level of sovereign debt, the relative proportions held as money and bonds may be varied by allowing a central bank to buy/sell bonds (which increases/reduces the volume of base money). In buying/selling bonds, the time-to-maturity profile falls/rises as the average maturity of sovereign debt falls/rises.

Market-drive price adjustments constrain the *real* value of sovereign debt at a level no higher than market participants are willing to hold. If that level were breached, there would be an excess supply of sovereign debt. The implication would be an unwillingness to hold debt which, in driving down its real value, would create excess demand for other items; *i.e.,* demand pull inflation. An excess supply of sovereign debt has the corollary of an excess demand for goods and services (and non-government financial assets).

It is the credibility of the sovereign's commitment to deliver future primary fiscal surpluses, sufficient to service and/or redeem sovereign debt, that determines the real value of the debt. Where the sovereign is a currency issuer with its own central bank (*i.e*., where a sovereign currency exists) sovereign debt can always be monetised. This is called quantitative easing or, more colloquially, 'helicopter money'. The Monetarist view is that monetisation incites inflation expectations, with the effect of causing the real value of the currency unit to fall. The Fiscal Monetarist view is that, if monetisation leaves the sovereign debt ratio unchanged, the real value of the currency unit is largely unaffected.

By a joint debasement of base money and sovereign bonds, sovereign debt becomes adjusted to a level (in real terms) that individuals and agencies are willing to hold. It follows that general price stability can be achieved only if the sovereign recognises an upper limit to real sovereign debt. The relative proportions of base money and sovereign bonds are of little consequence. The *composition* of sovereign debt has inflationary relevance only if it affects the willingness of market participants to hold that debt.

17. INFLATION/DEFLATION

Inflation is the process whereby 'things' - balloons, tyres, opinions, *etc*. - become enlarged. Deflation is the reverse process. In economics, inflation generally refers to money; or to money prices. Deflation, however, more often refers to falling output; that is, to a decline in productive activity, usually accompanied by a rise in unemployment. By these definitions inflation and deflation are likely to occur simultaneously.

Prices rise in consequence of spending triggered by new money; but if money wages and salaries remain unchanged (or rise by a lesser amount), real incomes fall. Although this might look like deflation, those features may be part of a lagged readjustment, with wages and salaries eventually catching up with prices (an inflationary 'price-wage spiral').

Careful exposition and precise terminology is always desirable. Confusion would be lessened if (monetary) inflation were *defined as* currency debasement. By that definition, rising prices might be indicative of inflation; but not always. The (obvious) exception is when prices (or, more to the point, price indexes) rise for reasons other than currency debasement. Recent commentary on the 'Arab spring' illustrates the potential for confusion:

> 'Traders argue that if another domino falls, and many mention the Opec member Algeria, then the oil price would immediately leap dramatically. Global inflation ... would surge again. Living standards in Britain ... would take another punishing hit' (Sam Fleming, *The Times*, 5th March, 2011)

While a surging oil price would cause most, if not all, published price indices to rise, the impact (on output and employment) would be deflationary. Yet, as rising oil prices raise the cost of commodities for which oil is a necessary input, incentives are created for producers to economise in the use of oil, and for consumers to switch their spending away from the most heavily oil-based commodities. Although these must reduce both the demand for oil and the rise in price indices, it is nevertheless likely that the purchasing power of money would fall. Yet, the fundamental *cause* would not have been currency debasement.

In such circumstances it would be inappropriate for the authorities to attempt to forestall market readjustments, either by easing credit or by greater deficit spending. As the current 'oil shock' incites calls for 'politicians and central bankers' to 'make monetary policy even more stimulative to sustain growth and employment' (Anatole Kaletsky, *The Times* 9th March 2011), it might be noted that this strategy was engaged to offset the deflationary impact of the oil price rise of 1973; and that it led to inflation peaking at over 24% in the UK in 1975.

18. KEYNES: COST-PUSH INFLATION

Keynes emphasised the need for immediately practicable measures to reduce the high levels of unemployment of the 1930s. The realistic assumption was that there were 'men unemployed who would be willing to work at less than the existing real wage' (Keynes 1936, p. 289). The advocacy of public expenditure programmes rested on the belief that private commerce would show only the weakest response to monetary measures: 'the return of confidence ... is so insusceptible to control in an economy of individualistic capitalism' (Keynes, 1936, p. 317).

Fiscal expansion would raise output because, while it would tend to force up the prices of 'wage goods' (*i.e*., 'retail prices'), there would be no such pressure upon money wages. The price increase would be a once only effect, explained the fall in labour productivity where more labour works within the confines of existing capital stock. It did not constitute inflation, which is an on-going process. At the higher price level, real wages would be lower and this would allow unemployed labour to find permanent employment. Their unemployment is 'involuntary' in the sense that they are willing to accept work 'at below the existing real wage'.

If the supply of labour were perfectly elastic when there is unemployment, and if it were perfectly inelastic when there is full employment, then the Quantity Theory could be revamped as follows:

> So long as there is unemployment, *employment* will change in the same proportion as the quantity of money; and when there is full employment, *prices* will change in the same proportion as the quantity of money. (Keynes, 1936, p. 296)

Between these extremes Keynes conceded the relevance of a number of complicating factors such that, as output is raised towards the full employment level, the effect of monetary expansion would be partly to raise output and employment, and partly to raise prices. These complications included the belief that inherently less productive factors would be the last to be employed; that some factors would become fully employed before others; that factor costs would increase at different rates; and that wages would tend to rise before full employment is reached.

Once full employment is reached, further additions to the level of demand would produce no further increases in output. Rather, there would be proportionate increases in prices as a condition of 'true inflation' is reached. Under such circumstances, Keynes anticipated a different set of policy problems but paid little heed to them in *The General Theory* where he suggested that his 'suggestions for a cure ... are of a different plane from the diagnosis. They are not meant to be definitive; they are subject to all sorts of conditions of the time' (Keynes, 1937. p. 222) .

Although high levels of public expenditure might be necessary as permanent feature to sustain full employment (in an advanced economy), the crucial question of how that might be financed without creating inflation was neglected. This was not an immediate problem in the 1930s, although it has become the central issue of modern debate. Yet, was Keynes correct in asserting that the existence of unemployed resources gave a guarantee of expansion without inflation?

19. THE TAYLOR RULE: THE THEORY

The Taylor's rule characterizes monetary policy by a rule whereby the **short-term interest rate** is changed in response to an **inflation gap** and an **output gap**:

$$\mathbf{i_t = r^* + p_t + w_1(p_t - p^*) + w_2(y_t)} \qquad \mathbf{w_1 + w_2 = 1}$$

or

$$\mathbf{r_t = r^* + w_1(p_t - p^*) + w_2\{j(u_n - u)\}} \qquad \mathbf{j' > 0}$$

$\mathbf{i_t}$ = nominal interest rate
$\mathbf{r^*}$ = equilibrium real interest rate
$\mathbf{r_t}$ = real interest rate = $\mathbf{i_t - p_t}$
$\mathbf{p_t}$ = actual inflation rate
$\mathbf{p^*}$ = target inflation rate
$\mathbf{y_t}$ = percentage output gap (real GDP – potential GDP)/(potential GDP))

The output gap has a parallel in labour market

$$\mathbf{y_t = j(u_t - u_n)} \qquad \mathbf{j' > 0}$$

$\mathbf{u_n}$ = natural rate of unemployment (equilibrium: corresponding to potential GDP)
$\mathbf{u_t}$ = actual rate of unemployment

From the expectations-augmented Phillips curve,

$$\mathbf{(u - u_n) = f(p_t - p^e_t)} \qquad \mathbf{f' < 0}$$

where

$\mathbf{p^e_t}$ = expected rate of inflation

and in long-term equilibrium,

$\mathbf{p_t = p^e_t}$ so that $\mathbf{u = u_n}$

in which circumstance, Taylor's rule reduces to $\mathbf{r_t = r^* + w_1(p_t - p^*)}$

To implement Taylor's rule it is necessary to determine either one or the other of:

$\mathbf{u_n}$ the natural rate of unemployment
$\mathbf{r^*}$ the natural rate of interest

The linkage between the two natural rates is the expectations-augmented Phillips curve.

Since neither of the natural rates can be assumed to be a 'numerical constant', Taylor's rule makes no advance in providing operational guidance for monetary policy

20. THE TAYLOR RULE: THE ECONOMICS

Every recession, recovery, over-extension and relapse back into recession constitutes a unique series of actions and reactions. Turning from that complexity to the measure of an output gap (the difference between actual and potential aggregate supply) is a mighty shift. A monetary-policy rule (and a textbook topic) was thereby created: the Taylor Rule indicates by how much the interest rate should be changed given the state of the economy (as indicated by the output gap and an inflation index). The Taylor Rule - or, rather, rules, for as many rules exist as there are economists tweaking the measurement subtleties - purports to give direction to monetary policy: the interest rate must dip as output dips, and rise as inflation rises.

The manipulation of interest rates to steer economic growth has serious consequences: interest rates are integral to the price mechanism, which gives essential guidance to entrepreneurs. If left alone, interest rates would find their natural levels across diverse (credit) markets, thereby giving incentives to, and imposing constraints upon, business activities. In a decentralised market setting, interest rates emerge naturally as borrowers and lenders interact. However, in fixing a benchmark price for credit, central bankers face the same difficulties as those faced by central planners generally, in attempting to co-ordinate decisions without guidance from market signals. Co-ordination failures are inevitable.

State intervention to fix prices inhibits enterprise and growth. Within liberal democracies price-fixing is rarely observed. The one exception is that of inter-temporal price fixing. Interest rates - derivatives of spot and forward prices - are inter-temporal prices.

Entrepreneurs must *anticipate* consumers' requirements; and they seek guidance as best they can. If a commodity is expected to be in relatively short supply commodity, it shows a 'forward' price premium, giving entrepreneurs an incentive to switch resources to produce that commodity. If (say) investment to produce wheat offered a yield (*i.e.*, a forward premium) of ten percent and another to produce barley a yield of only five percent, resources would be diverted from barley (increasing its future scarcity) to wheat (reducing its future scarcity). This inter-temporal equivalent to John Stuart Mill's 'law of one price' sets a tendency to equalise yields; *i.e.*, to set a 'base' interest rate.

This spontaneous outcome is disrupted whenever central bankers intervene, as the Taylor Rules suggest they ought. Cutting base interest rates to engineer economic recovery not only distorts the inter-temporal price mechanism, it undermines sound resource husbandry and economic welfare. In the deepest recession, market mechanisms remain relevant because resources have value, even though they may not be in current use.

Although fiscal and monetary interventions can lift an economy from recession, there are unavoidable consequences and costs. By their nature, crisis measures are unsustainable; but prices are inevitably shaped by the particular expenditure patterns encouraged by policy interventions. These incite a myriad of microeconomic adjustments which, in serving the unsustainable, must themselves prove unsustainable. So, even as a recession lifts, a chain of adjustments continues which adds to the legacy of inter-temporal price distortions. In short, deficit spending to boost economic activity necessarily exacerbates the severity and duration of the next recession to follow.

http://www.nber.org/reporter/2009number3/2009number3.pdf

21. SEIGNIORAGE

Seigniorage is the monopolist's profit where the 'product' is money. In England, Henry VIII saw coinage as a means to raise revenue on a large scale and, by the second quarter of the sixteenth century, a state monopoly existed. Royal mints bought gold using their current issue of coins in payment. In minting specie for others, a deduction (seigniorage) was made to cover operating costs. The convenience of coinage and the status of legal tender ensured a regular supply of gold; but the temptation to increase the margin of profit proved irresistible.

This was achieved by adding (increasingly higher proportions of) base metal to coins. In time, this resulted in a widespread loss of credibility even before debasement had reduced the intrinsic value of coins to zero. As English coins became unacceptable in foreign trade, foreign coins were in growing demand at home. Following upon a millennium of stable currency, the adulteration of the English coinage was achieved in less than a decade (1542-1551). There followed the recoinage of 1560 and the abolition of seigniorage in 1666.
With the demise of the gold standard in the early 1930s, the use of fiat money became widespread: paper currency backed only by faith and a confidence that the note-issuer would maintain its purchasing power. In the modern epoch, sovereign currency and sovereign bonds together constitute sovereign debt, whose acceptability rests upon creditors' belief that the real value of debt will be maintained and repaid. Taxation is the ultimate source from which sovereign debt can be repaid.

Whenever financial market traders perceive that the real value of sovereign debt exceeds the level that can be repaid from future taxation, trading in sovereign bonds drives down their real value (though leaving their nominal value unchanged in terms of the currency unit). That is, the value of the currency falls, as reflected in exchange rate depreciation and domestic price inflation.

Sovereign Debt

For a country with a sovereign currency, as for the UK with sterling, sovereign debt (***D***) comprises liabilities in the form of bonds (***B***) and base money (***M***) issued by, or on behalf of, the sovereign (***D*** = ***B*** + ***M***). If, for a given level of debt (***D***), base money rises as the volume of bonds falls, sovereign debt is 'monetized'; *i.e*., the composition of sovereign debt merely changes. The essential difference between bonds and base money is that no interest[1] is paid on the latter.

The Debt Management Office of UK Treasury (UKT) sells interest-bearing bonds as an alternative to taxation (***T***); but, because fiscal surpluses are the primary means by which sovereign debt is reduced, borrowing merely defers taxation[2]. The one other option is seigniorage which, even though fiscal and

[1] While no interest is paid on currency, a central bank may pay interest on reserves.

[2] That taxation (***T***) merely defers borrowing (***B***) is widely known as 'Ricardo equivalence'. David Ricardo discusses the requirement to raise £20mn to go to war. This can be obtained *either* as a loan (***B***) *or* as taxation (***T***). If tax is levied, taxpayers would themselves have the option *either* of paying £20mn from current wealth *or* of obtaining private loans to that same value. If loan interest were at the same rate ***r***, the annual borrowing cost would be ***r***£20mn; the capitalised value of which (in perpetuity) would be £20mn (which is equivalent to the tax alternative). Robert Barro represents Ricardo equivalence in a Keynesian context: if rational individuals set aside funds (*i.e*., save) to cover future obligations (as taxpayers), bond financed government expenditure gives no boost to aggregate demand. (See *On the Principles of Political Economy and Taxation,* 1817)

monetary activities are interdependent, is more easily explained where institutional arrangements distinguish the fiscal authority (UKT) from the monetary authority (the *Bank of England*).

In taking $\boldsymbol{r}$ as the annual interest rate paid on bonds *and* the time discount rate, the capitalised value of the annual cost ($\boldsymbol{rB}$) of servicing undated bonds is equal to $\boldsymbol{B}$.[3] As the alternative to taxation ($\boldsymbol{T}$), the UKT *always* issues interest-bearing bonds ($\boldsymbol{B}$); but where bonds are purchased by the BoE, the service cost ($\boldsymbol{rB}$) is returned to the UKT. Thus, for bonds held by the *Bank of England*, the interest cost is zero. Seigniorage is the name given to the net gain to a sovereign in avoiding interest payments on two categories of sovereign debt: currency in circulation and bonds held by the *Bank of England*.

The situation is different for the seventeen eurozone countries, whose fiscal deficits are directly financed by the sale of bonds $\boldsymbol{B_i}$, which are the respective liabilities of eurozone sovereign treasuries (ESTs). Although base money ($\boldsymbol{M}$) is issued by the NCBs, it is the liability of the ECB. The seigniorage revenue ($\boldsymbol{rM}$) that accrues is redistributed annually to ESTs *pro rata* the relative size of their economies.[4] Thus, the two sources from which any given EST can service (or repay) its sovereign debt ($\boldsymbol{D_i}$) are domestic taxation ($\boldsymbol{T_i}$) and its annual allocation of seigniorage revenue ($\boldsymbol{rM_i}$).[5]

Seigniorage revenue can also arise from a 'inflation tax': this is given by the product of the inflation rate and the inflation tax base. The purchasing power of a given stock of money in circulation constitutes the inflation tax base. However, the revenue effect of more rapid inflation rate is partially offset as individuals attempt to spend the money before it depreciates further. Where the decline in real money balances becomes proportionately larger than the rise in the inflation rate, seigniorage revenue falls.

[3] As $t \rightarrow \infty$, $\Sigma\{\boldsymbol{rB_t}(1 + \boldsymbol{r})^{-t}\} \rightarrow \boldsymbol{B}$

[4] Respective eurozone NCB shares in the capital of the ECB reflect their respective shares of total population and GDP; each determinant has equal weight.

[5] This 'refinancing rate' ($\boldsymbol{r}$) is unlikely to be the 'rate paid on bonds' as mentioned in the previous paragraph.

22. SEIGNIORAGE: NO RUSE TO SAVE THE EURO

If ever you see a €100 banknote in the gutter, don't bother to stop. If it were real, someone would already have picked it up. The same is true of a ruse to save the euro. Writing in the *Financial Times*, George Soros argues for a special-purpose vehicle (SPV) to be endowed with eurozone seigniorage rights which could be used to finance the acquisition of sovereign bonds 'without violating Article 123 of the Lisbon treaty'.

