



British Strategic Review



Monetarism & the Real Economy



Decision Analysis Group
SEEL-Systems Engineering Economics Lab

Hambrook Publishing Company

2022

The British Strategic Review (BSR) is produced by the Decision Analysis Group, SEEL-Systems Engineering Economics Lab. It analyses specific topics of strategic economic interest to the wellbeing of the constituents of the United Kingdom.

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This edition of the BSR acknowledges collaboration with the following entities:

The Cambridge Economics Network, Mutual Technologies (Mutec.uk)
and the use of the resources & archives of the following entities:
The Boolean Library, Charter House Essays in Political Economy
Development Intelligence, Real Incomes Approach to Economics

A special acknowledgment is made to the main sponsors of this initiative:

Agence Presse Européenne
and the assistance of the
APEurope Economics Correspondents' Pool

All monies received for this publication are donated to the Sustainable Development Facility (SDF). The SDF funds the development and dissemination of a Sustainable Development Goals Toolkit (SDGToolkit) that provides a set of essential analytical tools for practitioners to design sustainable food production projects in low income countries. The SDF was set up by the George Boole Foundation in 2021 to provide grants to subsidise the use of SDGToolkit

Title: Monetarism and the real economy

Main cover title: British Strategic Review

Date: Q1, 2022

Author: Hector Wetherell McNeill

Production: Decision Analysis Group, SEEL-Systems Engineering
Economics Lab a division of The George Boole Foundation Limited

Published by

HPC

Hambrook Publishing

www.hambrookpublishing.com

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Also syndicated to: Development Intelligence Review,
BENECON 2022, Emancipation & Real News online.

ISBN

(printed edition): 978-0-907833-49-9

(e-book): 978-0-907833-58-1



eBook production

by Oxford eBooks Ltd.

www.oxford-ebooks.com

Executive Summary

This Review was prepared to describe and analyze the impacts of the growing dominance of monetarism in macroeconomic policies in Britain, on the wellbeing of the British constituency. The switch to monetarism started with Denis Healey's abandonment of Keynesianism in 1975. It was intensified as a result of IMF loan conditions in 1976. The following Thatcher found the conditions imposed to be a match for what was largely an ideological conviction of the value of monetarism. During the 47 years following Healey's decision, all British governments have pursued monetarism as their principle policy paradigm.

This summary outlines the main findings of this Review which are centred around the evidence that the political justifications of monetary decisions rest on very weak theoretical grounds. The early decisions on the way the policy instruments of interest rates, monetary injections, government loans and taxation were always couched in terms of the balance of payments, unemployment levels, inflation and the cost of living. The main focus of constituents was on the cost of living items of the unit prices of goods and services relative to nominal wages and employment.

Between 1945 and 1965, Britain experienced unprecedented economic growth, full employment, rising real incomes and a fall in income disparity while the National Health Service was established; all within a relatively short period.

In 1960 Walt Rostow published a book entitled "The Stages of Economic Growth" based on the British economic development model up to that time assuming it had reached its final stage of development. However, a more assiduous review of hegemonic cycles, which are based on systems approach to economic development, would have exposed the fact that Britain had not completed the whole cycle. Based on all known cycles, these all end in increasing financial speculation and domestic crises. After the publication of Rostow's book Britain initiated this final spiral downwards between 1973 and 2008, as in all previous hegemonic cycles characterized by financialization and a decline in international status.

Following the 1973 price hike in international petroleum prices which were to rise seven-fold within just a decade, there followed a period of 20 years of slumpflation, a condition exacerbated by the IMF and private bank "solution" which maintained petroleum prices on an upward trend.

The focus of central banks changed from giving lip service to the cost of living concerns while injecting money into the economy to uphold the prices of assets. While professing a monetary policy of a 2% ideal inflation rate for supply side output, the central banks issued funds in an increasing trend with the intent of raising the prices of assets. These were not subject to any 2% target rate of inflation but were allowed to rise by 10%, 20%, or recently even more. The reason these price or values have risen even more steeply is the result of banks changing their lending strategies to emulate hedge fund operations.

What has become very apparent is that monetary theory is no longer valid, in fact it is flawed. This is because, taking the Quantity Theory of Money which only sets out a highly theoretical identity between the volume of money and supply side prices omits to also include the economic activities where, under quantitative easing, the most significant price impacts were recorded in some eight encapsulated assets markets. Since something like 90% of quantitative easing funds flowed into these markets and not into supply side investment, the QTM could not predict this outcome; the theoretical identity is wrong.

The Review describes the correct identity to replace the QTM. It is surprisingly simple. However, this fact is a matter of concern since it reflects on the degree of understanding by monetarists on how the economy works. Their theory is devoid of the mechanisms that operate “on the ground”. In reality the past referral to the logic of the QTM in rationalizing monetary policy decisions by central banks was never a valid exercise.

As observed in the Review, Milton Friedman could never explain the mechanism of how money volumes translate into supply side unit price inflation. His “explanation” was that, *“it happens in the long run”* which is not an explanation of any mechanism. However, as can be observed in the modified QTM renamed Real Money Theory (RMT) it is evident that the mechanism is as follows. All of the assets which happen to also be used as inputs to the supply side are subject to price rises as a result of speculation and hoarding. As a result, over time there is a buildup of input cost rises which create a cost-push inflationary pressure within the supply side. All supply side unit prices in a competitive market are set by the companies themselves and under such conditions, price-setting will tend to rise to higher levels in order to maintain rates of return.

It is notable that monetarists always avoided this explanation because while they rationalized monetary decisions in terms of supply side output prices but they never mentioned that their policy focus on asset values, becomes the main driver of a cost-push inflation within the supply side. Obvious examples are commodities and energy as well as land and real estate all of which suffer price rises as a result of speculative injections of money secured from central bank monetary injections. Thus, typical price trends, well in excess of the declared central bank target of 2% inflation each year are found in the rises in the prices or rentals for houses, apartments, commercial premises, retail units, offices, industrial units, warehouses and infrastructure. The land and real estate impacts not only impact supply side production companies but also wage-earners creating a housing crisis.

In reviewing the current central bank positions held to justify monetarism each component of that bank “narrative” is shown to be wrong. Largely related to the type of oversight that renders the QTM to be a useless identify.

By far the most serious result of monetarism has been the decline in the British balance of payments to the second lowest in the world with the USA being the lowest. The world’s top balance of payments are to be found in the Eurozone, Germany, the European Union, Japan and China. Although the financial services sector enthusiastically assert that the financial services activities help reduce the negative balance of payments it is important to understand why Britain and the USA have such a poor performance.

Germany, Japan and China’s export success in supply side products is directly related to their ability to have maintained a constant advance of their state-of-the-art tacit and explicit knowledge in the industrial arts, that is, the ability make things on an increasing proficient basis.

A short section explores how the United Kingdom’s educational system, both private and public has not been fit for purpose in the context of the preparation of young children, secondary school pupils and university students for the contemporary and evolving world to maximize their and the nation’s prospects in the future.

Since Healey’s abandonment of Keynesianism and an industrial policy, monetarism has encouraged an increasing flow of funds into offshore production and assets at the expense of national industry and manufacturing. The resulted in falling employment, the deskilling of the workforce and a decline in the wages available in alternative employment.

The maintenance of tacit and explicit knowledge within a workforce requires expanding activity to help people descend their learning curves and contribute to shop floor innovations and increasing productivity. UK policies were resulting in this essential process being marginalized. In 1966 Nicholas Kaldor an economist with immense experience in development economics and in particular in the study of the impact of technology on economic growth was an adviser to the Labour government. He withdrew his services in response to Healey's switch to monetarism in 1976. Kaldor became the leading critic of the following Thatcher government's intensification of monetary policies and relaxation of financial regulations. All of Kaldor's dire predictions of the likely impact of monetarist policies on the country all proved to be correct.

Monetarism has had a damaging impact of constitutional issues within the United Kingdom. Because policy has greatly enhanced the wealth of asset holders and traders it has at the same time, prejudiced the opportunities and wellbeing of wage earners. The constitutional issue is that justifications, to date, for monetary policy decisions have been founded on the flawed logic of monetarism. In political economy, legislation and regulations establish the rules while economics provides the strategies to be pursued by constituents to pursue their objectives. Unfortunately, the rules are prejudicial to 98% of the voters who are wage-earners, and have been for some time, and they favour those whose income is proportional to asset values. In both cases economic provides an easy rise for those living off assets while providing few opportunities for wage-earners, whose options to maintain a standard of living defaults to increasing debt.

This constitutional crisis has been voiced by many but what has been missing is the mechanism whereby this unjust state of affairs is maintained largely because most do not understand monetary policy, imagining it to be a domain of erudite economists who happen to believe in monetarism as a macroeconomic policy.

What has contributed to this mystique surrounding monetarism was Gordon Brown's decision to make the Bank of England independent in 1997. This was justified on the basis of an attempt to instill a level of ethical and due diligence decision making by experts concerning monetary policy decisions. However, in reality, it seems to have had a dual purpose. One was to convince the City to trust a Labour government with the economy. The second, perhaps more significant, was that Brown wished to avoid the fiasco that caused the Conservatives to lose the election in 1997. This was the act of raising interest rates to absurd levels leading to almost a million individuals losing their homes. Making the Bank independent was a political survival insurance policy.

However, making the Bank of England independent also removed a more direct oversight of monetary policy by introducing an unjustified level of confidence that monetary policy was in the hands of "experts" and by the same token, protected the Bank from public questioning and debate. Therefore, with the 2008 financial crisis there was very little parliamentary analysis of the solution in the form of quantitative easing (QE) which referred to flawed monetary theory to justify it. QE was a fix between banks, hedge funds, the Bank of England and the Chancellor Gordon Brown under the mantra that the banks "were too big to fail". The explosion in assets values which followed exacerbated the state of wage-earners. Although a "temporary solution" to permit banks sort out their balance sheets, the following coalition and Conservative governments, intensified QE as a key driver of austerity to drive down public services, numbers of doctors, nurses and beds in the National Health Service, and the staffing of police and fire brigades and ignoring rising care and mental health requirements..

In 1975 an inappropriate policy decision by a Labour government was intensified by an ideologically driven Conservative government. So, it was following a Labour government's introduction of quantitative easing as a temporary solution, this was also intensified and

remained in place for over 13 years following an ideologically driven austerity by the Conservative government, ably assisted by the Bank of England, to reduce the size of the public sector.

At the time of going to print, the rate of inflation in Britain is increasing and most notably linked to housing and energy as well as some food products. The soothing language from central banks such as US Federal Reserve is that this is a temporary phenomenon linked to Covid supply chain disruptions. However, whereas these disruptions have contributed to price spikes it is important to note that monetarism and relaxations in financial regulations resulted in banks and hedge funds being able to receive very low interest funds to purchase “assets” and to hoard them to force up prices. Because of the cash-diplomacy emanating from the USA and Middle East, politicians have been facilitating the continuation of high energy prices, as in the case of the 1973 flurry of recirculated petrodollars. Now as then such actions are in the interests of political party financial support and prospects of some politicians. As a result, the offer of very low-cost long-term gas contracts via, for example, the Russian North Stream 2 to Germany, has seen the project sanctioned and certifications stalled while the gas spot market prices are over three times the price available under Russian contracts. In the meantime, wage-earners throughout Europe and the UK suffer the consequences of poor political decisions by their own governments.

The final sections of this Review make some proposals for how to escape the conditions created by monetarism.

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SECTION 1

Constitution and economics

This document is concerned with the means whereby our political economy serves the interests of the national constituency and how this, in turn, is directly influenced by the degree to which the political establishment upholds or diminished constitutional provisions.

Constitution is a set of fundamental principles according to which the government operates. It is largely concerned with describing the functions of government and explaining the political system for the selection of MPs to parliaments through elections, to define their responsibilities and scope of action in legislation, including economic policy, and with the formation of the government executive and selection of the Prime Minister or head of state or equivalent. A constitution can be a single document to which amendments can be added over time or it can be a collection of separate documents, a body of law, consisting of documented principles, precedents and law.

Freedom of expression in word and action

As far as the majority of the members of the British constituency in England, Scotland, Wales and Northern Ireland are concerned there is a general desire that our politics does not interfere with personal and family freedoms. Freedom has many definitions, but from an economic and social point of view, the degree to which we maintain and benefit from freedom is linked to the public good of legislation that applies to all a guarantee of an individual's ability to pursue their own objectives without constraint. At the same time, this same public good, seeks to ensure that constituents do not pursue their objectives at the expense of other constituents. If we consider legal frameworks to be policy based, since they are normally supported by regulations consisting of sanctions and enforcement, it is plain that this is an example where "centralized policy" is beneficial. Because of the existence of the legal framework, anyone prejudiced by the behaviour of another can seek redress via the indicated regulatory authority that oversees sectors. So, depending upon the level of awareness of individuals with respect to expectations of behaviour under the law, as well as the provisions that permit individuals to react they have means of defending their expectation of fair and just treatment .

Constitutional economics

The degree to which political decisions impact the constitution and the freedom of choice of constituents is the subject matter of what is referred to as constitutional economics. This has the underlying principle of public choice. James Buchanan (1919-2013), the leading developer of constitutional economics, set out the basic principles for this approach. According to Buchanan the ethic of constitutionalism is where the individual who is expressing preferences for social and economic conduct, together with others in society, adopts the moral law as a general rule for behaviour. He rejects any organic conception of the state as superior in wisdom, to the citizens of this state. This philosophical position forms the basis of constitutional economics. Buchanan believed that every constitution is created for at least several generations of citizens. Therefore, it must be able to balance the interests of the state, society, and each individual.

The sophistication of Buchanan's analysis related to his making sense of "Political Economy" by making a distinction between politics and policy. Politics sets the objectives and rules of the game, usually in terms of legislation, whereas policy is focused on strategies that players adopt within a given set of rules. Questions about what are good rules of the game are in the domain of social philosophy political analysis, whereas questions about the strategies that players will adopt, given those rules, is the domain of

economics. It is the interplay between the objectives and legal framework rules (social philosophy) and the strategies (economics) that constitutes what Buchanan refers to as "constitutional political economy". Buchanan, did much to introduce ethics, legal political thinking, and social thinking into economics and therefore set out a more rational canvas upon which to found a better future.

Private and public goods

In the 1950s, the economist Paul Samuelson developed a taxonomy to classify the types of goods in the economy as private and public goods. Private goods are divisible and valued by individuals while public goods are commonly considered to be useful and non-partitionable and therefore shared. Public goods are non-exclusive but are not costless and yet most in society agree on the need to have them. A good example is that law and regulations are an important public good, designed and recognized by all to protect everyone.

A critical detail concerning law and regulations is that for so-called free markets to operate there need to be rules or agreement on how they should operate such as transactional contractual liabilities associated with the undertaking to supply a good or service as well as concerning obligations under the law relating to fair trading practice. For example, product and service descriptions being transparent to avoid the public being misled including concerning payment terms and "small print". Therefore, the free operation of markets trading in private goods relies heavily on a baseline public good intended to set legal and regulatory operational ground rules.

This topic is of importance because macroeconomic policies presume that economic actors, both social and economic constituents, comply with laws and regulations but if regulations are unclear and therefore not particularly effective, then the objectives of macroeconomic policies can be undermined. There is a dynamic interaction between the law and regulations on the one hand and the severity of sanctions for transgressions and the degree to which such rules are followed by economic actors, on the other. Where regulations over economic and financial matters are unclear or associated with ineffective sanctions, government invariably loses control of desirable policy outcomes which can result in prejudice for members of the public as well as companies.

This evolution has provided incentives for decisions to transition from being ethical decisions in compliance with the law to decisions considered to be prudent for companies which are both non-compliant with the law and unethical. The importance of constitutional economics and the role of better designed public goods, to avoid this tendency is evident.

Monetarism and the Real Economy

The title of this Review refers to monetarism and to the real economy which are distinguished below.

Monetarism

Monetarism is an approach to macroeconomics that emphasizes the role of governments in controlling the amount of money in circulation. Monetarist theory considers variations in the money supply to have major influences on national output in the short run and on price levels (inflation) over longer periods. Some monetarists consider the objectives of monetary policy should be addressed by targeting the growth rate of the money supply. Other monetarists consider it advisable to exercise more discretion on money supply by altering conditions according to the performance of the economy. As will be explored in Section 2 the indicators used to measure the "performance of the economy" vary but are of vital importance.

Monetary policy is managed by applying policy instruments to alter the degree of availability of money and expenditures and use of money through changes in interest rates on borrowing by consumers and companies. It is these instruments that are believed to impact the performance of the economy. Variations in interest rates are also sometimes associated with variations in taxation rates to alter net disposable incomes available and net profits. Taxation, as a policy instrument, is part of fiscal policy related to how a government raises revenue. Fiscal policy raises funds that are used to support government expenditures. Where fiscal policy includes funds that are borrowed as opposed to being raised through taxation, this has a monetary effect by increasing money volumes. However, these funds are raised and allocated by government and not by consumers or private companies.

Both monetarism and fiscal policies are based on centralized interventions by the state in the money market and earned income streams of the social and economic constituents.

The underlying theoretical model for monetarism is the aggregate demand model which makes a direct association between the state of economic activity turnover, employment and unit prices and “demand” levels where demand is equated with the nominal value of aggregate disposable incomes actually transacted on goods, services and financial contracts as separate items.

The general components of the economy

All economies are divided into different type of activities each with market segments associated with specific groups of social and economic constituents.

In broad terms these can be distinguished as:

- The real economy
- The physical resources economy
- The assets economy
- The financial instruments economy
- The human resources economy

The Real Economy

The real economy is made up of goods and services production sectors including primary (agriculture, mining, forestry and fisheries), secondary (manufacturing and industry) and tertiary or service sectors. The real economy has a specific characteristic in that it transforms inputs, usually physical resources, into goods and services. The output include food, fibre and feedstocks also includes technical devices and equipment that cover the whole range of gadgets supporting the handling of materials, light, sound, electrical, electronic, digital, communications, energy, chemical processes, physical processes, thermal process etc all of which contribute to all other sector operations and contribute to their effectiveness and efficiency. The main inputs are raw materials, manufactured components, natural resources contributions including soil, water and ambient temperatures, building materials, metals and other physical commodities including land, real estate, offices, industrial units, commercial units, warehouses and logistics infrastructures and utilities.

Transactions occur based on the exchange of physical products and services for specific unit prices expressed in the national currency. The majority of the population is employed in this sector in exchange for wages, either in production, sales or distribution services.

Income flows from such activities are also used as part guarantees for financial transactions such as loans and mortgages.

The Physical Resources Economy

The physical resources economy is made up of natural resources from which are extracted or cultivated other physical resources such as extraction of iron ore or petroleum and the production of food, fibre and feedstocks. The other physical resources include manufactured plant and equipment and real estate. All of these resources and created or built by the supply side or real economy. Physical resources and commodities also make up many of the inputs to the supply side or such as agriculture, industry and manufacturing, thus the supply production side produces many of the inputs of the supply production side.

The Assets Economy

The asset economy is concerned with the purchase and sale or rental of physical assets which undergo no transformation between the time they are purchased, sold or rented. To this degree the asset economy is not a productive supply side activity but is purely based on movements in market prices between the time assets are purchased and the time they are sold. Transactions occur based on the exchange of the asset for specific unit prices expressed in the national currency. Typical examples are land and real estate including land, houses, office units, retail units, warehousing, industrial units. Other physical assets can also include land, commodities, rare objects, precious metals and art.

Assets can be used as static collateral to provide guarantees for financial transactions such as loans and mortgages. These sectors employ a minority of the working population in the United Kingdom in exchange for wages

The Financial Assets Economy

The financial instrument economy is concerned with monetary flow and transaction management and trading as part of the service economy and it includes, investment flows, savings, derivatives, options and cryptocurrencies. Transactions occur on a basis similar to physical assets in sellers and buyers taking views on the likely future value of the instrument. For example, a derivative can be a collection of mortgages which are held to receive the premiums paid by those who have taken out a mortgage based on This includes mortgage contracts, loans. credit/debt, grants and government revenues from tax.

Financial instruments which possess an income stream (mortgage-based derivative) can be used as guarantees or to provide proof of “capital” to secure advances of loans or expansion based on speculative expectations of rises in instrument values.

These sectors employ a minority of the working population in the United Kingdom in exchange for wages.

The Human Resources Economy

The human resources economy is made up of the population and their embedded tacit knowledge, the accumulation of competence in carrying out physical and intellectual tasks, also referred to as human capital. Most people are employed in the real, physical resources, physical and financial assets economies in exchange for money.

Real Incomes

A perennial problem facing wage earners, for example, is what is commonly referred to as the cost of living. The “terms of trade” affecting most families is commonly represented by purchase prices of essential goods and services rising at a faster rate than nominal wages are raised. As a result, the quantity of goods and services that can be purchased with a given nominal income declines. Therefore, in reality, real incomes are declining.

Real Economic Growth

Real economic growth is the increase in production of goods and services resulting from gains in efficiency in production performance is always the result of changes in work groups learning how to accomplish practical tasks better. Such improvements are based on a continual process of innovation that is based on gains in human competence in carrying out tasks based on the accumulation of tacit knowledge as a result of repetition of the same task. Innovation also results from changes in technology and the subsequent adaptation of people to develop new techniques and type of tacit knowledge. Tasks involve less physical waste and therefore increased efficiency, take less time and as a result achieve a mode of evolution referred to as “more for less”.

The Say Model

The economist who created a model of the economy that merged technological human tacit knowledge into a single system was Jean-Baptiste Say (1767–1832) the French Economist. His model explained how employment in production generated output of goods and services in exchange for wages. These wages were spent on consumption and thereby created a circular economy leading to the logical proposition that production creates its own consumption.

As will be explained in the following sections, this led to an often misunderstood and oft-quoted Say’s Law which states, “Production creates its own demand”.

However, it is self-evident that within the Say Model, real growth depended upon improvements in productivity and innovation. By balancing the compensation of wages for increases in productivity and maintaining unit prices at accessible levels it was possible within the Say Model to maintain real economic growth and a balance between income and consumption while general wellbeing is increased. We will return to this mechanism later.

Entrepreneurs

The role of human resources in accumulating practical competence or tacit knowledge and that of explicit knowledge combine to articulate ways to change, bring about innovation.

Richard Cantillon (1680-1734) an Irish economist born in France was, as far as existing records show, the first to point out the importance of entrepreneurs¹. However, it is significant that his definition of entrepreneur was not captains of industry, but rather, just about everyone:

“All the other entrepreneurs, like those who take charge of mines, theatres, buildings, the traders by sea and land, restaurateurs, pastry cooks, innkeepers, etc., as well as the

¹ McNeill, “On life, loves, sense and economists”, RIO

entrepreneurs of their own labour who need no capital to establish themselves, like journeymen artisans, coppersmiths, seamstresses, chimney sweeps, water transporters, live with uncertainty and proportion themselves to their customers. Master craftsmen like shoemakers, tailors, carpenters, wigmakers, etc., who employ journeymen according to the work they have, live with the same uncertainty since their customers may leave them any day."

Jean-Baptiste Say also considered people who brought about essential change to be entrepreneurs. Jean-Baptiste Say pointed out in his own writings that entrepreneurs seek out inefficiencies in the uses of resources and set about to make them more productive so as to create higher productivity operations. Entrepreneurs identify opportunities for beneficial change by either extending existing markets or by create new markets and fresh opportunities. This process constantly disrupts the balance of competition.

Contemporary interpretations of Say's views on entrepreneurs, have extended this to a wider scale seeing them as agents in preventing monopolies from forming and creating a wide diversity of products that keep consumers consuming and producers producing. In return for taking these risks, those who are successful reap rewards. Say recognised the role of entrepreneurs because he was one himself as a cotton manufacturer who introduced a range of innovations.

Say's work, *"A Treatise on Political Economy, or the Production, Distribution, and Consumption of Wealth"* impressed Thomas Jefferson in the USA who read the English translation and tried to convince Say to teach in the USA. Say never visited the US but he went to study in the UK at the age of 18 with his brother, living in Croydon and later Fulham he was employed successively by two London-based firms of sugar merchants, James Baillie & Co and Samuel and William Hibbert.

In any case Say's entrepreneurial outlook found expression in the UK and the USA combining Adam Smith's free-market principles and Say's entrepreneurialism. This approach resulted in the UK and later the USA undergoing their industrial revolutions creating, at that time, the strongest economies in the world.

Economic growth, real and nominal

Real growth can be associated with rises in physical productivity over time, so that as a process is applied operators learn how to reduce waste, increase yield, complete tasks within a shorter period of time and raise the quality of output. As a result of this learning process, various ideas can arise as to how to improve the production process in terms of productivity and quality of output leading to yet further innovation.

Human capital, tacit and explicit knowledge

A considerable amount of empirical work² has been completed to demonstrate that the majority of economic growth comes from learning³ by people repeating specific tasks with a specific objective. Individual competence rises as each person descends a learning

² McNeill, H.W., *"The technological ignorance of KM economists"* Charter House Essays in Political Economy,

³ Arrow, K. J., *"The economic implications of learning by doing"*. The Review of Economic Studies. Oxford Journals. 29 (3): 155–73, 1962.

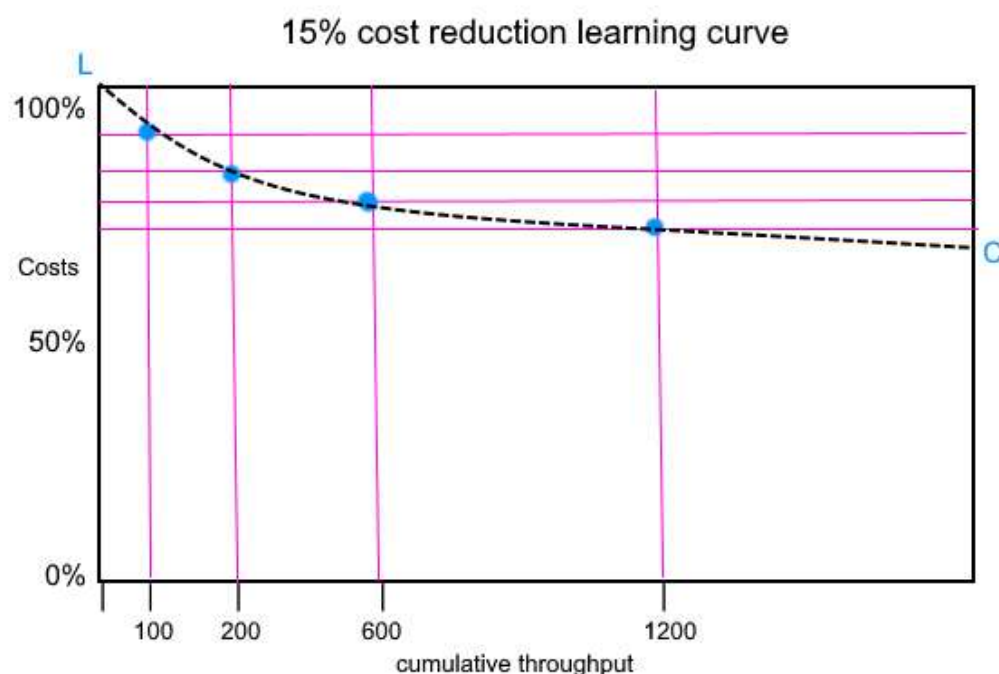
curve⁴ and becomes more effective in the execution of tasks. This human resource capability is also referred to as human capital or tacit knowledge. Observation, measurement and recording of activities generates explicit knowledge that is easily used to analyse and plan activities as well as to identify performance gaps with respect to the attainment of objectives. The combination of relevant data, analysis and designs guided by accumulated tacit and explicit knowledge help to establish practical parameters of what transforms ideas into practical innovations.

Tacit and explicit knowledge

Tacit and explicit knowledge encompass two distinct human abilities. Tacit knowledge relates to practical abilities related to hand mind coordination in carrying out physical tasks such as making something by shaping materials or managing a tool or machine. As a person gains experience in a specific and repetitive task the level of competence in carrying out the task improved. These improvements include taking less time to complete the task, making fewer mistakes, creating less waste and in term of economics achieving a gradual reduction in the unit costs of production.

This economic effect of the rise in human competence is referred to as the learning curve and this can be used to measure typical impacts of learning on productivity and this effect used to project expected cost trajectories in many economic activities.

As a general description of the type of gain in productivity from a learning curve, a typical rule of thumb is that for every historic doubling of throughput or number of tasks completed, the fall in costs is more or less constant. However, because this constant gain is achieved in association with historic doublings in the number of tasks, the typical curve is curvilinear shown as LC showing a diminishing rate of costs decline.



Explicit knowledge is the other human ability to communicate making use of symbols and worlds to speak, write, code, draw and record information. Unlike tacit knowledge, explicit

⁴ McNeill, H. W., "Tacit and Explicit Knowledge", RIO.

knowledge is easier to assimilate and internalise than tacit knowledge. However, there is still a tacit dimension to a person's ability to handle explicit knowledge in that with time people learn to express themselves better, understand more complex concepts described in the form of words and mathematics.

William James⁵ in 1890 noted the difference between the French words for knowledge as "connaitre" signifying knowledge-about and "savoir" knowledge-through-acquaintance.

These distinctions are very important; knowledge-of-acquaintance comes from direct experience dealing with a process or situation whereas knowledge-about is the product of received knowledge or second-hand experience, reflective and abstract thinking.

Erudition, the state of possessing explicit knowledge has economic consequences to the degree that it can be applied practically as a company task or economic policy and this depends upon the ability to carry out an action to produce something. The proficiency with which this is accomplished depends upon tacit knowledge.

Turning to economic activities as, opposed to study, practical benefits generally come into being as a product of well-developed technical skill on the part of human resources, in a given area of activity. So, a skilled worker, in reflective moments may make explicit the assumptions that are implicit in the skill itself. This initiates a development of useful analyses that can lead to questions concerning the means of improving how something is accomplished, leading to experimentation, trial and error leading to changes that result in innovations. Innovation, by definition, takes place the first time something is accomplished in a specific location in a different way⁶. Innovation signifies a practical change and since it represents a change to a combination of a technology and human capabilities it also reflects the importance of both tacit and explicit knowledge in identifying an opportunity and bringing it about. Since tacit knowledge is embedded in people, the nurturing, instruction and conditions of employment have an important influence on the levels of innovation. Innovation is not something limited to high technology pursuits but it helps advance the operations of all economic sectors.

Entrepreneurialism and the delivery of results

The process of delivery of the economic benefits of innovation are usually not directly connected to the entrepreneur who thought up and demonstrated the first operational product. The economic impacts are normally a long drawn out period of falling costs, less waste and rising profits, associated with the learning curve, delivered as a result of the subsequent learning and acquisition of accumulated tacit knowledge and rising competences by work forces.

Although new concepts can arise from the results of basic and applied research to identify a new line of investigation, proof of concept, prototyping and demonstration, the majority of subsequent improvements that accompany the work force learning curve are what can be referred to as "*shop floor innovation*". These arise from work groups agreeing to realign and adjust how they complete tasks in order to improve efficiency, this can relate to work cell layout, how inputs are delivered to work cells, how quality controls are carried out, ironing out dependencies to prevent production chains pile ups or gaps, changing inputs used by substituting higher priced items for lower priced equivalents and a series of

⁵ Mayo, E., "*The Social Problems of an Industrial Civilization*", Routledge & Kegan Paul Ltd., London, 148pp. 1949

⁶ Mansfield, E., "*The Economics of Technological Change*", W. W. Norton & Co. Inc, 1963

marginal adjustments which year on year can reduce production costs significantly, speed up production and constantly improve product quality.

Scale of operations

If a production process is expanded in order to respond to a rise in consumption, then, in addition to the gains in productivity arising from learning, there is a secondary gain in productivity associated with the scale of production. Larger production units benefit from marginal input cost reductions that arise from bulk purchasing and the willingness of suppliers to reduce unit prices to gain sales. Many processes that make use of large capacity equipment are also more efficient. Expansion also reduces the fixed overheads per unit of production thereby reducing costs. The overall result of rises in physical productivity arising from learning and returns to scale is real growth in the sense that more physical output is achieved making use of less resources and time.

Nominal growth is a measure of the rise in value, expressed in terms of monetary transactions associated with the sale of products and services, over time. Since the value of transactions is the product of number of units, of a given quality, and unit prices, these nominal totals do not transmit sufficient information to know whether there is real growth in terms of consumer purchasing power and real incomes.

The cost of living and economic growth

However, policy objectives are often described as economic growth measured in nominal currency units. The relationship of this to the real income of constituents is reflected in what is referred to as the cost of living. Therefore, if economic growth was recorded to have risen by 10% over a decade and price inflation has been 2% each year, which is equivalent to 18% in a decade, then the actual purchasing power of average per capita incomes will have fallen by around 8%. In other words, although nominal incomes have risen in monetary terms the population is poorer in real terms because the received income can only purchase 82% of what it could purchase at the beginning of the decade in question, because of price inflation.