Soros supports his case by pointing to an estimated capitalized valuation of future eurozone seigniorage, in the region of €2tn - €3tn; but the argument is fallacious because that seigniorage (whatever its value) is already discounted into the price of sovereign bonds. More detail can be found in a Lancaster University research paper.

Seigniorage income is the interest earned on assets the ECB has received in exchange for euro banknotes issued. It is allocated to each eurozone sovereign *pro rata* its relative economic size.

Ultimately, sovereign debt must be repaid from fiscal surpluses. Therefore, the capitalized value of expected fiscal surpluses, including seigniorage, sets an upper limit to the value of sovereign debt. As that limit is approached, default risk on sovereign debt increases, which shows in higher yields.

However, if the ECB were to divert the future seigniorage income of a eurozone sovereign into current lending (via an SPV) to that same sovereign, this would leave the capitalized value of its fiscal surpluses unchanged. Nothing would be achieved.

The Soros ruse is mere smoke-and-mirrors. Whether future euro seigniorage is regarded as an asset of the ECB, of eurozone sovereigns or of the SPV, it enhances neither the ability to support weak sovereigns and banks nor the wisdom of doing so. Future euro seigniorage cannot be used as an excuse for increasing the exposure of Germany or the other eurozone creditor countries. If a resolution to eurozone sovereign debt problems is be found, it can only rest with some combination of debt write-offs and fiscal austerity.

Addendum

Little distinguishes the Soros plan:

1. sovereign debt must be reduced annually by $^{1}/_{20}$ of the amount it exceeds 60% of GDP
2. endow SPV with eurozone seigniorage rights
3. SPV uses that resource to acquire debt exceeding 60% GDP
4. zero coupon paid on bonds held by SPV
5. sovereigns that violate (1) must to pay interest on debt held by SPV

from the 'German wisemen' plan**:**

1. countries with sovereign debt exceeding 60% of GDP pool that excess into a redemption fund with common liability
2. this option is linked to conditions to commit to reforms

only that:

1. Soros implies the capitalised future seigniorage to be neglected resource by which eurozone debt can be ameliorated;
2. Germen wisemen seek to reassign debt obligations in a manner that evades 'European and constitutional standards' as it hoodwinks electorates in eurozone creditor nations.

23. TIME-INCONSISTENCY

The time-inconsistency problem takes for its starting point a benevolent (social-welfare maximizing) discretionary monetary authority (*i.e.*, a central bank), whose concern is to secure low inflation and low unemployment. The analysis is based upon the augmented Phillips curve, where any short-term inverse trade-off between inflation and unemployment is dependent upon expected inflation. In accepting that low inflation enhances long-run social welfare and that central bank interventions cannot affect the natural rate of unemployment, a benevolent central bank would be expected to adopt low inflation as its target.

If households and firms then adjust their expectations to low inflation so that wages and prices are set accordingly, the 'time-inconsistency' argument suggests that a central bank then has an incentive to 'cheat'; *i.e.*, to loosen monetary policy, in order to secure a transient short-term gain of lower unemployment. 'Time-inconsistency' therefore implies that a central bank is myopic and/or schizophrenic; *i.e.*, that it periodically seeks to force unemployment below the natural rate, even though this implies a welfare loss.

This perversity has been attributed to political expediency; *i.e.*, the need to achieve democratic re-election of the ruling party.. Whence derives the case for central bank political independence. Certainly, there is some evidence of a decline in inflation volatility after the mid-1980s, when price stability became the primary objective of monetary policy.

With the European Union (EU) central bank political independence has a quasi-constitutional basis: Article 108 of the Treaty establishing the European Community states: '*neither the ECB, nor a national central bank … shall seek or take instructions from Community institutions or bodies, from any government of a Member State or from any other body*'. These provisions apply to all EU Member States (except the UK), irrespective of euro area membership. Failure to fully ensure central bank independence is a breach of the Treaty which might justify bringing an action before the European Court of Justice.

In practice, expediency prevails. So, most recently by its interventions in sovereign bond markets, the ECB has attempted to provide a 'big bazooka' resolution of the eurozone sovereign debt crisis.

24. THE LUCAS CRITIQUE

Milton Friedman and Edmund Phelps argued that expectations of future price increases are likely to be incorporated into the wage bargain. However, the *manner* in which those expectations are formed required explanation. Initially, it was assumed that individuals would adapt slowly to the experience of price rises. This is the hypothesis of 'adaptive expectations'.

An alternative hypothesis - that of 'rational expectations - is now a key feature of New Classical Economics (NCE). Individuals are said to form rational expectations, based upon information available to them. Yet, what time and cost should be allocated to acquiring information, the value of which cannot be known in advance? Mistakes are inevitable. In hindsight some will have invested too few resources in the acquisition of information; some too many. On balance, across a large number of individuals, NCE assumes that errors will be random rather than systematic.

Although it was once commonplace to draw an analogy between meteorology and economics, weather forecasting is less problematic than economic forecasting. It is intrinsically more difficult to forecast the behaviour of intelligent individuals than it is to forecast pressure patterns and temperature gradients. Once a forecast is made public, behavioural reaction is more likely from intelligent agents than it is from water molecules!

Accurate economic forecasts are demonstrably difficult to achieve. Anyone who is able to forecast accurately just one market price has an opportunity to become very rich indeed. The dynamics of spontaneously evolving social systems are complex and policy initiatives add to those dynamics. Beyond the direct impact of policy changes, subsequent interactive adaptive reactions of individuals (behaving rationally) must also be taken into account if forecasts are to have any prospect of success.

In 1975 Robert Lucas produced a devastating appraisal: economic forecasts are most unreliable when they are most needed; *i.e.,* when a change in economic policy is to be implemented. The 'Lucas critique' is that, even if (a very big 'if) individuals' expectations could be accurately forecast in the context of current policy structures, that 'success' is undermined when that structure changes. New policy implies a new context in which decisions are taken, so that individuals' reactions are affected. Adaptive behavioural adjustments undertaken by rational individuals in reaction to adjustments to policy emasculate forecasting and (with it) aggregate demand management.

Each time policymakers implement changes based upon their analysis of past behaviour, individuals alter their behaviour! The implication is that, whenever (say) monetary policy is eased to allow a fiscal deficit to boost aggregate demand, rational individuals adapt their decisions to the context of the inflation that inevitably follows; and, from that process, the Phillips curve gives way to a coexistence of ineffective labor markets and general price inflation ("stagflation"); as happened in the 1970s.

> 'Given that the structure of an econometric model consists of optimal decision rules of economic agents, ***[i.e., neoclassical rationality is assumed]*** and that optimal decision rules vary systematically with changes in the structure of series relevant to the decision maker, ***[i.e., whenever policy is changed, rational decisions change]*** it follows that any change in policy will systematically alter the structure of econometric models ***[i.e., a theoretical basis for determining policy is undermined by the implementation of any policy so determined***].' (Lucas, 1976)

25. GOODHART'S LAW

In the post-war period to 1971, UK monetary policy was determined by a fixed exchange rate with the US dollar (but with major devaluations in 1949 and 1967). International capital flows and banking services were heavily constrained by foreign exchange controls and domestic credit constraints. Then, as the USA the closed the gold window (August 1971) and floated the dollar, sterling was floated (June 1972).

Research indicated that there was 'a stable money demand function in the UK'; *i.e.,* the reasons (or 'arguments') that determine the amount of money that individuals prefer to hold are robust; and the inference was drawn that the money demand function gave a basis for using the short-term interest rate to control monetary growth.. This presumption was soon to be contradicted (1971-1973) by the evidence.

Significant institutional changes had taken place. In September 1971, 'Competition and Credit Control' reforms had removed direct controls on bank lending and this led to a surge in bank intermediation. Broad money growth rates exceed 25%, in 1972 and 1973. With the ensuing alarm, the authorities reverted to direct controls in the form of Supplementary Special Deposits (colloquially referred to as 'the Corset').

Goodhart's Law encapsulates the nature of the problem: 'observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes'.

More institutional reform came in October 1979, when exchange controls were abolished. With free access to non-UK banking services, the Corset was undermined. So, once again, the interest rate was adopted as the instrument to target monetary growth. Over the following two-and-a-half years to 1983-4, money growth overshot its target by 100 per cent.

The abolition of exchange controls and the financial innovations that followed redirected business back into the UK banking system. This altered the relationship between broad money and nominal incomes. Although the Treasury reasserted confidence in monetary targeting by publishing growth targets often for several years ahead, this Medium Term Financial Strategy was largely unsuccessful; and it was dropped in the summer of 1985 in favour of exchange rate shadowing.

26. CREDIT COUNTERPARTS OF BROAD MONEY

Domestic bank credit expansion (DCE):

- credit extended to the government (DCE^{G})
- credit extended to business (DCE^{NG})

$$DCE \equiv DCE^{G} + DCE^{NG} \quad (1)$$

Government must borrow (GB) to accommodate:

- a fiscal deficit: if expenditure (G) exceeds taxation (T)
- the acquisition of foreign exchange reserves (ΔR)

Additions to sovereign debt are either ('debt instruments') currency (ΔC) or bonds (ΔB) held by

- banks ($\Delta C^{B} + \Delta B^{B}$)
- non-banks ($\Delta C^{NB} + \Delta B^{NB}$)

$$GB \equiv (G - T) + \Delta R \equiv \Delta C^{B} + \Delta B^{B} + \Delta C^{NB} + \Delta B^{NB} \quad (2)$$

New government debt financed by banks is

$$\Delta C^{B} + \Delta B^{B} \equiv (G - T) + \Delta R - \Delta C^{NB} - \Delta B^{NB} \quad (3)$$

Broad money (M) is defined as currency in circulation (C^{NB}) plus bank deposits (D^{PTS})

$$M \equiv C^{NB} + D^{PTS} \quad (4)$$

By value, banks deposits (D^{PTS}) are identical (double-entry book-keeping) to bank assets; *i.e.*,

- currency - C^{B}
- bonds - B^{B}
- business loans - Loans $^{(NG)}$

$$M \equiv C^{NB} + C^{B} + B^{B} + \text{Loans}^{(NG)} \quad (5)$$

or, with changes in levels:

$$\Delta M \equiv \Delta C^{NB} + \Delta C^{B} + \Delta B^{B} + \Delta \text{Loans}^{(NG)} \quad (6)$$

Substitution in (6) from (3):

$$\mathbf{\Delta M \equiv (G - T) - \Delta B^{NB} + \Delta Loans^{(NG)} + \Delta R} \quad \mathbf{(7)}$$

Here are the five components of the CCM; their respective linkages to policy instruments are:

- ΔM - monetary growth — *monetary policy*
- $G - T$ - budget deficit/surplus — *fiscal policy*
- ΔB^{NB} - sale of state debt to non-banks — *interest rate policy*
- $\Delta \text{Loans}^{(NG)}$ - commercial bank lending to business — *credit controls*
- ΔR - adjustments to foreign exchange reserves — *exchange rate policy*

CCM present a basis for story-telling (macroeconomic theory): its encompassing structure represents a conceptual constraint upon policy interventions.

NB. The assumption that *independent* policy options are represented by IS and LM is refuted.

27. THE BALANCE OF PAYMENTS

International trade has no bearing upon principles of efficient resource allocations. Why, then, should the balance of international payments rouse any interest? Monetary theory provides an explanation. Holders of domestic currency provide the state with interest-free loans; but domestic currency is acceptable to overseas suppliers, only if it is readily exchangeable for other currencies. Thus, from the narrow perspective of financing state expenditure, exports are desirable and imports are undesirable. In the sixteenth century, the nationalistic drive to sustain export surpluses was called mercantilism.

The mercantilism doctrine is countered by the 'specie flow mechanism': a trade surplus brings a net inflow of specie (gold coins) into domestic circulation, which causes domestic prices to rise. By the reverse process, a nation with a trade deficit experiences falling prices. Since international trading patterns adjust to changes in relative prices, it is increasingly difficult for surplus nations to sell their goods; deficit nations find it increasingly easy. Hence, the pursuit of trading surpluses is self-defeating.

That the balance of payments is *the* economic problem for the very 'open' UK economy is a familiar argument. Although rapid growth and low unemployment are delivered by sustained levels of aggregate demand, this results in a high demand for imports, wherein lies the problem.

Such an argument can be delivered with varying degrees of sophistication to reach the inevitable recommendation that free trade should be inhibited either directly by import controls or support for export industries, or indirectly by controlling international flows of capital. Always advocated and often implemented, these 'solutions' are at variance with the view that national boundaries are inconsequential to the principles of efficient resource allocation.

Certainly the balance of payments accounts can reflect symptoms of economic malaise. These should not be confused with the cause. Most inhabitants of Wales are ignorant of the chronic deficit on the Welsh current account which would show if it were compiled. This inference can be drawn from the fact that Wales is a relatively depressed region. The national uniformity of UK unemployment benefits social security payments and public services provision imply capital transfers from more affluent areas of the UK. These are in the nature of free gifts.

By contrast, if Wales were an independent state, its payments deficits would quickly exhaust its holdings of gold and foreign exchange reserves. Thereafter, international trade would continue, but only to the extent that could be maintained on the basis of foreign exchange earned by Welsh exports. The Welsh economy would adjust, reaching a lower level of real income. At this level, the demand for imported goods would be compatible with the foreign demand for Welsh exports.

An independent nation can live beyond the means of its current earnings on the basis of: (i) previously accumulated wealth assets; and (ii) gifts and loans from the rest of the world. Wealth assets are finite. Loans must be repaid. Gifts are rarely forthcoming as a continuous arrangement.
If the balance of payments is ever a problem, it is the problem of having to face the necessity of adjusting to a lower standard of living, either because of macroeconomic policy having sought to attain a level of aggregate demand which the nation's resources cannot sustain, or because of changed circumstances having reduced the nation's capacity to achieve a given level of real income.

28. VALUE AND TIME

The capitalised value of a stream of annuities is

$$V = a_1 (1 + r)^{-1} + a_2 (1 + r)^{-2} + ... + a_n (1 + r)^{-n} \quad (1)$$

.. then if $a_1 = a_2 = ... = a_n$

$$V = a [(1 + r)^{-1} + (1 + r)^{-2} + ... + (1 + r)^{-n}] \quad (2)$$

$$V (1 + r) = a [(1 + r)(1 + r)^{-1} + (1 + r)(1 + r)^{-2} + ... + (1 + r)(1 + r)^{-n}] \quad (3)$$

$$V (1 + r) = a [(1 + (1 + r)^{-1} + ... + (1 + r)^{-n-1}] \quad (4)$$

.. in subtracting (4) from (2)

$$V = a [(1 + r)^{-1} + (1 + r)^{-2} + ... + (1 + r)^{-n}] \quad (2)$$

$$V (1 + r) = a [(1 + (1 + r)^{-1} + ... + (1 + r)^{-n-1}] \quad (4)$$

.. the difference is

$$V - V (1 + r) = a [(-1 + (1 + r)^{-n}]$$

$$- V r = a [(-1 + (1 + r)^{-n}]$$

$$\boxed{V = a [(1 - (1 + r)^{-n}] r^{-1}}$$

.... then if $n = \infty$

$$\boxed{V = a r^{-1}}$$

.. if an annuity increases at the constant annual rate g

$$V = a_1 (1 + g)^{-}(1 + r)^{-1} + a_2 (1 + g)^2 (1 + r)^{-2} + ... + a_n (1 + g)^n (1 + r)^{-n} \quad (1)$$

$$V (1 + r)^1 (1 + g)^{-1} = a [(1 + (1 + r)^{-2} (1 + g)^2 + ... + (1 + r)^{-n+1} (1 + g)^{n+1}]$$

$$V - V(1 + r)^1 (1 + g)^{-1} = a [-1 + (1 + r)^{-n} (1 + g)^n]$$

$$V [(1 + r)^1 (1 + g)^{-1} - 1] = a [1 - (1 + r)^{-n} (1 + g)^n]$$

$$V [(1 + r) - (1 + g)](1 + g)^{-1}$$

$$V (r - g)(1 + g)^{-1} =$$

$$V = a (1 + g) [1 - (1 + r)^{-n}(1 + g)^n] (r - g)^{-1}$$

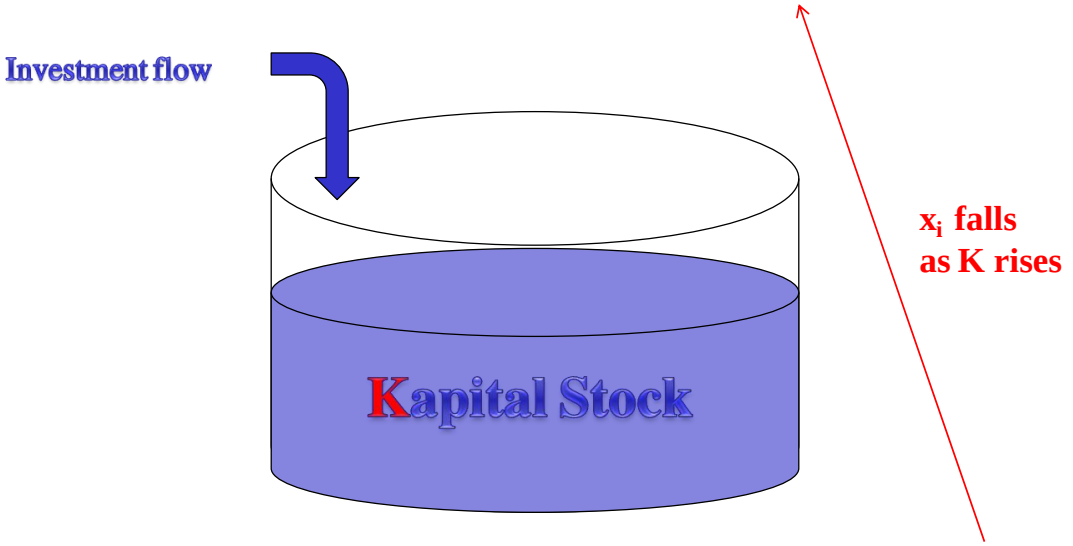
.... then if $n = \infty$ and $r > g$

$$\boxed{V = a (1 + g)(r - g)^{-1}}$$

Application 1 – Investment in capital stock

Investment

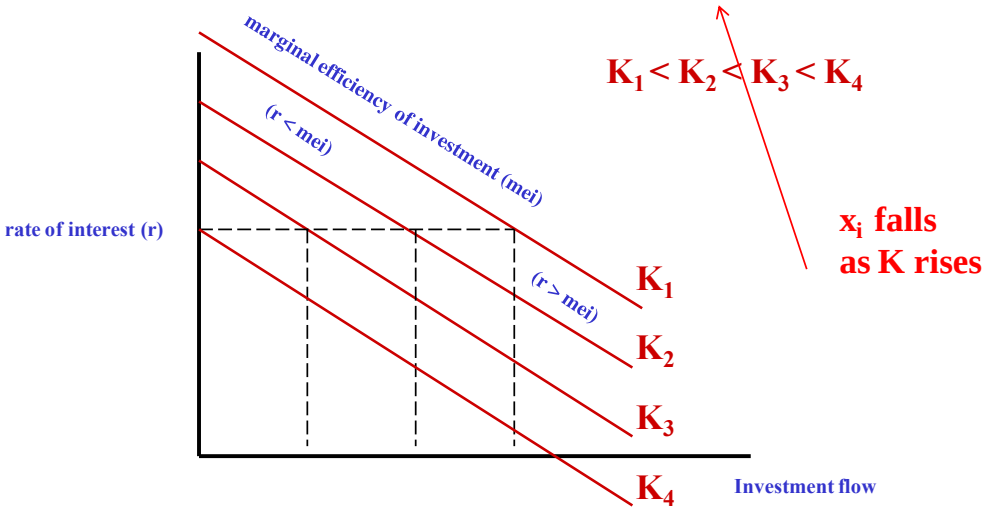
$V = x_i [1 - (1 + r)^{-n}] (r)^{-1}$



As Kapital stock increases, the return on investment tends to fall

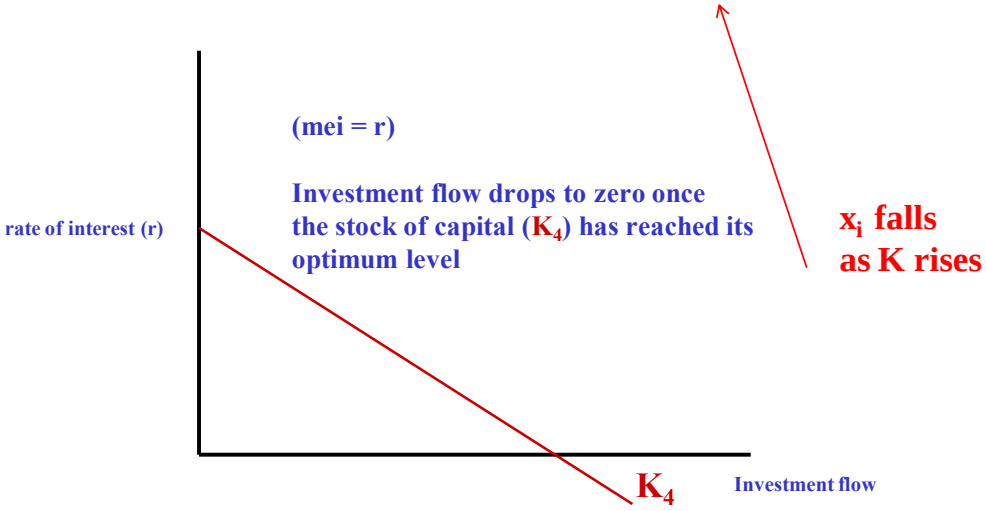
Investment

$V = x_i [1 - (1 + r)^{-n}] (r)^{-1}$

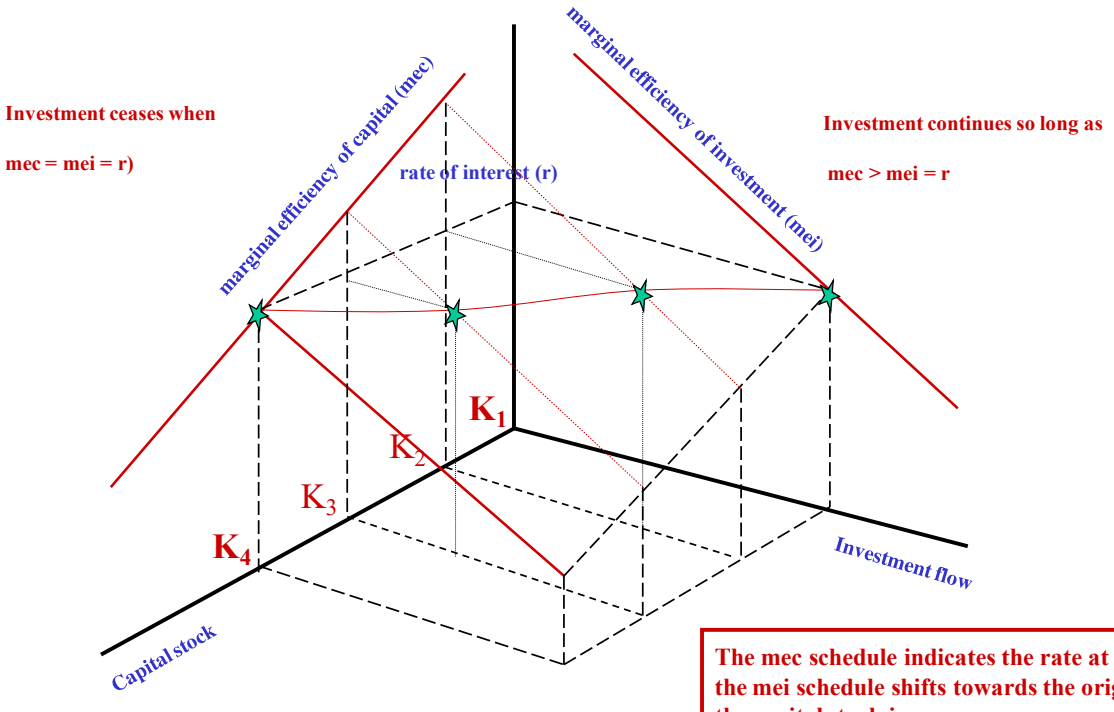


Investment

$$V = x_i [1 - (1 + r)^{-n}] (r)^{-1}$$



Investment



The mec schedule indicates the rate at which the mei schedule shifts towards the origin as the capital stock increases

Application 2 - Finding the pay-back period:

$V = a[(1 - (1 + r)^{-n}]\, r^{-1}$

$Vr = a[1 - (1 + r)^{-n}]$

$[1 - (1 + r)^{-n}] = Vr/a$

$(1 + r)^{-n} = 1 - Vr/a$

$(1 + r)^{-n} = (a - Vr)/a$

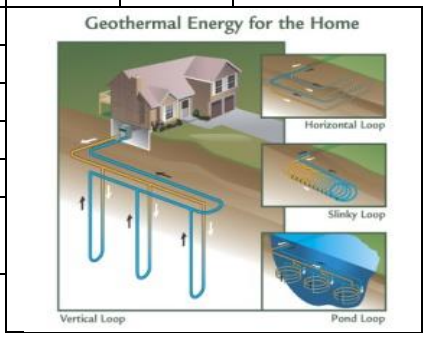
$(1 + r)^{n} = a/(a - Vr)$

$n \ln(1 + r) = \ln[a/(a - Vr)]$

$n = \{\ln[a/(a - Vr)]\ln(1 + r)\}$

Geothermal Energy									
installation cost (V)	£18 k	£19 k	£20 k	£21 k	£22 k	£23 k	£24 k	£25 k	£26 k
net annual saving (a)	Discount rate (r) - 3% years to break even (n)								
£1300	20.6	22.4	24.4	26.5	28.8	31.4	34.2	37.4	41.0
£1400	18.4	20.0	21.6	23.4	25.3	27.3	29.5	31.9	34.6
£1500	16.7	18.0	19.4	20.9	22.5	24.2	26.0	28.0	30.1
£1600	15.2	16.4	17.7	19.0	20.4	21.8	23.4	25.0	26.8
£1700	14.0	15.1	16.2	17.4	18.6	19.9	21.2	22.6	24.1
£1800	13.0	14.0	15.0	16.0	17.1	18.2	19.4	20.7	22.0
£1900	12.1	13.0	13.9	14.9	15.9	16.9	17.9	19.1	20.2
£2000	11.4	12.2	13.0	13.9	14.8	15.7	16.7	17.7	18.7
£2100	10.7	11.5	12.2	13.0	13.8	14.7	15.6	16.5	17.4
£2200	10.1	10.8	11.5	12.3	13.0	13.8	14.6	15.5	16.3
£2300	9.6	10.2	10.9	11.6	12.3	13.0	13.8	14.5	15.3
£2400	9.1	9.7	10.3	11.0	11.6	12.3	13.0	13.7	14.5
£2500	8.7	9.2	9.8	10.4	11.1	11.7	12.4	13.0	13.7
£2600	8.3	8.8	9.4	9.9	10.5	11.1	11.7	12.4	13.0
£2700	7.9	8.4	9.0	9.5	10.1	10.6	11.2		
£2800	7.6	8.1	8.6	9.1	9.6	10.2	10.7		
£2900	7.3	7.7	8.2	8.7	9.2	9.7	10.3		
£3000	7.0	7.4	7.9	8.4	8.9	9.3	9.8		
£3100	6.7	7.2	7.6	8.1	8.5	9.0	9.4		

Try this spreadsheet to evaluate an investment in a university degree:-
http://www.lancs.ac.uk/staff/ecagrs/ud.xls



Application 3 - Eurozone seigniorage

Buiter (2008) argues that the capitalised value of future seigniorage implies that the ECB has a large capacity to sustain losses. Soros (2012) sees it as a source of funds (via a Special Purpose Vehicle) to buy the debts of stressed eurozone sovereigns.

C_0 - banknotes and deposits initially 'issued' (*i.e.*, credited to NCBs) by ECB

g - constant rate of annual growth in banknotes and deposits

rC_t - seigniorage in year t $\qquad r\,C_t = r\,C_0\,(1+g)^t$

S_t - the capitalised value of seigniorage (see above)

$S_t \qquad = \qquad r\,C_0\,(1+g)\,(r-g)^{-1}$

g	=	0.02		
r	=	0.03	→	S_t = **€2.6tn**
C_0	=	€860bn		

Buiter, Willem (2008). "Can Central Banks Go Broke?", Centre for Economic Policy Research Policy Insight No.24, May.
Soros, George (2012). "Reversing Europe's Renationalization", Project Syndicate, 11 April.

Application 4 - Evaluating bond vales

New Greek bonds (say, with a redemption value of €1000) pay a coupon of

2 per cent annually for 3 years (02/2013 - 02/2016)
3 per cent for the following 5 years (02/2016 - 02/2021
4.3 per cent until final maturity (02/2021 - 02/2043)

a) Use a discount rate of 0.05 to obtain the 2013 value of a newly issued bond maturing in 2043.
b) Use a discount rate of 0.03653% to re-evaluate V. What is the significance of this rate?

Use this spreadsheet for your evaluations:-

http://www.lancs.ac.uk/staff/ecagrs/greekbonds.xlsx

29. INTEREST RATE THEORY: LOANABLE FUNDS *VS* LIQUIDITY PREFERENCE

(Steele, 1989, p. 60)

In this [Keynes's] presentation, and unlike the Loanable Funds theory, changes in investment and saving have no direct influence over the rate of interest. Only in their impact upon the level of income and, thereby, upon liquidity preference, are they influential. For example, a fall in the propensity to save raises the level of income and causes liquidity preference to increase; the rate of interest rises to check expansion unless there is a policy decision to increase the money supply.

The difficulty in accepting this interpretation lies not with its logic but with its applicability, for it is centred entirely upon the paradox of thrift, whereby a decrease in the propensity to save (by increasing the value of the multiplier) causes income and saving to rise. It represents a world where there can be no adjustment to the ratio of investment goods to consumption goods without an *induced* change in the level of output and employment; a world where demand management supplants the market process in determining both the level and the composition of expenditure. It insists, for example, that an economy, at a given stage of scientific and technological development, can produce only one mix of investment and consumption goods which is consistent with full employment; or, in a dynamic perspective, that an economy cannot experience a different rate of economic growth without affecting its equilibrium level of employment. This is an implausible and therefore uninteresting context in which to settle the issue of interest rate determination.

(Steele, 2001, p. 87)

By the argument that, for every shift in demand (for funds to finance investment expenditures), there are corresponding shifts in levels of (national) income and savings, Keynes effectively paves the way for the paradox of thrift, the multiplier process and his conclusion that the natural rate 'had nothing very useful or significant to contribute to our analysis'. With different natural rates of interest, each one corresponding to a unique level of income, an expansion of investment (demand for loanable funds) raises production, incomes and savings (supply of loanable funds); but shifts in demand cause shifts in supply, so there is no determinate theory of price (interest rate). By Keynes's analysis, the loanable funds theory is thereby declared defunct.

(Steele, 2001, pp. 91-2)

The speculation that bond prices might rise (fall) is identical with the speculation that the rate of interest might fall (rise) and provides the substance behind Keynes's musing that

> [i]t is interesting that the stability of the system and its sensitiveness to changes in the quantity of money should be so dependent on the existence of a variety of opinion about what is uncertain. Best of all that we should know the future. But if not, then, if we are to control the activity of the economic system by changing the quantity of money, it is important that opinions should differ. (Keynes, 1936, p. 172)

By adjusting the relative volume of money and bonds in circulation, the authorities can change their relative scarcities and so influence the price (and yield) of bonds. Thereby, the rate of interest can be manipulated by action that alters the weight of opinion between those with different views as to the

future price of bonds. The objection that the analysis is deficient in that it does not say how the interest rate is determined in the absence (or uniformity) of specific thoughts as to future bond prices is ignored. Further, Keynes's strange assertion that his liquidity preference theory does not apply in the United States - 'where everyone tends to hold the same opinion at the same time' (Keynes, 1936, p. 172) - has been politely ignored.

Keynes's crucial idea, that monetary expansion dissipates its force in financial markets (on bond prices) rather than in markets generally - '[t]he primary effect of a change in the quantity of money ... is through its influence on the rate of interest' (Keynes, 1936, p. 298) - requires the quantity theory of money to be discarded. He does this with the assertion that

> an increase in the quantity of money will have no effect whatever on prices, so long as there is any unemployment ... whilst as soon as full employment is reached, it will be the wage unit and prices which will increase in exact proportion to the increase in effective demand. ... So long as there is unemployment, employment will change in the same proportion as the quantity of money; and when there is full employment, prices will change in the same proportion as the quantity of money. (Keynes,, p. 295-6)

With such lack of *finesse*, there is no surprise that Keynes overlooks the implication that his liquidity preference theory is thereby exposed to the same criticism as that levelled against the loanable funds theory: at full employment, it has 'nothing very useful or significant to contribute' since an expansion of money supply raises prices which raises the (transactions) demand for money; and, if a shift in supply causes a shift in demand, the theory is indeterminate!

(Keynes, 1944, p. 430)

> 'Of course, I do not want to see money wages forever soaring upwards to a level to which real wages cannot follow. It is one of the chief tasks ahead of our statesmanship to find a way to prevent this.'

Keynes, J.M. (1944) 'A Rejoinder to Professor Graham', *Economic Journal*, LIV, December, 429-30
Keynes, J.M. (1936) *The General Theory of Employment Interest and Money* (London: Macmillan).
Steele, G.R (1989) *Monetarism and the Demise of Keynesian Economics* (London: MacMillan)

Steele, G.R (2001) *Keynes and Hayek. The Money Economy* (London & New York: Routledge)

30. INTEREST RATES: INTER-TEMPORAL PRICES

From a Keynesian perspective, demand management endures: (i) with the systematic manipulation of short-term interest rates (as described by a variety of *ad hoc* Taylor Rules); and (ii) with the experimental lowering of long-term interest rates ('quantitative easing'), whose purpose is to kick-start an economy in recession. From an Austrian perspective, interest rates are inter-temporal prices, whose distortion through the implementation of Keynesian measures lead inevitably to inefficient resource allocation.