Real incomes & currency value

Real income is the amount of goods and services an individual can purchase using disposable nominal income. Real income is linked to the cost of living in that if nominal incomes remain static and average prices of goods and services rise, real income falls; the individual cannot afford to purchase what was possible before the price rises. The corollary to this is that the value of the currency declines. On the other hand, if average prices of goods and services fall while nominal income remains the same, real incomes rise because the individual can buy more goods and services for the same nominal amount of currency. In this situation the value of the currency rises.

An important question for wage earners is, "is it possible to have a state of affairs where purchasing power of wages does not decline over time?" The answer is yes if nominal wages paid in currency units, increase at the rate of inflation, or wages remain the same and there is no inflation. The additional question is, how can real wages actually increase so that people can purchase more products and services?

Innovation and real incomes

The components of process innovation are both changes in the state of human capabilities (human capital) and in technological capabilities (technological capital). The makeup of economic constituents or groups organized as companies (microeconomic units) brings those employed, who are also consumers, together with those who own the economic unit (shareholders or single owners) as well as managers, employed by the ownership. The

question of whether innovation at the level of the firm results in higher real incomes for those involved, depends upon unit output price setting, profits and the distribution of income paid from operational revenues. Productivity, as a result of technological advances and human capabilities development, in all sectors, tend to improve year on year. However, for some 50 years there has been a weak correlation between rises in productivity and wages. Profits as a percentage of national income, have risen and wages as a percentage of national income have declined.

Therefore, the impact of innovation on real incomes depends upon the distribution of corporate revenue in paying for variable operational inputs, capital investment, wages, executive salaries, shareholder dividends, net profit and, of course, taxation. A significant part of the solution to the country gaining significant sustainable real growth that benefits the majority of the social constituency, is to be found in the organization of macroeconomic policies to provide incentive for an altered distribution of income amongst the components listed.

Endogenous and exogenous money

Endogenous or internal money is the quantity of money circulating in an economy and being exchanged in transactions.

Exogenous money is money volumes that exceed the current endogenous funds as a function of monetary policy. For example, in theory, fractional reserve banking uses a proportion of savings held by the bank to advance loans which in total exceed the quantity of savings. This operation is based on a probabilistic model of the likelihood of loan failure as well as savings withdrawal. Where a bank makes use of lender collateral, such as a house, to “guarantee” a loan, then the capital holding requirement is relaxed because of the ability of banks to gain possession of collateralized assets if the borrower defaults.

Exogenous funds are in reality generated by no more than an entry in a ledger crediting the lender with the amount of the loan and then the lender can use that account to purchase requirements. An explanation of this process was published by the Bank of England⁷.

The distinctions between endogenous money and exogenous money and the relative growth in exogenous funds are important because this topic has created a considerable amount of doubt and disagreement between economists as to the current contending monetary policy options linked to quantitative easing, on the one hand, and new propositions under a rubric of modern monetary theory, on the other.

Economic structural transformation

The relative levels of involvement of constituents in the economy has changed significantly over the last 300 years with the real economy starting out as mainly agricultural. With the industrial revolution linked to iron, coal and railways the migration of the rural population to urban centres and employment in factories and service transformed the economy. Following two wars there has been a major transformation in the economy ending up today as a largely service-based economy, agriculture employing less than 3% of the population and manufacturing also declining. The financial instruments economy has become an important sector in terms of nominal value.

⁷ McLeay, M, Radia, A. and Thomas, R., “*Money creation in the modern economy*”, Monetary Analysis Directorate, Bank of England, Quarterly Bulletin 2014 Q1

Inflation

Inflation is a topic where there are diametrically opposed points of view between some economists. However, the following explanations will be justified in more detail as progress is made through this Review.

Inflation has two basic meanings One is that it is the condition of issuance of currency or money supply in excess of the natural growth rate of the supply side production sector for goods and services. The other meaning is the rise in the unit prices of supply side output of goods and services.

One definition is directly related to central bank or currency authorities issuing too much money and the other is related to price setting by economic units. These two sources of information are quite distinct but over time monetary theory has confused the picture by merging them.

Most are aware that the Bank of England has a “target inflation rate” of 2% per annum. This is equivalent to an 18% devaluation in the currency each decade. The cumulative devaluation of the pound, due to inflation, since 1945 is in excess of 98%. There do not appear to be any coherent statements or documents that justify why the BoE and other central banks have this inflation target.

Economics text books state that there are two types of price inflation. One is demand-pull and the other cost-push.

Demand-pull inflation

Demand-pull inflation is stated to be caused by excessive demand resulting in price rises. In a competitive economy there is however, a counter-incentive in the form of company desire for market share. No matter how much money is in the economy there is no reason for companies selling equivalent products to raise their prices since this would lose them market share.

Where there is under-capacity or under-capacity operation, unit costs are likely to be higher because fixed costs are shared over a smaller output and in this case the internal costs structure results in the setting of competitive prices at a higher level.

Where there is a monopoly producer of a good or service then irrespective of demand the company can set prices where they wish with an eye on their estimate of “what the market can take”. On the bases of few “competing” corporations providing a specific range of goods and services they might collude, through mutual agreement, to set some lower threshold for unit prices with varying upper prices giving the impression of competition but all the time gaining additional profits as a result of a de facto lack of competition.

Cost-push inflation.

Cost-push inflation is the situation where companies set their unit prices according to their current or expected costs structure. Rising input costs usually result in rising unit prices so in a competitive market the ability of companies to gain market share depends upon the deployment of appropriate technologies to secure a level of productivity that affords compensatory wage payments and profits while maintaining competitive prices.

In reality all inflation is caused by cost-push inflation⁸ but the economic theory, including monetarism and Keynesianism is, today, largely based on the Aggregate Demand Model (ADM) which will be dismantled as we progress through this Review.

Speculative asset inflation

Speculative asset inflation is a rise in prices of physical and financial assets caused by excessive money being directed at specific assets to increase used to drive up asset prices

Deflation

Deflation is the progressive decline in unit prices. The particular costs or benefits associated with deflation depend on the products suffering price deflation and the incomes or wealth of those who benefit or are prejudiced by price declines.

Goods and service price deflation

Declines in the unit prices of goods and services benefit consumers or wage-earners because their cost of living declines and they can purchase more goods and services for a given nominal income. On the other hand, in a competitive economy price setting by economic units is dependent on the productivity of the company. Highly competitive companies make use of lowering prices to penetrate the market and gain market share. The profitability of companies under unit price deflation depends upon the rate of innovation and its impact on productivity.

The example of a sector thriving on deflationary prices is the high-tech sector where digital devices, because of the nature of advancing technologies, experience falling prices while energy consumption falls and reliability and processing capacity increases

Asset price deflation

Asset price deflation is not desired by holders of assets in the form of land, real estate, financial assets such as shares or derivatives, rare art, precious metals or cryptocurrencies. This is especially true if transactions are basically speculative and holding of assets is based on the intent to resell at a profit.

Banks and those providing loans prefer to use assets as opposed to income streams to act as collateral to secure or guarantee loans.

Conclusions

As is implied in the previous sub-sections all inflation is the result of company decisions on their resource allocation according to their input prices, plant, overhead and labour costs and their decisions on price setting of their output of goods and services.

Consumption of goods and services is determined by the wages and incomes paid out by the supply side in a continual flow of money around the economy. This would seem to suggest that feeding more money into the economy would result in rises in the prices of goods and services but under competitive conditions this does not happen.

Nothing in this section deviates from commonly understood economic relations. However, some readers may doubt the simple definition of inflation being caused mainly by cost-push inflation as opposed to demand-pull or money volumes. As progress is made through

⁸ McNeill, H. W., “*The Real Incomes Approach to Economics*”, Rio de Janeiro, 1976.

this Review these matters will become more apparent. Emphasis has been placed on the significance of innovation, tacit and explicit knowledge. The significance of these factors will also become increasingly apparent as readers progress through this Review.

SECTION 2

Keynesianism & the Quantity Theory of Money

In the period leading up to the New York Stock Exchange Crash in 1929 the financial regulations in the USA came under the control of a cartel of private banks which made up the membership of the Federal Reserve Bank created in 1913. The use of the term “Federal” was intentionally designed to give the impression of this organization being under the control of the Federal Government but it remains a private institution owned by banks. Under such a regime, financial regulations were designed to support bank lending and profitability but always with public pronouncements concerning decisions couched in terms of their significance to the operation of the American economy.

Bank loans were advanced against collateral and assets worth at least or generally far more than the loans advanced as bank security in the case of loan defaults. Clearly, in the case of inability of lenders to pay back their loans in pre-established time periods would result in the ownership of collateral assets being transferred to the bank.

In difficult times the notion of a way to get rich quickly was to invest in the stock market. Banks were very willing to advance small loans to speculators in exchange for excessive collateral such as a house. The initial loans could be quite small and taken on the basis of a false security that the difference between the nominal value of the loan and the actual value of a house was so big that a failure to repay could be covered by securing a second loan. Banks would agree to this logic as long as the size of the outstanding loan came to a relatively low proportion of the total value of the collateral. This meant that at a specific point in time those returning to the bank for an additional loan were refused and within a short period the contractual obligations resulted in the lender losing his or her home to the bank or having to sell the home to pay back the bank.

As can be appreciated, this scheme which is particularly precarious for the lender, and becomes even more precarious if the value of the assets put up as collateral ends up in a market suffering from declining asset prices. Under such circumstances both the lender and the bank can end up worse off if the lender is no longer able to repay a loan because the collateral can often no cover the owed sum.

This is really a summary of the processes and mechanics of financial arrangements which led to the 1929 Crash. Before the crash a wildly surging stock market where share prices bore no relation to the corporate performance or prospects which normally would be reflected in the price-to-earnings ratio. This inflationary boom gave rise to the Federal Reserve raising interest rates which caused the premiums on many loans taken out to buy shares to exceed the ability of lenders to pay back loans.

However, what is also evident is that there had been a change in attitudes and orientation of business people linked to an increasing emphasis on finance as opposed to physical productivity of processes. The American economist, Thorstein Veblen⁹ wrote in 1921 the following:

"Half a century ago it was still possible to construe the average business manager in industry as an agent occupied with the superintendence of the mechanical processes

⁹ Thorstein Bunde Veblen, (1857-1929) was an American economist and leader of the institutional economics movement. His institutional economics was integrated with a Darwinian evolutionary approach. He made a basic distinction between the productiveness of "industry," run by engineers, manufacturing goods, and the parasitism of "business," which exists only to make profits for a leisure class. He considered technological advances were the driving force behind cultural change.

involved in the production of goods and services. But in the later development the connection between the business manager and the mechanical processes, has on average, grown more remote; so much so, that his superintendence of the plant or of the processes is frequently visible only to the scientific imagination... His superintendence is a superintendence of the pecuniary affairs of the concern, rather than of the industrial plant; especially is this true in the higher development of the modern captain of industry."

Following the 1929 New York Stock Exchange crash, an economic depression followed. This was marked by high levels of unemployment. The Roosevelt administration in the USA introduced government investment schemes across a wide range of activities to stimulate employment in the First (1933) and Second (1935) New Deals involving major investment in new institutions to manage contracted public works. As a result, the basis for macroeconomic management was altered to include major economic development initiatives where the loans and investments were made directly by government as opposed to the private sector.

In 1936 John Maynard Keynes¹⁰ published his book, *The General Theory of Employment, Interest and Money* which formalised the New Deal principles into a macroeconomic theory. This was that to reduce unemployment government needed to borrow money to invest rather than rely on revenue from taxation or the private sector. The logic was that the unemployment problem required a massive effort which individual private firms would be unlikely or were unwilling to manage using their own resources. Also, in a depressed economy the government revenue from taxation was insufficient to pay for the resources required. Therefore, governments were not restricted to revenue raised through taxation but could also borrow from banks to fund initiatives.

The depression was caused by aggregate consumption not matching the current productive capacity potential of the economy. Government borrowing and expenditure was designed to create paid employment and, as a result, higher consumption thereby resulting in increased production in the real economy.

The Keynesian model, because of the government's direct involvement in investment and running specific services, became a more obvious "mixed economy" model where the role of the state was increased in the generation, as well as consumption and production, of mainly utility services and infrastructural investment. This also resulted in the state increasing its participation in providing employment in the service provision segments of the real economy.

Although Keynesianism is sometimes considered to be an alternative to monetarism, in reality, Keynesianism is a means of increasing economic activity through an alternative means of raising money and involving a more direct management of the increase in the amount of money injected into the economy. Macroeconomic policy today tends to combine both approaches. Monetarism focuses on money volumes, interest rates and inflation where the response of the economy depends upon undirected and free interactions of economic units. Under Keynesianism the government is more directly involved in how a proportion of money raised is applied to specific economic activities.

Money sources, volumes and the Quantity Theory of Money

Irrespective of the source of money entering the economy be this bank loans to individuals, groups or companies or government borrowing to spend on specific projects,

¹⁰ Keynes, J. M., *The General Theory of Employment, Interest and Money* 1936.

the calculation used to estimate the impact of increased money supply on the unit price of goods and services was based on the Quantity Theory of Money (QTM) identity.

The most used QTM equation was developed by Irving Fisher (1867-1947)¹¹ as:

$$M.V=P.Y \quad$$

(i)

Where:

M is money supply;

V is velocity of circulation;

P is average price level;

Y is volume of transactions of goods and services (real goods and services).

According to the QTM, increasing money volume increases P.Y.

The Cambridge equation

In the development of a more realistic substitute for the QTM, to reflect the actual outcomes of changes in money volumes, the Cambridge equation¹², was based on contributions from Marshall, Pigou and Keynes. This was a modification of the QTM where an additional determinant “s” was included to account for savings as a non-circulating asset.

$$M = s. P. Y \quad \quad (ii)$$

“s” is simply a value, not associated with products since it is simply funds held. In order to simplify this identity and its later expansion (in a following section) it is useful to make savings an absolute amount, rather than a coefficient, as an additional component alongside (P.Y) so as to separate types of money represented as an addition to (P.Y) to create a sum equal to M.

Therefore, from the standpoint of a decision analysis model, to be able to simulate and project the impact on real incomes, the appropriate format is of the form:

$$M = (P.Y) + s \quad \quad (iii)$$

This is because s reduces the “active” or “transactional funds” in the economy which are to be found in (P.Y).

In order to isolate and quantify the resulting real incomes element, the savings component needs to be transferred to the left of the equals sign as an amount that reduces M.

$$M - s = (P.Y) \quad \quad (iv)$$

It is this equation or the simpler form expressed in item (i) makeup the sum total of the decision analysis logic upon which to base monetary decisions and to trace likely price impacts of money volumes, or inflation, resulting from monies introduced following the

¹¹ Fisher, I., “*Purchasing power of money*”, 1911, 2nd Ed, 1922.

¹² In the original Cambridge Equation savings were represented by “K” but in this document savings are represented by an “s” to conform with the use of “s” in the final equations of the versions of money theory.

lowering of interest rates or through Keynesian style government borrowing and injecting these monies into the economy.

What prices are referred to here?

The general understanding is that the prices referred to in the QTM only relate to the prices from the real economy or the output of supply side production, in the form of goods and services; the items which for most people constitute the items that determine the “cost of living”.

Something is wrong with this identity

At the end of Section 1 it was stated that all inflation arises from changes in the internal cost structures of companies in the form of cost-push inflation. This arises from detailed analysis carried out since 1975 into slumpflation and all other states of the economy¹³.

However, note that the QTM's basic assumption is that inflation is somehow related to demand-pull. This signifies all of the increases in M are transformed into consumption of real output. As will become evident, the QTM model is flawed because it does not contain many variables to represent different classes of products and assets, all of which have transactional prices and thereby represent a proportion of the money in the economy which is not accounted for. Therefore, the QTM is not representative of the actual state of affairs in the economy. The QTM identity is not a determinant model¹⁴ and cannot explain either how money volume impacts unit prices or which prices are affected or by what mechanisms (functions). It “reads” as if the inflationary impact is instantaneous across the board affecting all prices which is not born out by experience, except for the case of hyperinflation which is caused by a different set of relationships as set out in Annex 4. Having said that, monetarists plead the case for the QTM by stating it represents a long-term identity. However, transactions are continuous and including real time, so the long-term assumption does not appear to be logical. That is, when does the long-term effect occur and what is the mechanism?

All unit prices are set by individual companies irrespective of “money volumes” in the economy. Money volumes are not a causal factor in how manager set their unit prices. As long as companies are in a free and competitive market it is to the advantage of each company to compete on the basis of unit prices.

Clearly, in the case of a monopoly or cartel (oligopoly) where parallel price rises can be agreed to seek to gain more income up to “what the market can take”, then an increase in funds could result in inflation.

In a competitive market, money volumes have no impact on average prices of goods and services¹⁵.

It is notable that a leading exponent of monetarism, Milton Friedman of Chicago University, was never able to explain the mechanism whereby money volumes translate into price rises and his default position was that, “... *it happens in the long run!*” This however, provides no explanation of the mechanism involved and does not pass for more than an assertion.

¹³ McNeill, “The Real Incomes Approach to Economics”, Rio de Janeiro, 1976.

¹⁴ Determinant models show a cause and effect relationship, or mechanism, which relates the inputs to the model (quantity of money) and which determine the output of the model (average prices).

¹⁵ McNeill, “The Real Incomes Approach to Economics”, Rio de Janeiro, 1976.

Monetarists sometimes posit that adding additional funds as exogenous funds causes inflation or price rises. Nicholas Kaldor countered this assertion by explaining that companies will take loans as they need them to support growth and therefore this growth in money supply is expected and as a result this growth comes from endogenous requirements. It is unlikely to be inflationary because why would a company take a loan to improve productivity to end up raising prices? It is also important to place the finance in perspective since the early discussions with other economists, Kaldor made the valid point that something like 90% of investment funds came from income or corporate profits and far less from banks. However, as we progress in this Review this level of finance was to change dramatically and as will be explained that this undermined yet further the monetarists arguments in favour of the QTM.

Indeed, applying loans to investment follows a well-defined mechanism of assessment procedures where the cost-benefit of the exercise has been determined. Normally such calculations base price projections on current levels. In the case of an investment made to support growth and market penetration, prices are likely to be projected downwards or represent a deflationary effect made possible by the expected rises in productivity.

The most obvious example of this effect can be found in electronics and digital devices which tend to follow a trajectory of falling unit prices associated with rising capabilities and often using less energy in a deflationary trend.

The mechanisms giving rise to inflation in goods and services were explained in 1976¹⁶ as a result of an exploration into alternative theories and derived policies based on evidence generated during the slumpflation crisis. This evidence undermined the credibility of the QTM which non-the-less remains in place as the main referential logic for monetary decisions to date. However, the QTM finally was shown to be defunct as a result of a continuation of this exploration to produce irrefutable evidence that appeared during the period 2008-2021. This showed the QTM identity to have no practical application in policy decision analysis

As will be explained in Section 6, the QTM does not distinguish between prices linked to different categories of products when in reality there are significant differences between the price movements and their causes between supply side output of goods and services and assets. The QTM identity is simply unrepresentative of the actual circumstances encountered in the economy.

In the meantime, during this period

Claude Shannon and George Boole

George Boole was born in Lincoln, England in 1815 and he died in Cork, Ireland in 1864 at the age of just 49. In a book he wrote entitled, "*The Laws of Thought*", published in 1854, he described how humans deduce and make decisions¹⁷. He also set this out as a practical mathematics of logic and probabilities. This work provided the rationale and methodology for reducing complex logical relationships to simpler sets of relationships which can reproduce all of the possible relationships from which the set was derived. This process is known as Boolean reduction. Boolean reduction is used to reduce the size and complexity of complex digital logic designs to produce workable logic designs for circuits for digital devices. The success of modern digital circuitry manufacturing, including micro-

¹⁶ McNeill, "The Real Incomes Approach to Economics", Rio de Janeiro, 1976.

¹⁷ "George Boole", George Boole Foundation website

devices and the computer industry based upon these, rests directly upon the practical utility of the mathematics developed by George Boole.

George Boole's objective in developing this approach to logic was to explain how individuals use information and knowledge to deduce and take decisions. He succeeded in establishing, some 150 years ago, a practical basis for designing expert and knowledge-based systems. An important event occurred in 1938 when Claude Shannon published a paper, based on his 1937 thesis, entitled, "*A Symbolic Analysis of Relay and Switching Circuits*" where he explained how Boolean Logic could contribute to a more efficient circuit design. This seminal work launched Boolean logic into the digital world. It is intriguing how the personal abilities of Shannon were such that, with the combined expertise of electrical engineering and mathematics and having studied Boolean Logic as an undergraduate, he was able to correctly identify the contextual significance of Boolean Logic. In doing so he made a vital contribution to the efficiency of circuit design based on Boolean logic and accelerated the world's entry into the digital era as we know it today. We will trace these impacts in later Sections.

How did Shannon work this out?

It is very evident that Shannon's instruction concerning Boolean Logic had encompassed more than the normal limitation of attention to decision logic or decision trees. Boolean logic is a lot more than this in that Boole developed a mathematics which can decompose complex logical systems into its bare and far simpler components which nonetheless can emulate the logic of the original complex system. Shannon's training as an electrical engineer and having had a more thorough coverage of Boolean logic caused him to realise that the same process could be used to design switching circuits. He had a need, that of designing circuits more effectively and he also used his knowledge of Boolean logic as the model for logic design. It needs to be understood that Boole did not develop this for circuit design but rather in order to understand how the human carries out inference and deduction involving complex topics as well as how the human thought operates by applying logical steps (components)

Blind spots

One of the most apparent blind spots within monetary theory and practice and this shows up in the analysis of the QTM, is technical innovation and human learning. This is because over time productivity rises and supply side output unit prices from tend to stabilise or even decline. This effect is stronger in a competitive market. The longer the period the more dramatic is this effect. However nowhere in the QTM is this reality accounted for.

Wright's Law

The empirical data explaining the impact of human resources tacit knowledge and technological and technique advance was collected and analysed by Theodore Wright where he described the effect of the learning curve in a paper in 1936 entitled, "*Factors Affecting the Cost of Airplanes*"¹⁸. The learning curve impact described by Wright has also been referred to as Wright's Law, has turned out to be a reliable basis for predicting the impact of tacit knowledge on the productivity of processes involving humans and in addition can be used to extend this analysis.

¹⁸ Wright, T., "*Factors Affecting the Cost of Airplanes*"¹⁸ (Journal of Aeronautical Science, Volume 3, No.2, 1936, pp. 122-128).

Wright was the first to quantify the impact of tacit knowledge or increasing competence of work forces as a result of repetitive completion of tasks and their learning curve associated with an increased speed of completion of tasks, less waste, lower costs and rising quality of product.

Also, as in the case of Shannon's identification of Boolean logic as a design device, team work on aircraft frames resulted better plant layouts and sequencing of logical sub-tasks resulting in innovation and efficiency.

Conclusions

The practice of governments raising loans and allocating it to different activities is not really a problem. The main issue is the performance of the investments made.

Keynesianism provided the theoretical model that described the US New Deals. However, Keynes did not change the monetary policy paradigm summarised in the Quantity Theory of Money, other than to contribute to the Cambridge equation. The underlying model attributed to Irving Fischer did not include non-circulating funds such as savings which were added in the Cambridge equation.

The prices the QTM refers to are the supply side goods and services but, as will become evident most price inflation became increasingly taken up in assets, which like savings absorb money to be equivalent to non-circulating funds.

Boole's mathematical logic emerged as the dominant technique for designing electronic and later digital devices and programs for information and communications technologies to grow in significance over time.

SECTION 3

Turmoil and adjustments 1944-1965

Following the turmoil of the Great Depression and the First and Second World Wars, the Bretton Woods agreement came into force in 1944 as a new global financial system based on the Gold Standard with the United States dollar becoming the main international currency for trade. It established the International Monetary Fund, the International Bank of Reconstruction and Development (World Bank) and other institutions. By the late 1960s, and as predicted by detractors from the use of the dollar as the international reserve currency, the USA was unable to honour its obligation to settle imbalances in international dollar accumulations in some countries by refusing to exchange excess dollar holdings for Gold. As a result, this system failed in 1971 when Nixon abandoned the Gold Standard.

The reasons for failure are set out in the next Section covering the relevant period.

In explaining the failure of the Bretton Woods Agreement, it is important to explain some details surrounding banking, loans, and the state of international finance prior to its signing in 1944.

In 2014, the Bank of England published an interesting explanation¹⁹ of how banks credit accounts to create loans (debt), simply by crediting a loan account with the amount of the loan, i.e. essentially out of thin air, but authorised against the securing of sufficient collateral from the person or company accepting the loan as described on page 17.

Although this had operated for over 400 years the process was and remains something that is not generally well understood by the general public. Such financial procedures still remain somewhat of a mystery for most people. The general workings of banks tend to have remained outside the immediate concerns of the population or even companies whose primary interest has been to borrow money at a favourable rate of interest.

Imperial preference

Up until the early 20th century the British Empire and Britain were dominant "economic forces" on the world stage. For a long period, various versions of an "Imperial Preference" policy had operated between trading partners in the British Commonwealth to be able to gain trade surpluses and economic growth. Although containing preferential sections it was considered by many to constitute "free trade" within that select community of nations and colonies. At the Commonwealth Conference on Economic Consultation and Co-operation in Ottawa, Ontario, Canada held in 1932, in response to the Great Depression, it was agreed to implement a policy of Imperial Preference for five years. This was based on the principle of preferences for home producers first, empire producers second, and other producers last.

In the middle of a depression this policy appeared to US administrators to constitute a beggar-thy-neighbour policy. It also was a practical demonstration of the relative lack of leverage the USA had internationally as a result of not possessing an "Empire". This, no doubt, was the cause of some resentment.

¹⁹ McLeay, M, Radia, A. and Thomas, R., *"Money creation in the modern economy"*, Monetary Analysis Directorate, Bank of England, Quarterly Bulletin 2014 Q1

Imperial preference relied on the willingness of Commonwealth countries to hold sterling as their reserves. In this way the banks could issue paper credit and loans (with no gold in sight) and this money could be used to obtain raw materials on the cheap to be used by manufacturers etc. There was a “recycling” but the balance, in terms of use of resources, very much to the advantage of the British banking system, its domestic clients and the British economy.

What was not considered was that such transactions, as significant population rises in Commonwealth countries occurred and the normal process of economic development proceeded, was going to result in the British economy not being able to trade in sufficient volumes, in relation to the national needs of its partners. There was, therefore, an increasing exposure of Britain to the likelihood of Commonwealth countries needing to cash in their excess holdings of pounds sterling for gold. There appears to have been an underlying assumption on the part of authorities and the Bank of England that Commonwealth members would not ask to convert their pound sterling holdings into gold. With the industrial prowess of the United Kingdom it might have been assumed that this exposure would be of no concern but as events turned out, with the evolving strategies of the USA to gain world economic dominance, this issue became one of significance.

United States strategy

What could be interpreted, by some, as a fraudulent monetary scheme enabled Britain to appear to live beyond its means for quite some time. With so much capital in circulation considerable amounts were applied to the effective development of many technologies. Foreign entrepreneurs saw Britain as the place to gain funding support to convert their inventions into future income streams. Guglielmo Giovanni Maria Marconi in telecommunications and Sebastian Ziani de Ferranti in computers, are examples of inventors who benefited from setting up their businesses in the UK.

The British economy underwent extraordinary growth since the eighteenth century driven by this system. It seemed that the main financial costs were paper and mint operational costs (fractions of a penny per pound sterling) and the ink and time required for bank clerks to enter large loan values in pounds sterling in leather bound ledgers. One of the objectives of the USA, according to Rickards²⁰, was to get rid of the Imperial Preference and with the dollar-gold link as “the international reserve currency”, to undermine sterling and the prowess of the British economy. The alleged objective of the USA strategy was to create UK trade deficits as a result of Commonwealth countries demanding gold in exchange for their accumulating pound sterling holdings.

It is necessary to place this concept of how the British system had benefited Britain from Imperial Preference to understand the said strategic objective of the USA. Their purpose, therefore, becomes one of emulation of this model to gain a similar advantage specifically for the USA through the subsequent shaping of the Bretton Woods accord.

Bretton Woods

Bretton Woods was an attempt to reshape the economic development framework of the world economy following the war that ended in 1945. The USA essentially wished to apply the British Imperial Preference model as a new USA Preference model based on the dollar and extended to “collaborative nations”. The concept of “collaborative nations” was to become an underlying foundation to State Department strategies of dividing the world into

²⁰ Rickards, J., “*Currency Wars: The Making of the Next Global Crisis*”, Portfolio, 2011.

nations that complied or did not comply with modes of economic management that strengthened or weakened US power. The mechanisms to transform increasing numbers of countries into “collaborative nations” were the International Monetary Fund (MF) the World Bank (IBRD) and the General Agreement for Tariffs and Trade (GATT).

During the Bretton Woods negotiations there was an intense rivalry between the UK and the USA. However, much of the negotiation involved academic discussions on options for currencies when what should have been happening was for the British contingent to explain to other countries where this was going to end up. However, besides some of the representatives such as from India who were completely aware of the benefits Britain had enjoyed, it would have been very awkward for the British contingent, which included Keynes, to somehow argue that the USA should not be given the opportunity to enjoy the centuries of benefits that Britain has received since this would expose even further the whole system, and Britain to unwelcomed criticism. As a result, this issue of bias in favour of the international currency holder and its potential dangers were not fully taken on board.

The situation was to be referred to as America’s “Exorbitant Privilege” by Valéry Giscard d’Estaing, the then the French Minister of Finance in the 1960s

The USA refused to accept John Maynard Keynes’ far more rational and balanced proposal for the Bancor, a proposal for a more neutral international currency, less dominated by any particular national currency, which he had developed with Ernst Schumacher.

Therefore, it is alleged that amongst the strategic objectives of the USA in the Bretton Woods was to reduce the influence of Britain and pound sterling as a reserve currency on the international stage by undermining the remaining benefits of its remaining empire, through GATT (General Agreement on Tariffs and Trade). GATT came into force in 1947, as part of the Bretton Woods deal, undermining Imperial Preference and with the dollar-gold link becoming the central kingpin of the new international financial system and eventually replacing sterling.

Contemporary analysis

The economist Robert Triffin (1911-1993), while not being able to make use of the demise of the British Imperial Preference as a case study, because it had not yet taken place at that stage, explained in 1960²¹ that the dollar, as a national currency, was unsuitable as an international reserve currency because of the significant benefits bestowed on the country concerned as well as the practical difficulties of managing domestic requirements with the needs for the reserve currency of other countries. He predicted that this setup would fail. Basically, the size of the USA economy, in spite of its relatively large and expanding size, would be unable to embrace the potential growth needs of the world economy. For example, as the lead reserve currency, the entire world would need dollars to finance world trade. As a result, the USA would be unable perform to honour its obligations to adjust international balances by exchanging excess holdings for gold.

What is somewhat amazing is that in largely closed discussions, few appeared to have appreciated the full extent of the benefits Bretton Woods was to bestow on the future power of the USA. Triffin’s subsequent evidence and opinions were ignored, the actual performance risks facing the USA were ignored or not fully understood. The best

²¹ Triffin R., “Evidence presented to the United States Congress on Bretton Woods arrangements” 1960.

summation of this new Imperial Preference model but applied to the notion of the dollar as an international reserve currency was made by Barry Eichengreen²² who explained,

"It costs only a few cents for the Bureau of Engraving and Printing to produce a \$100 bill, but other countries had to pony up \$100 of actual goods in order to obtain one."

The rise of the American Empire

With the USA seeing unprecedented economic growth "on the cheap", based on the dollar international reserve currency status, by 1965 the USA, based on Eichengreen's notion of the resources used for countries to "pony up" products, the USA ended up consuming 65% of global resources with a population making up just 6% of the world population. This was a fact not lost on the earliest seminars, work and reports concerned with planetary survival carried out at in the series "*Population and Food Supplies*" initiated by the School of Agriculture of Cambridge University in 1966-67 and taken up by the School of Engineering of Stanford University in 1968-69 and then by the Massachusetts Institute of Technology with the publication by the Club of Rome, "*The Limits of Growth*" in 1972.

Increasingly countries accumulated dollar reserves believing in the US commitment to convertibility into gold. This of course was the same situation Commonwealth countries had experienced with respect to the British pound under the Imperial Preference scheme, but on an increasingly global scale.

Post-war Britain 1945-1965

Between 1945 and 1965 Britain experienced an unprecedented growth, largely based on rising investment and productivity on the supply side production of goods and services, generally rising real incomes, with close to full employment and a significant decline in income disparity. During the same period the welfare state was established including the foundation of the National Health Service. The current account balance of the country was positive with policy being, if anything, deflationary.

The notable fact in this period which occurred when Keynesian policy had become the new policy paradigm and content of university courses in economics, but no Keynesian policies were in fact applied. This was established based on the available evidence for the period by Robin Matthews a Cambridge University economics professor and published in his paper in the Economic Journal entitled, "*Why Has Britain Had Full Employment since the War?*"²³

It should be recalled that Keynes main concern in his "General Theory" was how to increase employment in a depression. Since unemployment over this period was so low there was no need to apply Keynesian policies. In spite of this reality the period 1945-1965 are sometimes considered to be the "*Golden Years of Keynesianism*".