- **a money economy**

Credit has its price - or interest rate - which increases as the perceived risk that a creditor may default increases. The price of credit may be quoted in nominal (that is, money) or in real terms. The co-experience of positive nominal rates and lower (often negative) real rates reflects currency debasement (that is, general price inflation). Without that debasement (and abstracting from default risk) interest rates tend to the (hypothetical) natural rate (as the fulfilment of the 'law' of one price).

With the simplifying assumptions that holding costs and transactions costs are zero, the price of credit in a money economy - the 'prevailing' rate - is intrinsically bound to the spread between spot and forward prices. Where, for example, a commodity can be bought at the spot price (P_S = £100) and sold at the one year forward price (P_F = £105) to yield a 5 percent annual return, the inter-temporal price (the exchange ratio) is 0.95 (P_S/P_F = 100/105). Then, if the price of credit were (say) 3 percent, it would be profitable to acquire the commodity and to sell it forward (cost = 103). In raising the spot price and depressing the forward price, arbitrage lifts the exchange rate (say, to P_S/P_F = 101/104 = 0.97) to a level where, with in yielding 3 percent annually, trade breaks even. Across commodities generally, a positive interest rate implies that forward prices are above spot prices; a negative rate implies that spot prices are below forward prices.

Where commodities are of equal importance, the simple geometric mean of inter-temporal own price ratios (spot to forward)

$$GM(P_{Si}/P_{Fi}) = \{(P_{S1}/P_{F1})(P_{S2}/P_{F2})(P_{S3}/P_{F3}) \ldots. (P_{Sn}/P_{Fn})\}^{(1/n)}$$

gives a central measure of the prevailing interest rate that reflects inter-temporal commodity scarcities. Where money is neutral, the price ratios (P_{Si}/P_{Fi}) represent inter-temporal relative *real valuations*; and where (P_{Si}/P_{Fi}) ≠ (P_{Sj}/P_{Fj}), higher yields might be obtained by the inter-temporal reallocation of investments between different commodities. Those readjustments continue until equilibrium values are obtained; that is, where

$(P_{Si}/P_{Fi}) = (P_{Sj}/P_{Fj})$ for all values, i, j

with

$GM(P_{Si}/P_{Fi}) < 1$ indicating a positive equilibrium real rate.

With an increase in time preference the inter-temporal own (spot to forward) exchange ratios (P_{Si}/P_{Fi}) fall and the equilibrium rate rises. Also, with zero holding and transactions costs, a value for $GM(P_{Si}/P_{Fi})$ above unity would signify spot purchases having a greater value than forward sales (that is, a negative real rate). No empirical illustrations come to mind.

- **a non-money economy**

In a non-money economy, only relative prices exist so that general price inflation has no meaning. The prevailing interest rate would be a real rate but (of course) not necessarily an equilibrium rate. Where commodities are of equal importance, the simple geometric mean of inter-temporal own (spot to forward) exchange *quantities*

$$GM(Q_{Si}/Q_{Fi}) = \{(Q_{S1}/Q_{F1})(Q_{S2}/Q_{F2})(Q_{S3}/Q_{F3}) .... (Q_{Sn}/Q_{Fn})\}^{(1/n)}$$

gives a central measure of prevailing exchange ratios. *Ceteris paribus*, with an increase in time preference, the inter-temporal own (spot to forward) exchange *quantities* (Q_{Si}/Q_{Fi}) would fall.

There are important differences in the interpretation of $GM(P_{Si}/P_{Fi})$ and $GM(Q_{Si}/Q_{Fi})$. To illustrate: advances in supply technologies (or a decrease in the non-productive proportion of the population) would simultaneously lower (Q_{Si}/Q_{Fi}) and raise (P_{Si}/P_{Fi}), in consequence of an expected greater future abundance of commodities. However, the essential difference between $GM(P_{Si}/P_{Fi})$ and $GM(Q_{Si}/Q_{Fi})$ is that, with money as *numeraire* and where

$$GM(P_{Si}/P_{Fi}) = (P_{Si}/P_{Fi}) = (P_{Sj}/P_{Fj}) \text{ for all of values, i, j}$$

there is a single inter-temporal equilibrium exchange rate (*valuation*)across all commodities. With (Q_{Si}/Q_{Fi}), however, there is no *numeraire* to permit *comparative valuations* of the different exchange ratios; so it is entirely possible and, indeed, highly probable for equilibrium to hold where

$$(Q_{Si}/Q_{Fi}) \neq (Q_{Sj}/Q_{Fj}), \text{ for all, or some, or none of the values, i, j}$$

Clearly, diverse *quantity* exchange ratios are likely in equilibrium, because these are not *value* exchange ratios, which means that $GM(Q_{Si}/Q_{Fi})$ gives no indication of the inter-temporal valuation of commodities. In a non-money economy, the concept of a prevailing equilibrium real interest rate is redundant.

31. MONETARY BOOMS AND BUST

An easy-money policy can be veiled by many factors, which include the impact upon unit costs of new technologies and falling commodity and energy prices. Given microeconomic variations in unit costs (supply) and in the responsiveness of demand to subsequent price adjustments, attempts to use monetary policy, even to prevent the general level of prices from falling, have a potential to disturb real economic activity. In the two years to 1929, easy-money policy encouraged the deployment of resources in unsustainable patterns and the Great Depression followed in direct consequence.

When interest rates are held down by easy money, investment is stimulated generally, but with the greatest impact upon longer-term projects. From that basis, and in looking beneath the general price level, Friedrich Hayek traced the microeconomic sequences by which monetary expansion sets a business cycle in motion. In emphasising the diversity of capital investments, Hayek showed how an easy-money policy causes a mismatch between consumers' demands and investors' plans. This mismatch of expenditures supports investment structures that (without prior saving) are unsustainable.

To look to monetary policy to boost economic activity is as understandable as it is certain to exacerbate the severity and duration of the recession that inevitably follows. A general easing of credit not only affords temporary sustenance to unsustainable structures, it encourages further unwarranted developments. Instead, the need is to liquidate the malinvestments that delivered unsustainable business expansion. So, there is a (practically difficult) distinction to be drawn between the structural unemployment that arises in sectors whose unwarranted expansion is the consequence of monetary profligacy, and the general unemployment that is caused by secondary deflation once the inevitable recession is set in train.

Hayek believed that wage flexibility is important in mitigating the impact of an economic downturn. Additional means to offset secondary depression would be to provide 'employment through public works at relatively low wages so that workers will wish to move as soon as they can to other and better paid occupations' (Hayek, 1978). More generally, intervention by monetary authorities could bring advantages 'in the later stages of a depression' when 'deliberate attempts to maintain the money stream' would be justified to counter the 'cumulative process of secondary deflation' (Hayek, 1975). However, crisis measures to offset 'secondary deflation' should not be confused with securing sound long-term institutional structures in support of entrepreneurial activity within a liberal market economy.

At any phase of an economic cycle, astute bankers give close attention to any potentially insolvent enterprise. Where a bank's commitments are certain to be written-off by foreclosure, an extension of credit (as 'distress borrowing') can prove a soundly calculated risk. If, in their turn, commercial banks are able to obtain credit (or, rather, cheaper credit) from the central bank, this must enter their calculations (in raising the expected pay-off to facilitating 'distress borrowing'). For commercial and central bankers alike, these are delicate acts of judgment that (again) should not be confused with the pseudo-remedy of an easy-money policy to stimulate demand generally

Across 60 years, Hayek's writing focused upon the effects of monetary mismanagement and he tailored his message to his audience. For the 1970s, his examination of monetary distortions was set in the context of the labour market, trade unions and unemployment; and he was careful to engage the attention of a readership that had become well-versed in monetarism and Phillips curves. This later commentary tended to focus upon misallocations of labour and consequential unemployment, rather than upon distortions to the structure of investments. Thus, the pernicious impact of even a 'mild inflation' is in having 'caused misdirection of production and drawn labour and other resources

into activities which could be maintained only if additional investment financed by the increase in the quantity of money could be maintained.' (Hayek, 1978)

In all of his writing, Hayek insisted that Keynesian analysis is deceptive nonsense and he remained committed to a 'theory which asserts that unemployment is an effect of a deviation of the actual price structure from the equilibrium structure' (Hayek, 1975); but details change and Hayek saw a new difficulty in respect of the consequences of an over-expansion of credit in the 1970s as against the 1930s: '[i]n the misdirection of labor and the distortion of the structure during the past business cycles, it was fairly easy to point to the excessive expansion because it was, on the whole, confined to capital-goods industries. The whole thing was due to an over expansion of credit for investment purposes, so you could point to the industries producing capital equipment as those which had been over expanded. 'In contrast, the present expansion of money . . . has gone into entirely different channels. The additional expenditure has been much more widely dispersed.' (Hayek, 1975)

Another 30 years on, and the detail is again new. Domestic property developments are now the primary feature of unwarranted longer-term investments that become viable (but are always unsustainable) during a bank credit upswing. Given the complex microeconomic structure of Hayek's analysis of easy-money boom-and-bust, its detailed propositions do not lend themselves to econometric appraisal. Hayek has never been fashionable. His theory has long been regarded as an anachronism, because the 'modern fashion demands that a theoretical assertion which cannot be statistically tested must not be taken seriously and has to be discarded' (Hayek, 1975). In the 1950s, Hayek's arguments had little chance against the attraction of Keynes's panaceas, which were developed further to sustain an epoch of macroeconomic demand management. Hayek could only lament that, 'a theory which, in my opinion is the true explanation has been discarded as not adequately confirmed, and a false theory has been generally accepted merely because it happens to be the only one for which statistical evidence, even though very inadequate evidence, is available.' (Hayek, 1975)

Current economic commentary abounds with references to the financial collapse of 1929. As snake oil is repackaged, the macroeconomic meddlers – and many others who disparage free-market systems – are keen to point the way back to Keynes. These are siren voices. There are no panaceas; but if a future maelstrom is to be avoided, it is the analysis provided by Friedrich Hayek that demands our close attention.

32. FORCED SAVING

The doctrine of forced saving was elaborated by many classical writers including Malthus, Ricardo, Dugdale, Stewart, Torrens and Lauderdale. In England, D.H. Robertson, in collaboration with Keynes, refined the doctrine in the 1920s. Robertson's exposition of forced saving centres upon the analysis of business cycles. The extension of bank credit is seen as the means whereby the public is forced to reduce consumption, so that resources are diverted to the production of capital goods.

Forced saving also formed the basis of Hayek's *Monetary Theory of the Trade Cycle*, published in 1933. With an upswing in business activity, new inventions or discoveries, the opening of new markets led naturally to an increased demand for bank credit. Prosperity reduces the risk of default, and so banks readily accommodate this demand by reducing the ratio of reserve assets and increasing deposits. While new demand for bank credit pushes up the *natural* rate of interest, the expansion of bank credit prevents the *market* rate of interest from rising to that same level. With the market rate of interest kept, in this fashion, below the natural rate, there is upward pressure on prices. To this stage, the argument was exactly as expressed by Wicksell in 1898.

Hayek's insight was that all prices did *not* rise simultaneously. If they did, there might be little effect upon the real economy. Hayek's contribution (though owing much to Mises) was to emphasise the distortions which occur in the whole set of *relative* prices. The initial effect of new bank credit is to increase entrepreneurs' command over scarce resources. Their expenditure forces up the price of capital goods, which encourages the switch of resources from the production of consumption goods (commodities) to the production of capital goods. With the increased competition for labour and other inputs, wages and other factor prices begin to rise. The consequence is an increased demand for commodities generally, so that eventually *all* prices rise.

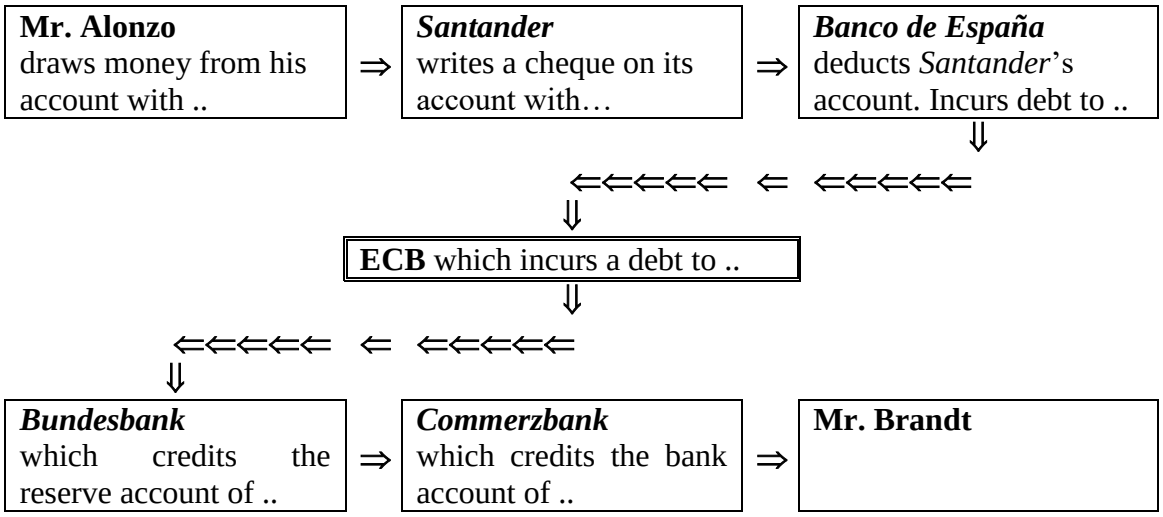
In this process, only those individuals whose incomes rise first (before the price rise of commodities) benefit, while those whose incomes rise *later* are harmed (a conclusion which had been reached by the French economist Richard Cantillon in 1755. A measure of the harm done to the latter is the amount of their forced saving; the transfer of real resources (while the market rate of interest is kept below the natural rate) which enables entrepreneurs to increase their capital expenditure.

Upon the basis of these transmission mechanisms - a far cry even from those categorised as the 'sophisticated' Quantity Theory - Hayek argued that it is the 'distortion of the natural price formation ... on the development of particular branches of production ... which is of the most decisive importance to Trade Cycle theory'. (Hayek, 1933).

33. TARGET2

- Trans-European Automated Real-time Gross Settlement Express Transfer System
- an interbank payment system for processing EU cross-border transfers
- TARGET2 payments affect the liabilities of national central banks (NCB)
- transactions are settled in central bank money (*i.e.* reserve accounts credits/debits)
- intra-Eurosystem balances are netted out at the end of each day, leaving each NCB with a single net bilateral position *vis-à-vis* the ECB

- commercial banks maintain reserve accounts with their National Central Bank
- used (say) by *Santander* to make a payment to *Commerzbank* via *Santander*'s account at the *Banco de España*



- borrowing: no maturity no limit no collateral
- interest is collected by ECB and passed on to Target2 creditors

Mr. Alonzo	reduced assets of €100
Santander	reduced liabilities to Mr. A of €100
	reduced assets at *Banco de España* of €100
Banco de España	reduced liabilities to *Santande*r of €100
	increased intra-Eurosystem liabilities of €100

Bundesbank	***increased intra-Eurosystem assets of €100***
	increased reserve liabilities to Commerzbank of €100
Commerzbank	increased reserve assets of €100
	increased deposit liability to Mr. B of €100
Mr. Brandt	increased assets of €100

- Check your understanding of the eurosytem at

http://www.lancs.ac.uk/staff/ecagrs//eurosystem.xlsx

34. EUROZONE BLOGS

‘The Tragedy of the Eurozone’, 10 December 2010 ⇧
‘Is Ireland exploiting eurosystem loopholes at Germany’s expense?’, 1 April 2011 ⇧
‘Sovereign Debt Restructuring and the Euro Crisis’, 18 April 2011 ⇧
‘The ECB cannot hold back the tide of euro credit and banknotes’, 17 November 2011 ⇧
‘Economic Fundamentals and the Eurozone’, 23 November 2011 ⇧
‘Don’t Look to Seigniorage to Save the Euro’, 7 August 2012 ⇧
‘No Ruse to Save the Euro’, 10 August 2012 ⇧
‘Ireland’s Sovereign Debt Monetisation’, 13 February 2013 ⇧

35. EFFICIENT MARKETS

The conflation of the calculus of profit maximisation with the search for profitable opportunities in the context of entrepreneurial discovery in the face of historical uncertainties leads to confusion. In the 1930s, it misled some economists into thinking that *actual* central planning could meet the conditions for *hypothetical* allocation efficiency.

In the present economic climate, it misleads some economists into thinking that *actual* 'bubbles and crashes' constitute evidence against the efficient-market *hypothesis* (EMH) which (adding confusion upon confusion) tends to be tagged to the notion of market failure.

So, to be clear: market failure can occur when the institutional structures that permit mutual gains from trade - well-defined property rights, enforceable contracts and so on - are absent.

There is at least one textbook which has broadened market failure market failure to include 'all circumstances in which market equilibrium is inefficient' (Begg, *et al.* 2008, 302). By that definition, market failure covers every *actual* outcome that falls short of Pareto efficiency. This is odd because Pareto efficiency arises within the neoclassical paradigm of perfect competition, which - by the assumptions of perfect foresight and zero transactions costs - sets no place for entrepreneurship and markets! Doh!

By the EMH all public information is discounted into current market prices, which implies that only private information gives an opportunity (for profitable arbitrage. Its origins rest with a French mathematician's dissertation on speculation (Bachelier, 1900), a work which excited limited interest until it was developed as economic theory (Fama,1965; Samuelson 1965).

The EMH is set within a context of well-defined mathematical certainties, from which follow definitive *hypothetical* deductions. If the latter are conflated with *actual historical* sequences, only nonsense is likely to follow, an example of which is:

> The paradigm that financial markets are efficient has provided the intellectual backbone for the deregulation of the banking sector since the 1980s, allowing universal banks to be fully involved in financial markets. There is now overwhelming evidence that financial markets are not efficient. Bubbles and crashes are an endemic feature of financial markets in capitalist countries (De Grauwe, 2008)

Problems have arisen, not in consequence of the EMH but because 'uncertainties' have treated as if they were 'risks'. The difference is that mathematical probabilities may be assigned to risks, whereas an uncertainty is - well- uncertain. In *hypothetically* efficient markets, the prices of goods and services that are traded reflect all information.. For *actual* markets, however, uncertainties abound in the form of incomplete, inconsistent and erroneous suppositions. Keynes pointed to the importance of this difference:

> We are assuming, in effect, that the existing market valuation, however arrived at, is uniquely *correct* in relation to our existing knowledge of the facts which will influence the yield on investment, and that it will only change in proportion to changes in this knowledge; though, philosophically speaking, it cannot be uniquely correct, since our existing knowledge does not provide a sufficient basis for a calculated mathematical expectation. (Keynes, 1936)

36. DYNAMIC STOCHASTIC GENERAL EQUILIBRIUM MODELS

In his Nobel lecture in 1995, Robert Lucas described the seminal model that developed into the dominant approach to macroeconomics today, now called dynamic stochastic general equilibrium (DSGE). Lucas makes the following assumptions (among others); that everyone lives for two periods of equal length, working in one and spending in the other; that there is only one good, and no possibility of storage of that good, or of investment; that there is one homogeneous kind of labour; that there is no mechanism of family support between older and younger generations; and so on.

It is all too easy to criticise this approach simply on the grounds of lack of realism. All science uses unrealistic assumptions. Physicists describe motion on frictionless plains, gravity in a world without air resistance; not because anyone believes that the world is frictionless and airless, but because it is too difficult to study everything at once. A simplifying model eliminates confounding factors and focuses on a particular issue of interest. To put such models to practical use, one must be willing to bring back other excluded factors. This modification will be important for some problems and not others; air resistance makes a big difference to a falling feather, but not to a falling cannonball.

But Lucas and his followers were plainly engaged in a very different exercise. The distinguishing characteristic of their approach is that the list of unrealistic simplifying assumptions is extremely long. Lucas was explicit about his objective: 'the construction of a mechanical artificial world populated by interacting robots'. An economics theory, he explains, is something that 'can be put on a computer and run'. Lucas called structures like these 'analogue economies' because they are, in a sense, complete economic systems. They loosely resemble the world, but a world so pared down that everything about them is either known, or can be made up. Such models are akin to a computer game.

The belief that every problem has an answer meets a very deeply felt human need. For that reason, many people become obsessive about artificial worlds, such as computer games, in which the connection between actions and outcomes is quickly observed. One might learn skills or acquire useful ideas through playing these games, and some users do. If the compliers are good at their jobs the sound effects, events, and outcomes of a computer game resemble those we see and hear; they can, in a phrase that Lucas and his colleagues have popularised, be 'calibrated' against the real world. But that correspondence does not validate the model in any wider sense. It obviously cannot be inferred that policies are appropriate for governments and businesses because they work in a computer game. The nature of such self-contained systems is that successful strategies are the product of the assumptions made by the creators.

The intensely self-referential nature of this activity becomes evident from listening to the aspirations of the young researchers who are engaged in it: to contribute to the developments of DSGE models. Specifically, these young scholars are - like compliers of computer games - tweaking the assumptions of an established model. If you ask how this advances economic understanding, you will be told that the exercise shows that it is possible to introduce a new assumption into the model!

(Adapted from John Kay (2012) 'Models, Scientists, and Macroeconomists')

37. CONVERSATIONS WITH AN ECONOMIST

In general, economists are not held in high regard. From media reports, their successes are few and economic problems are rife. Are economists the root cause and are they merely the messengers? After his execution in 399 BC, followers of Socrates wrote dialogues ('conversations') around his concepts. Suppose economics were similarly represented. Would such conversations place economics in any better light?

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38. RATIONAL ECONOMIC MAN

What is a rational decision? To a mathematician, rationality implies logical deduction from axiomatic certainties: rationality applies rules of logic to find the route from a premise to a conclusion. To a statistician, rationality implies calculations based upon probability distributions: it would, for example, be irrational to expect a balanced coin to deliver more heads than tails

With neoclassical microeconomics, a rational act allocates scarce resources efficiently between competing uses. In so doing, rational economic man shows a remarkable set of abilities. He is able: to indicate a well-defined objective; to obtain all information relevant to taking action necessary to reach that objective; and to put that action into effect.

Rational economic man is often treated with some scepticism, but it is irrationality that presents a conundrum. Irrational man could not *choose* a sub-optimal solution because, if he chooses to fail, and fails, he succeeds, rationally. There are other possibilities: irrational economic man (1) might be unable to define his objectives ('his preference function is unspecified') or (2), having identified his preference function, he might be unable to master the necessary calculus.

Consider a seemingly straightforward economic task: one man and his dog setting out to mow a meadow. Consider rational dog. If that is absurd, consider irrational dog. If both are absurd, what remains? The pertinent issues are that dog is unable to comprehend questions founded upon calculus or statistical theory; and that no basis exists to classify dog's response to a question that is alien to him. Dog is equipped to act neither rationally nor irrationally.

Consider moral dog. If that is absurd, consider immoral dog. If both are absurd, what remains? The pertinent issues are that dog is unable to comprehend morality; and (again) that no basis exists to classify dog's response to a question that is alien to him. Dog is equipped to act neither morally nor immorally.

It is neither rational behaviour, nor moral behaviour, nor chance that brings cohesion to a pack and allows dogs to survive. Natural selection has equipped dog with a pre-disposition to behavioural patterns that leave him safe. If those patterns have the *appearance* of rationality or morality, those *appearances* are figments of the human mind; the same mind that presumes (plausibly) that no such figments exist within the mind of dog.

Pack survival relies upon the instinctive adaptation of dogs to their mutually compatible roles. If a dog fails to fulfil its role (that is, if it appears to act irrationally, immorally or, more plausibly, mistakenly), pack survival is threatened. The cohesion of the pack is founded upon the emergence of a pack leader and the instinctive predisposition of dogs to act together systematically, rather than upon any ability to apply reason or to follow the direction of moral precepts. Take the dog from the pack and he still looks to a leader: one man.

Though guided by different strengths in their instinctive pre-dispositions, cultural conditioning and intellectual capacities, one man and his dog behave systematically. As they set out upon their resource-constrained task - to mow a meadow - their joint activity is susceptible to rational interpretation. Here, the goal of *positive* economics is to understand systematic behaviour - to describe what exists and how it works - and to avoid any *normative* judgement. Mainstream

economics places great stress upon the avoidance of normative judgement. If economics is to be scientific it must eschew every ethical consideration. So, consider one man and his dog, setting out to mow a meadow; and the guidance they might draw from positive economics.

> Where is the meadow located: is the crop English hay or Afghan poppies? What alternative factors are available: does the labour force comprise hired freemen or indentured servants? What means exist to raise productivity: is the incentive one of bonus payments or the threat of a flogging? With each of these issues, the economic problem is adjacent to an ethical problem that cannot be decided by positive economics. It is not for economists to decide the legitimacy (morality) of the opium crop, or that of indentured labour, or that of flogging.

Given the extensive relevance of (adjacent) ethical judgements, positive economics is silent on important issues relating to economic behaviour. For example: is there a rationale for individuals to follow ethical precepts in reaching economic decisions; do ethical standards condition how well economies perform; are the benefits of trade and co-operation dependent upon good neighbourliness; are transactions costs held down by shared moral values; is not the 'free market' a metaphor for all manner of voluntary inter-personal relationships; on what ground is central direction justifiable; in pursuing their own interests, is it a relevant consideration that individuals might also serve the interests of others?

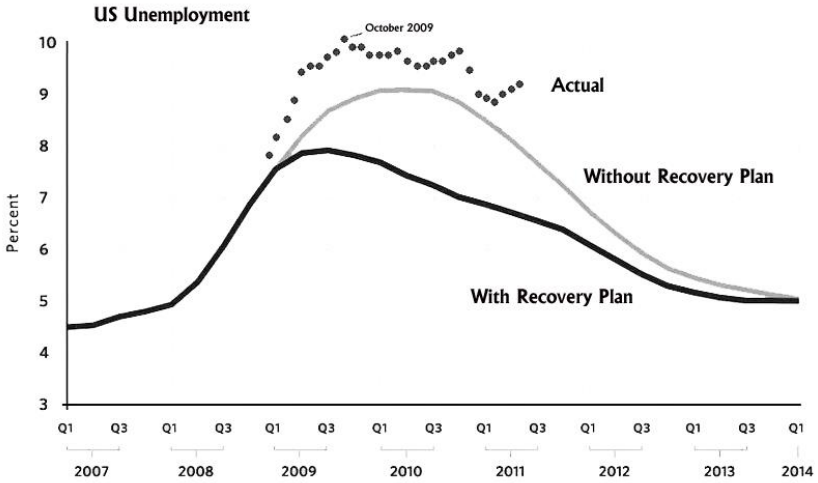
Other than with contrived circumstances and probabilistic games of chance, opportunities for man to evince mathematical/or and statistical rationality are rare. In regard to social issues, decision options lend themselves to the application of rationality of a different kind: rationality that is guided by conventions or rules. Our understanding (which is the basis of our rationality) is structured upon standards set for acceptable behaviour. Morality enters. Conversely, in undermining the reliability of conventions, immoral acts are those that disrupt social cohesion and bring greater uncertainty to individuals' attempts to order their behaviour (that is, to act rationally).

Positive economics requires continuous direction if it is to preserve its neutrality. It is not for positive economics to suggest that one man and his dog might purposefully mow a meadow. If it is suggested that mowing the meadow would be an effective solution to a pressing social problem, decisions in relation to the crop, the method and the incentive structure raise further ethical issues, upon which positive economics would need further guidance. In short, by its divorce from ethical considerations, positive economics is impotent when faced by social issues.

39. BEN BERNANKE'S ROAD TO INFLATION

President Obama's 2009 stimulus has been a disappointment: the Keynesian response is that it failed because it was not big enough. So, now we have Ben Bernanke's rescue act: the Federal Reserve is set to engage in quantitative easing at monthly levels of $40 billon. In similar vein, the European Central Bank has announced its willingness to buy government debt to relieve distressed sovereigns. If those 'threats' are implemented, inflation is likely to soar.

US unemployment and projected unemployment with/without the $814 billion *American Recovery and Reinvestment Act* (2009)



Source:

- projected unemployment (at 2009): the Obama administration:
- actual unemployment: US Labor Department

Bernanke has presented his most recent interventions 'in a context of price stability' and he expects medium-term inflation to remain 'at or below its 2 per cent objective'. Although this is in line with Keynes's argument that, for an economy with high unemployment and slow growth, inflation is never a worry, even the *Guardian* believes the policy undermines the Fed's credibility. The stagflation of the 1970s appears to have faded from Benanke's memory.

Inflation is currently held in check, not by unemployment, but by the requirement for commercial banks to re-build their balance sheets; for which reason, commercial bank credit is held in check. (The exact same explanation applies to the surge in commercial bank reserves *pro rata* quantitative easing by the Bank of England.)

When recovery begins, this situation will change. What then? How high might interest rates need to rise to prevent a credit-led boom? And - with the long-term unemployed always hard to place in work - will the desire to keep interest rates low displace immediate concerns over rising prices? By the middle of the decade the prospect is real of inflation becoming as pressing an issue as it was forty years ago.

40. KEYNES

John Maynard Keynes was born in Cambridge on 5 June 1883; he died at his home in Sussex on 21 April 1946. He studied economics only briefly and as part of his preparation for the civil service entrance examination of 1905. In working as a civil servant, Keynes drew upon his undergraduate studies in mathematics to outline a theory of probability that might be applied to unique events in a social context. That dissertation was begun in 1905, submitted in 1907, and successfully resubmitted for his Cambridge fellowship in 1909. After further work on the dissertation was suspended in 1914, *A Treatise on Probability* was published in 1920.

After two years as a civil servant in the India Office and two years as a university lecturer at Cambridge, Keynes was elected to a King's College fellowship in 1910. He worked in the Treasury during the Great War, at the end of which he became its leading authority on reparation payments. *The Economic Consequences of the Peace*, which was hurriedly written and published in 1919.

From his activities in the arena of inter-war political economy, Keynes must have sensed the limited influence of a purely scientific approach: 'the ideas which civil servants and politicians and even agitators apply to current events are not likely to be the newest' (Keynes, 1936). He certainly appears to have reached the conclusion that time is more usefully employed in persuasion that in sound analysis. Close scrutiny shows many of his theoretical innovations to be wanting. More particularly,

> [w]ithout an adequate theory of capital, expectations became the wild card in Keynes's arguments. Guided by his "vision" of economic reality ... he played this card selectively - ignoring expectations when the theory fit his vision, relying heavily on expectations when he had to make it fit. (Garrison, 1997)

Certainly, Keynes began to operate at two distinct levels as he combined his academic work in the 1920s with 'at least a hundred articles and dozens of letters' published in *The Nation and the Athenaeum* 'on matters of reparations and international and domestic affairs ... [and] ... to advance his social and cultural ideas' (Mini, 1998).

From this period, Keynes is first associated with the problem of chronic unemployment, which was a feature of the UK economy in the 1920s and most of the western world in the 1930s. Undoubtedly, the loss of markets overseas, increased competition from recently industrialised nations and the influence of new technologies contributed to Britain's early problem. However, monetary policy decisions were the root of the problem. In 1918, the recommendation of the Cunliffe Committee - to restore sterling to gold convertibility at the pre-1914 rate of US$4.86 - was enthusiastically endorsed by Treasury and Bank of England officials. Not only was this move considered honourable, it was regarded as essential to re-establish London as the centre of international finance. However, the target of US$4.86 required the value of sterling to be raised by over forty per cent!

In the early months of 1920, the Bank Rate was raised to 7 per cent, the note issue was restricted and public sector spending was reduced. There followed a precipitate downturn in the economy which caused unemployment to rise from 2.6 per cent in June 1920 to 22.4 per cent in July 1921. An epoch of high widespread chronic unemployment had begun.

In March 1925, Keynes was one of five principal guests at a dinner party hosted by the Chancellor of the Exchequer, Winston Churchill. Those guests had been asked to respond to a memorandum that presented the case against a return to gold. By the end of that evening, Keynes found himself to be a minority of one against a general endorsement of the policy to resume gold convertibility. In the following month, the wartime embargo on UK gold exports expired and convertibility was restored with sterling at the US$4.86 rate. Keynes's response to that decision was a vehement attack in the form of a pamphlet - 'The Economic Consequences of Mr. Churchill' (1925) - in which he warned of the damage that an overvalued sterling would do to the economy.

Even though monetary contraction had forced down domestic prices over the preceding years (while a booming US economy had caused prices to rise elsewhere), the restoration of the pre-1914 rate of exchange seriously impaired the competitiveness of UK goods. Domestic prices needed to fall still further and monetary deflation was continuous over the next seven years. In the long term, stable prices at a full employment level of output was the expectation; in the short term, the impact upon output and employment lay in uncharted waters. In the event, Churchill would look back on the decision as one of the greatest mistakes of his political career:

> [w]hen I was moved by many arguments and forces in 1925 to return to the Gold Standard I was assured by the highest experts ... that we were anchoring ourselves to reality and stability; and I accepted their advice. ... But what has happened? We have had no reality, no stability. (Winston Churchill, 1933)

A policy founded upon conventional economic wisdom had failed; and that failure was conducive to the sympathetic reception (beyond the Treasury) that was afforded to Keynes's rationalisation for an enhanced involvement of the state in economic affairs.