An important basis for the management of the economy was a tri-partite management of national production plans coordinated through agreements between the labour unions, business and government. These continued under both Labour and Conservative governments.

²² Eichengreen, B.J., "*Exorbitant Privilege: The Rise and Fall of the Dollar and the Future of the International monetary system*", OUP, 2011

²³ Matthews, R. C. O., 'Why Has Britain Had Full Employment since the War?', Economic Journal, 78 (London, 1968)

The paradoxical state of affairs in this period was that although, mistakenly, monetarists and Keynesians had somehow blamed the Say Model (see page 16) for being unable to prevent the Great Depression which, in reality, had been caused by ineffective financial regulations and practice, arising from the inexperience of the Federal Reserve with the type of crisis that occurred. However, the period 1945-1965 was the best example of the Say Model in operation and bringing widespread benefits to the majority of the constituents in this country.

The stages of economic growth

In 1960, the economist Walt Rostow published a book²⁴ entitled, *"The Stages of Economic Growth"*. This traced the historic process of the transition from traditional rural and largely agricultural economies through industrial formation and accumulation of capital through to high mass consumption economies. One of the consequences of this explanation was a presumption that economies, to become "developed" would end up as largely service-based economies with a small industrial sector. This resulted in some economists advising governments to place an emphasis on service activities to advance economic development and employment.

Economic mechanisms, the slide into oblivion

Rostow's stages of economic growth book has a sub-title, *"A non-communist manifesto"*. Although an economist with some experience in strategic issues related to military tactics during the second world war, his book seemed to lack sufficient cautions related to how his findings should be interpreted. Rationally, Rostow initiates the book asking of the world's economic trajectory, to Communism or welfare state or destruction? Paradoxically he based his initial analysis on the British industrial revolution up to what were the stages of "take-off" and "mass consumption". It should be recalled that this book came out when Britain was undergoing a rapid rise in real incomes, falling income disparity and rising consumption.

In terms of development economics, Rostow called for American involvement in the developing nations which he considered to be locked into the "traditional stage" or "preconditions for take-off" stage. He considered the most important agenda for the Western nations to help support developing low income economies move through to the take-off stages

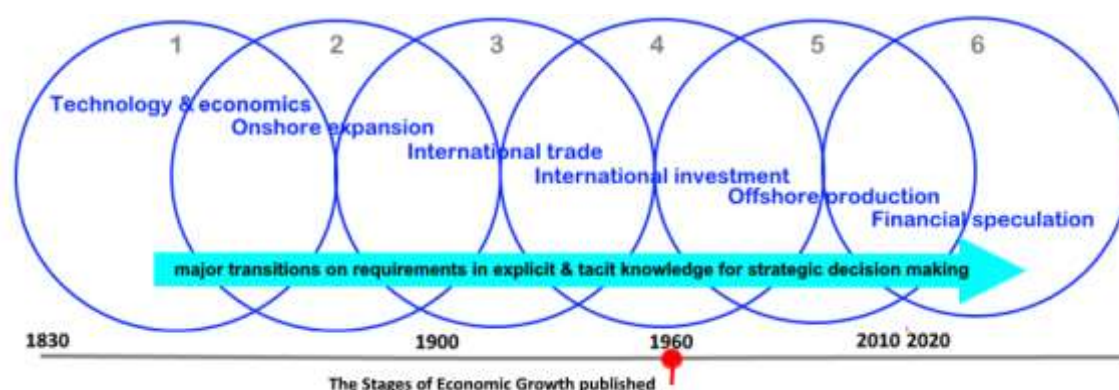
Rostow didn't use the British economy as a model to be emulated but he used this for illustrative purposes only. However, by 1963 there was a widespread misinterpretation of what Rostow had stated. This was that, although Rostow did state, based on evidence, that primary sectors such as agriculture and secondary sectors such as extractive, industrial and manufacturing sectors would decline in overall contribution and employment levels he did not provide a model on how to balance up primary, secondary and tertiary (service) sectors and nor did anyone else. To do this, there is a need to identify the contribution of the industrial and manufacturing sectors to the creation of practical applications for all of the technologies imaginable from electronics, light, thermal, chemical, physical, energy, information and others to the primary and tertiary sectors. This is because, most of the gains in productivity in all other sectors such as primary and service sectors, including financial, as well as industry with all depending upon devices, capital

²⁴ Rostow, W. W., "The Stages of Economic Growth – A non-communist Manifesto", Cambridge University Press, 1960

goods and equipment that are produced by the industrial and manufacturing sectors to provide mechanisms to accomplish tasks more easily, conveniently and at a lower cost.

Having, overlooked this fundamental point most economists and teaching establishments began to confuse the Hegemonic cycle, which Britain was still passing through at that time,

Britain's hegemonic cycles & publication date of "The Stages of Economic Growth"



with a completed cycle. In the diagram below the stages in the British hegemonic cycle are shown and the time of Rostow's publication is marked by a red dot.

As can be seen, Rostow probably could not imagine what would appear beyond the then current stage of development of Britain perhaps because he does not appear to have studied previous hegemonic cycles. There is much written on this topic and recognizable hegemonic cycles have involved, the Venetians, the Dutch, Spain, Portugal, Britain and more recently USA, now in decline, as China rises as the likely next hegemon. Rostow's use of the British model of development up to that stage resulted in a distorted picture of the future potential because what in fact usually happens, based on copious historic evidence of previous hegemons, was not part of his book's analytical content

In most great Hegemonic cycles, the use of cash earned from exports largely produced by the industrial and manufacturing sectors exports tended to lead to investment in the resources and economic activities in lower cost world locations. This led to a relative economic decadence in domestic and national industry and economic activities leading to social and political instability linked to rising unemployment and misery in parallel with the excesses in money within an increasingly wealthy faction and leading to speculative ventures and eventually catastrophic failure²⁵.

As can be seen Rostow's book was published 60 years before the stage of development which inverts development gains as a result of excessive flows of capital into offshore production and a hollowing out of national industry and manufacturing, decline in employment and real incomes of wage-earners.

No doubt, given the then current status of Britain many who might have been aware of hegemonic cycles would have imagined that Britain was different. Since we knew what had happened in other hegemonic cycles so in the reflective wisdom to be found in our democracy, surely, we would avoid such an outcome. Unfortunately, as we will observe, Britain subsequently embarked on exactly the same downward spiral as the hegemons of

²⁵ Arrighi, G., "The Long Twentieth Century – Money, Power and the origins of our Times", Verso, 1994 and by the same author, "Adam Smith in Beijing – Lineages of the Twenty-First century", Verso, 2007.

the past. The USA has traced the same path over the period during which the new global hegemon, China, rises in the East.

However, the paradoxical reality is that in university economics courses at the time the many examples of hegemonic cycles did not feature. However, the example of the British industrial revolution was repeated many times as “how it was and should be done”. This in itself is a typical syndrome of people in the middle of their own hegemonic cycle, considering their societies as the only exemplars of, in this case, economic development. The notions of “exceptionalism” were not alien to the British psyche at the time. Therefore, the limited vision presented in Rostow’s “Stages of Economic Growth” concentrating on the British economy were treated as pearls of wisdom. Since the instability of the financial speculative phases remained as unread history yet to be repeated. Many considered the accumulating financial resources as the future of a thriving financial services sector while completely overlooking the vital contribution of domestic (national) industry and manufacturing to all sectors, including financial.

World systems, cycles and warfare

In early March 2021, a television interview of Georgi Derluguian by the Russian journalist Oksana Boyko of RT, was broadcast. Derluguian’s replies appeared to fill in many gaps in the received wisdom on economic development history. As an economist with a systems engineering background, the author found his replies and explanations both intriguing and convincing. In emailing Georgi Derluguian mention was made to his reference to the repetitive transition from investment in supply side production to financial speculation, in several societies over time. This, of course, was of interest to this Review, any documentation on how to bend money flows back into supply side production and away from assets was a question of interest.

Georgi Derluguian replied asking if reference was being made to hegemonic cycles producing, in the end, a phase of financialization. He explained that all known instances ended in a world war: Thirty years war, The Napoleonic wars, 1914–1945 as really a single period of transition from cycle to cycle.

He provided the key reference as Giovanni Arrighi’s “*The Long Twentieth Century*” (1994) and his articles in *New Left Review*. He referred to Fernand Braudel as the great precursor of this field of study and attached a copy of his own paper entitled “*Braudel, Fernand 1902-1985*”. He also recommended Immanuel Wallerstein’s “*The end of American Power*” a collection of his essays and the best earlier analysis of war in political economy as being the “*Pursuit of Power*” by William McNeill.

Having now consumed much of this documentation it turns out to be an in-depth analysis and systems approach to a multi-factor economic analysis which possesses more explanations of phenomena and which is more complex and yet far more complete and enlightening for what passes for the content of what is taught in conventional economics courses.

While not finding within this material any examples of records of attempts to bend money flows back into supply side production and away from assets, which is somewhat alarming but notable since in our current phase of development, based on hegemonic theory, the prognosis is a coming period of warfare.

Surely there is a need to enquire and analyse ways and means to avoid this outcome?

An inaugural lecture

In 1966, Nicholas Kaldor delivered his inaugural lecture as Professor of Economics at Cambridge University. Well aware of the popular notions of economic development, Kaldor steadfastly placed emphasis on the maintenance of the size and role of industrial and manufacturing sectors in the economy as an essential factor in the maintenance of British economic growth in all other sectors. He didn't refer to hegemonic cycles but simply based his argument on logic and existing evidence. He explained how supply side production of goods involves a constant advance in technology and growth in exports and employment. Kaldor's understanding of the role of technology and industry in economic growth was well-established. He was one of the first economists to embed technology impacts into his macroeconomic growth models²⁶ along with other pioneers such as Solow²⁷ and Arrow²⁸. It should be noted that the levels of economic activity in the service sectors all depend on the proceeds of production, distribution and consumption of goods produced by the industrial and manufacturing sectors.

Kaldor's position was that the emphasis on services, including financial services could be extended too far and to the detriment of the British economy. He was to be proved right, in spite of his efforts in the 1970s and beyond to counsel against policy decisions which discounted the importance of investment in domestic industry. He remained the leading critic of monetarism in the UK advocating its abandonment.

A warning

Couched in Kaldor's address was a warning related to the need for the nation's economy to maintain industry and manufacturing as the source of innovation and real growth and upon which the rest of the economy depends. It provides everything needed to support service sectors and even generates its own capital goods and equipment. Implicit in this statement was that it was essential to maintain this basis for growth as a foundation for international competitiveness of the British economy and that policy should not risk substituting this model with any that marginalised this sector.

A route into the study of economics

At the time Kaldor was delivering his views on policy the author was making his first inroads to the study of economics. This was not initially at the Faculty of Economics, but rather as a student completing a degree in agriculture at the School of Agriculture at Cambridge University. As part of our economics training we were required to visit farms, ask farmers questions and then work out a farm plan to maximise the farmer's returns. We were trained by highly qualified agricultural economists from the School's Farm Economic Branch and who also worked for the National Agricultural Advisory Service (NAAS) covering the Cambridge region and East Anglia (Cambridge, Norfolk and Suffolk counties). They carried out regular surveys of farms and created farm plans using a Digital Corp computer and using the SIMPLEX linear programming algorithm.

²⁶ Kaldor, N., "A Model of Economic Growth", The Economic Journal, Volume 67, Issue 268, Pages 591–624, 1957.

²⁷ Solow, R. M., "Technical change and the aggregate production function". Review of Economics and Statistics. 39 (3): 312–20, 1957.

²⁸ Arrow, K. J., "The economic implications of learning by doing". The Review of Economic Studies. Oxford Journals. 29 (3): 155–73, 1962.

Our learning curve

However, as undergraduates we were not allowed anywhere near these digital resources but we were taught how to carry out the same optimization of farm resource allocation based on a technique used by the then Swedish agricultural extension services, which we called the “Swedish method”. For this we needed a notebook, pencil or pen and a rudimentary calculator. The method to be applied was ably described in a paper²⁹ by Alistair A. M. McFarquhar one of our economics lecturers. Alistair had completed this work on a grant from the Milk Marketing Board.

The theoretical teaching on this topic was the best the author ever came across in post graduate economics courses at Cambridge Faculty of Economics and Stanford Department of Economics, but on the practical side, our lecturers threw us in at the deep end. They provided only an outline of the questions we had to ask of the farmers as well as how to manage our advice to the farmer in recommending our farm plan. After about three visits we all became increasingly adept at asking the right questions. The most interesting and challenging part was in the recommendation sessions. The student who developed the highest profit results in any week was given the opportunity to convince the farmer to accept the plan. It became apparent that, if we had failed to ask a farmer what he required in terms of his lifestyle in managing the farm in terms of hours per day and physical effort as well as some other personal factors the recommendation sessions tended to be ineffective. This was because of the simple fact the farmer would not recognise his needs in the plan being put forward. Simply maximising profit was seldom a sufficient condition. Thus, the most significant mistake we made at the beginning was to maximise profits on the basis of stretching both the farmer and the workforce. This would invariably result in too many dependencies and this raised the risk that the plan would not be able to be implemented successfully resulting in a discontented farmer, if he had accepted the plan

Therefore, now looking back on that experience the author appreciates far more what those lecturers did in terms of our formation as agronomists or agricultural economists in pushing us down a learning curve which initially was difficult. However, we all ended up with a high degree of confidence that we were able to visit any farm and, in economic terms at least, be in a position to provide some logical advice in terms any farmer would understand and find to be of utility.

The other factor which added to our confidence was that as we progressed our back-of-envelope and hand calculator efforts applying the Swedish Method came very close to the optimised plans achieved on the Digital SIMPLEX kit. So, our training, in terms of bringing us up to an acceptable level of professional competence was excellent. The issue was a training helping us think on our feet and complete analyses with almost no prompts or gadgets other than a calculator.

The farmer's learning curve

It is not always understood that the mathematical Boolean logic used in computer logic chips and the programming languages used to create the linear program algorithm was not created for use in computers. All of this extraordinary resource was created by George Boole whose objective was to create a logic of how the human mind operates in carrying out deductive reasoning and, in a sequence of such processes, learning to take a series of logical decisions; the basic functional structure of the human learning curve.

²⁹ McFarquhar, A. M. M., , “*Research in Farm Planning methods in Northern Europe*”. Journal of Agricultural Economics in May 1962,

With each passing year farmers are able to improve their decision analysis to improve the effectiveness of their applied tasks and improving their practice. Thus, the tacit knowledge of older farmers was better than the younger farmers and as a result their observations and replies to our questions were more precise.

In our applied course work at the School of Agriculture we visited many types of farms from small marginal operations to large corporate set ups and a range of farmers ranging from the age of very early thirties to others well over seventy years of age as well as ranges in educational backgrounds from those with basic schooling to university-trained agronomists.

The notable reality was that it was usually fairly easy to increase the profitability of farms of the younger, less experienced farmers but almost impossible to improve on what the older farmers were already doing. So, with accumulating experience farmers refine their competence in decision making and resource allocation to naturally gravitate towards an optimised state of affairs satisfying their needs and resource capabilities.

The lesson from this, the author ventures to suggest, is not just how clever these farmers were but more fundamentally how right George Boole was in explaining how humans deduce and take decisions. The Digital SIMPLEX algorithm and the Swedish Method could save time in getting to the optimised plan by applying the mathematical logic humans apply in arriving at conclusions. So naturally these “devices” which make use of Boole’s “Laws of thought” were bound to end up with the same results as experienced farmers who had no access to a Digital computer or the Swedish Method, all they needed was the time, year by year, to figure it all out for themselves, based on their experience, observation and human wit. The author does not recall their being any appreciable difference between the results obtained by older farmers related to their standards of education.

Economic incentives

Another aspect of our training was the development of agricultural policy which made up part of the post graduate diploma in agricultural economics where teaching was split between the School of Agriculture and the Faculty of Economics.

Our experience in farm planning put us in good stead in only making use of policy incentives that were easy to understand and which complemented the logic of farm planning. This was because policies don’t always endure so it is important to maximise the positive impact in a short a time as feasible meaning policies needed to have traction. So, it was necessary that farmers would be in a position to understand any benefits which might accrue from a policy so as to take advantage of it in an effective and efficient manner.

The lesson was that for economic incentives to work they needed to be coherent with the objectives and logical deductive procedures applied by farmers in their daily decision making. This can be translated into a more general consideration that, to be successful, plans, projects and policy design must identify stakeholder needs or in more general terms, to reflect the specific needs and preferences of the national constituency.

Biomedical considerations and policy design

In reviewing these principles of relating policies to the stakeholder needs and known processes of deduction and needs of stakeholders the author happened to review these issues with medical practitioners. It became apparent that the most appropriate way of organizing policies for medical or health services were very similar to the requirements in agriculture.

The irrelevance of conventional macroeconomic policies to the Health Service, as in the case of Agriculture, pointed to the needs for a macroeconomic policy that could combine incentives with an evolution in increasingly efficient provisions but, as in the case of the author's experience in farm planning, solutions cannot be arrived at by excluding farmers or medical and nursing staff from the planning process. Their combined tacit and explicit knowledge is an essential input to this process. Any policies need to be founded on the mechanisms which ensure plans work.

Biomedical topics are dominated by biological phenomena, be these variable weather conditions, crop pests and animal pathogens impacting agriculture or human population dynamics and of pathogens and medical conditions associated with life stages. Although contingencies or "allowances" in terms back up resources are helpful, it is essential to concentrate on the efficiency of delivery of actions, be these a farmer planning his farm and carrying out all procedures in a competent matter or medical staff completing correct diagnoses, procedures and treatments. Although the required operational infrastructure for a health service depends on the population numbers, age structures and associated needs, the crucial elements in the process should always be the specific needs to practitioners.

It is also important to take fully into account the time of formation of medical personnel and their learning curve to where an adequate level of attainment of operational competence takes several years of training and work under more experienced guidance and support. Therefore, health services cannot be treated like a factory churning out consumer goods and reacting to "demand" within a short period. The health service needs to grow in infrastructure to handle a given population and for the medical staff needs to come on stream in an appropriately timed fashion. Any policies that reduce infrastructure or even staffing numbers will not be able to "bounce back" to confront any emergency medical situation.

Reference is made in the author's account of the delivery of plans to farmers. If they did not contain factors addressing the farmer's preferences and needs they would not be taken up. In the same spirit, by involving medical practitioners in all stages of project or policy planning to keep their professional practice needs in focus most "reforms" are unlikely to be successful. Given the dual factors of population numbers and conditions affecting different life stages it is necessary, to assist medical practitioners deliver their services efficiently, to project such things as support resources such as beds, care facilities as well as the training of medical practitioners, nurses and specialised support staff such as ambulance and paramedical personnel, in numbers that accord with growing consumption needs.

These details will be elaborated further in Section 9 where the role of policy for the whole of the economy and the health and care sectors, in particular, is reviewed.

In the meantime, during this period

The discipline of decision analysis

During the early 1960s, Ronald Howard and others working at the Stanford Research Institute (SRI), developed the discipline of "decision analysis" making use of determinant decision analysis models based on known cause-and-effect relationships and applying a range of computer-based operations research algorithms developed towards the end of the war that ended in 1945. These models were used to generate and compare different decision options where potential courses of action, combining different combinations of inputs (determinants) were compared with the likely potential results. In terms of strategic

analysis, the determinants would be policy instruments and the different results the values of policy targets.

Systems engineering

While decision analysis developments were occurring at the SRI, Bruce Lusignan of the Engineering School at Stanford University, introduced post-graduate systems engineering courses originally developed at Massachusetts Institute of Technology, as a post-graduate engineering course, by Bill Bollay. This course, by its title, often confused with computer programming, was in reality a general engineering course consisting of the procedures required to resolve any particular issue on a multidisciplinary basis. This course was engineering course option “Space systems”. While not referring to Howard’s work at SRI, which was still under development, it is very apparent that Lusignan was applying the same “systems engineering logic” involving very large teams covering different aspects of the issues under question. In different years these multi-disciplinary systems teams of around 200 post-graduate student covered low cost housing, earth resources observation systems and marine resources management.

Sputnik

In 1957 Russia launched the world’s first satellite creating a reaction in the West giving rise to the “Space Race” and the development of a range of rocket, navigation, satellite development and communications technologies.

From circuit switching to transistors

Claude Shannon’s introduction of Boolean logic to the process of design of switching circuits was extended to the design and placement of transistors in circuits leading to significant advances in the reduction of the size of circuits, their optimization and reduction in energy consumption. Frederick Termer, the head of Stanford University established a tradition of “academics” venturing out to transform ideas into products leading to a range of developments leading from transistors to integrated circuits and the development of what became known as Silicon Valley in California which developed into a high-tech development centre.

SIMULA 1 and Object-Oriented Programming

One of the main developments in computer languages, which started out as a basis for capturing and coding real world circumstances so as to enable effective simulation, has been Object-Oriented Programming (OOP). ³⁰This originated in the work of Kristen Nygaard³¹ and Ole-Johan and who until their deaths worked at the Department of Informatics at the University of Oslo, Norway. Their language was linked up to Algol 60 and by May 1962 the main concepts for a simulation language were established. “Simula I” was born, a special purpose programming language for simulating discrete event systems. Simula I (1962-65) followed by Simula 67 (1967) are the two first object-oriented languages. Simula 67 introduced most of the key concepts of object-oriented programming: both objects and classes, subclasses (usually referred to as inheritance) and virtual procedures, combined with safe referencing and mechanisms for bringing into

³⁰ McNeill, H.W., “*The State of the Art and Future of Decision Analysis*”, SEEL, HPC, 2000.

³¹ Kristen Nygaard started writing computer simulation programs in 1957. Nygaard saw a need for a better way of describing the heterogeneity and the operation of a system. To go further with his ideas on a formal computer language for describing a system, Nygaard realized that he needed someone with more programming skills than he had. Ole-Johan Dahl joined him on his work January 1962.

a program collections of program structures described under a common class heading (prefixed blocks).

Moore's Law

In 1965, Gordon Moore, who at the time was working³² as the director of research and development at Fairchild Semiconductor, was asked to contribute to the thirty-fifth anniversary issue of Electronics magazine with a prediction on the future of the semiconductor components industry over the next ten years. His response was a brief article entitled "*Cramming more components onto integrated circuits*"³³. Within his editorial, he speculated that by 1975 it would be possible to contain as many as 65,000 components on a single quarter-square-inch semiconductor. He estimated that the density would double each two years for at least 20 years.

Moore's law was the result of many years of experience in trial and error involving changing circuits and measuring their performance with data (explicit knowledge) and then repeating the process by altering the technique of placement until operational devices were produced. This repetition of tasks is what refined both the technique and engineering tacit knowledge and explicit knowledge, data, words and image were used to record progress.

Packet switching

In the mid-1960s packet switching was developed to send two-way error corrected text and numeric data over networks

Email

In the late 1960s a packet switching text signal was sent from Goddard Space station to the National Commission for Space Activities (CNAE) in Brazil to³⁴ demonstrate the viability of text communications.

Conclusions

The USA, through the Bretton Woods negotiations sought to destroy Britain's benefits attributed to Imperial preference.

Robert Triffin advised that using the United States dollar as the international currency was not advisable because this system would collapse.

Keynes' proposal of a more neutral international currency the Bancor was rejected.

Britain, following a close-to-Say model experienced unprecedented economic growth between 1945 and 1965, rises in real incomes, falling income disparity in a period which because of full employment, Keynesian policies were not applied.

The development of a theory of the Stages of Economic Development (Walt Rostow) was based on an incomplete development cycle of the UK. The examples of former hegemonic cycles would have led to the conclusion of a forthcoming rise in financialization and financial speculation.

Nicholas Kaldor advised against the adoption of monetary policy by the Labour government.

³² McNeill, H. W., "*Tacit and Explicit Knowledge*", RIO

³³ Moore, G., "*Cramming more components onto integrated circuits*", Electronics Magazine, 1965.

³⁴ Personal communication in 1970, Fernando de Mendonça, Director of CNAE.

More detailed analysis of tacit and explicit knowledge called attention to the importance of involving stakeholders in policy design.

During this period important contribution that extended the application of Boolean logic were to be found in the development of decision analysis as a discipline, systems engineering approach, more complex logic design involving transistors, the first computer simulation language based on the object-oriented approach, Moore's Law setting out the parameters of the future rise in power of integrated circuits. Error corrected global satellite communications and emails in operation.

SECTION 4

Further turmoil and the turning of the tide in the 1970s

The unstable craft in an increasingly choppy sea

By 1971, just 25 years following its creation at the Bretton Woods Conference, the Gold Standard was under pressure because increasing numbers of countries were cashing in their dollars for gold. To try and stop this drain on gold reserves, in 1971, delegations headed by U.S. Treasury Undersecretary Paul Volcker and Federal Reserve Board member Dewey Daane of the Richmond Federal Reserve Bank, did the rounds trying to dissuade European countries, such as The Netherlands, from cashing in their dollars for gold. In private conversations, while never admitting the USA did not want to honour its obligations, the offending bank governors, such as Jelle Zijlstra president of the Dutch central bank, was accused by Volcker of "rocking the boat". Zijlstra observed that,

"If the boat is rocking because we present \$250 million for conversion into gold or something that can be considered an equal asset, then the boat has already perished."

However, Triffin's 1960 predictions proved to be correct because with global economic growth the USA was not able to settle the accounts between countries on the basis of a Gold Standard. As a result, when the USA faced this crisis in the run up to 1971, with several countries requesting settlement of dollars held in exchange for gold, the Gold Standard collapsed when Nixon unilaterally removed this obligation. Up until 1971 the USA's competitive position meant the trade balance had remained in equilibrium but the implications of coming off the Gold Standard became serious. Coincidentally, increasing numbers of countries, such as Japan in several goods, and in particular consumer electronics, were beginning to produce more competitive products than the USA. The trade balance of the USA rapidly became negative. The USA began to lose what had been a competitive advantage in some industries. Now with no benchmark in a sea of floating fiat currencies the USA and the UK rapidly lost their global "competitive positions" in industry and manufacturing.

Unanswered question

A question that was never raised or fully explained at the time, was why, in fact, the USA was running out of gold. The whole notion of the gold standard required conversions into gold to maintain trade balance and stability in relative exchange rates. The reason why small amounts of gold conversion were causing delegations from the USA trying to dissuade countries from cashing in their gold was that the USA had been issuing too many dollars without an accompanying rise in real US output and exports to build their gold reserves. Whereas such situations can be transitory and based on timing of administrative decision cycles, it appeared that this had become systemic and the inevitable result of an intentional "strategy" or inadvertent result of poor management discipline. In other words, it appears that they had been behaving the way that gave credence to an intentional strategy based on a known or imagined behaviour of the Bank of England during the colonial period to gain national "advantage" at the cost of the rest of the world, through the Imperial Preference model. The very strategy it is alleged was being applied to undermine British power had backfired.

From a national strategy to mutual suicide pact

In basic terms, the US strategy to undermine the power of Britain, with in the end the agreement of Britain, in a desire to become the world's dominant force backfired to become a slow mutual suicide pact under Bretton Woods. Although not fully realized in 1971, both the UK and USA, while in reality having some competitive industries both entered into an economic decline which manifested itself in the UK's balance of payments diving first to be followed, a decade or so later, by the USA. This process was to continue up until the present time.

Slumpflation

In 1973, as a result of warfare between Israel and Arab countries supporting the Palestinian cause the international support and arming of Israel by the USA, the UK and other oil-importing countries in the "West", resulted in OPEC retaliating by raising the international price of petroleum. The price was to rise seven-fold within a decade.

For most countries in the world, including the USA and Britain, petroleum was a major import item in terms of value and dependency of much of the operation of the economy. Therefore, one of the first impacts was rising input costs across economies leading to cost-push inflation. This took effect with such speed that the subsequent rise in prices of products and services, using petroleum and petroleum derivatives, such as transport impacting all sectors, resulted in an imposed reduction in consumption leading to rising unemployment in these production sectors. The result was slumpflation, the combination of inflation with rising unemployment, also referred to as stagflation.

The role of the IMF in maintaining high petroleum prices

Following the abandonment of the Gold Standard in 1971, the expectation was that the IMF would be closed down or perhaps become an appendage in support of the World Bank operations.

Amongst the options reviewed to react to the OPEC petroleum price rises, including military action against petroleum exporters, Nixon and Ford initially wanted the IMF, in spite of its then current irrelevance, to criticise the actions by Arab petroleum exporting nations to attempt to gather international support for any subsequent action. Initially, the argument, as always, was to be based on humanitarian grounds on the basis of the price rises causing worldwide disruption and, in particular, damaging the development prospects of low-income countries. However, Johannes Witteveen, the Managing Director of the IMF, had assumed his position in September 1973 following pressure from developing countries and Arab nations to substitute the original nominee, Emile van Lennep, Secretary General of the OECD and who was supported by the Western developed nations³⁵. Witteveen's actions were confusing to some in that he operated in a very low-profile manner, was soft spoken and limited delegation and handling all negotiations himself in discreet meetings and, it would seem, took most decisions. However, on this basis he established the concept of recycling of the growing dollar reserves in exporting countries to the IMF to set up loans using Arab finance, arising from the rapidly accumulating petrodollars, to help low-income countries purchase their petroleum requirements.

³⁵ International Monetary Fund: "Selecting a Managing Director", R41828, May 20, 2011

Although this was promoted as the IMF "helping" oil-consuming nations pay for their petroleum imports and sustaining world trade, this move very much favoured the interests of Middle Eastern oil producers because flow of oil at very high prices continued and the imports paid interest on their loans and thereby raised the cost of imports further still to the benefit of the IMF and petroleum exporters. In reality the proportion of such recycling handled by the IMF was small but Witteveen succeeded in raising the loans issued by the IMF seven-fold over the period 1973 and 1977, from less than \$1 billion to around \$7 billion.

Pattern of behaviour

As a result of parallel negotiations, private banks in the USA and other financial centres, the growth direct investment in oil importing countries by oil exporting countries grew. This led to a massive rise in purchases of, for example munitions and military equipment from the USA, UK and France as well as investment in companies in the USA and other countries. This practice served as a demonstration of what later emerged as Sovereign Wealth Funds a decade or so later where governments began to manage such funds to invest on a financial return basis in foreign country economic activities. Associated with this massive rise in dollar transactions allegations of bribery and corruption began to surface tainting the records of the Thatcher and Blair governments. Most cases involved allegations involving Saudi Arabian officials and arms companies such as BAE. The custom of Saudi Arabian leaders to distribute cases or chests containing millions of dollars to leaders in the surrounding countries as the basis of their regional cash-diplomacy had spread further afield to become of direct interest to national leaders and their political parties in Europe and the USA. The concern of the financial sector and political leadership with the rising petroleum prices evaporated as did the consideration of military options to force poorly defended oil producers to lower prices.

Extending the slumpflation crisis

Far from being helpful, the IMF actions resulted in the support of the continued rise in petroleum prices and extending the slumpflation crisis, which started in 1973 and continued into the 1990s, creating hardship for most wage-earning constituents in the USA, UK and other countries in the world.

The possible reason for the IMF behaviour

While providing "finance" during the slumpflation period, the IMF did little to effectively tackle inflation or resist the blackmail imposed by increasing petroleum prices. It is doubtful if anyone knows what Witteveen's inner motivations were, but his decisions, although appearing to be helpful and well-meaning at the outset, were likely to have been influenced by the fact that he was a Moslem. It can be assumed that Saudi Arabian cash diplomacy was used to "encourage" less developed nations to lobby for him in 1973, to replace the then current nominee, Emile van Lennep, favoured by industrial nations. Witteveen's name, used by his Sufi Moslem sect was Murshid Karimbakhsh Witteveen. In the academic world he was acknowledged as a prolific author having written more than a dozen books since 1947 about the Politics, Finance, Economics, Business and Sufism.

Whereas largely a person from the distant and almost forgotten past, it is notable that when he passed away in 2019 at the age of 97, the very first organization to publicize his death was the website of the Sufi Muslim organization.

Getting in on the act

However, the dollar recirculation solution through the appeal of the authority of the IMF, added some respectability to this “solution” being rapidly taken up by private banks, petroleum traders and political lobbyists filtering down into political party coffers. This resulted in this “process” being in the interests of all involved to become more concerned with rising and, in many cases, exorbitant cash incomes than with the fact that petroleum prices were still rising. All of this was to be acclaimed to be an example of “international cooperation”.

Going in the wrong direction

Witteveen’s decisions while supportive of the Arab cause, set in train policy transitions and spheres of influence that have not been positive. They contributed to the slowdown in the necessary transitions in technology, the continued absence of productivity incentives in macroeconomic policy. This did nothing to counter the inordinate financial power of petroleum exporters who can still now, almost 50 years after their turning petroleum into a political weapon, still inflict the same sorts of damage on importing nations at their will.