In a retrospective comment upon this episode, Hayek points to the failure to draw upon the scholarship of an earlier generation. In referring to 'surprising gaps' in Keynes's knowledge of nineteenth century economic theory and economic history, Hayek recalls: 'I had to tell him of the passage by Ricardo ... which if he had known it, might well have helped him to win the battle against the return [of sterling] to gold at the old parity' (Hayek, 1978). Recognising Keynes's role as an 'intellectual leader' and his failure to move the authorities away from their chosen deflationary path, Hayek continues:

> I ask myself often how different the economic history of the world might have been if in the discussion of the years preceding 1925 one English economist had remembered and pointed out this long-before published passage in one of Ricardo's letters. (Hayek, 1978)

Of the academic work undertaken by Keynes in the 1920s, *A Tract on Monetary Reform* (1923) is his last major publication within the paradigm of classical monetary theory. Thereafter, dismayed by the formulation of British economic policy and the course of events, Keynes devoted himself to arguments focusing directly upon general patterns of economic activity. These presented themselves in *A Treatise on Money* (1931) and *The General Theory of Employment, Money and Interest* (1936).

The Wall Street *débâcle* of 1929 caused Keynes to take a jaundiced view of financial markets: the more organised they become, the more likely they are to be dominated by short-term speculation, as dealings in securities become further removed from 'either active or prospective' knowledge of 'the business in question'. In effect, Keynes became a critic of the notion of efficient financial markets long before that concept gained popular currency:

> [w]e are assuming, in effect, that the existing market valuation, however arrived at, is uniquely *correct* in relation to our existing knowledge of the facts which will influence the yield on investment, and that it will only change in proportion to changes in this knowledge; though, philosophically speaking, it cannot be uniquely correct, since our existing knowledge does not provide a sufficient basis for a calculated mathematical expectation. (Keynes, 1936)

Keynes's position led him to conclude that (at least, for the circumstances of the period) private entrepreneurship offered no route to full employment. Furthermore, where private entrepreneurs are preoccupied with short-term gains, Keynes asserts that the state is in a unique position 'to calculate the marginal efficiency of capital-goods on long views and on the basis of general social advantage' (Keynes, 1936). Not only is this assertion at odds with the previous citation, it is simply wrong.

The speed with which the new ideas of *The General Theory* came to influence the formulation of policy had no precedent:

> [u]nder the stimulus of Keynes ... *An Analysis of the Sources of War Finance and an Estimate of the National Income and Expenditure for 1938 and 1940* (1941, Cmd. 6261) ... was published in time for the 1941 Budget. ... [T]he accompanying budget speech was thoroughly Keynesian ... the use of national income and expenditure estimates in relation to the formulation of the budget was a major event in the history of the application of economics to policy formation.(Gilbert, 1982)

Its 'fit' was perfect to requirements: '[m]ass unemployment had lasted so long that ... a new theory of its causes that promised an easy cure was ... virtually certain to sell, provided its author had impeccable professional credentials' (Johnson, 1975). Yet, its fulsome acceptance was not entirely due to Keynes. The impact of Keynesian economics, upon the formulation of fiscal policy in the major western democracies, owes much to the ISLM simultaneous equation national income and expenditure (structure that was originated by John Hicks in 1937.

However, there is a growing consensus that Hicks's formulation is at variance with the essence of Keynes's *General Theory*; and that a heavy price has been paid for allowing the easy tractability of Hicks's ISLM to gain the ascendancy. How did this happen? Robert Skidelsky suggests that 'Keynes, who, above all, sought to influence policy, did not resist this reconciling way of selling his ideas if it made them accessible and acceptable to the younger economists' (Skidelsky, 1997). In short, people could make of his theory whatever they liked, so long as policy remained on the right lines!

In 1937, Keynes had drafted a statement of the essence of his ideas for *The Quarterly Journal of Economics*. Here 'there is no consumption function, no investment multiplier, only vague and uncertain knowledge, fluctuating states of confidence, and courage, fears and hopes, coped with, as best they can be, by strategies and conventions' (Skidelsky, 1997). Out of that presentation, an alternative to Keynesian macroeconomics was developed as 'post-Keynesian' economics. The fundamental concern is with the perceived tendency of the money economy to function at below full

employment. This problem recurs whenever - in viewing the future with growing uncertainty - individuals increase the proportion of money held within their assets portfolios. The highly complex ramifications of that abnormal 'liquidity preference' do not lend themselves to a geometrically or algebraically tractable solutions. Shifting IS and/or LM schedules offers no insights into disequilibrium processes.

With the outbreak of the Second World War, Keynes applied his macroeconomic conceptualisations to the problem of minimizing inflationary pressures in a fully mobilised war economy. He was able to draw from the experience of the Great War, when price rises caused labour unrest and when inflated profits were expropriated to the state by *ad hoc* taxation and borrowing. His two articles on 'Paying for the War' (*The Times*, November 1939) were expanded and published in booklet form: *How to Pay for the War* (1940). It was by his influence that the authorities kept the long-term interest rate at three per cent (as compared to five per cent in the Great War). However, his recommendations for deferred wage payments were adopted in only a minor way.

In July 1940, Keynes returned to the Treasury, where he became heavily engaged in matters relating to funding the war effort and with proposals and negotiations in advance of the Bretton Woods exchange rate system (1944) and the loan agreement with the US (1945). The prolonged negotiations and disappointing outcome in respect of the latter extracted from Keynes the ultimate personal sacrifice.

41. HAYEK

Friedrich August von Hayek was born in Vienna on 8 May 1899; he died at his home in Frieburg on 23 March 1992. As a young man he pursued interests in genetics, psychology and psychiatry. After serving in the multinational Austro-Hungarian army (March 1917 to November 1918), Hayek attended classes in philosophy and also gained his university entry qualification.

In the three years to 1921, Hayek participated in a wide range of cultural and intellectual activities at the University of Vienna. Although he gained a first-class degree in jurisprudence, he had divided his time 'about equally between economics and psychology' (Hayek, 1992) and had also taken time 'to study half a dozen other subjects' (Hayek, 1994).

Like many who were moved by the poverty of post-war Vienna, Hayek was inclined towards socialist ideals; but this was countered by the teaching of Ludwig von Mises which explains how the market is a prerequisite for economic calculation.

Between 1921 and 1923, Hayek worked as a civil servant in a temporary institution that had been set up to implement the provisions of the St Germain peace treaty. During this eighteen month period, he also completed his doctoral dissertation in political science. Then, with letters of introduction from Joseph Schumpeter (that proved of no avail) and the 'half-promise of a job', he set off for the United States where, working as a research assistant at the Alexander Hamilton Institute in New York, he 'gatecrashed' courses at Columbia University and the New School of Social Research. The experience of his fourteen months in the United States - where the key words were stabilisation, economic forecasting, and the analysis of economic time series - caused Hayek to turn his attention to 'the relations between monetary theory and the trade cycle' (Hayek, 1992).

Hayek returned to Vienna in the summer of 1924, and took up his former occupation under Mises; at the same time, he was admitted to the 'Mises seminar', which met fortnightly and where concerns were with 'problems of the methodology of the social sciences, but rarely with problems of economic theory (except those of the subjective theory of value)' (Hayek, 1992). Hayek used his American experiences as the basis for his preparation for a 'major work on monetary theory' that he hoped would lead to a university position. In a draft account of American monetary policy, Hayek employed a theory which he attributed to Mises. After his attention had been drawn to the fact that this had not appeared in published form, he incorporated the basic ideas into an essay which appeared in 1925: 'The Monetary Policy of the United States after the Recovery from the 1920 Crisis'. The idea that monetary expansion distorts the structure of capital in such a way that it does not correspond to real savings, and the implications thereof, was to be further developed and refined.

These efforts were interrupted in 1927, when Hayek was appointed as the first director of the Austrian Institute for Business-Cycle Research. This he ran virtually single-handed until additional American funding allowed the appointment of Oskar Morganstern in 1929. Morganstern's arrival enabled Hayek to devote more time to monetary theory. Also in 1929, Hayek was admitted to the University of Vienna as lecturer.

In the February 1929 report of the Institute, Hayek made his bold prediction of an impending business crisis in the United States. Whereas orthodox monetary theorists were misled by the experience of economic growth without inflation, Hayek warned that maladjustments were the inevitable consequence of monetary expansion and that a crisis was impending. To Hayek, price

stability in a decade of sustained growth in real output is evidence of excessive monetary expansion. On the favourable side, US prices had not actually risen prior to 1927, so there was every reason to suppose that the (inevitable) recession would be mild. However, the US authorities

> succeeded, by means of an easy-money policy, inaugurated as soon as the symptoms of an impeding reaction were noticed, in prolonging the boom for two years beyond what would otherwise have been its natural end. And when the crisis finally occurred, for almost two more years, deliberate attempts were made to prevent, by all conceivable means, the normal process of liquidation. (Hayek, 1935)

In 1931, Lionel Robbins invited Hayek to give a series of guest lectures at the London School of Economics where, later that same year, he was appointed Tooke Professor of Economic Science and Statistics. A feeling that the appointment was motivated, not only by a desire to boost the School's reputation in economic theory, but also 'to provide a counter-attraction to Keynes' (Robinson, 1978) seemed to be confirmed by Hayek's critical reviews of Keynes's *A Treatise on Money*, which aroused considerable anger in Cambridge. More particularly, Robbins would have felt the need of support in his disputes with Keynes on the Economic Advisory Council, set up by the Prime Minister.

The protracted and interwoven development of Hayek's capital theory and business cycle theory was set against the background of an intense rivalry between Hayek and Keynes in the 1930s. Hayek had seen that 'an elaboration of the still inadequately developed theory of capital was a prerequisite for a thorough disposal of Keynes' argument' (Hayek, 1983); and, in retrospect, he considered it an error of judgement that he had given no time to an immediate and studious critique of Keynes's *General Theory*. Hayek's exposition of a monetary theory of business cycles, *The Pure Theory of Capital* serves to expose the fallacy of the central tenet of Keynes's *General Theory* - one that sits firmly in the mainstream of modern economics - for a 'direct dependence of investment on final demand' (Hayek, 1983). Yet, Hayek's *exposé* remains generally ignored, with the effect that Keynesian demand management (macroeconomics) together with marginal analysis (microeconomics) remain the dominant instruments of economic analysis. The issues could scarcely be more important. To understand *The Pure Theory of Capital* is to question the relevance of mainstream economics.

Hayek spent the war years in Cambridge - the temporary location of the LSE - where Keynes was instrumental in his obtaining accommodation in King's College. Thereafter, Hayek became a frequent visitor to American universities. He remained at the LSE until 1950, when the scandal of his long yearned-for divorce and his wish to re-marry was the pressing reason for his move to the University of Chicago as Professor of Social and Moral Sciences. By his disputes with Cambridge and by the publication of *The Road to Serfdom* in 1944, Hayek's reputation in economics had fallen so low that Chicago's economics faculty - dominated by econometricians and mathematical economists - refused to consider him. Hayek was viewed as an ideologist and apologist (or, at best, a philosopher) rather than an economic scientist.

Hayek rejects the modern proliferation of narrow disciplines: 'if you know economics and nothing else, you will be a bane to mankind, good, perhaps, for writing articles for other economists to read, but for nothing else' (Hayek, 1944). Economics is not a discipline that can be studied meaningfully in isolation. Yet the drive to specialism has produced a profession of highly qualified narrowly-educated

tunnelled visionaries. Hayek's description of those who are 'a bane to mankind' fits most academic economists. To find an economics curriculum that includes Hayek is rare indeed.

In presenting economics as an integral part of a broad theory of human action founded upon social theory and psychology, Hayek shows the limitations of mathematics in economics. An insistence upon tractable solutions means that mathematics can be applied only when the complexities of social engagements are assumed away. Social enactments occur in a context where knowledge is imperfect, incomplete and dispersed. In making best use of the 'particular knowledge of time and place' (Hayek, 1952), the role of local entrepreneurship is vital to economic advance. If the outcome could be said to fall short of precise mathematical optimisation, it is an output achieved without benefit of perfect foresight. Although entrepreneurs necessarily conduct their business against a background of uncertainties, they draw upon their 'local' expertise; and free markets allow that expertise to be utilised to the full, in a manner that brings greater benefits than any other known system.

From 1962 to 1967 Hayek was Professor of Economic Policy at the University of Freiburg in Breisgau, after which he retired and accepted an appointment as honorary professor at the University of Salzburg. In October 1974, he was awarded the Nobel Prize in Economics. The joint award was to Friedrich Hayek and Gunner Myrdal 'for their pioneering work in the theory of money and economic fluctuations and for their penetrating analysis of the interdependence of economic, social and institutional phenomenon'. In 1984, at the instigation of the British Prime Minister, Margaret Thatcher, Hayek was made Companion of Honour; and, in 1991, he was awarded the US Presidential Medal of Freedom.

42. *LAISSEZ-FAIRE*

The vision of an unhampered market society is caught by the eighteenth century maxim *laissez-faire, laissez passer*.

The aim was to abolish laws that hindered competition and inhibited the mobility of labour and commodities. Free competition allows knowledge to be discovered and it delivers mechanisms whereby individuals' actions are coordinated; but the market is unpredictable and state intervention cannot prevent, nor could it lessen, the costs arising from that unpredictability. Indeed, the very attempt would be undesirable, for it would retard necessary adjustments. Furthermore, it would be absurd to expect the market to reward merit:

> [w]e allow the individual share to be determined partly by luck in order to make the total to be shared as large as possible (Hayek, 1978b, p. 91).

The competitive market serves prosperity and progress by rewarding those lucky enough to be able to satisfy particular demands arising from rapidly changing circumstances. Many lose out, and there are always claims for the protection of vested interests. While there is an undoubted need to counter such claims, there are no ready prescriptions:

> [p]robably nothing has done so much harm to the liberal cause as the wooden insistence of some liberals on certain rules of thumb, above all the principle of laissez-faire (Hayek, 1944, p. 13).

While the presumption must favour the free market, *laissez-faire* is not 'the ultimate and only conclusion' (Hayek, 1933b, p. 134). It is for economists to probe the issues that determine the legitimate scope for state intervention. 'Private property' and 'freedom of contract' do not, in themselves, provide for solutions:

> [o]ur main problems begin when we ask what ought to be the contents of property rights, what contracts should be enforceable, and how contracts should be interpreted or, rather, what standard forms of contract should be read into the informal agreements of everyday transactions (Hayek, 1949, p. 113).

In a free society, those judgements are based upon the defence of liberty, and so politics must aspire to identify those rights and duties that promote competitive markets; but public policy should not aim to correct so-called market failures, for the market is itself a corrective process. Institutional reform is required. Neo-classical economics finds in market failure a justification for state intervention. The difficulty is that markets are diverse systems of social interaction within diverse institutional frameworks. A detailed examination is a prerequisite for intervention of any kind; but there are too many details for any single body to grasp. Market systems have only one common feature: individuals plan their own action, which means that the knowledge so utilised is vastly greater than that which could be accommodated within any central agency.

The ills that critics attribute to the market are rooted in the failure to uphold and protect the institutions necessary for its operation, but this is a matter for the law, not government whose intervention is more than likely to be counter-productive. An illustration is provided by the boost to enterprise monopoly, as government inspired company law, patents and tariffs eroded the common law prohibition of conspiracies in restraint of trade.

43. GOVERNMENT SPENDING CUTS

(Adapted from: http://www.fee.org/the_freeman/detail/government-spending-cuts-are-bad-for-the-economy#ixzz2OpSX6WLg

Most commentators focus on simple numerical indicators such as GDP growth and the unemployment rate. If the goal were just to raise GDP up and reduce unemployment, it would be a simple task. Government would merely hire all *unemployed* people at whatever price it takes to induce them to work'; the higher the pay the better, because increased government purchases add directly to GDP!

What exactly will these government workers do? And how is the government going to pay them? This is where the macro indicators start to lose their meaning. What really matters for economic health is not the percentage of people in work, nor the alleged money value of total 'production.' What matters is: *Are people doing the best they possibly can with their limited time, talents, and resources to serve the limitless wants of their fellow human beings?* If not, how do things need to change?

Perhaps we've been spoiled by years of a generally prosperous and growing market economy into assuming that all workers necessarily add to economic output by the amount they are paid. There is a strong tendency toward this result in a market-based competitive economy. Companies whose revenues do not cover costs cannot afford to keep their land, capital, and labour employed very long. But such is not the case with government workers. Of course, some of them provide valuable services like filling potholes and catching thieves. However, politics plays by a different set of rules than competitive markets.

Political spending does not have to pass a market test, where price paid by willing consumers must cover the costs of the land, capital, and labour required to produce the goods. Politicians pay for their spending - through taxes or, should further taxation prove unpopular, through borrowing and potentially even printing money. Politicians therefore face less feedback and less restraint regarding the employment of unproductive workers. This leads to a common theme in government at all levels: hiring too many workers relative to 'consumer' (taxpayer) demands; or, rather, overpaying their workforces relative to competitive labour market conditions.

The harsh reality of a recession is in showing many enterprises they are no longer creating value. Unravelling the mistakes of an unsustainable credit-led boom takes time, but the correction grinds on despite many government attempts to forestall painful changes. One of these changes is a reduction in the public-sector workforce; and this entails a period of lame GDP and employment numbers, especially in comparison to the peak years of the boom.