Witteveen and the British economy

Although in Britain, the introduction of monetarism as a mainstream macroeconomic paradigm is associated with the government of Margaret Thatcher, the abandonment of Keynesianism and industrial policies and the adoption of monetarism first occurred under the Chancellorship of Denis Healey in the Wilson government. Healey had not pursued an industrialization policy along the lines of a logical model set out in Kaldor’s inaugural lecture as professor of economics at Cambridge University in 1966. In 1975, not knowing how to handle the slumpflation crisis, Denis Healey reverted to the pre-Keynesian model with a budget that:

- Substituted full employment and demand management with the balance of payments as the policy target
- Set cash limits on government programmes except social programmes
- Reduced public spending where deemed not to be unmeasurably beneficial
- Made income policy voluntary knowing this would result in a decline in the standard of living

Nicholas Kaldor, at that time a leading Labour adviser, counselled against this strategy emphasising the importance to invest in industry to help augment productivity and petroleum substitution technologies. Kaldor had explained in his lectures and in several papers that he considered intensification of industrialization vital to the continued growth of the United Kingdom economy. His emphasis was on the UK retaining strong industrial sector because of the logic of technological innovation driving expansion and real growth.

Healey chose to ignore Kaldor’s advice because a degree of panic had set in on his part leading to his decision. However, this panic had arisen as a result of an error on the part of the Treasury. They had over-estimated the borrowing requirement of the government at that time. Therefore, fearing a “run on the pound”, Denis Healey requested a loan from the International Monetary Fund (IMF). It was very unusual for a developed nation, let alone Britain, to make such a request, although the IMF had recently advanced loans to Hungary, Latvia and Iceland. However, the UK was another scale altogether. In the case of the United Kingdom, Johannes Witteveen, as was his custom, took personal control of these proceedings, just as he had done in the case of recycling dollars from Arab petroleum exporters to finance the purchase of rising priced petroleum in 1973. He

attended meetings in London concerning the conditions of the loan to Britain which were to intensify the unfortunate items already making up Healey's policy.

It is notable that Germany and France did not follow in Britain's footsteps. The Germans had a better appreciation of what was at stake and this was their supply side industrial and manufacturing productivity and exports. Based on a centuries long tradition of apprenticeships and technical education, Germany's strong balance of payments was the result of a massive accumulation of tacit knowledge and a flow of technological innovation within a very large number of specialised SMEs which were and remain the bedrock of Germany's success in exports³⁶ based, largely, on engineering and "technology-based" products. They understood well that a Healey-type "solution" would undermine the future prospects of the Germany; their preference was to follow the Kaldorian-type route which Britain had ignored.

In 1976, Nicholas Kaldor resigned from his advisory role with the Labour government³⁷ as a result of the swing towards monetarism and abandonment of an industrial policy.

The British educational system with a weak technical content and the combination of a visceral and increasingly confrontational approach industrial relations and the failure to register the importance of the human resources skill base (tacit knowledge) meant that insufficient consideration was given to incentives to encourage investment in technological and human resources investment.

Unfortunately, Denis Healey's precipitous decisions, albeit the result of his over-reliance on the Treasury's erroneous borrowing requirement estimates and a failure to conduct sufficient due diligence to check these figures, established the seeds of a policy environment dominated by monetarism. This would come to dominate British macroeconomic policy from then to the present day under both Conservative and Labour governments.

Interest rates as a monetary policy instrument

The emerging monetarist position was that inflation is always and everywhere a monetary phenomenon in a causal sense by excessive money creation. Kaldor provided a transparent explanation as to why these assumptions are wrong. Because money is largely made up of credit which comes into existence because it is required then money is endogenous to an economy and not the causal factor in the determination of output and prices.

Analysis completed in 1975-1976 demonstrated that far from having the impacts assigned to it as a monetary policy instrument, interest rates has an inverse effect. In basic terms when companies need to invest more to raise productivity to move away from recession caused by inflation and declining purchasing power, the erroneous policy reaction is to raise interest rates. This simply discourages the necessary investment.

On the other hand, if interest rates are lowered too much in an attempt to stimulate investment results in the purchase of assets as an easier way to gain profits as opposed to investing in supply side production activities.

³⁶ Werner, R., Reference made to the SME structure of successful German export companies in interview with Ross Ashcroft on Renegade Inc.

³⁷ Turner, M. S., "*Nicholas Kaldor and the Real World*", M.E.Sharpe, 1993.

In general, interest rates have, in reality, the inverse impacts to those monetarists claim.

Spreading the word

The fact that Healey had made the balance of payments a policy target of what had become a monetary policy, was unusual at that time, but this had a reinforcing effect on this aspect of IMF policy. Delighted with having managed a loan to the UK, a leading “developed” country, making the balance of payments the main policy target, was a feather in Witteveen’s cap. He authorized the preparation and publication of a book which appeared in 1977, entitled, *“The Monetary Approach to the Balance of Payments”* by the IMF. Typical of IMF publications this consists of a series of very academic articles by IMF staff members based on a mass of statistics and simple mathematical formulae which discuss the relationships between monetary policy and the balance of payments. There is absolutely no reference to the real economy or the specific conditions within the supply side goods production sectors that, in themselves, can improve the balance of payments situation on a sustained basis. The papers in this publication constituted a recipe for disaster because there are no auxiliary policy actions identified and designed to encourage rises in productivity; the point recognized by German economists and Nicholas Kaldor and confirmed by the first Real Incomes Approach document issued in 1976³⁸. As a result, the status of real wages and therefore aggregate consumption, became entirely dependent upon centralized monetary decisions which only look at the balance of payments in a vacuum, from a purely monetary perspective as opposed to the supply side solution of increased investment and productivity rises to enhance competitive advantage.

Witteveen encouraged the British government to double down of harsh loan conditions by intensifying the abandonment of incomes policies introduced by Denis Healey when the British government negotiated an IMF loan in 1976. The loan was paid back within a year not as a result of the effectiveness of IMF conditions but rather because the Treasury had made an over-estimation, an error, in their calculation of the borrowing requirement.

Irrespective of the facts, productivity agreements were abandoned and the UK returned to the politics of wage-earner shakedowns for the sake of the balance of payments. This failed to help the balance of payments because nothing was done to address productivity. The fact that such conditions were agreed with Britain which paid the loan back in a short period was mistakenly interpreted as a reflection of value of prudent IMF conditions. The fact that the balance of payments did not improve was not a matter of concern for the IMF. This bolstering of confidence of the logic of the IMF “recovery” policies through the management of fiat non-gold backed dollars, applied in Britain, encouraged the IMF to repeat of this approach throughout the world in advanced, transition and low-income economies alike. The problem was that having considered slumpflation and declining balance of payments to be a monetary phenomenon the broadening range of credit for petroleum consumers meant the efforts to substitute petroleum with more economic alternatives were crippled and put off. The necessary advances in research to identify leading edge developments to support this cause were delayed, essentially for about 30 years. As a result, the period 1975 through to 2021 saw a devastation of some low-income country petroleum production zones and a rise in the intensity of greenhouse gas emissions and pollution associated with petroleum derivatives.

³⁸ McNeill., *“A Real Incomes Approach to Economics”*, Rio de Janeiro, 1976.

The New York Mercantile Exchange (Nymex) and Petroleum

The main petroleum corporations, the Seven Sisters, took advantage of the international petroleum price crisis to make still larger profits in a wholesale and retail market where they fixed the prices in cartel like operations. There was therefore a significant opportunity to carry out arbitrage between OPEC prices and those of the Seven Sisters and make massive profits on transactions. The first organization to see the opportunities for petroleum futures and spot trading was Nymex the New York Mercantile Exchange³⁹. Nymex had been better known in former years for futures trading in potatoes but a corruption scandal in potato futures put paid to that particular commodity on the exchange.

Being under the thumb of the all-powerful OPEC the oil market had long eluded the grasp of the oil barons in Houston Texas and Wall Street operatives. Starting with New York “heating oil” contracts alongside platinum and palladium, Nymex happen to draft a particularly well-designed futures contract. They remained fearful of possible reactions of OPEC, the government and the oil corporations but began to trade in petroleum in different grades and derivatives to soon become the world centre for international oil trading. In the early days, because there was no open market and Nymex had introduced continual real time trade price records using radio receivers, which at that time the main petroleum corporations did not have, Nymex traders easily undercut the petroleum corporations with individual traders making or losing sometimes millions of dollars in a single trading session.

Invincible, audacious decisions, coke-heads and hookers

In reality the rise of Nymex petroleum and petroleum derivatives trading took control of the international petroleum market trading. The money earned by traders and the exchange were extraordinary and unprecedented. Because the ability to manipulate the market there was a rise in levels of confidence arising amongst the market traders. If a trader lost money a refusal to leave the “trading pit”, sometimes for days and living off brought-in pizzas, would invariably result in a killing being made involving a commission of millions of dollars. This completely unreal level of earnings bred a sense amongst traders that they owned and controlled the market and this mindset amongst some leading to types of extreme behaviour including drug-taking and chartering planes loaded up with buddies and hookers for weekends in Las Vegas⁴⁰. The FBI carried out various “busts” related largely to cocaine but these, “did not seem to lead anywhere”. The cocaine habit tends to be associated with changes in behaviour characterised by audacious decision-making and the feeling of personal invincibility which seemed to characterise activities and attitudes.

Given the general nature of this business being personal gain with no particular view on the needs of buyers and sellers this trading became completely detached from national and international needs as reflected, for example, in the needs of low-income wage earners as consumers of petroleum and petroleum derivative products. This intentional manipulation of the petroleum market to keep prices beyond what is affordable for many wage-earners continues on the part of OPEC on the date of publication of this Review and Nymex traders continue to make a “good living”.

³⁹ McGrath Goodman, L., *“The Asylum - The Renegades who hijacked the world’s Oil Market”*, Harper Collins, 2011.

⁴⁰ McGrath Goodman, L., *“The Asylum - The Renegades who hijacked the world’s Oil Market”*, Harper Collins, 2011.

Futures markets

Futures markets were initiated informally between buyers of farm products and farmers to agree contract for future supplies at a fixed price to avoid problems associated with poor harvest when price would rise or price falls when there were gluts in production. The objective was to stabilize prices on behalf of both buyers and sellers. This structure assumed, for example, the traders were farmers, on the one hand, and users of agricultural commodities, on the other.

The Dojima Rice Exchange was established in 1730 in Japan dealing in rice. In England, exchanges existed in market towns the 16th century. The first registered commodity exchange in England was the London Metals and Market Exchange, established in 1877. In the USA the first was the Chicago Board of Trade (CBOT), formed in 1848 dealing in corn to be followed wheat and soybeans.

In arriving at an agreed futures price buyers and sellers look at the difference between the current price (spot) and compare this with the future prices which vary with the time laps between now and the time of delivery of the futures consignment. Future prices are related to sector information on seed sales, areas of different crops planted and expected average weather conditions and yields.

Hedging

Hedging is the process of maintaining a portfolio of contracts where losses in one can be compensated by gains in others. Therefore, hedging is designed to reduce the risk of buyers of contracts, be they producers such as farmers or processors such as millers, soybean oil/meal producers and meat processors.

Market driven hedging

In 1973 the economists Fischer Black and Myron Scholes developed a risk management model⁴¹ published in 1973 and Robert C. Merton published a paper⁴² on the mathematics behind this model. This formula was programmed as an algorithm and used to support computer-based options trading and led to a major growth area in financial assets, also called derivatives, initially for the Chicago Board Options Exchange and other options markets around the world, including the City of London.

The ability to use computer-based trading to issue false futures trade offers to initiate a surge in buying and price rises or panic selling and price drops were used to control market prices as well as profits. Automatic computer based high frequency trading was also developed with traders placing their servers as close to pricing decisions (exchanges) as possible to secure split second advantages over competing traders.

Heady optimism, hedge funds and assets

Hedge funds existed on a very limited basis many years ago but experience with Nymex for many resulted in a rapid growth in the 1980s. Unlike banks, which had started out with a well-defined constitutional function as a key link in national monetary policy, hedge funds were purely profit motivated and with no constitutional functions. This is why as a growth option they appealed to more experience Nymex traders as a way to branch out based on

⁴¹ Scholes, M., Black, F., "The Pricing of Options and Corporate Liabilities", in the Journal of Political Economy.

⁴² Merton., R. C., "Black–Scholes options pricing model".

the confidence and heady optimism of an ability to lever with low interest loans to manipulate asset values. The mentality of futures traders and the experience in Nymex established a view that commodity prices were irrelevant to making a trading profit on commodity futures. Financial assets in the form of derivatives would combine multiple contracts of, for example mortgages, or classes of future contracts in physical commodities into a saleable product with a million, or billion-dollar, price tag and an associated income or likely profit. Many of the former Nymex petroleum traders started hedge fund companies which largely survive by applying the Black and Scholes-type strategies to asset markets over which they have a good deal of control. These asset trades were usually not recorded openly but made up "over-the-counter" trades which have built up a "grey market" whose value today is multiples of the Gross National Products of nations.

The corruption of futures markets

One of the characteristics of futures markets, which began to cover more commodities, was that they became means whereby people who did not produce commodities nor use them in their economic activities could speculate by participating in the purchase of futures contracts.

Back in the later 1960s the author queried this practice from the standpoint of possible market distortions arising from the standpoint of the interests of agricultural producers and agricultural product processors such as millers or soybean oil and meal producers. Dr Roger Gray, who was a professor at the Stanford University Food Research Institute lectured and wrote papers on futures markets, considered speculative participation by non-producers and users of the commodities concerned, to be a basis for establishing market prices. This was one of those replies which the author considered required further explanation.

With the scale of trading and contracts which grew up in the Nymex market and hedge funds it became possible for these groups to speculate and destabilise futures commodity markets giving rise to price rises which would result in food, fibre (e.g. timber) feeding through into consumer prices as a result of cost-push inflation. Therefore, as a result of lax financial regulation, even banks became involved by subcontracting or even buying logistics companies who would purchase and hoard commodities to influence prices.

The algorithmic computer-based Black-Scholes type hedging was used to drive prices upwards to then sell commodities futures.

This is a corruption of futures markets destroying their original purpose as a means on introducing annual price predictability for the producers and users of the commodities concerned.

Post Gold Standard gold prices

The switch from a gold-backed monetary system in 1971 to a fiat system did raise questions on the likely rise in the price of gold as a safe asset as fiat currencies inflate and lose their purchasing power.

Concern about this was reflected in a communication between the London Gold Pool and the Federal Reserve in the USA in 1974. This pointed to the ability of futures trading in gold to create "paper gold" where the price could be manipulated downwards and maintained so as to "stabilize" the gold price to avoid runs on the dollar. This, in fact, is what has happened.

The occasional regulatory cases against big banks for gold and silver price manipulation result in minimal fines, easily covered by the next period's gold price manipulations. Indeed, such abuse, including the widespread fraud leading to the 2007 collapse, is closely related to the extremely lax "light touch" financial regulations where sanctions, in the form of fines, are so tiny, compared with the gains secured through fraud, that they pass for no more than a minor additional cost of doing business⁴³

Unanswered questions

Over the whole period the addiction to petroleum and its derivatives increased and petroleum exporters became increasingly influential in the politics of surrounding countries. Therefore, starting in the 1970s, petroleum is the commodity that has provided exporting countries with a disproportionate influence over the politics of importing countries, including the United Kingdom. There does not appear to have been any analysis of the degree to which Witteveen's assistance to the petroleum exporting countries in supporting their campaign to punish countries who supported Israel in the Israeli-Palestinian conflict was, in reality, a Moslem assisting nations of Islam. Or was it simply that his status as a monetary economist was sufficient to write off this calamity to a misguided judgement on international finance.

It is doubtful if anyone knows what Witteveen's inner motivations were, but his decisions, although appearing to be helpful and well-meaning at the outset, set in train policy transitions and spheres of influence that have not been positive, in the slowdown in the necessary transitions in technology, the continued absence of productivity incentives in macroeconomic policy or in reducing the inordinate financial power of petroleum exporters who can still, almost 50 years after their turning petroleum into a political weapon, still remain fully capable of inflicting the same sorts of damage on importing nations at their will.

It is notable that when Witteveen passed away in 2019 at the age of 97, that the first organization to publicize his death was the website of the Sufi Muslim organization.

Most of the media and online coverage on Witteveen does not mention the fact that he was a leading member of the Universal Sufi sect, but acknowledges only that he was a lobbyist for this group and prolific author having written more than a dozen books since 1947 about Politics, Finances, Economics, Business and Sufism.

Policy development responses

Very soon after the initiation of the OPEC price rises in 1973 and at the beginning of the slumpflation crisis, two specific initiatives began around 1975 to identify alternative policies to tackle slumpflation. Both of these approaches focused on supply side issues one became known as "Supply Side Economics" (SSE)⁴⁴ and the other developed a Real incomes Approach to economics to generate a proposal for Real Incomes Policy (RIP)⁴⁵.

⁴³ "JPMorgan pays \$920 million, admits misconduct over market manipulation", The Philadelphia Inquirer, September 29, 2020 (this abuse continued over an 8 year period).

⁴⁴ Roberts, P. C., *"The Supply Side Revolution"*, Harvard UP, 1984.

⁴⁵ McNeil, H. W., *"A Real Incomes Approach"*, INTERCOMEX, Rio de Janeiro, 1976.

Supply side economics

The supply side economics group was headed by Robert Mundell (1932- 2021) the Canadian economist. Robert Mundell's work on supply-side economics became associated with Arthur Laffer. Although carrying the name "supply-side economics" it was simply a variant on progressive taxation which introduced a marginal reduction in higher tax rates. This was justified on the basis of a highly theoretical notion that this would release more funds for investment. The additional assumption was that such investment would increase productivity and thereby make possible reductions in unit prices. This fiscal paradigm made up part of the Reagan administration's economic policy which also introduced a monetary instrument component of very high interest rates in an attempt to drive down inflation.

Because the policy package generated less government revenue the Reagan administrations generated one of the largest deficits in history impacting government income and reducing a range of public services. Income disparity grew substantially. Although some economists claim the deficit was unexpected, Paul Craig Roberts⁴⁶ confirmed that this was part of the Reagan's objective to "reduce the size of government". The Thatcher regime pursued the same objective but in reality, what substituted "government", in both cases, was an increasing flow of money with no particular objective in terms of improving real incomes or enhancing the competitive status of the economy.

Real Incomes Policy

The Real Incomes Policy group was headed by the author of this Review. This work started in 1975 with no pre-formed ideas as to what the solution to slumpflation might be. Based on training in economics the author presumed the issue of slumpflation should not be difficult to solve. However, in June 1975 it became very apparent that neither Keynesianism and monetarism offered any solution. The then existing toolkit, consisting of the policy instruments of interest rates, taxation, money injection or government borrowing and expenditure provided no options that would avoid imposing significant prejudice for the constituents in countries facing slumpflation. However, listening and reading the contributions by leading Keynesians and monetarists it soon became evident that there were two significant problems. The leading economists only spoke about theories and were keener to defend their "schools of thought" than address practical questions on the mechanisms of how their "solutions" would actually work. Even more problematic there was something evidently wrong with the theory because it was incapable of addressing what was happening in the economy. This was a pretty disastrous state of affairs facing economic theory and its status as a basis for designing macroeconomic policies. This crisis was never quite faced up to then and it is still remaining an issue in spite of universities teaching this topic, unaltered, as a discipline.

It was therefore necessary to go back to basics and to complete gaps and needs analyses, as applied in decision analysis, to begin from scratch to build a model. The stark reality is that to do this it is necessary, before concentrating on monetary aspects, to build a model dealing with physical goods production and consumption. Very soon it became apparent that the model immediately characterised the issue as a supply side production issue directly related to cost-push inflation and the productivity of the economy's production function. The production function is essentially the relationship between quantities and prices of inputs and quantities and prices of outputs. However, these more technical issues

⁴⁶ Roberts P. C., "*The Supply-Side Revolution*", Harvard UP, 1984.

are more intimately tied up with technological and human capabilities development. But these topics are covered by completely blank pages in the Keynesian and monetarist university text books⁴⁷ because these aspects are not covered in the original works of these “schools of thought”. A description of what emerged from this work over the last 45 years of development is provided in Section 10.

The performance of other Bretton Woods institutions

GATT, established in 1947, became part of the Bretton Woods system specialising in the alignment of economies to support reductions in tariffs in the name of “free trade”. In 1964 the first Conference of UNCTAD (United Nations Conference on Trade and Development) took place and the report carried all of the submissions from developing nations. The submissions contained a considerable number of plans and proposals on how low-income countries who were exporters of raw materials could raise their income through post-harvest processing of agricultural and timber products before exporting them. Schemes for cooperative finance were suggested. At that time the Food and Agriculture Organization of the United Nations published a series of studies on cooperatives and processing techniques as a basis for adding value to agricultural products for export.⁴⁸ However, the combination of the IMF and World Bank stipulations for the advancing of loans emphasised the monetary paradigm which introduce restrictive macroeconomic policies to “support” the necessary conditions to qualify to receive such loans.

The typical outsized WB loans combined with insufficient absorptive capacity of most low-income countries led to waste and opportunities for corruption. By the 1990s, a World Bank review of the performance of the Bank’s loan portfolio⁴⁹ covering the period 1965 to 1992, came under closer scrutiny and results circulated in an internal report. This showed that something like 35% of loans were failing. In the case of agriculture and some infrastructural loans the failure rates approached 45%. Some loans were authorized to pay off outstanding loans.

The WB internal regulations (Operational Procedures) that all loans were required to be subject to economic rates of return estimates before Board⁵⁰ approval, was shown to have been abandoned. Only around 20% of approved loans had been subjected to Cost-Benefit Analyses before approval. In another report by the WB Evaluation Group, in spite of the “reorganization” that took place in the mid-1990s, confirmed in 2010, that the state of affairs remained the same⁵¹.

At the same time as this review environmental experts reported on the disastrous cumulative record of the World Bank on the front of ⁵² biodiversity and protection of ecosystems by funding destructive hydroelectric schemes that displaced communities from locations where the reservoirs were to be located without compensation. Many coal-based powered stations were approved using the limited and valuable General

⁴⁷ McNeill, H. W., “*The Technological ignorance of KM economists*”, Charter House Essays in Political Economy, HPC, 1981.

⁴⁸ McNeill, H. W., “*Defects of commodity control schemes*”, DAS Dissertation, School of Agriculture, University of Cambridge, 1967.

⁴⁹ Wappenhans, W., “*Review of the World Bank Project portfolio*”, World Bank, 1992

⁵⁰ OQSI, “The Impact of trends in the international development environment on project performance”, OQSI, 2018.

⁵¹ “Cost-Benefit Analysis”, Independent Evaluation Group, World Bank, 2010.

⁵² Rich, B., “*Foreclosing the Future*”, The World Bank and the Politics of Environmental Destruction, ” Island Press, 2013

Environmental Facility funds to carry out the environmental impact statements for these projects.

Safer options

There were and are many examples of local savings and loan banks, mutuals and microcredit institutions serving the poor, having lower project failure rates and higher full loan repayment status than the World Bank. These organizations carried out their business in local currencies as opposed to dollars. The most significant example is the Grameen Bank which started out in 1976 as a research project to study how to design a credit delivery system to provide banking services to the rural poor. This project was proposed and managed by Professor Muhammad Yunus of the University of Chittagong, Bangladesh. In October 1983 the Grameen Bank was authorised by national legislation to operate as an independent bank

Real Incomes Policy analysis has also shown that normal economies and efficiencies, leading to rising productivity, can often sustain a rate of innovation based on rising income and not requiring loans. In the Say Model, based on very low marginal cost innovation, productivity growth rates in excess of 2%/annum or 18% per decade can be secured in most sectors.

Climate change, income disparity and sustainability

The result of over 75 years of development under the Bretton Woods framework institutional guidance, we find a world characterized by rising income disparity, declining production and consumption sustainability and an accelerating climate crisis as monetarism's contribution to global development became closely associated with rising emissions of greenhouse gases and temperature rises. No one can deny the overall rise in nominal income levels worldwide but the efficiency of this process has been lamentable as has been the development of extremes in income disparity within and between countries.

This state of affairs was confirmed in the 2019 United National Report on Sustainable Development which confirmed that our pattern of economic growth has caused the Sustainable Development Goals of Reduced Inequality (SDG 10), Production and Consumption Sustainability (SDG12) and Climate Action (SDG13) to all be tracking in reverse of the desired direction; things are getting worse, driven on by inappropriate economic policies.

No effective response to criticisms

The WB has published such analytical reports and yet the flow of authorized projects without effective economic appraisals has continued to a grand total exceeding \$400 billion over the last decade. It is odd that such reports can be published and yet nothing is done at the Bank to correct the situation. This required a decision by senior management. However, the senior managers are themselves compromised by having to work closely with a WB Board made up of government representatives and politicians from Member States. Most of these individuals do not want close audits or economic appraisals that might cast doubt on the efficacy of their preferred projects. As a result, senior management is aware of the fact staff are not completing economic rates of return analyses as required, but they allow this to continue to make their own life easier on the political front as well as ensure their continued status and employment by the institution.

Loss of control

One of the notable trends in the 1990s was that although the World Bank used to liaise and negotiate with central governments, in the case of Brazil this was the Federal government. However, increasingly state governors and agencies were visiting Washington to drum up interest in state projects and to negotiate conditions. These would be advanced to a stage that refusal to support the loan for a project would create a political issue both for the World Bank as well as the Federal government. As a result, in spite of very large country reports and strategy documents the process of project design and approval became highly politicised and questions of cost-benefit in the context of national interests seemed to become marginalised.

There was an instance of an attempt to use state projects to gain funds for the re-election of a governor in an Amazonian state as well as subsequent alterations in project specification introduced by Bank staff to avoid World Bank procurement preventing these funds from being lost from the project.

The reshaping of monetary policy

The experience of the 1970s set in motion a trend of considering money recycling or issuance as a way to maintain asset values. This general approach and mindset were to become a bedrock of monetary policy leading to a stop-go policy of increasing money issuance to stave off depressions reflected in stock market declines.

The reshaping of foreign policy

The experience of converting a potential disaster into a money-generating bonanza, by the adoption of the petrodollar recycling model developed by the IMF and enthusiastically adopted by the financial services sector, very much to the delight of participating corporations, lobbyists and leading politicians helped focus the US foreign policy priorities increasingly on economic interests. In order to maintain this system, it was necessary for the range of countries participating in this scheme to rise each year.

The IMF and World Bank operated with all significant decisions being overseen and vetted by the US State Department concerning loan conditions. The strategy was and remains to bring increasing numbers of countries into a group of “collaborating countries” as contributors to a system which facilitated the ability of the USA to issue more dollars in exchange for transactions involving lower tariffs. The conditions of loans were, in general, reductions in the role of governments in economies so as to turn over increasing segments such as health services and utilities to private operations.

This policy of the United States foreign policy under the State Department has become increasingly aggressive and interventionist in the cases of countries that were not aligned with this system. This has led to increasing interference in the internal politics and elections of such countries and building up an “alliance” of countries who provided a convenient ability to refer to non-aligned countries as going against “world opinion”.

In the meantime, during this period

From integrated circuits to microprocessors

In 1974 applying “Boolean reduction”, a logical procedure developed by George Boole and introduced as a basis for circuit design by Claude Shannon was advanced by Intel to produce a microprocessor, or computer, on a chip. This development was the result of well

over 35 years of painstaking development work, improving techniques, technology, documentation (explicit knowledge) and the sharing of tacit knowledge by on what is possible by engineers applied in design and other aspects of these developments.

Databases and queries

In the 1970s Structured Query Language (SQL) came into existence. This remains a well-structured method of arranging data into easily analysed data sets on the basis of searches, based on Boolean logic, as well as conversion by applying algorithms, based on Boolean logic.

SQL was initially developed at IBM by Donald Chamberlin and Raymond Boyce based on a relational model created by Edgar Codd in the early 1970s. Initially called SEQUEL (Structured English Query Language), it was designed to manipulate and retrieve data stored in IBM's original quasi-relational database management system "R", developed by the IBM San Jose Research Lab in Silicon Valley, during the 1970s.

Conclusions

During this eventful decade, Bretton Woods failed and the Gold Standards was abandoned. In a new fiat currency world, the international petroleum price crisis drove the world into a slumpflation crisis.

An inappropriate response of the IMF to this petroleum price crisis resulted in petroleum prices rising still further while using petrodollars to provide loans to low income countries to purchase petroleum at ever increasing prices. This recirculation resulted in a massive influx of money into Western countries via banks and via lobbies into political party coffers.

No effective action was taken to substitute petroleum and the resulting slumpflation persisted for a further 20 years in Britain and elsewhere.

The Labour government abandoned Keynesianism and industrial policies and introduced monetarism.

The IMF imposed stricter conditions on a British loan nominally to improve the balance of payments. The IMF repeated this "formula" on a worldwide basis.

Nymex entered the international petroleum market.

Computer-based hedging was initiated and hedge funds appeared handling a rapidly growing derivatives grey market.

Mergers and acquisitions grew with the growth of hedge funds increasingly involved in asset stripping and control of commodity market prices.

Supply side economics appears, applied in USA but fails. UK government adopts the same paradigm. Real Incomes Policy developed but never applied.

Bretton Woods institutions develop poor performance record.

Non-US\$ based local loans have lower failure rate than World Bank loans.

USA foreign policy becomes increasingly interventionist.

Chip integration advances to create a computer on a chip and data management advances into the SQL world.

SECTION 5

The monetary cascade 1980-2000

Financialization

There is a general notion that financialization of the economy is a relatively recent phenomenon. Financial intermediation and banking are ancient practices, well over 3,000 years old. In terms of modern economic management, it has become a complement to lending using funds built up as corporate equity or from savings built up from earned income by households. It complemented already existing investment assets.

However, the activities, processes and products have become increasingly complex to the degree that oversight for risk has sometimes been deficient for extremely large amounts of funds. The main contributory steps and phases of increased financialization which were initiated in the 1970s in the form of changes in mechanisms, techniques and policy are listed below⁵³ in roughly chronological order:

- The movement off the Gold standard in 1971 (Nixon, USA)
- The accelerating development of financial derivative products beyond commodity futures
- The development of the 1973 Black-Scholes hedging model for derivatives
- The Reagan administration's generation of one of the largest government deficits in US history under a monetarist agenda aiming to "reduce the size of government" by applying supply side economics principles and raising interest rates above 20%
- In 1987 Alan Greenspan the Federal Reserve Chairman introduced what became known as the Greenspan put of issuing more money to offset a decline in the stock market triggered by over-valuations of high tech "dot com" shares. This was a forerunner of different forms of quantitative easing to stretch out to 2022.
- The rupture of the Glass-Steagall Act (1933) in 1991 when the Commodity Futures Trading Commission provided Goldman Sachs with a "Bona Fide Hedging" exemption to be followed by similar exemptions for other banks
- Under President Bill Clinton bank deregulation was formalized through the repeal of the Glass-Steagall Act (1933) in 1999 by the Gramm-Leach-Bliley Act. This effectively removed the barrier between retail and investment/trading activities in banks
- In the UK the Thatcher government deregulated deposit takers, such as mutuals, to become banks on the plc model
- The dominance of macroeconomic policy by monetarism since the 1980s continues
- Monetary policy has maintained a tolerance of low but positive inflation rates that have devalued the pound by over 98% since 1945

⁵³ McNeill, H. W., *"The journey from 1971 to 2020 - the consolidation of financialization"*, RIO.

- A refusal of policy-makers to target zero or negative inflation but maintenance of low positive interest rates creating a real income depreciation treadmill for wage-earners
- The organization of the Euro Zone in 1999 precipitating and crystallizing economic regional differentials and in some cases national marginalization
- A rate of enlargement of the European Union since 2004 exceeded the economic resources to bring all countries into a comparable economic status on the basis of the monetarist model applied within the Euro Zone as well as in member states not members of the Euro Zone
- The increasing participation of banks in derivative and commodity futures trading
- Bank and company regulation came under extra-constitutional regimes that effectively were managed by the main players in the financial and corporate sector and increasingly by hedge funds
- With deregulation and the advance in shaping of many new financial derivative products private banking activities shifted from their prime policy role as mainstream lenders in support of the social and economic constituency to trading activities carried out largely for the benefit of bank shareholders and executives
- Monetary policy control over national finance has become increasingly ineffective as a result of unrecorded derivative trading being variously reported to be 4-6 times the size of the national income
- The growth in use of performance “ratings” (such as AAA) based almost exclusively on financial measures and issued by agencies closely associated with the parties who derive a direct benefit from the sale of rated products
- In November 2007 the Federal Reserve in the USA increased interest rates causing many low-income mortgage payers to be unable to meet payments causing many mortgage-based derivatives to lose their value in a sub-prime crisis
- Many banks failed not only because of the falling value of their derivative portfolios but because it became impossible to recoup full equity in collateral because of falling house prices and facing falling dollar exchange rate, exacerbating value of derivatives held by UK banks
- Governments (2008-2012) decided to bail out banks to such a degree that issues of risk to sovereign debt became a major issue for the social constituencies in terms of future tax liabilities and subsequent drainage of funds from supply side investment
- The enforced Euro Zone monetary policy begins to fail in the periphery of Europe where major bank failures and sovereign debt becomes a major issue (Greece, Spain, Portugal, Italy, Cyprus and others) requiring bail outs.
- Countries enter phase of low interest rates and quantitative easing hurting savers
- Austerity regimes initiated to pay off government debts and account deficits exacerbating ability to generate growth while draining public services accounts

causing reductions in the staffing of essential services such as the police, fire, National Health Service, care provisions and infrastructural maintenance

- Quantitative easing causes a major inflation in the asset markets including land, real estate, precious metals, objects of rare art, selected commodities and shares whose prices are driven upwards by companies using cheap finance to buy back shares)
- The share inflation caused by exogenous money flowing into assets is used to create a parallel source of bonuses and income for executives; shareholders support this trend serving their own interests.
- The involvement of banks and hedge funds directly or through proxies in a widening range of commodity positions creates inflation in food, fibre and feedstocks including petroleum filtering through into retail prices for wage-earners creating rise in the cost of living
- Banks and construction firms heavily involved in land speculation through “land banking” to drive up prices.
- The inflation in real estate and land begins to feed through into a structural cost-push inflation in the supply side input costs for commercial and manufacturing units, warehousing, construction sites and services infrastructures.
- Land banking preventing expansion of housing and the concentration of construction of “investment units” such as high-end residences and exclusive office units for foreign investors, reduces the construction of low-cost housing
- Land and real estate price speculation, intensified by quantitative easing, raises the levels of prices and rentals for wage-earners to increase the cost of living.

The rising low interest rate debts, although contributing to an inflation in share prices, were also exacerbating an ability to generate growth because investment was not going into supply side production. This changing framework within which derivatives and other financial products evolved, undermined the ability of policy makers to predict, monitor and avoid the recent financial crisis. However, the basic approach to monetary policy was already undermining the real economy, but in a less obvious fashion, before this new framework came into being.

The decline in ethical decisions

In terms of the public good of law, frameworks of supportive regulations and enforcement procedures, the degree of compliance on the part of economic actors cannot be accurately predicted. This is because of the tension between law, ethics and prudence.

Law establishes the rules to be observed, ethics is the degree to which actors adhere to these laws and prudence is what the actor considers to be in their own interest. As a result, in the field of economic relations decisions⁵⁴ become a trade-off between a decision maker’s preferences determined by:

- the potential costs (legal sanctions) of not adhering to the law

⁵⁴ Howard, R. A., & Korver, C. D. , “*Ethics – for the real world – Creating a personal code to guide decisions in work and life*”, Harvard Business Press, 2008.

- the potential cost-benefit in serving the actors economic interests in not adhering to the law against the potential cost-benefit of observing regulations (prudence)
- the degree of commitment to doing what is right in terms of the law (ethics) of what is considered to be a fair and right decision according to human conscience

Therefore, when sanctions are “light” or actors have a particularly influential decision power over the agencies regulating their behaviour, then prudent decision making becomes largely one of self-interest with a tendency to reduce the likelihood of decision-making being guided by ethics or the law.

The ethical dimension has an important property beyond adherence to the law. This is because laws are often created to protect people participating in transactions and therefore there is an element in this analysis of ethics which is not only one relating to the degree law is being obeyed but also to the degree the decision makers concerned are prepared to harm others in the knowledge that they might be harmed by sanctions.

This sort of behaviour shows a failure to do what is expected of an individual in terms of the general concept of a community conscience and what a jury would judge to be the fair treatment of others.

As long as financial regulations are associated with light enforcement sanctions it will be remain prudent for corporate managers to break the law since the cost of sanctions compared with the benefit to be gained is far too low. As a result, breaking to law to maximise financial returns simply becomes a minor cost of doing business.

Therefore, it becomes apparent that the potential role of the public good of law and regulation in the operation of the economy is of fundamental importance and an essential constitutional issue. For this reason, the relaxation of financial regulations throughout this period is regrettable and ill-advised.

Real incomes depreciation treadmill

Former theoretical monetary models were based on a notion that funds, in the form of savings, provide the base capital for banks to hypothecate these holdings to generate loans that are nominally many times the value of the capital holdings (between 20:1 and 30:1). The role of banks as organizations that can manage people’s savings arose in the past when communications networks were poor and expensive so the options on alternative ways to obtain returns, open to savers, were restricted.

There are, however, a series of subtle details in monetary policy (money volume and interest rate setting) that destroy this mythology. Banks, in reality do not need savers. This is because loans, in reality, are conjured up out of thin air as explained in a Bank of England Bulletin⁵⁵. This is why the growth in worldwide debt has far outpaced the rate of any hypothecated savings since the petrodollar scramble starting in 1973. On the other hand, quantitative easing, being associated with close-to-zero interest rates, has destroyed savings for those who used to rely on this as a source of fixed income, such as retirees.

⁵⁵ McLeay, M, Radia, A. and Thomas, R., *“Money creation in the modern economy”*, Monetary Analysis Directorate, Bank of England, Quarterly Bulletin 2014 Q1

Avoiding a dollar run by replacing a gold rush by an asset price rush

The manipulation of the gold price by banks and continues but has been facilitated by the realization that by injecting increasing amounts of money into the economy, these funds flow into other assets. Gold traditionally held its value as a hedge against an inflating currency because it is effectively a fixed or slowly growing physical quantity. However, the heady experience with hedge fund operations trading of just about anything led to the attitude that first became apparent at Nymex in the late 1970s that prices are irrelevant in making a profit from transactions. High frequency trading, largely computer-based, could maintain a constant rise in asset values helping make hedging a success as long as the government injected more funds into the economy.

Where things got out of balance the tendency became that of central banks injecting more money, at lower interest rates to help traders take low interest loans to drive up asset prices. This was the rationale of Alan Greenspan, the Federal Reserve Chairman, introducing what became known as the “Greenspan put” of issuing more money to offset a decline in the stock market in 1987. This was triggered by a crisis of falls in share values following over-valuations of high tech “dot com” shares. This was a forerunner of different forms of quantitative easing to stretch out to 2022.

In following Reagan’s desire for smaller government, Greenspan initiated the substitution of “government” by increasing monetary injections.

Although the main attention and reference of central banks, as reported in the media, is the level of share prices. In reality the very same manipulations based on low interest loans are used by banks to create price rises in a far wider range of assets including land, real estate, commodities including food, fibre and energy feedstocks.

Another asset growth which remains below the radar has been the massive flow of funds into offshore production starting out in the late 1970s and establishing manufacturing units in South East Asia leading to a concentration of such activities in China, Taiwan, South Korea, Vietnam and Bangladesh. As is well-established this led to the loss of employment in skilled work in the United Kingdom starting in 1975 and progressing up until the present date.

The same process affected large regions of the USA creating the “rust belt” and other Western countries following this monetary foreign policy paradigm in the name of “free trade”.

In Europe, the only country to resist this type of national-policy induced decadence was Germany where the political class has a better strategic grasp of the importance of national industry and manufacturing in supporting real economic growth. Until recently, Germany had a positive trade balance greater than that of China. In Q2 2021 the USA and the UK had trade balances of -\$190 billion and -\$12 billion respectively whereas Germany with a population of 84 million had a trade balance of \$87 billion and China with a population of 1.4 billion had trade balances of \$55 billion⁵⁶.

The poor performances of the UK and USA is the result of seriously defective monetary policies which have never provided the types of incentive necessary to maintain their industry and manufacturing sectors. In spite of the monetarist’s claims that higher wages will undermine UK productivity, Germany succeeded in achieving its balance of payments

⁵⁶ OECD.Stat; “Balance of Payments (BOP6)”, 2021.

performance with higher average wage rates (\$52,000 against UK's \$42,000). There are evidently serious structural issues in the UK which go beyond its inept macroeconomic policy performance and which are explored in Section 10.

A dangerous addiction

The unfortunate result has been a dangerous addition to money injections into the economy as a means of driving up the value of a range of assets. This has been operated at the expense of paying more attention to the important process of maintaining the evolution in labour force competence based on incentives for a timely advance in technologies and techniques within the industrial sectors of the United Kingdom. This would be the basis for a vibrant industrial and manufacturing sector as the foundation for real growth and rising real wages and a balance of payments as evidenced in the performance of Germany and China.

The destruction of the Say Model

The outcome of almost 50 years of inept and dangerous policy making the operational model which was operating between 1945 and 1965 as a close to a Say Model, has been completely destroyed. The Say Model as a circular economy within which real economic growth was based in increasing consumption arising from rising wages whose payment was made viable through technological innovation and rising productivity improved over time by the labour force refining their techniques.

The 1981 Budget

In 1981, the Conservative government introduced a Budget. Two economists, Frank Horace Hahn FBA (1925–2013) and Robert Ralph Neild (1924–2018), members of the Cambridge Faculty of Economics, drafted a letter with the intent of sending it to the Times newspaper disagreeing with the policy. However, more economists wished to sign the letter and the number of signatures for a letter exceeded the limit set by the Times. Therefore, the authors agreed to redraft the letter into a statement which was published with 364 signatures from leading economists from faculties throughout Britain. This statement created some controversy.

This statement was also signed by Nicholas Kaldor, by then Lord Kaldor. The statement criticized the Budget and policy as not being aligned with existing theory or evidence that deflating demand would bring inflation under control. It further stated that the government policy would deepen the depression, erode the industrial base of the economy and threaten its social and political stability⁵⁷. The statement advised that there were alternative policies. It was also stated that the time had come to reject monetarist policies and to consider urgently which alternative offers the best hope of sustained economic recovery.

These economists proved to be right on the question of this budget deepening the recession but after two years inflation declined largely as a result of depression and as a result a general reduction in cost-push factors resulting from low consumption turning input factors markets into buyer's markets. On the other hand, the main input factor causing inflation, the international petroleum price falling from \$125 in 1981 to \$25 by 1986 which had nothing to do with the government's policy. The economists were also correct in predicting the erosion in our industrial base and rising social and political instability.

⁵⁷ Neild, R., "The 1981 statement by 364 economists" in Needham, D., and Hotson, A., "Expansionary Fiscal Contraction", Cambridge, 2014

Geoffrey Howe who was the Chancellor of the Exchequer at the time, later commented that although the statement criticized the Budget and policy it contained no alternative proposals. This is, indeed, true and also surprise given that Nicholas Kaldor was a signatory since the fundamental issues as a complete oversight of the role of technology and therefore the needed emphasis on industry and manufacturing. However, in spite of this, in 1981 the author, having been in contact with economic representatives of all main political parties at the time⁵⁸ making any proposal which also emphasises technological innovation would have been rejected by the government advisers. The evidence of this is set out in Section 9

Both the Reagan and Thatcher administrations sought to “reduce the size of government” and to expand the role of the private sector in economic activities. However, from this period onwards the trade balances in the UK and USA began to decline rapidly starting in the UK in 1985 and the USA in 2000 as a result of declining competitiveness of supply side production.

Economies are always in a state of disequilibrium

One of the outcomes of the Real Incomes Policy analysis is that to secure real growth economies will remain in a constant state of disequilibrium. This was simply a rediscovery of Nicholas Kaldor’s position expressed in the 1970s, very much to the dissatisfaction of other economists. Kaldor based his conclusion on changes in technology and this aligned with the Peter Schumpeter’s view of growth resulting from “creative destruction”. However, the word “destructive”, in this context, is somewhat negative whereas Schumpeter was referring to a process which brought significant benefits to populations by improving on the effectiveness and efficiency of processes.

“Ideas” concerning the National Health Service

In 1988, Oliver Letwin and John Redwood, two Conservative MPs wrote a paper⁵⁹ proposing the privatization of the NHS.

The starting point for any such a review would be expected to establish what the medical practitioners and staff needs in terms of a prolonged training to maintain an effective operational performance and to scale the preparation of medical practitioners to map over the population’s needs according to growth, and requirements associated with different life stages.

However, while exaggerating the poor state of a service offering treatment that was free at the point of delivery, they criticised the service for being “puritanical” referring to queuing as a sign of inefficiency when this in reality is almost always caused by inadequate capacity i.e. too few beds and/or too few doctors/nurses. Their recommendations were based on comparing the existing service with what “consumers”, visiting a holiday camp would expect.

In spite of this erroneous starting point, this document ended up with a proposal for 5 staged progressions in policy to introduce:

- realignment of the NHS as an independent trust;
- increased joint ventures between the NHS and the private sector;
- extend the principle of charging;

⁵⁸ McNeill, H. W., “Bulletin” Entry of March 26, 2020, RIO.

⁵⁹ Letwin, O., & Redwood, J, “*Britain’s Biggest Enterprise: ideas for radical reform of the NHS*”, Centre for Policy Studies, 1988

- bring in GP-administered “health credits”;
- introduce a national health insurance scheme.

Although referring to a series of management efficiency proposals to be introduced in stages, the subsequent developments by the Conservative government, and all subsequent Labour and Conservative governments to date. Following the arbitrary style of this threadbare proposal and blueprint, these stages have been introducing successively while at the same time committing the crucial error of carrying out most planning and decisions without involving the medical practitioners and other staff, the stakeholders who deliver the service. As a result, a series of errors were introduced in each stage over-burdening medical staff.

It is only human nature that if governments only deal with existing management that it is these groups that will expand as a direct consequence of Parkinson’s law.

Taming the media by changing truths

In the run up to the 1997 general election, Gordon Brown and Tony Blair carried out a strategy to attempt to bring the media and City of London, whose institutions had a significant influence over media content, into a state of increasing confidence that it was worth supporting what was to become new Labour. Therefore, it was necessary to change the overall image of the intent of the Labour party by dispelling some mythologies and facts to create a new truth. Gordon Brown as shadow Chancellor was given the job of liaison with the City and Tony Blair, following Margaret Thatcher’s battles with the unions, was to change the perception of union influence over Labour policies.

The City and the Bank of England independence

A careful preparation by Brown involved taking control of the all of the proposed budgets of government departments proposed by shadow ministers. Gordon Brown then set about reducing their values so as to dispel the notion that Labour would become a tax and spend government by reducing the proposed budget meaning there would be less demand for higher taxation. The main undertaking which seemed to reflect an unwillingness to meddle in the economy was the undertaking to make the Bank of England independent. Although Brown’s justifications for BoE independence lay in the realms of an ability to safeguard monetary policy from political party and government extremes, it would seem that the main underlying reason was that Labour did not wish to be faced with the fiasco facing the Thatcher government caused by a widespread repossession on houses⁶⁰, caused by that government having raised interest rates to close to 20%.

On the other hand, with financial institutions having the most influence over Bank of England policy making this undertaking was an important form of guarantee for the City if, indeed Brown delivered on this promise.

In 1997 Gordon Brown made the Bank of England independent as his first act.

The Clause IV moment

In 1995, Tony Blair won a controversial vote to amend what was known as Clause IV of the Labour party constitution, ending the party’s commitment to nationalisation. This vote,

⁶⁰ McNeill, H. W., “*The Briton’s Quest for Freedom ... Our unfinished journey*”, Chapter 15 - The Economy & Policy Initiatives, HPC, 2007.

held at the Methodist Central Hall, Westminster, where the original clause was adopted in 1918, marked a “victory” for Blair and the New Labour project. By winning the vote the Labour leader had a green light to modernise the party, making it more attractive to middle class voters ahead of the 1997 general election. Blair considered this to be a sign that radical politics was alive in a new Labour party by jettisoning its socialist past to get elected.

However, people who attended the preparatory meetings with the unions who had recently gone through some violent repression by the police under the Thatcher government were simply asked, “*Do you want another ten years of Thatcher?*”⁶¹ The visceral reaction was predictable under the understanding that just as Clause IV could be voted out so it could be voted in at some later date.

Both sides of the political divide in the United Kingdom have failed to analyse the range of interpretations of Clause IV in a dispassionate manner. As a result, like many essentially theoretical concepts driving the passions and rhetoric of opposing sides, always ends up with the country paying a heavy price as a result of lost opportunities of practical advancement which are not served by fanciful theoretical concepts or heated rhetoric. The nature of argument needs to shift from clever tricks of misleading eloquence to a more in-depth analysis of national gaps and needs and a willingness to seek mutually advantageous solutions.

The Private Financialization of Health provisions

The Private Finance Initiative (PFI) is a form of ‘partnership’ between the public and private sectors in which a group of private companies contract to provide public facilities, often public buildings such as schools or hospitals. It was first introduced by the Conservatives in 1992, used much more extensively after New Labour came to power in 1997, and is still in use now, if now in slightly different forms (PF2 and LIFT).

New public projects, such as new healthcare facilities, used to be financed by the government. However, since the introduction of the PFI, if part of the NHS needs capital investment – for example, if an NHS Trust needs to build a new hospital – a contract is drawn up between the Trust and a consortium of bankers, builders and service contractors following a competitive tender. The consortium, known as a Special Purpose Vehicle (SPV), then raises the necessary finances by borrowing and issuing shares.

The SPV is contracted not just to finance the project but also to design, build and then maintain the fabric of the hospital over the length of the contract. In addition, it usually provides many of the supporting or ‘soft’ facilities associated with the hospital, such as catering and cleaning. The Trust makes a regular repayment (a ‘unitary charge’) to the SPV which covers the provision of the building, any equipment included in the contract, and soft facilities.

Critics of these private finance schemes point out that they are really a form of hire-purchase that proves much more expensive than other ways of financing new projects, such as borrowing money from the government (possibly twice as much). This is partly because of the very high interest rates charged on the original loan, but also because the charges for ‘soft’ facilities (such as cleaning or portering) are often considerably more

⁶¹ McNeill, H. W., “*The Briton’s Quest for Freedom ... Our unfinished journey*”, Chapter 30, Sovereignty - Economic Activity Monopoly, HPC, 2007.

expensive than if they were provided in-house or out-sourced independently. In addition, PFI contracts generally demand that repayments are index-linked, so they increase by a minimum of 2.5% each year.

In 2017 there were around 700 PFI schemes in Britain, with an estimated capital value of about £59 bn but which cost taxpayers over £308 bn.

The most significant criticism of PFI for the National Health Service is that the interest rates charged were and are many times higher than would have been the case if governments had raised the finance directly. However, the PFI has been favoured by governments partly because it avoids the outlay of large one-off payments of public money and does not show up in government accounts as increased public borrowing (PF2 is different to this).

In the context of the NHS, the contract between a SPV and an NHS Trust can be for as long as 60 or even 100 years. The difference between the original cost of a building and what the Trust will have paid by the end of the contract is usually massive: there are instances where some NHS Trusts are paying almost 12 times the initial sum borrowed. It means that while investors in PFI schemes make extraordinary profits –sometimes as much as 40 to 70% in annual returns – the NHS Trusts involved have less money available in their operational budget for equipment, staffing and patient care and are therefore cutting services. Increasingly, Trusts with PFI contracts are going into financial deficit.

Project scale, staffing deficiencies

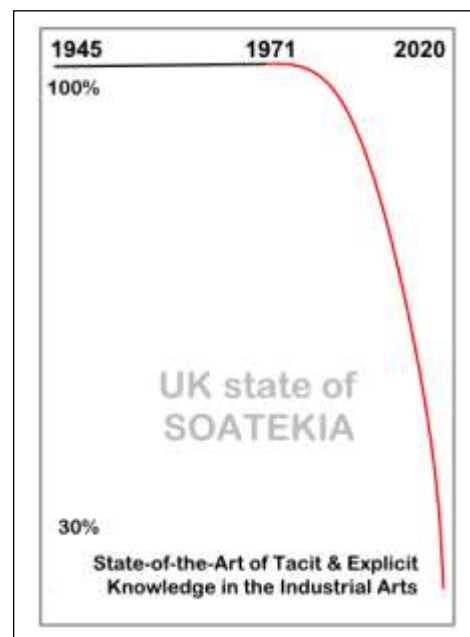
Rather than augment the scale of the infrastructure to address the rise in specific medical conditions and align medical training for doctors and nurses to the required numbers governments introduced “performance indicators” linked to patient conditions.

This is why the NHS became increasingly challenged and began to rely almost exclusively on the continued dedication of its medical practitioners and nursing staff.

Britain's State-of-the-Art Tacit & Explicit Knowledge in the Industrial Arts

The basic cause for the decline in Britain's global competitiveness in goods leading to a rapid decline in the balance of payments after 1972 can be correlated to the country's run down of its state-of-the-art tacit and explicit knowledge of the existing industrial arts. This was a direct result of previous accumulations of money from competitive exports being redirected from national industry and manufacturing to offshore industry and manufacturing. This process resulted in the deskilling of the workforce and loss of the ability to benefit from shop floor innovation.

These associated states of affairs would not have been detected by Rostow because he was using the UK development model up until 1960. However, the development of these conditions was predictable from the hegemonic cycles of Venice, The Netherlands, Spain and others.



In the meantime, during this period

5th Generation

The leap of faith into knowledge engineering and artificial intelligence

The Fifth Generation Computer Systems (FGCS) was an initiative of Japan's Ministry of International Trade and Industry (MITI) which began in 1982, to create super computers and supportive logic programming as the foundation for artificial intelligence.

Japan, in a report referred to as the ICOT (Institute for New Generation Computer Technology) Report, declared its objective to become world leaders in "knowledge engineering" considering this to be the basis for their next stage of economic development. The relative export success of Japan in the development and export of consumer electronics led to a Sputnik like effect in other countries who felt this might represent a strategic challenge. The USA, European Commission and the UK where the general states of these economies was not good all reacted to the ICOT Report.

The term Fifth Generation was meant to convey a level of advancement beyond current capabilities which had developed in different generations based on:

- First generation: Thermionic vacuum tubes. Mid-1940s
- Second generation: Transistors. 1956. The era of miniaturization.
- Third generation: Integrated circuits (silicon chips containing multiple transistors).

Associated with different generations of programming techniques including:

- First generation: Machine language.
- Second generation: Low-level programming languages such as Assembly language.
- Third generation: Structured high-level programming languages such as C, COBOL and FORTRAN.
- Fourth generation: "Non-procedural" high-level programming languages (such as object-oriented languages)

The project imagined a leap forward in computation with supercomputer-like performance using massively parallel computing/processing. The aim was to build parallel computers for artificial intelligence applications using concurrent logic programming. Also addressing the difficulties of a Japanese interface this programme created developments in:

- Inference computer technologies for knowledge processing
- Computer technologies to process large-scale data bases and knowledge bases
- High performance workstations
- Distributed functional computer technologies
- Super-computers for scientific calculation

Prognos & General Technology Systems Limited

In 1983, a consortium of the Swiss management consultancy firm PROGNOSE and the British Systems Engineering firm, General Technology Systems Limited, completed a study and report entitled "*The potential contribution of IT to the European Economy*". This work was paid for by the newly-established Information Technology and Telecommunications Task Force (ITTTF) of the European Commission.

The report covered all sectors of the economy and reviewed the potential impacts of the merging of types of media information transmission into digital formats based on binary digital logic, the basis of George Boole's mathematical logic.

The economic logic of merging all technologies into a digital format was to enhance the role of computers and Boolean logic in processing, transmitting and storing all media content while also enabling presentation, for example images and videos using digital devices.

Within the Report the head of the ITTTF noticed some decision analysis models which not only provided the means of estimating economic benefits of IT according to the processes being digitised and sector applications. The member of the GTS team who had developed this analysis was asked to join the ITTTF as a "temporary agent" to develop this approach in the development of learning systems and arrangements were agreed with the DTS Director Geoffrey Pardoe to release the team member in question in 1984.

Learning systems

Although the immediate expectation for the development of learning systems was teaching and academic applications a core consultancy team of around 20 specialists was contracted and a series of panels involving 100 specialists ranging from agricultural cooperatives, telecommunication agencies, transport, medicine, trades unions, primary and secondary school educators, university instructors and a team of specialists working in artificial intelligence developments. This structure was modelled on the basis of the Stanford University Engineering School systems engineering groups. However, rather than focus on a narrow "teaching" theme the development was broadened to include life-long professional and work support as well as life-long learning and information support of the public.

Hand held computer communications

One of the natural developments was the application of the Internet, already in existence, as a backbone for an extended global network. Also, it was proposed that users should have desk or hand-held computers which doubled up as interfaces with digital images and sound i.e. a mobile telephone. The design for this was drawn up by David Leiper a British electronics engineering consultant. The more interesting part was that with global communications satellite transponders going unused it was proposed that everything should operate via radio communications. The ITTTF analysis estimated that the hand held mobile could be sold for around 120 ECU (European Currency Unit – later to become the Euro) to secure rapid global sales.

Remote decision analysis models

One of the early topics on the ITTTF agenda was the ability of a global network to provide computer-based decision analysis support across sectors. In essence these models were what is today referred to as software-as-a-service (SaaS). Sector panels reviewed the range of possible applications including bio-medical, vehicle navigation, field engineering support, corporate planning and strategic decision support, remote project oversight, monitoring and evaluation, marketing and sales, trading floors, commodity exchanges decentralization for agricultural cooperatives, production optimization for multiple input processes, biomedical diagnoses for humans, plants and animals.

Locational-state theory

In the context of remote decision analysis modelling and strategic business planning services, learning systems in general and constituents coming to conclusions on issues of politics and voting preferences it became apparent that there was a need to prevent imprecise information, or worse, intentionally misleading information being used for any type of decision analysis.

The procedures applied in decision analysis follow George Boole's deductive logic, sometimes referred to as a decision tree. However, the considerations include a determinant model of cause-and-effect, the specification and identification of the information required including its quality (representability) and accuracy. In terms of the events surrounding the cause-and-effect relationships, it was necessary to estimate the probability of relevant events happening. It therefore became important working within a network to develop a means of specifying precisely the required information from a remote information provider and to be able to possess techniques to validate information received to ensure it is to specification.

This gave rise to the concept of "locational-state" of objects⁶² according to their location in space (geographic) and time. Some preparatory work on these concepts had been developed at Stanford University in 1968⁶³.

Accumulogs

An essential step in supporting learning systems as well as locational-state data was to be able to document or record in an immutable for records of experience or the state of objected of interest as progress is made through space and time. As a result, the concept of the Accumulog⁶⁴ arose in the ITTTF work. These were very similar to blockchain concepts to emerge a decade later.

The global network

Extending this analysis and reviewing the economic possibilities of this type of development an analysis of the export opportunities for European industry was completed in 1985, assuming a mobile telephone with a target price of 120 ECU (European Currency Unit) – Euros had not been created then.

In the global market analysis, it was evident that the rate of economic growth of China, its one child policy and size of its population would mean that the global mobile telephone market, by around 2000-2005, would be dominated by China. India came second and trailing behind would be the USA and Europe.

Huawei

While not being aware of the Chinese position on this question it is notable that before these projections had been made in 1985, a small electronics company called Huawei was created by a group of Chinese engineers as a mutual (owned by its workforce) in 1983, and established to specialize in the design and manufacture of advanced telecommunications equipment and services. As was to become evident this company,

⁶² McNeill, H. W., *"Locational State"*, DELTA Programme, ITTTF, Brussels, 1986.

⁶³ McNeill, H.W., *"3D Crop production function"*, Food Research Institute, School of Engineering, DEMETER Project, Stanford University, June 1968.

⁶⁴ McNeill, IH. W., *"Accumulogs for Learning Systems"*, DELTA Programme, ITTTF, Brussels, 1986.

being a mutual, meant all of the work force had a direct interest in the success of the company. As will be reviewed in later sections this company deployed their organization of cumulative tacit knowledge and explicit knowledge combined with shop floor innovation was to become a global leader in this area of technology on the basis of its highly competitive operations achieved by a long decent of a learning curve.

Racal, Vodafone and China Telecom

A company invited to reviews at the ITTTF was Racal a telephone company based in Newbury, Berkshire which in 1986 became Racal-Vodafone (Holdings) Ltd. They later joined the working group, initially at the European Commission, to develop the GSM standard for mobiles which was originally started at the initiative of the European Commission and taken over by the European Telecommunications Standards Institute (ETSI) to develop the specifications of the protocols for second-generation (2G) digital mobile networks used phones and later tablets. GSM was first deployed in Finland in December 1991.

In terms of provision of services via GSM Vodafone grew to be the leading mobile services company in the world only to be overtaken by China Telecom, as predicted. By the mid-2010s, GSM became a global standard for mobile communications achieving over 90% market share, and operating in over 193 countries and territories.

On this front Europe developed more quickly than the USA because of the early acceptance of standards. The USA has imagined it was more efficient to have different companies compete to disseminate their proprietary standards so as to establish “de facto standards”.

The lesson here was that in terms of technology and speed of development planning and standards were important.

World Wide Web

Although many of the applications that have appeared on the World Wide Web all of this had to await the development of browsers and HTML by Tim Berners-Lee a temporary agent working for CERN in 1989.

The web began to operate with a few thousand hosts by 1996 rising to around 100 million by 2000. The first Netscape browser was released in 1994 and the search engine Alta Vista was launched in 1995. Between 2000 and beyond 2020 the number of hosts rose to 1.1 billion supporting billions of different websites and services with an increasingly global reach.

Software as a service begins

As foreseen in the ITTTF work, in 1999 Sales Force established.

The “Onshore Engineering Club” initiative

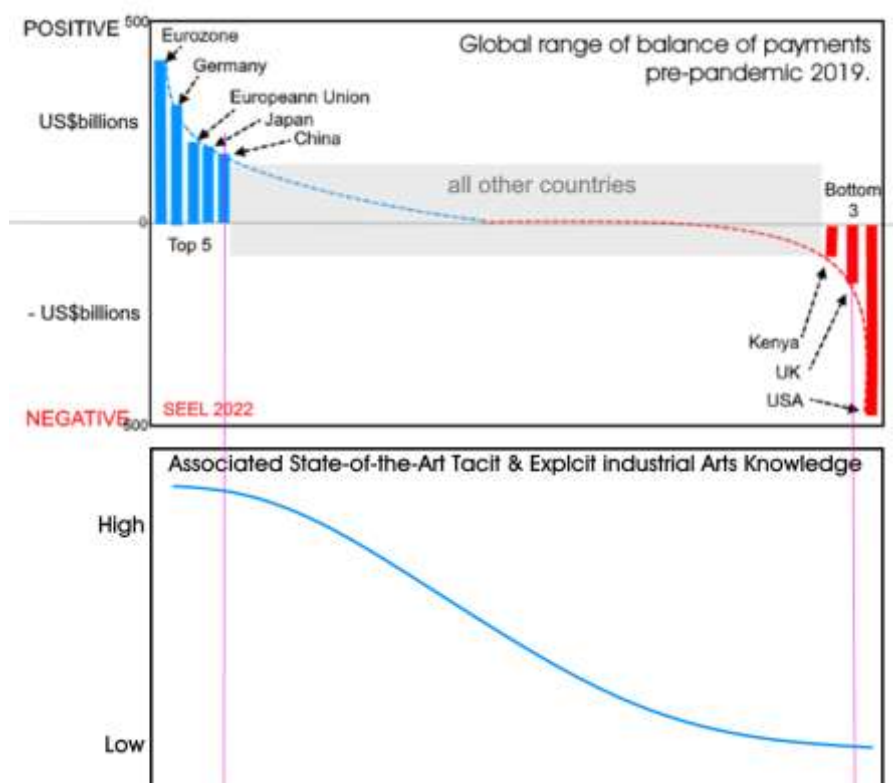
With accelerating volumes of investment flowing out of Britain into offshore manufacturing plants and while slumpflation continued, the country faced a problem of rising unemployment and the initiation of a long period of deskilling of the working population in industrial and manufacturing.

The author sent a proposal to the Manpower Services Commission to carry out a survey of 100 leading high-tech companies in the County of Hampshire to enquire as to their

interest in the creation of an “Onshore Engineering Club”. This was an initiative to begin to develop horizon scoping to identify promising technologies to make onshore-engineering competitive, begin to reverse the offshore investment trends and help re-establish British industry and manufacturing and skilled jobs.

Part of the proposal was to have the Club lobby to organize a nation-wide extension system.

The Manpower Services Commission agreed to provide a grant to carry out this survey. Which took place in 1990. No positive replies were received and the one that did ask for a meeting had an individual attend the meeting in Havant who did not really understand the topic and showed no interest. This if course was a disappointment for the author and a reaction of despair by the desk officer at the Fareham MSC office.



Other UK gaps and needs

Many people, who are aware of the success of Germany in maintaining its status as the country with the highest balance of payments in the world, after surviving two world war defeats, do wonder how this was achieved when the two countries coming out last in the global negative balance of payments league are the USA followed by the UK. The statistics tables for the top 20 balance of payment and the 20 lowest are to be found in Annex

Conclusions

Financialization accelerated and intensified by widespread removal of financial regulations largely as a result of hedge fund and banks lobbying.

Ethical decision making largely replaced by decisions that incurred nominal sanctions amounting to no more than a cost of doing business.

Real incomes of wage-earners continue to decline.