44. THEORY AND FACTS

A *naïveté* in regard to the possibility of observations detached from theory is disturbingly common among practitioners of science; but it may be countered by the response from Albert Einstein to Werner Heisenberg's assertion (in 1926) that only observable magnitudes should contribute to a theory. Einstein's reply was that '[i]n reality the very opposite happens. It is the theory which decides what we can observe' (Heisenberg, 1971, p. 63). Analogous sentiments are expressed by Hayek in 'The Theory of Complex Phenomena', where he notes that

> [i]ntimate acquaintance with the facts is certainly important; but systematic observation can only start after problems have arisen. Until we have definite questions to ask we cannot employ our intellect; and questions presuppose that we have formed some provisional hypothesis or theory about the events (Hayek, 1967, p. 22);

and, in that same paper, Hayek cites Karl Popper:

> [s]cience … cannot start with observations, or with the "collection of data", as some students of method believe. Before we can collect data, our interest in *data of a certain kind* must be aroused: the *problem* always comes first (Popper, 1957, p. 121).

It is the essence of understanding that abstract constructs are a prerequisite to shaping order from disorder. Facts are not given; they are created. Whether implicitly or explicitly stated, theory pervades every observation. Without theory, we cannot know what is taking our attention. And there is an associated measurement problem. Theory is built upon theory:

> [m]easuring instruments are constructed in accordance with laws and their readings are tested under the assumption that these laws are correct (Feyerabend, 1993, p. 232).

So, for example, 'Galileo's telescope provided evidence only for those who could accept Galileo's theory of optics, which was less well established than the hypothesis it was required to support' (Loasby, 1989, p. 16).

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45. EXPLANATIONS AND PREDICTIONS

Explanations are attempted by historians, whose accounts are characterised by realistic detail. Predictions are attempted by forecasters, whose success depends upon the relevance of abstract models, and the accuracy and robustness of parameter estimates. Yet, in many essentials, the work of the historian and the forecaster are the same: 'prediction and explanation are merely two aspects of the same process' (Hayek, 1967, p. 9):

> (i) From the past, we may be certain that an event has happened, but we are uncertain about the cause (of *that particular* event). That latter uncertainty gives rise to rival *explanations* most of which, if not all, are wrong.
> (ii) For the future, we may be uncertain that an event will happen, but we are certain about the cause (of *any particular* event). That former uncertainty gives rise to rival *predictions* most of which, if not all, are wrong.

The same formal structure 'applies to scientific predictions as well as to explanations': from antecedent conditions (a) and universal laws (b), consequential events (c) are deduced. The *expanandum* (c) is deduced from the *explanans* (a, b) which must meet formal conditions of adequacy: the antecedent conditions must have some factually correct empirical content; the laws must be general; and the deduction must be logical. 'We explain a given event (c) by detecting (a) and by postulating and applying (b); and we predict a future event (c) by inferring it from some given (a) and postulated (b)' (Watkins, 1953, p. 723, fn).

These propositions comprise a version of the 'symmetry thesis': in terms of logical structure, every explanation is a potential prediction. Indeed,

> [i]t is this potential predictive force which gives scientific explanation its importance: only to the extent that we are able to explain empirical facts can we attain the major objective of scientific research, namely not merely to record the phenomena of our experience, but to learn from them, by basing upon them theoretical generalizations which enable us to anticipate new occurrences and to control, at least to some extent, the changes in our environment (Hempel and Oppenheim, 1948/1953, p. 323).

However, there is no implication either (i) that a prediction necessarily entails an explanation, or (ii) that an explanation necessarily provides a basis for prediction. Most obviously, (i) predictions without explanations could be based on periodicity; and (ii) an explanation gives no basis for prediction where it is provided only as a plausible *ex post* rationalisation (see Davidson, 1963, p. 697; Hempel and Oppenheim, 1948/1953, p. 328).

Explanatory statements are subject to risk and uncertainty. If the forecaster is able to anticipate possible outcomes and to assign probabilities to them, that constitutes the risk in his prediction. Uncertainty arises either from unperceived risk or from fundamental ignorance. The consequences of decisions made against risk and uncertainty are the events which the historian explains and the forecaster predicts; but *the expert has superior knowledge only of the risks.* Yet, the historian is better placed than the forecaster to discover the range of perceivable (and, given ignorance, perceived) risk, and to note the surprises (arising from fundamental ignorance). Historical accounts can argue the

relevance of both. By contrast, although the forecaster can assess risks, he cannot anticipate the surprises. In principle, therefore, an account of the past is potentially more complete than a prediction of the future.

Davidson, D. (1963) 'Actions, Reasons and Causes', *Journal of Philosophy*, vol. 60, pp. 690-70.
Feigl, H. and M. Brodbeck (1953) (eds), *Readings in the Philosophy of Science* (New York:
Hayek, F.A. (1967) *Studies in Philosophy, Politics and Economics.* (London and Henley: Routledge and Kegan Paul)
Hempel, C. G. and Oppenheim, P. (1948/1953) 'The Logic of Explanation', vol. 15 *Philosophy of Science*, cited from Feigl and Brodbeck, 1953, pp. 319-52.
Hempel, C. (1963) 'Explanation and Prediction by Covering Laws', in Baumrin, 1963, vol. 1, pp. 107-33.
Watkins, J.W.N. (1953) 'Ideal Types and Historical Explanation', in Feigl and Brodbeck, 1953, pp. 723-43.

46. CAUSE AND EFFECT

No human experience lies outside the dimensions of time and space, but the concept of 'cause and effect' is more problematic. When events are linked, what links the events to the links? Where 'cause' is viewed as a dynamic process, causal relations must exist internally between earlier and later parts of that process, so that only the final part is contiguous to and relevant to the 'effect'. That final part - the immediate cause - is stationary, but this leaves unexplained how, after a placid existence, the cause suddenly delivers its effect then rather than at some other earlier or later moment. This dilemma is avoided if causes are separated from their effects by an interval of time; but this admits the possibility that a causal sequence might fail through the interposition of some other circumstance so that

> any causal sequence which we have observed may at any moment be falsified without a falsification of any laws of the kind that the more advanced sciences aim at establishing (Russell, 1929/1953, p. 395).

The deceptively clear practicalities of common-sense bring additional problems as indicated by the breaking of a pane of glass:

> [i]t may be that there will never be an exception to the rule that when a stone of more than a certain mass, moving with more than certain velocity, comes in contact with a pane of glass of less than a certain thickness, the glass breaks (Russell, 1929/1953, p. 391).

The first problem is that uniformities such as these - same cause, same effect - rely upon a vague definition of 'events'. Mass, velocity, thickness and all manner of contributing circumstances combine to form an infinite number of potential configurations. If these antecedents were sufficiently well-defined to enable their consequences to be precisely calculated (*i.e.,* beyond the vagueness of 'glass breaks'), they would most likely never recur. This raises a second problem: if an event does not presuppose more than one potential cause, the event *per se* identifies its cause and there is nothing to explain.[6] In order for an event to have more than one potential explanation, it must be vaguely defined; which leads back to the first problem.

Russell argues that the 'law of causality' endures, because it is simpler than the notion of a function. For example, in the motions of mutually gravitating bodies there is no cause or effect, but only formulae which render configurations theoretically calculable. Causality is replaced by the inductive precept: the 'uniformity of nature'[7] (Russell, 1929/1953, p. 395) which is 'an empirical generalisation from a number of laws which are themselves empirical generalisations'. The functional formulae are relevant to both backward (explanation) and forward (prediction) configurations. The symmetry

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[6] In similar manner, if periodicity is the only basis for the event's 'pattern', periodicity is more a defining characteristic of (than an explanation for) the event.

[7] Induction from 'what has always been so' (the first premise) to 'what will therefore be so' requires the (second unwarranted) premise that nature is uniform. David Hume's conclusion - that argument from experience has no rational foundation - did not preclude his belief that 'such argument is grounded in the deepest instincts of our nature' (Flew, 1979, p. 172). It is custom, not reason, which provides 'the guide to life. That alone determines the mind in all instances, to suppose the future conformable to the past. However easy this step may seem, reason would never, to all eternity, be able to make it' (Hume, cited from Keynes, 1973, pp. 388-9).

principle again applies: in dispensing with 'cause and effect', the 'uniformity of nature' asserts the permanence of laws as a generalisation which 'makes no difference between past and future' (Russell, 1929/1953, p. 396):

> [c]auses .. do not compel their effects, any more than effects compel their causes. There is a mutual relation, so that either can be inferred from the other. ... The difference which we feel .. between causes and effects is a mere confusion due to the fact that we remember past events but do not happen to have memory of the future (Russell, 1929/1953, p. 405).

The asymmetry which exists in the common belief - that, while the past cannot be undone, present actions may alter the future - 'rests upon errors in respect of causation':

> [c]auses do not *compel* their effects any more than effects *compel* their causes. There is a mutual relation, so that either can be inferred from the other. When the geologist infers the past state of the earth from its present state, we should not say that the present state compels the past state to have been what it was; yet it renders it necessary as a consequence of the data, in the only sense in which effects are rendered necessary by their causes (Russell, 1929/1953, p. 405).

In the ultimate, the uniformity of nature is all-embracing: everything depends upon everything. This principle also applies to social science and to history[8]:

> [h]istory accounts *for* change by means of a full account *of* change. The relation *between* events is always other events, and it is established in history by a full relation *of* the events. The conception of cause is thus replaced by the exhibition of a world of events inextricably related to one another in which no *lacuna* is tolerated. To see all the details of change is to be in possession of a world of facts which calls for no further explanation. History ... is the narration of a course of events which, in so far as it is without serious interruption, explains itself. (Oakshott, 1933/1966, p. 209).

However, unlike natural scientists, historians and social scientists must contend with volitions, which determine actions, which determine the future; but, it is no more possible to change the future than it is to change the past:

> [o]bviously, our present wishes are conditioned by the past, and therefore could not have been different unless the past had been different; therefore, if our present wishes were different, the past would be different. Of course the past cannot be different from what it was, but no more can our present wishes be different from what they are (Russell, 1929/1953, p. 400).

Even so, it is consistent to argue that human action is a function of antecedent conditions while maintaining that such action is free from external compulsion, for even the most extreme claims of determinism cannot impair the notion of free-will:

[8] The distinction between history and social studies is challenged: 'any methodological distinction between supposedly past- and present-oriented enquiries is completely false since there is no real present separate from that which has already occurred' (Lloyd, 1986, p. 314 *ff.*).

> [e]vents, things and persons in history are neither free (in the sense of being ungoverned by relations), nor determined (in the sense of being governed by 'logical' or comic causes). They are both free from the influence of external determination, and determined by their place and relations in their own world. The 'human will' is no more uncertain or unaccountable than any other individual of historical experience (Oakshott 1933/1966. p 210).

Freedom only requires

> that our volitions shall be ... the result of our own desires, not of an outside force compelling us to will what we would rather not will (Russell, 1929/1953, p. 406).

Feigl, H. and M. Brodbeck (1953) (eds), *Readings in the Philosophy of Science* (New York: Meredith Corporation)
Flew, A. (ed) (1984) *A Dictionary of Philosophy*, second revised edition (Pan Books Ltd: London).
Lloyd, C. (1986) *Explanation in Social History*. (Oxford: Basil Blackwell).
Oakshott, M. (1933/1966) 'Historical Continuity and Causal Analysis', in Dray, 1966, pp. 193-212
Plotkin, H. (1994) *The Nature of Knowledge* (Harmondsworth: Allen Lane, The Penguin Press)
Russell, B. (1929/1953) 'On the Notion of Cause with Applications to the Free-Will Problem' in *Our Knowledge of the Natural World* (W.W. Norton & Co., London) pp. 247-56, cited from Feigl and Brodbeck, 1953, pp. 387-407

47. KEYNES'S *GENERAL THEORY* .... ON ONE PAGE!

> Any undergraduate will nowadays write out (what he thinks to be) Keynesian economics in two pages; but Keynes needed 400, wasting no words' (D.M. Bensusan-Butt, 1966, 32)

*

Having censured economists for their long-term view - "... this long run is a misleading guide to current affairs. *In the long run* we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is past the ocean is flat again" 1923, p. 80) - Keynes focused his *General Theory* upon the more pertinent issues of the immediate impact of (and the most appropriate response to) monetary events upon real activity:

- ***The problem:*** chronic unemployment.
- *The cause*: monetary deflation had eroded business confidence and caused a retreat into money (high liquidity preference).
- ***The effects:***
  a) a reluctance to hold debt had raised interest rates and reduced investment expenditure below the level which sustains full employment.
  b) involuntary unemployment, the characteristics of which are such that (i) monetary expansion is non-inflationary and (ii) unit production costs *per se* determine the general level of prices (cost-push inflation).
- ***The assumption****:* the demand to hold money is interest elastic (the liquidity trap).
- ***The implication*****:** interest rates could not be reduced by monetary expansion.
- ***The assumption****:* exogenous money.
- ***The justification*****:** commercial bankers respond to business cycle fundamentals; they do not accommodate a flight into money; but even in the event of such accommodation
  a) the interest rate would be held up by the liquidity trap; and/or
  b) money would be displaced in the public mind as the premium liquid asset.
- ***The solution:***
  a) a 'policy of ... a national investment programme directed to an optimal level of domestic development' (Keynes, 1936, p. 349).
  b) a 'policy of an autonomous rate of interest, unimpeded by international preoccupations' (Keynes, 1936, p. 349).
- ***The conclusion:***
  a) monetary expansion (to finance public works) is a non-inflationary means to restore full employment.
  b) beyond full employment the quantity theory becomes relevant and 'true inflation' (Keynes, 1936, p. 119; p. 303) occurs.
  c) it is 'one of the chief tasks ahead of our statesmanship to find a way to prevent ... money wages forever soaring upwards' (Keynes, 1944. p. 430).

In deep recession, high liquidity preference hold interest rates above prospective investment yields so that monetary measures *per se* offer little prospect of recovery; but if new money were used to finance programmes of public works, some progress could be made. As full employment is approached, inflation becomes an issue. This is the core of Keynes's *General Theory*.

Bensusan-Butt, D.M. (1966) 'Keynes' General Theory: Then and Now', *On Economic Knowledge. A Sceptical Miscellany*, pp. 25-40
Keynes, J.M. (1923) *A Tract on Monetary Reform* (London: Macmillan)
Keynes, J.M. (1936) *The General Theory of Employment, Interest and Money* (London: Macmillan).
Keynes, J.M. (1944) 'A Rejoinder to Professor Graham', *Economic Journal*, vol. LIV (December)
Steele, G. R. (2001) *Keynes and Hayek. The money economy* pp. 67-8

48. ECONOMICS AND MATHEMATICS

As marginal analysis (differential calculus) became dominant within twentieth century microeconomics, not everyone was captivated. Although Alfred Marshall (1842-1924) - the most influential economist of his day and holder of the first chair in economics at a UK university - was

> a skilled mathematician, he used mathematics sparingly. He saw that excessive reliance on this instrument might lead us astray in pursuit of intellectual toys, imaginary problems not conforming to the conditions of real life: and further, might distort our sense of proportion by causing us to neglect factors that could not easily be worked up in the mathematical machine. (Pigou, 1925)

It was for those reasons that Marshall believed that economists ought to adopt the following rules:

1) Use mathematics as a shorthand language, rather than as an engine of inquiry.
2) Keep to them till you have done.
3) Translate into English.
4) Then illustrate by examples that are important in real life.
5) Burn the mathematics.
6) If you can't succeed in 4), burn 3).

Mathematical formulations *per se* are never scientific. They are formal derivatives from assumptions (axioms) that are neither true nor false. Even when dressed as economics, they remain tautological derivatives. For example: by the usual assumptions of the neoclassical theory of the firm, an optimal outcome ('equilibrium') is achieved where the marginal cost of production is equal to the marginal revenue from sales. This statement is a logical deduction from the stated goal (maximum profit) and its constituent elements (production technologies, factor costs and market demand). Science is irrelevant. Only if the assumptions (or the deduced propositions) were asserted as true (and providing they were potentially falsifiable) would the statement be 'scientific'.

Even so, mathematical formulations can prove useful in clarifying ambiguities and in revealing inconsistencies that may be hidden by linguistic imprecision. Futhermore, the presumptions of an opportunity cost that is reflected in price, of a well-defined preference function that is precisely constrained by a fixed budget, of known technologies, of a given set of mutually consistent factor prices and of an acute awareness of all the feasible alternatives, provide a secure basis from which to examine the notion of economic efficiency within a static context.

It is not a valid criticism that neoclassical microeconomics presents an unrealistic scenario. Its very usefulness lies in its contrast to reality: it is a benchmark. Yet, in a different context, it can be seriously misleading: to assume that relevant data exist is to beg all the questions relating to the entrepreneurial process of discovering new avenues of advancement. With the formulations of neoclassical analysis, that vital *social* element is absent. Within the neoclassical paradigm, relevant information is not something to be discovered; it is given.

While neoclassical formality clarifies the logical features of an economic problem, it delivers no solutions to problems that arise from interrelationships that are dependent upon an informed but incomplete knowledge of production and consumption possibilities. Knowledge is generated by interactive processes that incite the continuous revision of the subjective perceptions of individual participants.