Alan Greenspan initiates asset market price manipulation , a forerunner of quantitative easing.

Within a short time, the UK balance of payments initiates a downwards spiral.

Banks and hedge funds increasingly addicted to central bank monetary injections.

UK adoption of supply side economics and offshore investment sees initiations of decline in national industry and manufacturing. Increasing deskilling and loss of state-of-the-art tacit and explicit knowledge on industrial arts capabilities.

Balance of payments continues to fall.

A “consumer” mentality paradigm used in document to recommend privatization of the NHS.

Labour attempt to reduce fears concerning their ability to manage the economy making BoE independent and removing Clause IV.

Privatization steps under Labour PFI scheme entrap NHS in unsustainable debt.

World reacts to Japan’s 5th Generation knowledge engineering programme.

Learning systems and advanced applications conceived for global network applications. China predicted to become dominant in mobile telephony.

Huawei established and they begin their descent of their innovation learning curve

World Wide Web launched.

Industry not interested in exploring onshore engineering potential.

SECTION 6

2000 to 2022 and the proof that monetary theory is flawed

The grey market

The over the counter grey market had grown to several times the GNP of countries by 2000 and it continued to grow as an increasing array of financial instruments were created from existing financial instruments, such as mortgages. Following the slumpflation crisis starting in 1973, interest rates had risen to in excess of 20% under the Reagan and Thatcher administrations in an erroneous attempt to control the inflationary component of slumpflation. This led to an exacerbation of the situation with more people losing jobs and a widespread repossession of mortgaged properties including family farms in the USA and homes in the United Kingdom.

Alan Greenspan's 2000 address

Alan Greenspan, Chairman of the Federal Reserve initiated a cascade of financialization with his “put” in 1987. In March 2000, he gave a presentation at the Boston College Conference on the New Economy, in Massachusetts entitled, “*The revolution in information technology*” in which he observed that until market forces bring about the necessary alignment of the growth of aggregate demand with the growth of potential aggregate supply, the full benefits of innovative productivity acceleration are at risk of being undermined by financial and economic instability.

He also stressed that the second consequence of what he referred to as rapid economic and technological change that needs to be addressed is growing worker insecurity, which he feared arose from a fear of potential job skill obsolescence. Despite the tightest labour markets in a generation, more workers reported they were fearful of losing their jobs than similar surveys found in 1991 at the bottom of a previous recession. The rapid movement of investment from failing technologies to new technologies was speeding the rate at which job skills become obsolete. The completion of high school used to equip the average worker with sufficient skills to last a lifetime. That was no longer true, as evidenced by community colleges being inundated with workers returning to school to acquire new skills and on-the-job training being expanded and upgraded by a large proportion of American business.

It is remarkable that he could not understand the causal factors in the decline in what he referred to as failing technologies was the failure of policy to provide incentives to maintain innovation in these technologies. His “put” in 1987 and the following cascade of monetary injections was the cause of funds being diverted from essential manufacturing and industrial investment causing the state-of-the art technologies to fail as a result of a failure to invest in innovation. This led to deskilling and unemployment rather than intensification of know how gained by proceeding further down the learning curve in the industries concerned and diverting money into offshore investment. Although Greenspan refers to “tight labour markets” he omits to mention that real wages, in spite of this, were constantly falling in real terms.

Not unexpectedly, greater worker insecurities are creating political pressures to reduce the fierce global competition that has emerged in the wake of our 1990s technology boom.

The Bank of England, quantitative easing and the death of the QTM

Before Gordon Brown made the Bank of England (BoE) “independent” in May 1997, one of the repetitive questions set in university economics course examinations was “What are the relative advantages and disadvantages of Bank of England independence?” On those occasions we had the opportunity of asking our professors or lecturers their view on the subject, the answers were nowhere near conclusive. It really all depended upon the understanding of the theory and practice of monetarism either on the part of a government managing these affairs directly or the BoE staff’s understanding of the same.

Therefore, any view expressed on this matter had to be based on a series of presumptions the answers to which, at that time no one would have had the answer because since that time as will be spelled out in this section, the theory is flawed. This Section will set out why neither the BoE or government has been in a position to manage monetary policy in relation to the development of the economy because the training of economists in this topic lacked details on the operational mechanisms that translate decisions on policy instruments such as interest rates, money volumes, taxation and government borrowing and expenditure through to impacts of presumed policy targets such as unemployment or inflation.

In any case there is ample evidence that the reason Gordon Brown made the BoE independent was that he did not want the Labour government to suffer the same fate as the Conservative government whose monetary decisions led to a large number of mortgage holders having their prime status converted into a sub-prime status as a result of a massive hike in interest rates⁶⁵. In terms of the number of individuals who lost their homes in the UK this involved close to a million men, women and children and this was a significant factor contributing to the Conservatives losing to Labour in the 1997 election.

Although Brown added a logical gloss to this act of BoE independence, as if it was the culmination of some moral crusade, it did not pass for more than an insurance policy to protect Labour from the potential wrath of an unhappy electorate having to deal with the fall out of a bankrupt destructive policy.

In his rush to safeguard Labour from election risk arising from inappropriate monetary policy a significant oversight by Brown was the associated loss of effective oversight of the BoE policies created by independence. This was to become a factor in distancing monetary policy from any public platform attenuating any opportunities for the necessary public discourse and debate on the value and effectiveness of monetarism.

Monetary policy is difficult to understand in terms of the real economy, not because it is incredibly complicated or complex but rather because its presumptions are wrong. For this reason, most politicians will not understand monetary policy, not because they are mentally deficient but rather because the economists advising them are asserting cause and effect relationships that do not exist in practice. Rather than call economists’ bluff and thereby appear to lack understanding, politicians for far too long, have placed all such decisions into the hand of economists and policy makers and, in this case, the Bank of England.

It will be recalled that Denis Healey set a disastrous course by introducing monetarism as a central plank of policy of a Labour government and imposed stringent anti-growth

⁶⁵ McNeill, H. W., “*The Briton’s Quest for Freedom . . . Our unfinished journey*”, Chapter 15, The Economy & Policy Initiatives - 1. Economic Management Lessons, HPC, 2007

policies. This was taken up by the following Conservative government with some enthusiasm because it suited their ideological purpose.

In a similar fashion, Gordon Brown placed monetary policy beyond the reach of the electorate because monetary policy became “independent” and this established a disastrous constitutional precedent of loss of control over the policies leading up to and following the financial crisis on 2008.

Quantitative easing was introduced largely as a result of arm twisting by the banking fraternity for a bail out following the 2008 financial crisis, which was stated to be a temporary measure, to help banks sort out their balance sheets.

The combination of very low interest rates and large levels of corporate asset purchases by the BoE set the scene for an uncontrollable cascade of next to zero interest rate money entering the economy. As in the case of the Healey fiasco, the following Conservative governments, including at short coalition with the Liberal Democrats, continued with the same policy as the main driver of austerity driving down police, nurse and a range of public service staffing numbers.

Thrift and savings

As Nicholas Kaldor has observed in the 1970s, at that time the majority of investment was raised internally by companies from savings and profits. Keynes and monetarists did not like such thrift because they saw it as a way in which demand was reduced. Is in the interests of banks and hedge funds for base rates to be as low as possible since this not only provided them with profitable options this would reduce savings which they consider to be competing with the financial sector. Therefore, by reducing the attractiveness for savings by lowering interest rates, companies and consumers would become more dependent of banks and loans.

The option of sanctions and people’s quantitative easing

Other reasonable options were nor provided with any serious consideration largely as a result of panic on the part of politicians and the danger of the financial services sector doing something to undo governments. It was calculated that all of the smaller banks spread through the USA could have absorbed the debts of the main banks in the USA and these could then have been closed. Naturally Wall Street lobbies convinced politicians otherwise.

In the UK the proposal of a people’s quantitative easing and cancelling all consumer debts would have resulted in the large City institutions also closing down.

The proposed small bank solution in the USA and people’s quantitative easing in the UK were options that killed the myth that the banks were too big to fail.

Fraudsters escape criminal charges

In most sectors there are failures in all sectors on a regular basis and the demise of companies is regarded as a part of a competitive economy where excessive risk taking pays a price. There was widespread fraud associated with many failing banks saved by quantitative easing, including LIBOR manipulation affecting trillions of pounds in contracts worldwide, fraudulent derivative ratings and the sale of these derivatives in the knowledge that the ratings were fraudulent and other criminal acts. The light financial regulations resulted in what amounted to criminal acts being of no consequence resulting in no

executives or bank ownership ending up in prison. Relatively small fines were levied and banks and hedge funds went back to business as usual.

The only country to bring criminal charges against bankers and to send some to prison was Iceland, whose economy recovered far more rapidly than the UK and others following the crisis.

Quantitative easing as a dangerous addiction

The House of Lords Economic Affairs Committee report entitled, "*Quantitative easing: a dangerous addiction?*" was published with some considerable delay given that QE has been in operation for over 12 years. It was also lightweight with disappointing cross-references to a rather thin list of witnesses. It did, however, raise questions constantly ignored by government. In 2013, Mervyn King commented in a complete understatement that QE "seemed" to have favoured the wealthy. This should have alerted the government to initiate an enquiry into the rapid rate of increase in wealth and income disparity at that time. Since then 8 years have passed with little attention being paid to this now serious issue.

QE to support government policy has been self-evident in its effects having not only sustained falling real incomes or a growing proportion of lower income constituents but the notion of paying back debt becoming an excuse to impose "austerity" to reduce the size of the public sector resulted in falls in the operational capacities and staffing of the fire, police and National Health Service and a rise in debt.

The Economic Affairs Committee expressed concern over the image and the functioning of the Bank of England as an independent institution. Independence has been a convenient screen to justify the exercise of macroeconomic management free from the scrutiny of the public or Parliament. As a result, Bank of England independence is an important buttress to the interests of asset holders, the wealthy, financial institutions and many on the Committee.

Monetarists do not know how to "taper" QE because the high levels of debt have increased as a direct result of the low interest policy. As a result, raising interest rates would crash asset and derivative markets. The simple movement of lower interest rates by 1% or 2% could double premiums⁶⁶.

Monetarism, now using QE, has dominated macroeconomic management since the early 1980s but basic macroeconomic policy objectives were ignored. The report focuses on Bank issuance of money, setting of interest rates and bond transactions. The report skirts round income disparity, declining real growth, industry and industrial investment, rising balance of payment deficit and poverty, the rising cost of living for wage-earners, the inability to raise real wages and the hollowing out of public services. Clearly, the Committee and those offering "evidence" are unaware or unconcerned about the connections these crises to monetary policy. The report and the emphasis on Bank of England independence reflect the significant constitutional crisis and an ability of government committees to ignore the issues of most concern the population.

The House of Lords Economic Affairs Committee report called the Bank of England's bluff suggesting the BoE should explain how it expects to reduce any inflation from the current state operating under a bloated policy of quantitative easing (QE). The Bank will not be able to do so because the central theory of monetarism is based on assertion. QE has provided all of the necessary evidence to establish that the monetarist's go-to policy

⁶⁶ McNeill, H. W., "QTI-The Quantity Theory of Inflation", RIO

justification logic, the Quantity Theory of Money (QTM), is irrational. The QTM formula fails to include such basics as savings, assets and offshore investment which leaks funds and raises onshore (UK) unemployment. Monetarism lacks a transparent linkage to investment for productivity and growth. QE funds have flowed into speculative high inflation asset markets and away from needed productive investment.

It is notable that very little attention was given to the balance of payments and the reasons for the steady decline in Britain's competitiveness under monetarism and quantitative easing in particular. This exchange remained at some distance from considerations of the impacts of QE on the real economy.

QE has exacerbated the state of affairs helping "justify" the ill-advised policy of austerity over 13 years designed to impose the government's ideological agenda of running down public services such as the NHS, police and care services. The "independent" Bank of England, under Mark Carney, was hardly independent of Treasury/Chancellor's political objectives; the Bank supported government policy directly.

The Lords Committee report, which appears to be lost in flawed monetary theory, only ventures to query if the Bank was acting independently; of course, it was not. Policy decisions rested in the hands of decision makers beyond Parliamentary and, even more distant from, constituent oversight.

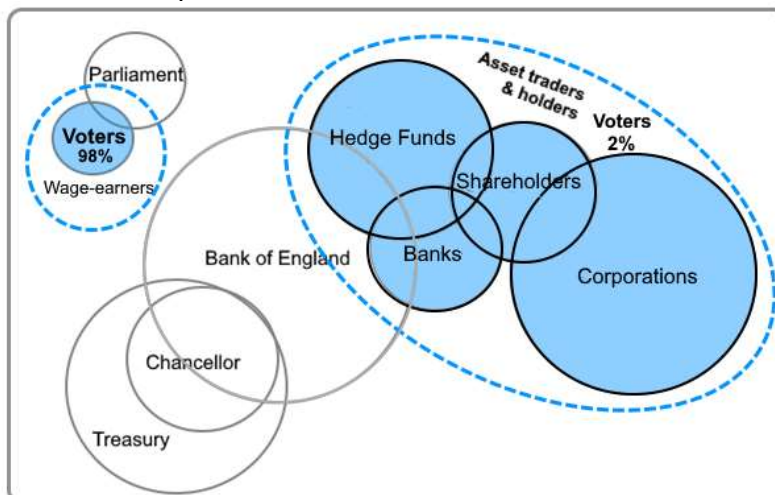
The semantics of Bank independence

One of the issues in answering the question as to the advantages of Bank of England independence is to determine what "independence" actually means. Certainly, in the response to the repetitive examination questions on this matter before it had occurred some professors and lecturers were not entirely comfortable in defining what independence means since the answer to the question depends on a clear answer to this particular query. Given that the government and the Bank of England all are concerned with the policy pertaining to the economic performance of a single Union the term "independence" has optional interpretations linked to the theory and practice to be applied by the Bank in upholding the theories and practice preferred by the government.

The problem arises where if the theory is flawed, independence can lead to prejudice to the economy. This is in fact the state of affairs as the final part of this Section explains

Since the government purports to sustain Bank independence by not "interfering" in its decisions whereas as the government itself adheres to the same incorrect theories and policy logic, then clearly this is an unacceptable state of affairs.

Bank independence with a robust transparent theory and coherent policy combined with a meaningful degree of government oversight to be able to double check the logic behind decisions is of more importance than leaving decisions to a Monetary Committee whose incremental decisions one way or the



other have no demonstrable impact. The problem is that for too long the governments and the Bank of England have been members of a “*there is no alternative*” mindset which is not challenged by the various academics, assorted Nobel Prize winners and political party ideologues all of whom do well from this cosy association in the policy bubble.

Given what we now know and observing the outcome of 50 years of uninterrupted monetarism it is evident that making the Bank of England independent was not a good decision since it distanced Bank oversight from parliament oversight. At the same time, it drew policy tendencies into the influence domains of the decision preferences held by hedge funds, banks and other actors in the financial services sectors all of whom favour rises in asset prices and cheap money.

Bank independence however has been a useful buffer to deflect criticism of ideological policy pursuits by government under the guise of an independent Bank exercising an expertise in the management of profoundly complex monetary matters so as to shore up the notion that there is no alternative.

Range of evidence

In reviewing the written “evidence” presented to the Committee, it is notable that contributions ranged from a statement that QE is a policy with no theory, to others who ventured to apply “monetary theory” to make predictions as to the benefits and costs of QE. Unfortunately, what was presented was not well structured and did not contain a logical sequence of assessments of the narratives periodically expressed by Bank of England and other central banks. To find such an analysis it is necessary to turn to economists with more exposure to quantitative easing and finance such as Richard Werner. He has completed important work⁶⁷ which is summarised below. Such a contribution would have provided a more balanced addition to the content of the Economic Affairs Committee report.

Werner has set out a broader range of relevant issues, which have been covered in this Review, supported by his own focused analysis, evidence and argument. He addresses five principal arguments in the central bank narrative showing them all to be without merit. Werner’s conclusions align with those of this Review but sometimes from a slightly different perspective. Werner’s arguments are set out below. Each of Werner’s 5 points of the main central bank narrative are followed by his conclusion as to each one’s validity following the letter “a”. To place these into the context of this Review Werner’s comments are followed by supportive comments based on work completed under the Real Incomes Approach findings as well as well-defined positions of such economists as Nicholas Kaldor and covered in this Review.

Comments on 5 aspects of the central bank narrative

1. Interest rates are the main policy variable to move the economy

a. *there is no evidence to support this contention.*

Supportive comment: Interest rate manipulation often heads in the wrong direction with respect to encouraging productivity to cool booms or encouraging productivity in depression while very low rates result in funds flowing into assets⁶⁸ rather than

⁶⁷ Werner, R., “*Shifting from central to a decentralised economy: Do we need central banks?*” 14th Rhodes Forum, Dialogue of Civilisations Research Institute, Panel 2: Economic Alternatives when Conventional Models Fail, Rhodes, Greece, October 2016.

⁶⁸ McNeill, H. W., “*Why Monetarism does not Work*”, Charter House Essays in Political Economy,

investment to enhance productivity. This position aligns with early RIP analysis and conclusions and which have been repeatedly confirmed by evidence.

See: *“Interest rates as a monetary policy instrument”* page 50.

2. Markets are in equilibrium, thanks to price movements that have equated demand and supply

- a. *markets are never in equilibrium.*

Supportive comment: This was Nicholas Kaldor’s position in countering the habit of economists to build in sub-routines in economic models to “bring them back into equilibrium” when in reality this was not how real economic growth occurs. Kaldor’s conclusions arose from his extensive experience and understanding of the role of technology. Peter Schumpeter’s “*creative destruction*”, argument supports this contention and the RIP solutions make use incentives to drive disequilibrium arising from technological innovation to generate real economic growth⁶⁹.

See: *Economies are always in a state of disequilibrium*

3. Banks are just financial intermediaries and do not need to be distinguished in models of the economy.

- a. *banks are the creators of money, on the basis of simply crediting a lender’s account with the sum “lent” and carrying out account transactions thereafter; they are not intermediaries*

Supportive comments: The Kaldorian concept of credit arising from endogenous natural growth needs and the security of such credit being existing collateral in the form of assets makes it impossible to extricate the banking function from the sectors served. Where loans fail the real asset held as collateral transfers to the bank.

Since the rupture of the Glass-Steagall Act (1933) in 1991 when the Commodity Futures Trading Commission⁷⁰ provided Goldman Sachs with a “Bona Fide Hedging” exemption to be followed by similar exemptions for other banks, banks have become directly involved in the trading and holding of physical assets ranging from agricultural commodities to petroleum, precious metals and other products.

The direct involvement in commodity trading and hoarding as well as fraudulent imposed bankruptcy and asset stripping (RBS and Global Restructuring Group) has increased involving banks and hedge funds.

See: *The corruption of futures markets*

⁶⁹ McNeill, “From nominal growth to stable real incomes”, RIO

⁷⁰ McNeill, “The journey from 1971 to 2020 - the consolidation of financialization”, RIO.

4. **Savings are required for investment as a precondition for economic growth and development. Deficient savings necessitate borrowing from abroad or attracting foreign investment.**

a. *local banks can create all necessary funds*

Supportive comments: The need for any funds at all to gain economic growth overlooks the fact that around 80% of economic growth comes from learning⁷¹. Tacit knowledge on the part of human resources and explicit knowledge generated through monitoring and evaluation of production performance⁷² is a continual process more linked to “*learning on the job*”. In the case of many supply side production units the physical advance in productivity creates “space” to save from rising margins. Indeed, the normal metrics of learning curve coefficients show that considerable amounts of real growth can be achieved through incremental advances requiring all of the marginal savings on a continuous basis resulting in there being no savings but a significant gain in productivity. Companies and work groups operating on this basis and who wish to accelerate their rate of growth tend to require less finance than companies wishing to invest in new plant. In most such cases local banks would have adequate funds and incur less risk as a result of the combined tacit knowledge and explicit knowledge relating to the company performance.

For most investment 90% of investment from company profits.

See: “*Safer options*”, page 57

5. **Foreign investors and high growth require deregulation, liberalization and privatization.**

a. *this particular position is almost ideological and is applied irrespective of the actual situation in any particular country by the Bretton Woods institutions such as the IMF/World Bank*

Supportive comments: This is correct and the analysis in this Review relating to the UK experience with IMF and the short coverage of IMF/World Bank behaviour and portfolio performance confirm Werner’s observations on this aspect.

See: “*Witteveen and the British economy*”, page 53 and “*The performance of other Bretton Woods institutions*” page 56

In 2007/2008 the financial crisis was precipitated by a significant degree of fraudulent practice in the financial instruments markets (derivatives) and triggered by securities that were linked to sub-prime mortgage income streams. As a result, the “assets” or “held capital” by many banks, was insufficient to safeguard them against default caused by the loss in value of held financial asset capita stock. Therefore, QE was only supposed to be a temporary solution to supply banks with very low interest funds to provide an opportunity to build up their loan portfolios on a profitable basis.

⁷¹ Arrow, K. J., “The economic implications of learning by doing”. The Review of Economic Studies. Oxford Journals. 29 (3): 155–73, 1962.

⁷² McNeill, H. W., “Tacit & Explicit Knowledge”, RIO

However, banks did not do what was expected, or at least, did not support what policy makers stated was the macroeconomic objective. Banks did not lend to the productive sector but rather, in the same manner as was their behaviour prior to the New York Stock Exchange Crash in 1929, their demonstrated preference was to invest in speculative assets on their own account or in support of large corporate customers to purchase assets and buy back shares.

Why QE is a policy without a theory

One of the persons providing evidence to the Lord Economic Affairs Committee stated that QE was a policy without a theory. This sub-Section explains why this statement is correct.

Before QE was applied in the UK as an extension of monetarism, it is notable that when monetarism was first introduced in 1976, the leading advocates, such as Milton Friedman of Chicago University, were unable to explain the mechanism whereby an increase in money volumes would create inflation. The best they could do was state that this happens, “in the long run.” This is not an explanation since no mechanism is evident. The lack of a clear cause and effect mechanism suggests monetary theory was already on shaky ground because effects are at work which cannot be explained

Over the long term and under normal circumstances, technological change and innovation has a significant impact on prices in a deflationary sense.

With the introduction of QE combining a close to zero interest rate with a massive increasing rate of money injection, it became even more important to possess a sound grasp of the mechanisms of transfer of impacts of QE in particular. QE was introduced as a “temporary device” to help close to failing banks strengthen their depleted balance sheets. In completing this process, it was expected that banks would begin to lend to supply side production sectors to get the economy growing again based on rising productivity.

In order to assess the validity of a theory there is a need to be able to at least establish a proof of the concepts advanced by the theory. In the discipline of decision analysis, the proof of any theory is established by specifying the cause and effect relationships the theory describes and to build a determinant model to represent and demonstrate the stated cause and effect of, in this case, monetary policy decisions. Models are expressed in terms of the quantitative values of the policy instrument variables applied (the determinants), e.g. interest rates and money volumes, on the one hand, and the results in terms of stated policy targets (policy objectives), such as consumption, prices, wages, investment, productivity or unemployment, on the other.

Now approaching the 13th year of QE no theory to support QE has appeared and the banks have not supported the supply side production sectors effectively and most QE funds have been directed into non-productive assets or offshore investment.

Since no defined mechanisms in support of some theory have been forthcoming then there is no recognizable theory upon which this policy is based. This is a very serious matter because the results have not been positive.

It will be recalled that the Quantity Theory of Money identity, as described in Section 2 (pages 19-20) is the one proposed by Irving as:

$$M.V=P.Y \quad \dots \quad (i)$$

Where:

M is money supply;

V is velocity of circulation;

P is average price level;

Y is volume of transactions of goods and services (real goods and services).

This was extended to “s” by the Cambridge equation as follows:

$$M - s = (P.Y) \quad \dots \quad (iv)$$

Where M is money volume, P is average prices, Y is real purchases (goods and services) and s is non-circulating savings.

The real economy

The real economy is made up of the productive activities and the transactions between economic units within factor supply, produce and consumer markets. Savings and asset holdings do not feature in this transactional economy and remain separate until used in liquid form, as cash, within the real economy. The real consumption, the product of physical quantities and average unit prices is essentially P.Y.

The validation of policy theories

The validation of theories upon which policies are based on two evaluations. The first is to enquire if the course of action contained in a policy achieves its stated objectives. If it does not it is then worth assessing the theory that gave rise to the design of the course of action embodied in the policy decision. In monetarism, policies are not achieving stated objectives, or at least for the majority of constituents, this is the case. It is therefore necessary to analyse the decision analysis model applied in designing a policy action to determine whether or not it is complete in the sense of containing all of the main variables that determine the outcomes of policy actions.

As we have seen the only decision analysis model is the Quantity Theory of Money identity which we have already pointed out, is incomplete and has missing variables. The first missing variable which was contained in the Cambridge equation is savings. The impact of quantitative easing has been a significant activation of different and important asset markets all of which have different levels of price impact and which in turn have different impacts of the general price levels, supply side production output inflation and the makeup of aggregate consumption arising from a change in the distribution and levels of income disparity.

As the following exploration will demonstrate, the QTM does not contain the most important variables to provide any means of determining the results of quantitative easing in terms of its most obvious impacts and as a result it has no practical utility as a theoretical model of reality.

Quantitative easing and real incomes

Experience with QE demonstrates the flow of money into assets has been a notable feature under this policy. However, the original QTM identity and the Cambridge version have no means of tracing the impact of quantitative easing (QE) on assets, the identity has been modified to include an additional determinate, “a” for assets. It is necessary therefore, to expand the money categories that exist in a non-circulating class of assets by adding a new variable “a” for assets.

A deterministic model of this expanded identity, expanding the Cambridge QTM, by adding the assets class “a” is as follows:

$$M = (P.Y) + (a + s) \quad \dots \quad (v)$$

or

$$M - (a + s) = P.Y \quad \dots \quad (vi)$$

Where:

M is the quantity of money;

P is the price level;

Y real income (substituting T in the Irving equation);

a is assets;

s is savings.

As can be observed, by moving “a” and “s” to the left, as a deduction from M, there is an apparent depressive impact of rising asset holdings on the availability of money on the consumption side reflected in a reduction in P.Y.

This reflects the experience of countries who have applied QE, including the early introduction in Japan in the late 1980s. The universal impact has been depressed transactions and real incomes Y. This explains how the exogenous funds, that were not generated by the supply side (bank loans) nor requested by the supply side, were diverted in such a manner as to be inaccessible by the supply side for use as investment or transactions. As things turned out this largest diversion of funds away from supply side production investment was the result of banks providing low interest loans to asset traders and holders as well as investing in assets on their own account to support their own shareholder value.

With low interest rates, savings become less significant and assets become more significant. As a result, rather than see economic growth, in spite of close to zero interest rates, this has resulted in lower real incomes, lower substantive investment and deficient growth in productivity. As is self-evident, the rise in exogenous money did not have any practical impact on “aggregate demand” or consumption of goods and services and even less so on real economic growth.

Adding the asset classes to the QTM

Since the assets which absorb QE funds are all separate markets it is necessary to expand the asset data set to identify each type of encapsulated market. In the paper, “*Why monetarism does not work*”⁷³, the variable “a”, assets, was expanded into the main types of asset including:

- Land and real estate - r
- Precious metals - p
- Commodities - m
- Art objects - a
- Shares - h
- Financial instruments - f
- Crypto-currencies – c

⁷³ McNeill, H. W., “*Why Monetarism does not work*”, Charter House Essays in Political Economy, HPC, 2021

- Offshore investment - o

These markets all include non-circulating encapsulated markets. Encapsulated markets are largely self-contained and involve active trading involving a small number of constituents. The use of these assets as inputs for the supply side and wage-earners is described later in this sub-Section.

There are also non-encapsulated markets that are open and support transactions in the supply side production and consumption of goods, services and capital equipment in exchange for:

- Wages -w

And unspent wages or profits as:

- Savings-s

As can be appreciated the simple QTM identity does not have any of these variables specified:

$$M.V=P.Y \quad \dots \quad (i)$$

However, since consumption Y is paid out of wages, “w” this can be used to substitute Y in making up the combination of real goods and services consumed, as follows:

$$M.V=P.(w) \quad \dots \quad (viii)$$

However, we have seen that that M does not only flow into w it also flows in the other encapsulated markets each of which is distinct.

Therefore, apart from w the rest of M flows into these markets.

Therefore, the QTM should be as follows:

$$MV = (r + p + m + a + h + f + c + o + s) + P.w \quad \dots \quad (ix)$$

Readjusting this by placing the non-supply side money on the righthand side above to the left of the equals sign, so that what flows to the supply side and wages can be seen to be a significantly reduced to a small proportion of M.

Real Money Theory (RMT) to replace the QTM

This final identity therefore replaces the QTM which does not contain sufficient variables. This modified identity it tentatively referred to as a Real Money Theory (RMT)

$$(M - (r + p + m + a + h + f + c + o + s)) V = P.w \quad \dots \quad (x)$$

Where; M is money supply;

the non-circulating encapsulated market components are:

r=land and real estate;

p=precious metals;

m=commodities;

a=art objects;

h=shares;

f=financial instruments;

c=crypto-currencies;
 o=offshore investment;
 s=savings;
 V is money velocity (circulation rate);
 P is average prices;
 and where the circulating open market components are supply side production and consumption of goods, services and capital equipment in exchange for wages where
 w=wages;

$$(M - (r + p + m + a + h + f + c + o + s + i + t)) V = P \cdot (w + y) \dots (xi)$$

Where:

y=profit;
 i=investment in productive plant;
 t =training of workforce;

This last equation which demarcated wages and profits within the identity.

Conclusion

Comparing Irving's QTM identity

$$M.V=P \cdot Y \dots (i)$$

with the one provided above in identity (xi)

$$(M - (r + p + m + a + h + f + c + o + s + i + t)) V = P \cdot (w + y) \dots (xi)$$

It is evident that the QTM has no theoretical logic and does not relate to any practically applicable functional mechanisms; QE and indeed monetarism in general is a policy without a theory.

Asset loading

Even locating all of the variables covering assets in the identify it is still not possible to predict the impact of injecting additional funds on assets because of the loading of assets with QE funds is only partially visible. For example, financial instruments are largely held by banks and hedge funds who constantly change the nature of options and derivatives. These are increasingly used as assets to justify money creation by banks leading to fractional reserve banking no longer having any linkage to tangible money. As a result, there are multiple layers of financial asset groups which support the massive money creation and the asset inflationary boom. The funds involved exceed the national outputs of economies and the turnover remains out of sight of central banks. The flow of funds into offshore investment managed by banks, industries and hedge funds are also difficult to measure so the leakage of these funds out of the economy are difficult to measure.

The only way to gain oversights of asset loading movements would be through more stringent financial regulations requiring adequate registration of classes of transactions and transfers.

Where goods and services inflation come from

As stated monetarists cannot provide a description of the mechanisms that cause excessive monetary injections to cause inflation in the goods and service product

categories. The mechanism is certainly absent from the QTM. However, for simplicity sake, at the relevant stage of expanding these identities, it was stated that the encapsulated markets have little transactional interaction with the supply side production of goods and services and wages. However, in reality two asset markets do have a direct impact. These are:

- land and real estate
- commodities

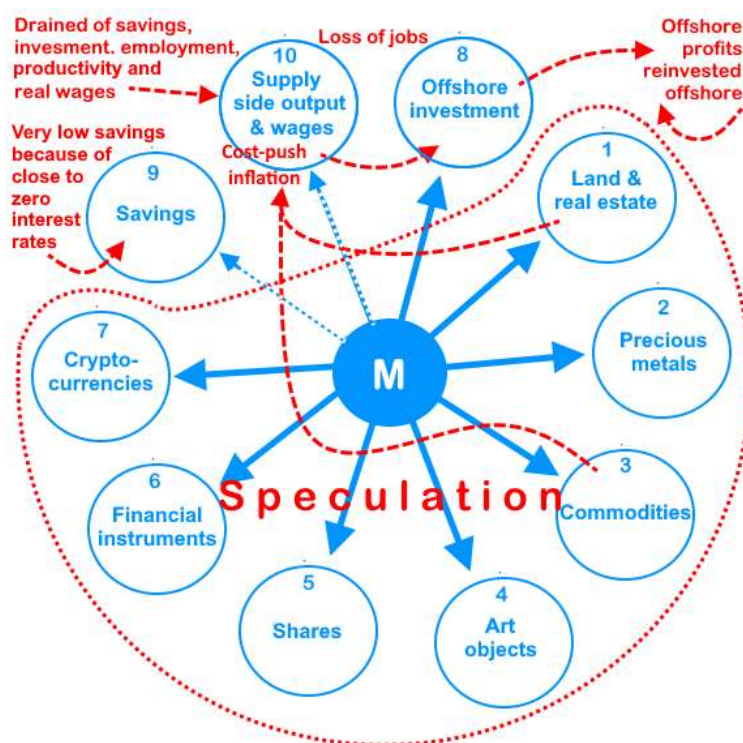
In the case of land and real estate, speculative investment arising from rising QE money flows into these markets, causes significant rises in unit prices and rents which leak through into supply side activities as rising costs creating cost-push inflation associated with the prices and rents on land, housing, office space, industrial units, warehousing, retail units and parking fees.

Besides representing cost-push inflation for supply side production, these also contribute to rising cost of living for wage-earners.

In the case of commodities such as petroleum, food, fibre (including timber) and feedstocks (biofuels) are frequently held in futures contracts and other forms of asset holding speculation. In 1991 the rupture of the Glass-Steagall Act (1933) resulted in the Commodity Futures Trading Commission permitting banks, starting with Goldman Sachs with a “Bona Fide Hedging” exemption allowing them to trade but also later subcontracting or even owning companies who carried out physical trading and storage to withhold commodities from the market to cause raised unit prices. This type of activity continues causing significant rises in commodity and energy prices also causing cost-push inflation in terms of supply side inputs and cost of living rises for wage-earners. Simultaneously, the incomes of asset holders and traders rise.

Therefore, goods and services inflation does come from excessive monetary injections but the effect is not that set out in the QTM but it is rather the indirect impact of the prices of those inputs to supply side production. The troubling aspect of this effect is that it might be mistakenly interpreted to be the impact of speculative asset trading. Unfortunately, in the case of some traders their activities are speculative, however, increasingly such price rises result from low risk market manipulation designed to maximise profits on transactions without much concern for unit prices. This mindset was very evident with the rise of Nymex’s entry into petroleum trading and the subsequent orientation of decisions in hedge funds which have growth to dominate the financial assets markets along with banks and some logistics companies who provide transport and warehousing for hoarded commodities.

In the case of housing, builders have found it to be more profitable to hoard land in “land banks” intended for building to stimulate higher land prices and to build increasing number



of middle-to-very-high end housing units (expensive) to be sold to very high income or foreign investors clients. In the meantime, the majority of the population of younger wage-earners cannot afford to purchase houses. As a result, the demand for rental accommodation has risen leading to an investment boom in buy to rent housing also sold to higher income “investors”.

The result in higher housing and rental costs impacting the cost of living.

Modern Monetary Theory

Recently much has been made of an approach to monetarism referred to as Modern Monetary Theory (MMT). It is a view on money issuance in a fiat (non-commodity backed currency). Its main claims are that a government can issue its currency to pay for goods, services, and financial assets without having to seek revenue via taxation or raising loans, Keynesian-style, beforehand. Since this is its “own” currency the government cannot be forced to default. Money issuance is limited by inflation which is assumed to accelerate once supply-side resources (labour, capital and natural resources) are fully employed. It states that “stabilizers” to control demand-pull inflation are required rather than relying on tax variations.

The two gaps in this theory are that the old Phillips Curve pre-slumpflation logic is being applied to the cause of inflation as being demand-pull which is incorrect. The most significant active force for inflation is asset inflation leaking into supply side production costs. The fact that demand-pull inflation is not the main cause of inflation well established by the evidence generated from the impacts of this period’s quantitative easing and the evidence generated under the development of Real Incomes Policy⁷⁴.

It is, however, notable that in 2010, Warren Moser a promoter of MMT has stated clearly⁷⁵ that inflation is cost-push in relation to imported energy resources, but he does not generalise this reality across all supply side input assets which is the result of excessive money injections so as to generalise inflation as a cost-push phenomenon.

The issue of money volumes

Monetarists of all hues, fret over wondering how monetary growth should be managed from the standpoint of aggregate demand management. However, this skips over the more fundamental questions of what volumes of funds are needed and how can this be managed to maintain the purchasing value of the currency.

Since 1945, the purchasing power of the pound has declined by around 98%, at least as a direct function of excessive money injections and “inflation policy” on average set at a target of 2% per annum. This depreciation is also related to tying up funds in assets which add nothing to the productivity of the economy only to be sold later at an inflated price.

Some early monetarists understood that money supplies needed to grow at the rate of increase in productivity. However, this ignores the fact that if productivity alone is permitted to drive the economy then by bringing monetary injection below that rate of increase in productivity, then prices will stabilise or even fall and the purchasing power of the currency would rise. Since the purchasing power of money would rise those holding assets would

⁷⁴ McNeill, H. W., various articles at RIO

⁷⁵ Mosler, W., “*Seven Deadly Innocent Frauds of Economic Policy*”, Vallance Co. Inc., 2010.

still benefit from dealing in funds with an appreciating purchasing power but this would not be exercised at the expense of wage-earners.

The lack of control over money injections or simply money printing has, historically, always ended in a crisis, social unrest and in many cases warfare.

The issue of interest rates

Rather than rely on the central planning impositions of the Bank of England setting interest rates to be applied nationwide in a sort of Soviet Politburo fashion, it would seem to be more rational to permit those holding funds to invest to be able to set interest rates according to mutual agreement between the parties concerned. With an appreciating currency the baseline risk of loans declines which should encourage lower interest rates with a flow of funds into the most promising supply side production investment projects.

Under a regime centred on productivity increases the percentage of investment funding coming from own income should increase and thereby lower the requirements for loans.

In the meantime, during this period

5th Generation

The results of a leap of faith into artificial intelligence

The promise of the Japanese 5th Generation program and in the programs set up in the USA, Europe and UK for each to dominate knowledge engineering was not realised. In spite of the £billions spent of research and development programs. All of these programs were out done by the normal advance in technology and the learning curve founded on tacit and explicit knowledge.

For example, the Japanese program was populated by very bright information technology graduates, few of which had any experience in the industrial and manufacturing arts. As a result, their work was not tested but real-world problem solving. In contrast to this program Mitsubishi applied IT and automation to industrial robotics making use of experienced industrial engineers to guide the IT requirements. As a result, this reliance of tacit and explicit knowledge and a mutual learning curve this program was a success. To this day, Japan dominates the world industrial robotics sector.

Many of the programs developed under the 5th Generation programs are no longer applied. Computer power continued to increase beyond parallel computing simply as a result of the impact of Moore's Law and Wright's Law.

The highly academic training of IT experts who were not involved in supply side production processes resulted in very little impact.

However, the combination of the decision analysis models, developed in the 1960s proved to provide the most practical means of developing useful applications largely concerned with decision analysis on options. The existence of "feedback loops" first identified in the post war Cybernetics work allowed machines to compare outputs to desire output values and to adjust inputs repetitively until the desired output is achieved. This is often classified as "machine learning" and this logic is finding a widening range of applications.

In spite of millions of pages of results of the 5th Generation programs the bedrock of the logic of most digital systems remains as Boolean logic and all applications tend to apply, without necessarily acknowledging it, the object-oriented approach, a product of

development work in the 1960s. Increasingly, as a result of the SQL database flexibility in database and content layouts, most analysis is conducted in SQL databases which were products of the 1970s.

Over time the advance in computer, operating systems and programming techniques combined with record keeping technology in the form of disc technology, virtualization and cache techniques has resulted in exceptionally powerful databases enabling multiple perspectives and analysis of the data within them generating graphic, tabular and text narrative output⁷⁶.

Social media

The 2000s saw the emergence of so-called social media. The first system, in fact far more ancient than that realised was Email, in fact used in the early 1960s combined with packet switching still used in Internet communications. Emails were extended in to voice over IP and video over IP (VOIP) as personal chat and communications systems that by-passed conventional telecommunications telephone systems. These, like Skype, launched in 2003, and others created competition with normal carriers and in the end provide free global voice communications migrating onto so-called smart hand-held telephones.

Search engines such as Alta Vista started in 1995 using algorithms to find documents and site by topic or keywords, it was a prototype use to test Digital Corp super-computers.

The previous search lists had been hand-compiled by Tim Berners-Lee who created the world wide web in the late 1990s to create a convenient way to access documents.

This was further extended by companies such as Google also started in 1995 on a commercial basis.

Social media sites were developed providing individual with a web presence in the form of personal accessible accounts such as Facebook in 2004.

Social media issues

As predicted in the ITTTF work in the 1980s, the reliability of information carried on social media became an issue with the development of mobile telephones and especially those with browsers.

This was because the new content on these media increased so that increasing number of people substitute traditional media for social media. A considerable amount of such content was found to be inaccurate or intentionally misleading leading to the problem of use of such information for decision making for business or gaining information to decide who to vote for in elections.

It is suspected that several elections were influenced by the ability of social media platform operators to personalise the access of users to different types of information as well as limiting submitted content by users being seen by the whole user community. As a result, a wholesale systematic control of information flows was removed from users and manipulated by the platforms themselves to control content and access to content in a form of censorship. It later transpired that all communications on the Internet or World Wide Web was being monitored and stored by intelligence agencies in the USA and UK.

⁷⁶ McNeill, H. W., *"The State of the Art and Future of Decision Analysis"*, SEEL, HPC, 2000

Governments began to establish teams to place content favouring their image and political parties began to pay to run campaigns coordinated by detailed profiling of the users and therefore beginning to introduce tendentious content and “mind control” tactics by sending offending messages relating to a political party to known non-committed voters by applying dog whistle tactics to cause revulsion and therefore raising the likelihood that the user will vote for the opposing party. The Cambridge Analytical scandal exposed this type of abuse and the work of Snowden and Julian Assange and the Cyberpunks provided detailed reports on how these systems work and of their intent.

In the context of this Review these developments are of significance in the context of the participation of constituents in policy formulation and public choice which has been made more difficult rather than more easily with these tendencies in social media.

The emerging platform economies

Platform economies are companies that have centralised operations through a central data communication hub on the World Wide Web and which use algorithms to direct and process purchases of goods and services such as Amazon and Uber and food delivery companies.

Gig work and accelerated downward spiral in real wages

Globally about 100 million people employed in services coordinated through platforms. The record so far has been that these people provide support services for these organizations are enticed to work for attractive wages. However, then the work-loads increase and the compensation packages are reduced in value. This is facilitated by the fact that the general condition of falling real wages, as a result of monetary policy, leads to the ease with which the platform companies can further reduce wages to follow the general trend downwards.

Because of commitments, family, children in school, student loans and other aspects of personal lives it is difficult for these employees to leave because of the fact that other jobs are paid less. This is not a sign that platform companies pay well, they don't, they just take advantage of the general condition of falling real wages to increase their profits.

Doing evil and the deconstruction of objective facts

Google used to have a positive message under some its logos which read, “*Do no evil.*”

However, by moving from a more or less objective search engine services to a paid advertiser service in exchange for information on user profiles Google became as compromised as social media in becoming embroiled in politics and reporting back to some authoritarian governments, for example China, information of dissidents⁷⁷ leading to arrests and harassment⁷⁸. The ranking of Google Searches does not represent an objective search of the World Wide Web but rather ranking proportional to fees paid by advertisers. Increasingly Google is being cited in articles that cover the topic of political censorship on behalf of political parties of documents the parties do not wish the public to see.

Recently the message “Do no evil” was withdrawn from Google logos.

⁷⁷ Perrin, C., “*How China exposed Google's hypocrisy*”, IT Security, Tech Republic, 2010.

⁷⁸ Gallagher, R., “*This Chinese Artist Criticized Google and Xi Jinping. Now He's Facing Government Harassment.*” The Intercept, June 2019.

Blockchain and Bitcoin

Bitcoin is a decentralized digital currency, without a central bank or single administrator, that can be sent from user to user on the peer-to-peer bitcoin network without the need for intermediaries. Transactions are verified by network nodes through cryptography and recorded in a public distributed ledger called a blockchain. The cryptocurrency was invented in 2008 by an unknown person named Satoshi Nakamoto. The currency began use in 2009 when its implementation was released as open-source software.

Bitcoins are created as a reward for a process known as mining. They can be exchanged for other currencies, products, and services. Bitcoin has been criticized for its use in illegal transactions, the large amount of electricity (and thus carbon footprint) used by mining, price volatility, and thefts from exchanges. Some investors and economists have characterized it as a speculative bubble at various times. Others have used it as an investment, although several regulatory agencies have issued investor alerts about bitcoin. In September 2021, El Salvador officially adopted Bitcoin as legal tender, becoming the first nation to do so.

The bitcoin blockchain is a public ledger that records bitcoin transactions. It is implemented as a chain of blocks, each block containing a hash of the previous block up to the genesis block[c] in the chain. A network of communicating nodes running bitcoin software maintains the blockchain. Transactions of the form payer X sends Y bitcoins to payee Z are broadcast to this network using readily available software applications.

Network nodes can validate transactions, add them to their copy of the ledger, and then broadcast these ledger additions to other nodes. To achieve independent verification of the chain of ownership each network node stores its own copy of the blockchain. At varying intervals of time averaging to every 10 minutes, a new group of accepted transactions, called a block, is created, added to the blockchain, and quickly published to all nodes, without requiring central oversight. This allows bitcoin software to determine when a particular bitcoin was spent, which is needed to prevent double-spending. A conventional ledger records the transfers of actual bills or promissory notes that exist apart from it, but the blockchain is the only place that bitcoins can be said to exist in the form of unspent outputs of transactions.

Individual blocks, public addresses and transactions within blocks can be examined using a blockchain.

Bitcoin, assets or a medium of exchange?

Bitcoin was originally regarded as a medium of exchange to pay for transactions where goods and services were exchanged. However, the imitation on the projected number of bitcoins meant that in contrast to a continual injection of fiat currency into the economy making fiat currency a poor store of value because of inflation. Gold and silver price manipulation continued to prevent its value reflect more clearly the rate of devaluation of fiat currency and thereby end up causing a run on the banks to take out cash to buy gold.

Since bitcoin is distributed and comes under no central bank and, indeed, avoids any requirement to involve banks and other financial agents, bitcoin began to rise in value from a couple of US\$ cents in 2009 to US\$65,000 in 2021, a rise in nominal value of 3.250,000%. Admittedly from a very low start up price. With the acceleration of monetary injections by central banks, gold remained relatively stable because of manipulation whereas the price of bitcoin rose in proportion to money volume injections as did share

prices and several other assets. Because of the price manipulation of gold and silver, bitcoin appears to have become a substitute for gold.

Scalability and speed of resolution issues

As bitcoin has grown in use the ability of the blockchain to handle the number of transactions and time taken to resolve transactions to completion and record them on the ledger have increased. This can disrupt business at the retail level where the seller needs to wait to confirm that a sale has gone through.

This is regarded as a scalability problem relating to the network. However, work on an additional layer under prototypes names Lightning, Liquid developed by such companies as Blockstream and others have an off-blockchain operation where transaction and settlement channels can be set up by pairs or more of transacting parties can transact in bitcoin in real time. After a day's trading the net result can be recorded on the blockchain as the final net transaction.

Bitcoin as official national currency

In 2021, El Salvador made bitcoin an official currency of the country and introduced a lightning type network to support small trader and housewives transact normal business. By holding bitcoin, the population can gain the value of bitcoins rise in value.

Bitcoin as exchange medium and asset revisited

The Lightning and Liquid type network layers have been able to bring bitcoin back to its original and intended function as a medium of exchange with the added value or price in fiat currency-equivalent in general, rises. As a result, savings have the possibility of yielding higher real returns than fiat currencies.

Maximum “volume” of bitcoins

A limit to the number of bitcoins to be issued has been set at 20,000,000 and so far around 18,000,000 million have been mined. The theory here is to ensure a maintenance of value or rise in the value. Because, except for El Salvador, no country has accepted bitcoin as an official legal tender the general price benefits on products and services are not apparent but the inflation caused by monetary policy continues to undermine the purchasing power of mainstream legal tenders.

A good historical account of the negative impacts of excess monetary injection of fiat-based currencies can be found in most of the analyses of hegemonic cycles and is also contained in the recent work of Saifedean Ammous⁷⁹

Conclusions

Alan Greenspan identified issue of advance in technologies and precarious nature of work and need for retraining of work force but fails to make connection between financialization, offshore investment and general de-industrialization.

The 2008 financial crisis led to quantitative easing as bail out for banks and hedge funds no consideration of wider scale absorption by smaller banks, people's quantitative easing or criminal charges against bankers.

⁷⁹ Ammous, S., *“The Bitcoin Standard – The Decentralized Alternative to Central Banking”*, Wiley, 2018.

A past irritation to Keynes and bankers in the form of thrift and savings killed off by low interest rates.

Lords Economic Affairs Committee in reviewing quantitative easing failed to ask critical questions such as asking the Bank of England to explain the mechanisms of cause and effect related to potential benefits.

Bank of England independence largely illusory.

Quantitative easing outcome evidence and a review of the central bank narrative concludes that QE is a policy without a theory.

The Quantity Theory of Money cannot project monetary injection impacts on prices because most of the asset prices impacted by monetary injections do not feature in the identity. The QTM only refers to the prices of supply side production and services.

The inflationary mechanism, missing from Keynesian and monetarist text books is simple. Assets impacted by speculative money injections and which are inputs to the supply side production sectors generates cost-push inflation.

On the real estate front this leads to rising rents and prices impacting business and constituents (wage-earners).

However, since these do not feature in the QTM the monetary logic results in policy decisions and policies which have no theory.

Modern monetary theory is a version of monetarism with the same problems related to lack of control over the direction of flow of funds.

5th Generation initiative largely failed because it was not associated with applications stakeholders to benefit from accumulated tacit and explicit knowledge.

Industrial robotics which developed within the industrial environment was an outstanding success.

Technical and programming developments in 5th Generation were outpaced by the natural learning curve impacts of Moore's Law and Wright's Law.

Platform systems, including search, such as Google, media such as Facebook, Twitter and Meta, gig work such as Uber, commerce such as Amazon all take on a complex organisational capability based on Boolean logic. In all cases the commodity becomes both the users and workforce.

Bitcoin introduced and in 2020-2022 second tier applications on the blockchain enable limitless scalability to enable it to return to its original objective as a means of exchange with a very low cost overhead.

Bitcoin becomes legal tender in El Salvador.

Bitcoin values follow monetary injections and represent a hedge against fiat currency devaluation linked to inflation.

SECTION 7

Constitutional impacts of monetarism and QE in particular

At the beginning of this Review a constitutional view of economics was expressed in the sense of laws and regulations, a public good, established in the realm of politics and public choice enabling individuals to pursue their objectives without encroaching on the ability of others to pursue theirs.

By implication and in line with natural justice it would be expected that laws and regulations enacted to support macroeconomic policies should not create circumstances of enabling specific groups to advance their objectives more easily than others.

In the context of the discussion in this Review it is apparent that monetarism has significantly increased the income and wealth of those working in asset markets so it is evident that depending upon the modes of income generation of different constituents the relative benefits derived from macroeconomic policy vary.

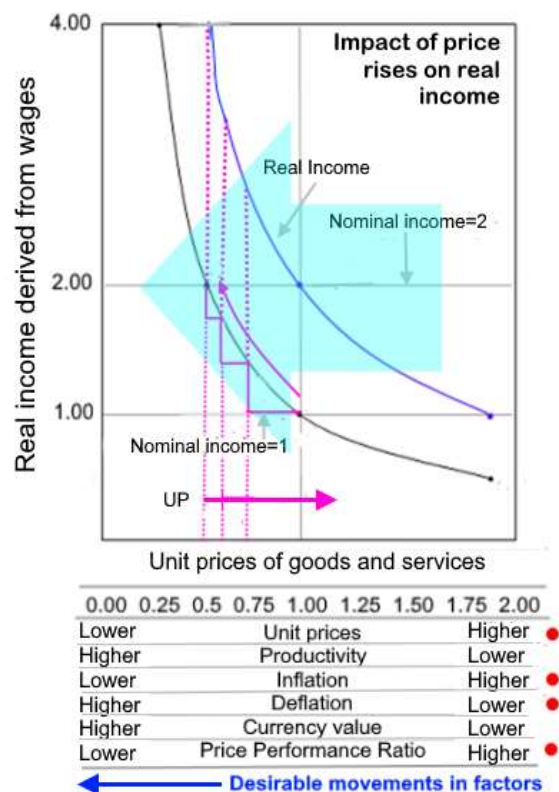
Modes of income generation

Economic constituents can be clearly differentiated in terms of the modes of their income generation or plainly, where the money paid to them for economic effort, comes from.

Wage-earner constituent sources of income

The unit prices of goods and services are an important determinant of the real income or purchasing power of a given wage. The purchasing power of the currency is determined by its innate exchange value for goods and services and this is determined by the relative levels and movements in prices. Thus, if prices of goods and services are in general falling the value of the currency rises because more real products and services can be purchased for a given nominal sum. If prices of goods and services, in general rise, then the value of the currency falls because fewer real products and services can be purchased for a given nominal sum. Therefore, inflation lowers the value of the currency and real incomes and deflation raises the value of the currency and real incomes. Therefore, unit prices of goods and services determine “real income”. The

Figure X: Real incomes - prices of goods & services



relationship between nominal income, unit prices and real income of wage-earners are summarised in the graph to the right.

As prices move upwards, from left to right, the real incomes of wage-earners decline. Wage-earners make up around 95% of the working population and voters.

Input to supply side production of goods and services

As in the case of wage-earners the relationship of the interest of supply side productive sectors is the same in that preference is given to lower input costs. Therefore, the relationship of companies to the prices of their resource inputs and capital equipment and all variable inputs is the same.

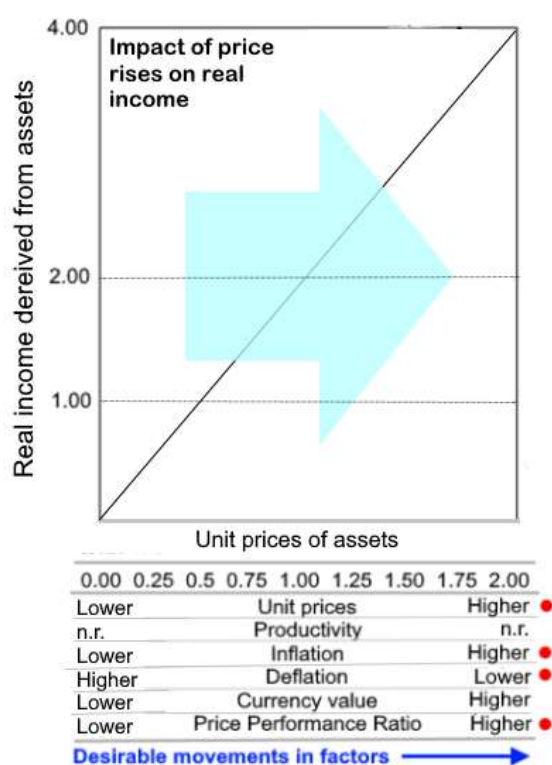
Asset holder and asset transaction constituent sources of income

Asset markets are referred to as encapsulated markets in terms of their separation from the volumes of transactions occurring in the production and supply side goods and service

markets. These markets also tend to be managed by a smaller proportion of the constituency involving less than 5% of the working population. Often these markets are characterised by speculative prices influenced by money volumes applied in these markets. As a result, the participants in these markets can make significant margins on transactions in markets or by simply holding on to the assets.

As can be readily appreciated the participants in these markets, gain no advantage from falling prices is assets. Therefore, contrary to the state of affairs in goods and services markets the purchasing power of the monetary value of the asset holding is determined by an inverse relationship between assets and its innate exchange value. Thus, if prices of assets are in

Figure Y : Real wealth - prices of assets



general falling so does the income and wealth of asset holders. If asset price rise so does the wealth and income of asset holders.

This is summarised in the graph on the left.

Inputs to asset trading

In the case of the inputs to asset trading, which are the assets concerned it will be recalled that the Nymex experience starting in the 1970s was that unlike supply side productive sectors, input prices of assets have no particular impact on profitability because of the

assumption of money injections maintaining a rise in values. Therefore, assets trading as well as asset-based income follow the same straight-line positive relationship with prices.

Why are these income lines different?

There is an important difference between wage-earners and asset-holders income responses to variations in the prices of goods and services or assets. In the case of income derived from assets the nominal and real incomes rise as a direct proportion to asset prices, therefore the relationship is a straight line. Quite often income paid in the form of bonuses are proportional to the success of individuals making trades which raise the value of assets held and/or sold. As a result, there is no limiting factor on income levels, they are directly proportional to asset prices.

In the case of wage-earners, wages tend to be fixed over time so rises in the prices of goods and services take up a curved line relationship because the nominal income is fixed and a limiting factor. This is why the “cost of living” is a constant factor in political discourse.

The real income effects of income sources

Therefore, inflation raises the value of assets-based wealth and deflation lowers the value of assets-based wealth. Therefore, the relative benefits of price movements to constituents earning their incomes from asset transactions on the one hand, and the constituents who earn wages for the production of goods and services, on the other, have an inverse relationship.

This also represents very different sets of interests on the part of these constituents on the objectives of macroeconomic policy and the potential impacts on their relative interests, according to the policy instruments applied. There is, therefore, the fact that the real incomes of the majority of the population are safeguarded by stable or falling price in goods and services. On the other hand, there is a minority of constituents who deal in assets, whose real incomes are safeguarded by rising prices of assets.

Policy impacts on nominal and real income disparity

This Review has described how monetarism has had the tendency to drive up asset prices to the benefit of a minority of constituents. On the other hand, policy has no policy instruments to influence wages and as a result of a prolonged period of deficient investment in plant, equipment and training, wages have tended to be frozen or adjusted infrequently. The leakage of asset prices through into supply side production results in increasing income from sales and rents to asset-handling constituents while cost-push inflation results in rising unit prices of goods and services causing a decline in the real incomes of wage-earners. As a result, the average levels of assets-based income constituents rise at a faster rate than wage-earners whose real incomes often fall. As a result, income disparity continues to grow.

Constitutional implications of income sources

The constitutional implications of the differential impact of different income sources of income on the wellbeing of the constituents are that, as things stand, the results of monetarism over the last 50 years has been one of bias. As a result, policy has diminished the relative wellbeing of the majority while enhancing the wellbeing of a minority. Naturally these circumstances signify that policy has augmented the extent of the differences in the needs of constituents and their demands in relation to economic policies. This impact is at

odds with what would normally be considered to be the constitutional objectives of permitting all constituents to pursue their objectives while preventing the pursuit of objectives by any constituent from preventing other pursue theirs. In this case each groups of constituents pursue their objectives but wage-earners face specific constraints imposed by policies that place an emphasis on the injection of money into the economy. In the context of universal suffrage, where all people over a specific age have the vote and, in theory, at least, voting leads to a public choice of policies, including economic, that the majority of voters deems to be of mutual interest in advancing the wellbeing of the population.

Employment, electoral significance & the nature of economic value in the UK

Factor	Real economy	Physical assets	Financial assets
Constituency participation in terms of employment	85%	around 10%	<5%
Estimated maximum number of votes	40 million	4.8 million	2.4 million
Value measure in nominal pounds sterling	Significant	Significant	Very high
Nature of the value	Cash flow	Asset value	Asset value

Law and governance

Recent statements by government point to a desire to distance the conduct of government from judicial oversight and judgement. In a recent BBC Hard Talk interview with Stephen Sackur, Baroness Helena Kennedy provided some clear positions on where law enters into a situation where there is prejudice arising from decision and actions that lead to prejudice.

She observed that, *"It's only in authoritarian states and totalitarian states that they try to punish our thoughts."* This part of the interview was related to misogyny and she qualified this general statement which paraphrasing had the sense that, *"thoughts become a legal issue when actions, resulting from a particular mindset, prejudices others - in his case women."*

This legal position has a far broader significance including the differentiation of monetarism in favouring one type of constituent while prejudicing others.

The prejudice has included the obliteration of the UK's industry and manufacturing sectors, loss of compensatory employment and a falling balance of payments. This Review has shown that monetary theory is wrong and cannot be used to predict policy outcomes. All monetarism including QE is a policy without a theory.

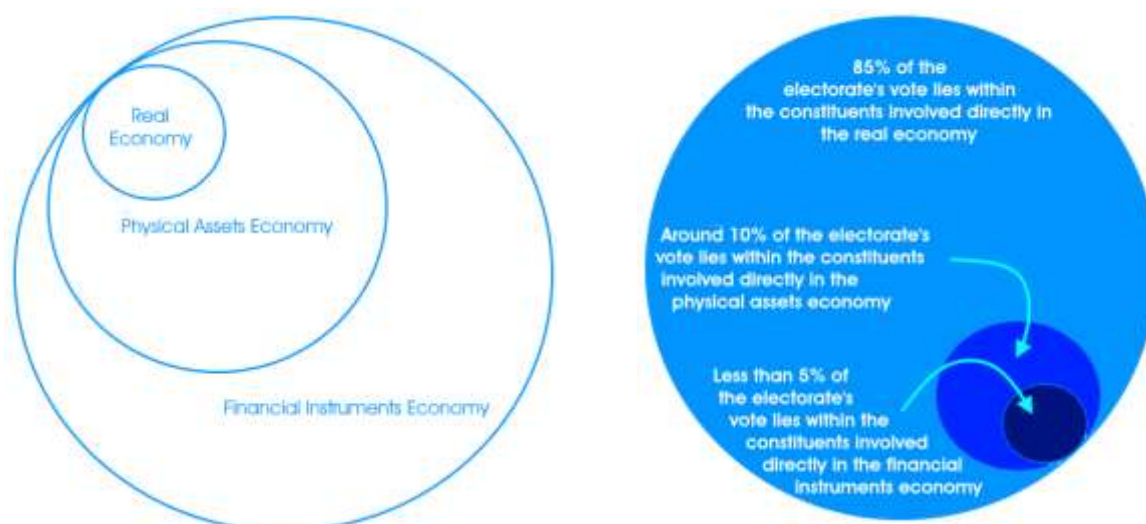
Economic policies need to switch to a constitutional economic approach to ensure that policy decisions are subject to a stricter due diligence in terms of an appropriate level of detail applied to impact analysis on types of constituent.

The observation that *"Thoughts become a legal issue when actions, resulting from a particular mindset, prejudices others"* –applies to the undeniable evidence of prejudice affecting increasing numbers of wage-earners. It becomes apparent that insufficient due diligence was brought to bear in the decision analysis presented to justify the policy. If it can be established that the mindset that applies a flawed logic, albeit a political ideology, is at odds with clear evidence, then surely decisions on policy, based on this mindset,

constitute actions which are prejudicing others and therefore should be subjected to legal oversight for approval.

A central tenet of constitutional economics is public choice. This depends on the full facts relating to any intended legislation being available to the voters as part of due diligence procedures that need to meet necessary standards. It seems to me that, as in the case of law and the topic of standards o

In this way, placing all such evidence before the constituents as part of a process of participatory policy development, which would be subsequently voted upon, would help



improve transparency to prevent governments distancing their conduct from judicial and public oversight and judgement.

20 General elections

It becomes evident that voting patterns over the last 50 years involving 20 General Elections, the majority have not secured the enactment of policies that avoid the indicated bias and which have in fact, imposed constraints on the majority and opportunities to a minority.

In this Review there is a focus on the degree to which economic policies satisfy the needs of the social constituents through the operations of the economic units or individual economic activities managed by economic constituents. Put another way, to what degree does economic policy encourage a behaviour and decisions by economic constituents that satisfy stated macroeconomic policy objectives? In a democracy with one vote assigned to all of voting age, it is to be expected that macroeconomic objectives should normally aim to enhance mutually supported acts that enhance the wellbeing of all constituents on an equivalent basis.

It is very evident that monetarism in particular, financialization and QE starting out in 1973 has consistently favoured asset owners and traders over the general majority of constituents whose income comes from wages paid in exchange for their physical or intellectual contributions.

Conclusions

Monetarism has given rise to differentials in the opportunities of constituents to advance their condition according to whether they are asset holders and/or traders or wage-earners. Broadly-speaking middle to lower income constituents have seen the real value of their wages decline during the last 50 years.

The fact that monetary policy decisions follow an incorrect theory is evidenced in outcomes and the number of factors missing from the QTM identify.

Although politicians prefer to keep such policy discussions at a high level of abstraction and rhetoric based on assertions, the state of affairs is one where decisions are taken on the basis of a false logic leading to prejudice of constituents.

This is a serious constitutional issue and one, by its nature, that needs to be resolved at law.

SECTION 8

Britain's main strategic gap

This section identifies the single most important gap in the British social and economic structure which has been referred to on a repetitive basis in this Review. Formation. The overwhelming evidence is that the main problem that has caused the country's decline has been the decline in the country's level of application of the state-of-the-art tacit and explicit knowledge of the industrial arts. This factor is directly linked to economic success. The post-war examples of where these factors were not lost are Germany and over the last 40 years South East Asian countries and in particular China.

In spite of the appeal of low labour cost offshore production, Germany, within the European Union, still maintains the world's largest balance of payments whereas the UK has the second worst balance of payment in the world.

As was mentioned in the discussion on tacit and explicit knowledge, teaching establishments opt for the use of explicit knowledge or essentially communicating information "about" things. Since early days there is very little instruction that provides children and youth with any direct experience in practical processes linked to the vast array of technologies that make use of physical resources in an economy. Engineering and technology are something that might be encountered at university but even then, it is largely theoretical instruction.

Much of the understanding of theory comes from applying it in practice and this can be achieved within the educational system by moving away from explicit and highly academic instruction to a more balanced combination of theory and practice.