With the abrogation of those interactive uncertainties, modern microeconomics became dominated by an analytical approach in which the optimal conditions for economic efficiency are identified in the context of full and certain knowledge of both resources and objectives. Once

optimality is deduced, there is nothing further to ponder. The context is static: the world is an uneventful place. Entrepreneurs are *assumed* to have exhausted every conceivable beneficial opportunity. Yet, neoclassical economists have few inhibitions in recommending interventions to remedy so-called 'market failures.'

So called market 'imperfections' are symptomatic of transactions costs that exist with every action of social exchange. Every institution, whose function facilitates exchange, would be superfluous if exchange were costless. Institutions that owe their existence to transactions costs include money, banks, the law, accountancy, firms, stores, distributors, and salesmen. If transactions costs were zero, optimal factor combinations would emerge spontaneously to achieve all the economies of efficient production. Of course, this is nonsense, and the firm (together with many other institutions) owes its existence to its efficiency in minimising transactions costs. The ubiquity of economic 'externalities' indicates that transactions costs intrude upon any balance between the allocation of costs and the disbursement of benefits. Far from indicating 'market failure', these are natural frictions that are excluded from the institutionally barren world of neoclassical theory.

General equilibrium analysis represents the apotheosis of neoclassical economics: a structured a mathematical model of a market economy, wherein the hire of factors of production and the production of goods and services have been organised to maximise welfare. The model specifies: agents with perfect foresight; agents whose choices are independent (no-one's welfare is affected by what happens to someone else); choices that are independent; and an outcome such that, if any of these conditions is not met, equilibrium vanishes. Furthermore, the method of comparative statics allows any detail of an equilibrium state A to be altered so that, *certeris paribus*, a new equilibrium state B emay be deduced. In comparing A with B, the change in one detail is said to have 'caused' the new situation to emerge; and this is supposed to give insight into social processes.

The dominance that has been achieved by neoclassical economics might be attributed to a desire to match the analytical achievements of physical science. In the event it delivers little more than mathematics. In the pursuit of pseudo-scientific tractability, neoclassical economics neglects dynamic aspects of the social realm and delivers a static utilitarian calculus. The utilitarian drive is directed by a 'hedonistic calculus of pleasure and pain' that underpins every aspect of the neoclassical theory of human behaviour. Yet, the limitations of this 'psychology' are suggested by its own redundancy of expression: pleasure (pain) is negative pain (pleasure). The human condition is poorly represented by such monochromic shades.

49. STATE WELFARE PAYMENTS

Friedrich Hayek raised no objection to the provision of state welfare payments to those among the sick, elderly and infirm who are unable to support themselves. In practice, however, he feared that state welfare provision would be transformed from an instrument to alleviate poverty into an instrument for egalitarian redistribution.

At the foundation of the modern welfare state in Britain, the objective had been to provide 'Benefit in return for contributions, rather than free allowances, [which] is what the people of Britain desire' (William Beveridge). By 1964, however, National Insurance funded only 73% of welfare benefits, since when the drive to egalitarian entitlements has reduced that figure to around 40%. Frank Field's bold attempt to redress moral hazard was subsequently undermined by Gordon Brown. Now Anglican bishops are attempting to do the same with Ian Duncan-Smith's proposed reforms.

Clearly, a gulf exists between benefit systems that provide minimum standards for those unable to maintain themselves (and where an able majority agrees to provide for a disadvantaged minority) and one where a majority takes from a minority simply because the latter is better off.

The provision of state benefits for the sick and elderly has been especially pernicious. Each represents the kind of measure whose revocation (however mistaken the measure is discovered to be) becomes politically unfeasible. For the elderly, protection has been extended to an entire age cohort, irrespective of entitlements based upon contributions; and benefit payments are financed, not from the yield of an accumulated fund of contributions, but from current tax revenues. Aneurin Bevan, one of the key founders of Britain's welfare state, readily conceded: 'The great secret about the National Insurance Fund is that there ain't no fund.' With such bare-faced contempt for the insurance principle the whole system of welfare provision was turned into 'a play ball for vote-catching demagogues' (Hayek, 1960).

50. SOCIAL JUSTICE

That social institutions emerge spontaneously is illustrated by language, by common law and by civilised behaviour. A natural order is brought to human affairs by self-selection and continuous adaptation of systems and rules. Such general features apply to any society, beyond the most primitive gatherings. Only with tribal groupings of a few hundred or so, where every individual may know every other individual, can the full consequences of any action be weighed.

Although evolutionary orders achieve the highest degree of cohesion, these tend to be denigrated by left-of-centre intellectuals. In modern times, more rational approaches have been sought to constrain the decisions of the individual in the interests of a wider public good. In defending the free society against that collectivist aspiration, Hayek used the term 'constructivist rationalism' to indicate the belief that man might rationally restructure civil institutions. The most important of its nineteenth century manifestations were utilitarianism and socialism while, more recently, it has shown in the abuse heaped upon market systems and the lauding of 'social justice'.

Hayek illustrated the pernicious influence of constructivist rationalism by pointing to the misuse of the adjective 'social'. For example, the appeal to 'social considerations' and to 'social conscience' invoke a claim to knowledge and an awareness that cannot exist. Those options were removed by the emergence of an extended economy structured upon the division of labour, free access to markets and the freedom of individual choice. For such highly developed systems, a sophisticated order is required; but it is only by impersonal and evolutionary processes that abstract rules of moral conduct are formulated.

Upon this basis Hayek denigrated 'social' as a 'weasel word' for the reason - in quoting Shakespeare - that its use as a prefix sucks the meaning from a word 'as a weasel sucks eggs': '[a] weasel word is used to draw the teeth from a concept ... from which one wishes to eliminate all implications that challenge one's ideological premises' (Hayek, 1988). Among the many other examples that Hayek cites are 'social democracy', 'social market economy' and, of course, the ubiquitous 'social justice' which is 'the emptiest of all phrases' (Hayek, 1978). Since the effect of these manifestations is variously to undermine the cohesion of society, the true meaning of social is anti-social.

51. ECONOMICS: THE IMPORTANCE OF WRITING SKILLS

It is impossible to have high standards if we have no standards. If language is evolving without grammar, without syntax, without spelling or punctuation, writers will have a harder time doing what literature does - expanding our emotional and imaginative range, by means of language. … if the language-base shrinks, then so does our capacity for complexity of any kind.

Jeanette Winterson, The Times, September 2007

Intense arguments are more likely when individuals fail to realise that they are talking about different things. Ambiguity and misunderstanding are best avoided. Ideas should be expressed clearly. In economics, much ambiguity arises from a parallel use of vocabulary: when used by a layperson, words (for example, 'money', 'income', 'inflation') have a vagueness that economists seek to avoid by rigorous definitions.

Good science demands respect for a 'technical language'; that is, for jargon. It follows that economists must have a sound appreciation of 'lexical semantics' (*i.e.*, the meaning of each word) and a sound appreciation of syntax (*i.e.*, the established rules governing the structure of sentences). Regrettably, university undergraduates are a rich source of bad writing; for example,

> The Eurozone can be characterised as an optimum currency area. This would be as the value of the Euro is at a good value and by making it a common currency would bring together many countries in aspects of making things like imports and exports easier, *e.g.*, not having to change the currency and depending on what currency the country has and its worth could result in a country having to pay more for an import but could also work to the advantage and have to pay less to match the currency depending on the exchange rate. (Lancaster University, Econ 101 2007)

The first sentence is good. It is a short, clear assertion that in Europe, where sovereign currencies have been replaced by a single currency, the respective sovereign states collectively exhibit a well-defined characteristic. That is, they comprise 'an optimum currency area.'

Unfortunately, nothing of relevance follows. The assertion is unsupported by either argument or evidence. The concept of an 'optimum currency area' is not explained. The second sentence (of eighty-seven words) is virtually meaningless. Even if that were otherwise, the sentence is too long. Another example is taken from the same source:

> Countries may lose out on goods being bought from their country, as it is cheaper across the border. For the UK this is less of a problem as people need to pay for either ferry, train or plane to get into france, but in other countries across europe it is happening. Therefore the supply of goods decreases in your country, and you could end up with negative inflation. (*ibid*.)

The first sentence implies that countries trade with one another. Yet, cross-border transactions are undertaken predominantly by independent agencies. Transactions are freely entered into because they bring mutual gains; and, if both parties gain, it needs to be explained how anyone might 'lose out on goods being bought'. The second sentence relates to transport ferries. The relevance of this to

the first sentence is not clear. The final sentence is similarly divorced from the previous two. In linguistic jargon, each of these subsequent sentences would be referred to as *non-sequitur* (that is, 'a comment which has no relation to the comment it follows'). Lastly, the requirement for capital letters and punctuation in appropriate places is poorly met.

Whatever reasons might explain how so many university entrants are unable to express themselves coherently, only indifferent laziness prevents remedial action. Much is to be gained from reading different authors and taking critical note of stylistic differences. Authors compose differently according to the medium; so, for example, reports in the *Mirror*, *Star* and *Sun* read somewhat differently to those in *The Daily Telegraph*, *The Independent* and *The Times*. As a general observation, individuals with a preference for the former are wasting time and money in attending university.

That is not to say that the different use of vocabulary and syntax between these and other media should be ignored. It is possible to make personal judgements and to form unique preferences, whist producing coherent and lively narrative.

Even where there is a firm grasp of the economics, marks are rightfully lost where those ideas are not clearly expressed.

A related point concerns course work. At secondary school, a class teacher often provides material to be included in a 'good' answer. Unfortunately, a definitive answer is rare. This explains why a university tutor sets the question and the student provides the answer. Deciding upon an appropriate response *is* the most important part of a test! Tests are even harder post-university. In graduate employment, you will be assigned tasks with little hint as to the solution and with information that is incomplete and mostly wrong.

Life can be interesting, so enjoy the challenge.

52. MODEL ANSWERS AND ANSWER SHEETS

Secondary Schools are increasing critised for ‘teaching to the test’. So it is understandable if students expect this method to continue at university. And, ‘Yes’, there are signs that some are bending to that pressure. David Abramovitch has described this insidious erosion of standards as feeding on ‘boneless nuggets of Mac-knowledge’.

University-level education is aptly described as following an academic discipline. Learning is frequently arduous; and ‘finer things’ generally require effort. Employers know that, which is why a good university degree is used to screen applicants. There is no learning process in waiting to be ‘fed’ answers. Rather, learning is generally achieved through painstaking trial-and-error. ‘Fun’ may be an occasional by-product, but the success of real achievement is so much sweeter:

> Science is like a hungry furnace that must be fed logs from the forest of ignorance that surrounds us. In the process, the clearing that we call knowledge expands, but the more it expands, the longer its perimeter and the more ignorance comes into view. A true scientist is bored by knowledge; it is the assault on ignorance that motivates him - the mysteries that previous discoveries have revealed. The forest is more interesting than the clearing. (Matt Ridley)

Seminar problems are dealt with in seminars. Additionally, if students use the on-line discussion forum, to share their own attempts or thoughts, this can provide a sound basis for learning. Simply handing down the answers is not: model answers and answer-sheets for seminar problems are not provided.

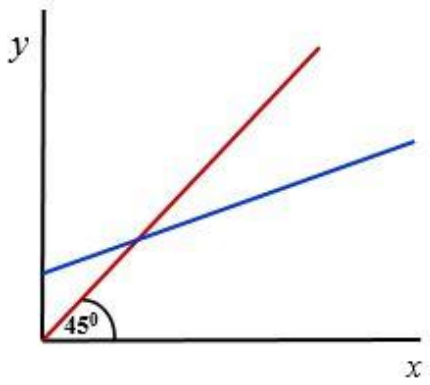
While lecturers will provide examples of question format, revision from previous years’ tests and examinations may not prove useful: topics covered change over time, and it can be misleading to assume that similar questions will appear. Likewise, a textbook is unlikely to provide a sound guide: the course cannot be driven by the content of a given textbook. To prepare for course tests, lecture slides should be reviewed to confirm understanding of topics covered.

53. ‘Burn the Mathematics’

The trade-off between comprehension and calculation has diminished the role of economic thought. Mathematical prowess is now *de rigueur* in gaining advancement, both with student assessment and with academic careers. Though frequently cited, Alfred Marshall’s strictures - on the use of mathematics in economics - are ‘more honoured in the breach’:

> (1) Use mathematics as a short-hand language, rather than as an engine of inquiry. (2) Keep to them till you have done. (3) Translate into English. (4) Then illustrate by examples that are important in real life. (5) Burn the mathematics. (6) If you can’t succeed in 4, burn 3. This last I did often. (Marshall, 1906)

The simplest model and geometry that is embedded in most (if not all) macroeconomics textbooks is referenced, by *Wikipedia* and many sources besides, as the Keynesian forty-five degree line diagram. That rudimentary presentation of the income and expenditure model (see, for example, Blanchard, *et al.,* 2013, p. 49), has recently been set within a new context, where it purports to show the ‘evolution’ of the sovereign ‘debt-to-GDP ratio’ (*ibid.*, p. 478). Here, readers are advised to ‘make a small (but very useful) investment by learning the basics of a difference equation’; *i.e.,* ‘the simplest mathematical tool to study the dynamics of a variable’, as represented ‘graphically on a Cartesian plane’ (*ibid.*).



With the more familiar presentation, the respective *x, y* variables are those for income (*Y*) and expenditure (*C*). With the more recent deployment of that same geometry, the *x, y* variables respectively depict ratios of ‘debt-to-GDP’ (*B*/*Y*) at time *t - 1* and time *t*. With both presentations, system equilibrium is at the intersection of the behavioural relationship and the 45^0 line.

As an initial criticism, the ideas that define the more recent presentation are so straightforward that the advice relating to difference-equations is unwarranted. No formal mathematics is needed to understand that debt (*B*) rises with borrowing (*X*) and with the accrual of interest (*r*). In keeping with Marshall’s step 1, the new presentation *is* tantamount to ‘short-hand language’:

$$B_t = X_t + B_{t-1}(1 + r)$$

In defining the respective *ratios* of ‘debt-to-GDP’ and ‘borrowing-to-GDP’, this becomes

$$B_t/Y_t = X_t/Y_t + B_{t-1}(1 + r)/Y_t$$

and, with the added assumption that GDP grows at the annual rate *g*,

$$B_t/Y_t = X_t/Y_t + B_{t-1}(1 + r)/Y_{t-1}(1 + g)$$

Thus, the exact form of the forty-five degree line and the expenditure/income relationship is retained:

$$C = a + bY$$

With that original equation, the extrapolation from any macroeconomic data set to the *y*-axis intercept holds no interest. Rather, the *b* coefficient takes all the attention by its relevance to Keynes’s income-multiplier. With the more recent presentation, the connotation is radically different, because the intercept holds a key theoretical feature; *i.e*., the annual fiscal-deficit or surplus:

$$X/Y = (G - T)/Y$$

By its status within the model as an intercept constant, that fiscal stance-to-GDP ratio can have no relevance as a policy instrument. Nevertheless, the model is extended by additional forty-five degree line diagrams that purport to show the 'dynamics of the debt-to-GDP ratio in the long run' (*ibid*., p. 480), where the extensions exhaust the combinations of any two determinants from four:

$$g < r;\ G - T > 0 \qquad g < r;\ G - T < 0 \qquad g > r;\ G - T > 0 \qquad g > r;\ G - T < 0$$

Although it is inexcusable for there to be no discussion of the periodic experience of unsustainable credit-led growth, there is merit elsewhere. Merit lies: (i) in the thoughtful commentaries upon the history of sovereign debt within the European Union and (in earlier times) in Germany, France, the UK and the USA (*ibid.*, p. 482 *ff*); and (ii) in the sensible decision to burn the geometry in respect of the third edition of *Macroeconomics. A European Perspective*.

References

Blanchard, O., A. Amighini and F. Giavazzi (2013) *Macroeconomics. A European Perspective*, Second edition, (Pearson Education Ltd., Edinburgh)

Marsall, A. (1906) letter to Arthur Bowley, February 27th 1906, in Pigou, 1925, pp. 427-28

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54. EPILOGUE

A university presents a stage,
On which undergraduates are merely transient;
They have their exits and their entrances,
With students in their year of many kinds,
Their types in seven categories. At first, the dullards.
Always behind and floundering at every test.
Then the late-night clubbers, with eye-bags
And hung-over morning faces, creeping like snails
Unwillingly to lectures. And then the lechers,
Rampant in hormones, with woeful chat-up lines
Made to all who pass. Then the swots,
Replete with ruler and coloured pens
Assiduous in seminar, sudden and quick to answer,
Seeking the bubble reputation
Even when chance has gone. And then the potential First,
Widely read and having good understanding,
With eyes all-knowing and points formally put,
Full of wise citations and modern instances;
Always playing their part. The sixth category shifts
Into the lean and track-suited athlete
With sports injuries and medical notes to show
Their youthful looks, now drawn
By chicken-shit muesli and high-protein diet
Early nights, dark-morning runs, returning always
With whistles in their sound. Last type of all,
That ends this strange taxonomy,
Are the final graduates, facing the big wide world,
Sans support, sans jobs, sans prospects, sans everything.

(*As I See It*, 13. 1. 2009)