The British technical education scene

The Rab Butler Education Act of 1944 introduced a new secondary education system creating three main types of school, grammar schools, technical schools and modern schools. The Grammar schools were to be selective and based on the 11+ examination, technical schools were more for those "who were good with their hands", and the remaining majority were to complete their education in modern schools.

First of all, the most significant mistake was the creation of a highly theoretical and academic text to which all children were subjected, at the age of 11. Given that the rates of development of children between the ages of 10 and 16 are very variable and the variability is not related to intelligence, the fixing of a specific age for the 11+ test was completely arbitrary and as a result, included children who were more suited to another type of education and it excluded children who were far more intelligent than the tests revealed.

As a result, grammar schools gained a certain status but were founded on an unfair principle of a selection which ended up as being somewhat arbitrary. Grammar schools tended to get more students into universities also based on highly academic examination board examinations governing general, advanced and scholarship level tests. To a large degree having been exposed to a highly academic course of study this only filtered out students who were suitable for an equally academic university training.

However, in general, technical schools were never widely implemented largely because of an out of date notion that they were only "vocational" schools and that a better education needed to follow the academic tradition for "intelligent" children with gown-wearing

teachers in grammar or public schools and all based on "chalk and talk". This misunderstanding of the general benefits of technical education for children of all educational abilities, that is, being more completely informed and reflective of the world in which we live, by including considerable exposure to technical subjects, came from a well-meaning but ultimately destructive image of technical schools created by the R. A Butler 1944 Education Act. This regarded technical as "vocational" schools for children who were considered not to qualify for a more academic or less applied education considered to be of higher quality.

One of the mistakes made by an otherwise rational MP, Anthony Crosland, as Secretary of State for Education, was to introduce Comprehensive Schools in 1965. This replaced the 11+ examination in the last year of primary education and the options of secondary modern, secondary technical or grammar schools depending on their perceived ability. Crosland's aim was to raise and level the playing field for children by getting rid of the 11+ and improve upward mobility. The problem was that he did nothing about technical education to improve the standards of education by making it more relevant to both the economic needs of the country and to open up vistas and opportunities for individuals.

To this day this highly academic approach bedevils UK education, with an output of individuals which business leaders find to be deficient in terms of English language and numeracy and having very little notion of applied subjects and little applied capabilities.

Working against the odds

However, long before the 1944 Education Act, Frederick William Sanderson (1857–1922) the headmaster of Oundle School from 1892 until his death, demonstrated how significant and transformative a technical school could be. He was an education reformer, and both at Oundle, and previously at Dulwich College, where he had started as assistant master, he introduced innovative programs of education in engineering. Sanderson's vision was that schools should be dedicated to solving problems related to human needs and emphasizing creativeness, cooperation, and the scientific search for truth to become model institutions inspiring broader social change. In bringing about this change, Sanderson faced difficulties from other more academically inclined staff and others who thought he was "lowering the tone of the school." It was as if practical subjects were grubby and not something well-educated children should be exposed to.

Under his headmastership, Oundle saw a reversal of a decline from which it had been suffering in the middle of the 19th century, with school enrolment rising from 92 at the time of his appointment to 500 when he died. It is notable that the only biography written by H. G. Wells was the biography Sanderson entitled, "Story of a Great Schoolmaster". H. G. Wells admired Sanderson's approach and quoted at length from Sanderson's sermons and speeches on these subjects in his biography.

Working against even greater odds

As it transpired, after the 1944 Act, secondary technical schools only developed effectively in places such as Portsmouth in Hampshire where the local Technical High School became one of the best schools in the city. The author's father, Thomas Cragg McNeill (1910-2002), the headmaster of the Technical High School in Portsmouth, was an admirer of the approach and work of Frederick Sanderson and he dedicated time to reviewing how other countries handled technical education, such as Germany. Like Sanderson, it is notable that he was also successful in expanding the enrolment of the school from a combined enrolment from 200 in 1945 to over 1,000 by the time he retired in 1975. By that

time, the school had begun to compete effectively with local grammar schools as the first choice of parents in the city. There is no doubt that the Technical High School exceeded the provisions of Oundle but the technologies of relevance had changed since Sanderson's time.

During this time the school taught all of the subjects taught at grammar schools but in addition included surveying, technical drawing and geology but also major additions were laboratories including metal foundries, wood and metal work, pottery, art, test beds for motors and pumps, chemical and physics and electrical labs, an observatory and even boat building producing the school's own class of sailing boat. The school was the first in the city to gain a computer donated by Basil de Ferranti. Many of the devices used were designed and built by students including the astronomical telescope and dome. The remarkable aspect of McNeill's dedication to this project and accomplishment was that whereas Oundle was and remains an independent private school, the Technical High School was a state school, administered by the local authority.

The Dockyard School

The Dockyard School in Portsmouth was established in 1811 to provide a deeper study of the principles of ship design. This followed a recommendation that the best apprentices in the Royal Dockyards should be given special instruction in Naval Architecture and related subjects. The Technical High School was increasingly appreciated by the Dockyard school because of the high calibre of students they received from the Technical High School.

Border-line cases

McNeill studied the limitations of having children sit intelligence tests at 11+ a single point in time when the acceleration in children's development was particularly rapid between 10 and 16 years of age meaning slightly slower developing children failed the 11+. McNeill helped introduce a system in Portsmouth to monitor border-line cases of children who did not pass the 11+ so that at the age of 12, 13 and sometimes later they could transfer to a grammar school or the Technical High School. He also worked with the Associated Examinations Board, based in Guildford, to introduce technical subjects to their list of approved certifications. Increasing numbers of students went on to university or technical colleges.

Concerning "late entries", the children who entered the Technical High School having been border-line cases for 11+, it was observed that some of these ended up demonstrating further into their education, a more complete set of capabilities than those who had passed the 11+. In such an environment it was not difficult to make informed judgements concerning the potential of students because there were so many opportunities for them to find combinations of subjects which suited their inclinations.

Following the second world war and leading up to the 1960s there was a good deal of vandalism carried out by students in secondary schools. It is notable that vandalism by students in the Technical High School, was rare, while it was a constant problem in the grammar and modern schools.

When asked about the issue of individuals being able to observe a state of affairs and to come up with practical solutions, McNeill's observations were that such individuals who would appear, perhaps every other year, who found personal satisfaction in assigning meaning and value to both theory (academic) and to the relation of this to practice. These same individuals possessed a basic discipline in acquiring the practical capabilities which in all cases required some practice and patience. So, the balance between recognizing

some concept which might take a very short time and being prepared to take the time to develop the practical techniques to apply that knowledge, was present in a small group of students. McNeill stated that such individuals in applying their hand in practice could observe impediments which would cause them to return to the theory as part of the enquiry as to the cause. In these occasions, some would succeed in rationalizing the issue and end up improving their technique and their practical outcomes.

Others could develop this capability taking more time to attain a good standard of work, but specific individuals were quicker on the uptake of both theory and the practice.

McNeill also observed that some students who were fascinated with theory developed a motivation to apply this in practice and became proficient. On the other hand, students who at first seemed to have a bent for practice ended up with an enthusiasm to learn more about the theory and these also excelled in theory. Individuals that excelled in these processes were those who became enthusiastic because for them it possessed some meaning, either being no more than a fascinating voyage of discovery concerning how and why things work or because they saw some social or societal utilities or benefits arising from the application. There seemed to be family culture and sibling position effects influencing the latter, related to the topics concerning economic and social issues, as part of the interests of family members and, therefore, which featured in family conversations. In the case of all types of motivations, each advance in their capabilities seemed to result in immense internal satisfaction.

It is notable that these motivations were not related to desires to gains high marks in examinations but arose largely from a genuine enthusiasm and interest in the theory and practice of the issues concerned. Therefore, it is more than apparent that without a student being exposed to the range of theory and practice that can contribute to the advance of technique and innovation, the types of instruction received in academies and grammar schools cannot generate sufficient information about a student to judge their potential contribution to our future. This can only provide a partial profile that ranks student on the basis of highly academic, that is, theoretical pursuits.

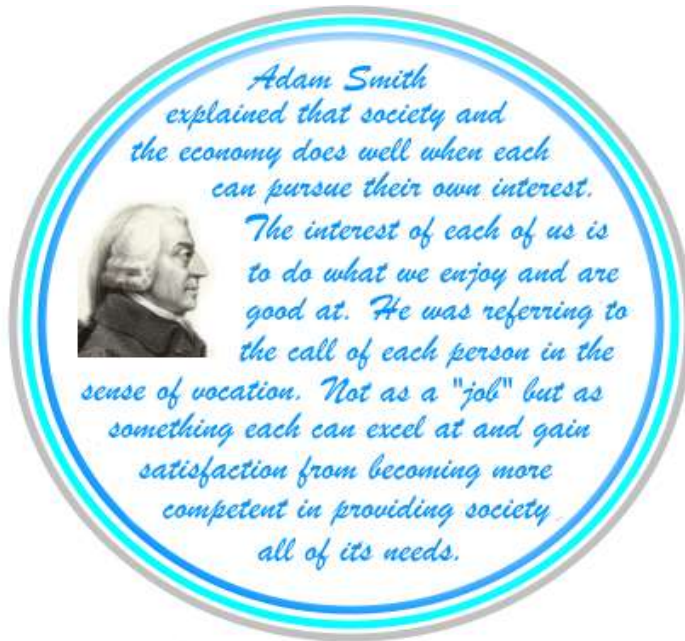
It is necessary to conclude that educational establishments cannot equate any academic tests with the creative intelligence that is so vital to the advance of human wellbeing.

Intelligence tests

One of the results of McNeill's work, also based on copious work undertaken in the USA was to establish that Intelligence Quotient tests or IQ tests do not assess intelligence in the applied sense. The applied sense is, after all, which is the most significant in terms of the majority pursuing their objectives in life and as participants in the economy. However, with macroeconomic policies hollowing out industry and manufacturing, the range of employment requiring technical and practical capabilities was steadily reduced. Today most products from industry and manufacturing processes are imported.

Lamentable priorities

This country has suffered for too long, from a poor provision of primary and secondary education which fails to develop even basic capabilities in decision analysis and problem solving in an applied sense. Assessment continues to be based on ticking multiple choice answers to questions, or judging people's competence on the basis of other paper-based pursuits or IQ tests. An applied know-how-do approach to problems is lacking and this holds back the country and government's ability to deliver on promises made. This has



been witnessed by all as general fiascos surrounding the repeated promises of government "actions" and the constant U-turns or failures to deliver exactly what was promised. This is stark symptom of this lack of an applied education which has also afflicted politicians and ministers including those who passed through the "best private schools" and even "best universities". There has been a failure to better equip all individuals to project beyond the present and see what might be from a realistic perspective. There is a need for an education

that provide an inner confidence for each to start their journeys to desired destinations with enthusiasm, but also with the competence to arrive successfully, no matter how choppy the seas. Telesis, an ancient Greek word, sums up what we currently seem to lack, as,

"...the steady progress towards an objective through the intelligent application of resources."

Following the science is clearly not enough. We also need to have the ability to fashion the technologies and techniques that use scientific knowledge to shape benefits of society. There is also a need to recognize the fact that it takes time for people to learn to apply new technologies and techniques so as to become more competent in their application. Based on this, through a more intimate acquaintance and deeper understanding, to identify and develop innovations.



STEM – Science, Technology, Engineering & Mathematics

Some 35 years following the introduction of post graduate systems engineering courses at MIT and Stanford University in the USA the National Science Foundation⁸⁰ started an initiative to introduce subjects which together represent key components of engineering

⁸⁰ Encyclopaedia Britannica, *STEM-education*

design to lower age groups within the educational system which combined science, technology, engineering and mathematics.

Linked to this initiative other countries began to introduce STEM curricula including Australia, China, France, South Korea, Taiwan and the United Kingdom.

STEM was introduced into the United Kingdom in the mid-2000s some 40 years after the introduction of comprehensive education and the demise of the technical schools. Therefore, the assessment of impacts probably needs to await more time.

A notable aspect of STEM in the context of this Review is the apparent absence of the discipline of economics which makes up a crucial component of systems engineering economics, an essential factor in design optimisation and linking proposals to policy.

Education and life-long learning in a technological society

The topic of education and life-long learning in a technological society could be a topic for a separate British Strategic Review⁸¹. A considerable amount of international work, workshops and seminars have been organised by UNESCO since the 1950s. Including the publication series “*Impact of Science on Society*”⁸² as well as specific publications on “*Education in a Technological Society*”⁸³ and more applied reviews such as the OECD’s publication, “*Society and the Assessment of Technology*”⁸⁴.

In the earliest publications a general map was used to set out:

- 1) The extent of literacy.
- (2) The law, custom, or practice concerning the school-leaving age.
- (3) The proportion of children of school age actually receiving general or technical education.

Literacy is basically the ability to read and write but extracting the sense of an “ability” this can be extended to signify abilities in a range of applications. For example, people can be effective readers and can write but can be ineffective communicators in written or oral formats. Both of these, as in the case of reading and writing as techniques requiring practice so as to build up a tacit knowledge and to perfect as a result of learning to apply part of these techniques i.e. reading and comprehending, writing logically, communicating coherently and logically in speech.

In reality, the learning in these forms lasts a life time being under constant refinement according to different encounters and reactions of people and occasionally guidance, feedback and orientation linked to correction of a factual nature that point out an error or conversely adds to the fund of shared knowledge.

Beyond these basic abilities, the forms of human abilities can be extended to a range of necessary requirements for children and students in an advancing world. These include abilities in all of the relevant technologies and devices used to handle communications generally summed up as computer-literacy. The constant evolution of technologies and

⁸¹ The topics list for the next British Strategic Review includes the topic of, education and life-long learning in a technological society.

⁸² “*Education in a technological society*”, Preliminary report of the international survey of the nature and efficacy of technical education, Expert Conference on Educational Systems and Modern Technology, UNESCO, Paris, 1952

⁸³ “*The Impact of Science on Society*”, Series, UNESCO, Paris, 1950-1965.

⁸⁴ “*Society and the Assessment of Technology*”, OECD, Paris, 1973.

the reach and types of impacts of digital technologies means that even during school years requirements in terms of abilities will change. However, still the solution is exposure and the opportunity to apply them to begin the advance tacit knowledge and abilities.

All of these realizations lead to the justification for a more practical technical education both in preparation for individual pursuits and interests as well as to facilitate the entry into and remaining in the world of work as long as desired and ability in terms of possible age-related limitations.

Clearly this dynamism of constant change throughout one's life stages signifies that the solution is likely to be a form of life-long learning.

However, for as long as this learning occurs within a school environment, there is a benefit to be drawn from gaining as wide an exposure as is feasible to as many different types of practical processes manipulating as many resources including gaseous, liquid and solid materials as possible for young people to identify the types of application areas that might represent an area for a future professional dedication.

Conclusions

The overwhelming evidence is that the cause the country's economic decline has been the decline in the country's level of application of the state-of-the-art tacit and explicit knowledge of the industrial arts. This factor is directly linked to competitiveness, the state of the balance of payments and economic success.

It would seem that more efforts need to be made to establish a life-long learning system which balances theory and practice in a more rational manner. Naturally the whole concept of life-long learning needs to start with the young so that school age children become accustomed to practical pursuits and exercises to help them understand the range of processes involving human as well as machine efforts. There is, of course a need to balance this with sufficient theoretical instruction enabling student to transition between theory and practice with ease as a preparation for becoming involved in analysing situations requiring a "solution" and being able to manage affairs to make use of both theory and knowledge of state-of-the-art technologies and techniques to come up with feasible proposals for solutions.

In this context, STEM would appear to be a promising start but this needs to be bolstered with sufficient support in the field of applied project level economics and an understanding of tacit and explicit knowledge and the learning curve in helping students in their design projects, come closer to financially feasible solutions.

The pre-work and work environment

In reflecting on the post-school pre-work and work environments from the standpoint of life-long learning, it is worth, in the European context to review the preparative structure applied in Germany which has the highest balance of payments in the world.

The centuries old guild master and apprentice structure of training has evolved into a Dual Vocational Training system where the master-apprentice practical and manipulative aspects of tacit knowledge is now accompanied by a parallel provision of theoretical training to provide the explicit knowledge side to the trades being followed.

It would seem that a combination of a broader curriculum at the school are life stages including technical education could enhance the effectiveness of a dual system in the United Kingdom. In the United Kingdom the dual system is essentially what is referred to as a sandwich system but the main challenge is to accelerate or shorten our learning curves.

Learning curve theory and practice informs us that the individual learning curves durations, to arrive at a high level of competence on the practical and intellectual levels, are very difficult to “speed up”. The only way it to initiate learning curves at an earlier stage in people’s lives and this is why attention needs to be given to school age children and the need to improve curricula to include more interesting technical topics and the opportunity for young people to enjoy getting their hands dirty designing and producing things.

In theoretical terms an earlier initiation of relevant learning curves could perhaps reduce a 3 years apprenticeship to 2 to 2.5 years which could have an expressive impact on productivity in the medium term in the sectors employing the output of these systems.

SECTION 9

Summary analysis

Drawing together the conclusions from the previous 8 Sections it is possible to aggregate the trends over the last 50 years into recognizable states.

The nature of real growth

In 1966 Nicholas Kaldor's inaugural lecture, some 55 years ago, spelled out some fundamentals to act as a guide towards the path Britain should follow. This was that policies should support the growth in industrial and manufacturing activities. The very wide range of output of these sectors provides the operational infrastructure, devices and ability to manage products, information and services associated with all other sectors and as such is the main source of productivity growth. Therefore, a considerable amount of the productivity of all sectors rests on the relevance and dimensions of national industrial and manufacturing output. This, as will be elaborated in this section is quite different and more effective than monetarism's 50 years of attempting to generate "growth" based on debt to generate "demand"

The implications of not sustaining real growth

Starting from a position in the late 1960s with a broad industrial base by 1975 any industrial planning which had contributed to an outstanding development of the British economy between 1945 and 1965, was totally abandoned with a switch to monetarism. China initiated its economic reforms in 1978 and as a result of a Kaldorian approach has supplanted both Britain and the USA as a major exporter of industrial and manufactured goods. Germany also, having lost the last war, also followed a Kaldorian route and until recently had a larger balance of payments than China.

The monetarist paradigm has proactively undermined real growth in the sense of a failure to provide incentives for the advance of higher industrial and manufacturing productivity and more for less. Increasing financialization has caused a substitution of productivity in making useful devices and goods by productivity measured purely in terms of nominal amounts of currency, or profit. The importance of the development of work force competence and skills through the accumulation of tacit knowledge through direct experience in the use of advancing technologies through the development of more effective and efficient techniques has been lost as a result of increasing UK investment in factories abroad, including China and diversion of funds into speculative assets.

Stages of growth

In the last 60 years after the publication of Walt Rostow's "The Stages of Economic Growth" Britain entered the typical and final stage in hegemonic cycles which is made up of the impacts of financial speculation. Profit as a percentage of GNP has increased over the last 50 years and wages as a percentage of GNP have fallen. In strategic terms Britain has become over-dependent on imports for the majority of essential goods, including pharmaceuticals, energy, plant, equipment and high technology.

The excessive injections of money are taken up by the asset markets enriching a minority while this also builds up inflation in the supply side goods and services sector output prices as a result of productive inputs such as natural resources and energy inflation. Because

of the distorted distribution in income increasing numbers of middle to low income wage-earners are being exposed to the rising cost of living.

As a country it is apparent that the monetarist paradigm is not a solution to our current problems, monetarism has been and continues to be the problem.

The reasons why monetarism is the problem is because its fundamental theories are erroneous and as a result, policies do more harm than good with pure chance being the overriding basis for policy success. This is unacceptable.

It is therefore evident that there is a need for change and in particular a need to move away from the operation of a political system whose decision-making favours the interests of a very small influential faction of constituents, and out of proportion to their voting power; they are over-represented in the decision preferences of government.

The main systematic deficiencies and gaps

It is apparent that where both economic theory and policies are so destructive and biased and against the interests of the majority, that this country faces a serious constitutional issue linked to an ability apply incorrect theory to significant economic problems that require an urgent solution and yet after 20 elections since 1945 propositions and voting have not brought about the necessary changes in policies let alone in results on the ground.

This combination of circumstances is reflected in a general malaise which has deepened over the last 50 years. In spite of this, the electorate clearly does not have a convenient access to ways to bring concerns to representatives in a way that gains traction to become something for serious consideration at national level. This represents a significant constitutional problem since our system of representation and decision making is not working as it should do.

Democracy, constitution, politics and parties

John Lilburne, William Walwyn, Thomas Prince and Richard Overton, all of whom were Levellers, had been imprisoned in the Tower of London by Oliver Cromwell⁸⁵. While there, in May of 1649, they penned out a proposal called "*An Agreement of the Free People of England*". This document was a proposal for a written constitution for England. 40 years later parts were used in the English Bill of Rights of 1689 and the American Bill of Rights in the American Constitution of March 1789, some 140 years later.

One of the principles underlying the constitutional propositions made by the Levellers⁸⁶ was to avoid the formation of what today, we recognise as political parties. This was to avoid the creation of "professional politicians" and the creation of powerful factions who would begin to operate their "politics" to serve their own promotion and economic status as well as those who finance the party. However, in spite of the Levellers contributing to most of the foundation documents which make up the key aspects of representation in the United Kingdom, their specific concern with respect to political parties was ignored. As a result, we now have, some 372 years later, a state of affairs with political agendas and policy decisions dominated by political parties.

⁸⁵ McNeill, H. W., "*The Briton's Quest for Freedom .. Our unfinished journey*", Chapter 4, A Proposition – 1649, HPC ,2007.

⁸⁶ McNeill, H. W., "*The Briton's Quest for Freedom .. Our unfinished journey*", Chapter 4, A Proposition – 1649, HPC ,2007. O

Whereas the wealthy factions in the time of the Levellers relied on ownership of the asset of land and property, as we have seen the range of assets has expanded significantly while land and real estate remain as important assets.

Political parties are tiny private organizations. In the United Kingdom, with a total electorate of around 47,000,000 all of the political parties together, have a total membership of around 550,000 or less than 1.25% of the electorate. This reflects the degree to which the constituents consider political parties to be an essential aspect of their lives or to feel that advantages might arise from becoming members.

Being so tiny, political parties lack funding, largely to organize publicity for elections, and as a result are easily captured by wealthy benefactors. As can be deduced from the analysis in this Review, those with funds to spare are very often those who have benefited from economic policies in the past and who wish to keep economic policies the way they are. Another factor is that the access to information on the part of the electorate has in the past tended to be based on the traditional sources of news including newspapers. These media are controlled by a very small number of owners whose general interests, linked to advertising revenue and personal inclination is to support those with most power who tend to be the same group as party benefactors.

Because of this linkage between the media and party benefactors, the Conservatives, in general, have had a better media coverage than Labour. Labour, since around 1970, have had to tread a fine line between promoting rational economic policies while attempting to avoid whatever proposal is made from being either stolen by the Conservatives or being attacked in the media as being “too left wing”, “socialist”, “Communist” and a range of similar branding applied by the media as headlines.

One of the sensitive areas for both political parties is to sustain an image of being more effective managers of the economy. Invariably their media support is always at pains to somehow justify party positions in terms of how economically advantageous party positions are to the “country”.

However, it is more than evident, based on the last 50 years, that poor Labour government decisions have been followed by worse Conservative governments where they have taking advantage of the Labour decisions to disadvantage those groups who would be typical Labour voters. This happened following Healey’s disastrous decision to switch to monetarism in 1975 followed by Thatcher’s intensification of this paradigm in policies. Brown’s decisions to make the Bank of England independent in 1997 was followed by the introduction of the temporary solution of quantitative easing in 2008. This policy was extended by the Conservatives for over 12 years as a basis for running down the public services in the name of an austerity justified on the basis of “paying down debt” but in reality, ending up with more debt. Over the whole period, Labour and Conservative policies have combined to starve British industry of investment leading to declining productivity and a falling ability to pay higher real wages and an accumulation of private debt.

The track record of both main political parties on the management of the economy is poor.

SECTION 10

The next decade 2022-2032 and beyond...

The current challenges of Covid and advancing climate change will require changes in the way we go about our daily activities to include viro-sanitary precautions and mitigations as well as involve changes in our consumption habits linked to the need to improve the sustainability of our economy. However, these realities should not detract our attention from realizing that monetary policy needs undergo a major transformation as a component and not the dominant component of macroeconomic policy.

The complexity of the climate change challenge means that the whole economy, taking in all sectors and down to individual enterprises, will require an effort to target the necessary objectives of individuals and firms to bring about the key changes in technologies, techniques to adapt economic practice.

The 2019 United Nations Report on Sustainable Development contains data which indicates that our type of economic development is causing the Sustainable Development Goals of reducing income disparity, production and consumption sustainability and reducing climate change through climate action, to all be “going backwards”.

The recent results of the COP 26 in Glasgow were a demonstration of the absence of any coherent fundamental economic theory for the transformative development required while more publicity was given to the fact that banks and hedge funds have US\$100 trillion available to “invest” in “green technologies”. Without a coherent macroeconomic framework, it is difficult to imagine that this will mean no more than business as usual.

On a broad front, promises made concerning the termination of destruction of the Amazon Rainforest are without any merit at all given that the carbon released by deforestation of mature ancient forests will take more than a century to put back with either replanted forests or agriculture. This also overlooks the degree of intimidation that exists against environmental community leaders of which 1,200 have been murdered during the last 20 years, in the Brazilian Amazon alone.

The last-minute relaxation concerning coal introduced by India is understandable in terms of India’s predicament with millions relying on coal to earn a living or to use as inputs.

In spite of the rhetoric concerning Chinese release of greenhouse gasses, some 70% of all renewable green technologies are produced by China.

Public choice

In spite of the urgency, there has been a resistance by political parties and governments to “too much” public participation in the shaping of decisions that affect them and attempts are made to preserve the design of policies under the control of elements within the halls of governance and political parties. Not to maintain this distance is considered by some to risk anarchy and instability and the circulation of dangerous populist proposals. But in the end, policies need to bring with them some form of benefit. Unless constituent needs are understood in relation to existing policy-induced damage and the constraints preventing satisfaction of those needs it becomes difficult to identify appropriate policies. Part of the problem is that much monetarist theory is wrong. Designing policies top-down has failed in practice.

In all cases of successful developments, be they technical, social or economic, those affected by a decision and subsequent actions participated in the design and evolving development in question, all building up additional knowledge through direct involvement and through monitoring of outcomes. The process of mutual agreement that makes this possible is a convergence of ideas and assessments of the probability of success.

Because of our different backgrounds, each having arrived at any point in time following different routes through space and time so that all possess a different personal accumulated experience. These personal journeys can be represented as by an accumulated locational-states of events (see page 57-58). Because we have all followed different locational-state trajectories we all have a range of opinions on “reality”.

Managing priors

This is why when asked as to the probability of an event occurring or of the feasibility of carrying out a specific task, most people will have different estimates. In the discipline of decision analysis, these estimates are known as priors. People’s priors can be very different. It is here that decision analysis is useful in helping people understand an issue to the degree that priors approximate and it becomes possible to reach agreement. Where there is inadequate information a very crude model can be constructed to identify what additional information is required to analyse the main factors impacting any decision outcome. As a result of this process agreement is usually reached on the basis of the “mechanisms” involved in physical terms and it is usually, around this question where agreement can be reached, as a result of people’s priors merging. This initiates a road to agreement⁸⁷.

Part of the problem is the apparent complexity of interactions can make the identification of cause and effect difficult causing some people to not know where to start. However, it is easier to identify mechanisms than to attempt to resolve issues based on such techniques as parliamentary debate and rhetoric simply because participants usually have specific interests. Such exchanges represent a discourse involving declared and hidden agendas. This is not a way to resolve issues.

Once the physical mechanisms have been identified and how they operate understood, the arguments concerning incentives or techniques to make use of these mechanisms to benefit of constituents, personal agendas can become more apparent.

Policies that address our principal needs

The main gaps in policies have included insufficient incentives for industrial and manufacturing activity geared towards real time innovation in processes. This requires the maintenance of learning of those employed and the maintenance of compensatory real wages. In the simplest form it is wages that create consumption, or in the language of monetarists, demand. Demand, therefore, can be controlled through wage levels, as long as technological advancement is increasing productivity on the basis of “more for less”.

In this way, real economic growth is maintained by advancing real consumption based on wages as opposed to external monetary injections and debt.

⁸⁷ Chase, S., “*Roads to agreement*”, Phoenix House Ltd., London, 1952. Stuart Chase, refers to the Quaker tradition and practice of applying prior approximation in coming to agreement on issues of mutual concern where decisions are only taken when there is a unanimous acceptance of the facts, the issues and necessary acceptable resolutions.

A constitutional economy

Policies over the last 50 years have sustained a bias towards assisting asset holders as opposed to wage earners. The political challenge is to reduce the bias in policy towards asset holders and to augment the contribution of technology and wage settlements to become a means of balancing up the economy in economic and constitutional terms.

Unfortunately, experience with existing policies has created a zero-sum mindset that considers any rebalancing of benefits means one group loses as a function of the gains of another group. This is why the concept of real growth is so important because it provides the foundation for all groups to share in growth benefits on the basis of win-win.

The essential elements of an alternative economic theory and policy

It is therefore necessary to introduce an economic logic (theory) which supports a policy that activates and supports an applied mechanism. The mechanism needs to augment real output and real incomes of all constituents. The policy also needs to provide incentives to encourage the application of the mechanisms concerned to augment productivity. The incentive needs to encourage companies to proactively accumulate useful explicit knowledge for management purposes and applied tacit knowledge within the workforce to refine how technology is applied through advancing competence or technique. Rather than have profits transition into financial manipulations, such as buying back shares, it is necessary to ensure that increased productivity translates into moderated or even reduced unit prices to encourage competition and market penetration on a non-inflationary basis. In this way, price-setting by companies becomes a basis for maintaining competition and an important driver of real growth and profits.

However, under competitive conditions, the combination of marginal investment costs and moderated or reduced unit pricing creates a short-term issue of a marginal reduction in profit per unit sold. Therefore, incentives need to ensure that this does not turn into an unnecessary risk. 50 years ago, some 90% of investment funds came from revenue so there was only a marginal requirement for loans and debt. However, as a result of 50 years of monetarism the rise in debt-based activities has resulted in a considerable amount of leverage and debt while at the same time depressing supply side productive investment and domestic supply side operations and therefore increased risk. Today most investment funds come from banks or hedge funds but are directed mainly into assets.

It is important to redirect any loans to lower risk investments in the industrial and manufacturing supply side goods and services sectors where this is needed. However, it is prudent to maximise the use of own financial resources for investment so as to lower the excessive growth in debt. For this to have any chance of becoming a *modus operandi* it is necessary to have an almost real time monetary compensation for real improvements in productivity to reduce the risks associated with own-funded investment.

Although emphasis has been given to the physical mechanisms of inputs and outputs these all have different specifications and prices. In terms of wages generating consumption and supply side desiring lower input prices while wage-earners desire lower prices of their essentials, it makes sense to determine “productivity” on the basis of the prices attainable by the current state of the physical input and output mechanisms.

The principles policy design

In Section 3 the direct experience of the author's introduction to economics based on enterprise planning optimization at the microeconomic level and later policy design to support this process at the macroeconomic level through incentives, provides a reasonable foundation to judging the efficacy of any economic policy.

The Aggregate Demand Model

However, since the advent of the Keynesian paradigm and its death in 1975 to be followed by the monetarist paradigm, both theory and policy has assumed that the economy can be managed by applying what can best be described as an Aggregate Demand Model. However, the author's training was founded on production and the extension model of policy being oriented towards helping firms improve the productivity and profitability through optimised plans.

On contemplating the monetarist and Keynesian policy instruments of interest rates, corporate and personal taxation, government borrowing and decisions of money injection it becomes evident that these have very little impact on the decisions taken with respect to resources allocation. However, some of these policy instruments do impact consumption largely because of the impact on purchasing power of companies and wage-earners. As a result, policy-induced falls in consumption through taxation and interest constraints can result in marginal producers failing, while rises in consumption resulting from lower interest rates and taxes makes no direct contribution to productivity in production other than the impact of scale of operations lowering overheads.

Work in the 1970s to address the slumpflation crisis identified supply side production as being the focus of solutions. The so-called supply side economics was fiscal policy that assumed that by lowering marginal tax rates the additional corporate profits would somehow migrate into investment when in reality it resulted in a split between some investment but also a considerable amount of the windfall gain going into the pockets of executives and shareholders. The US experience with supply side saw a market increasing income disparity. In other words, wage earners income did not rise appreciably, management and shareholder incomes rose substantially, there was some investment but there was a constitutional imbalance in the impact of policy across the national constituency.

Production, Accessibility and Consumption Model

If a policy is to be truly supply side, while having a balanced impact on wage-earners and corporate shareholders, it needs to provide incentives for production to be adjusted to ensure that output is produced at accessible prices to wage-earners to drive consumption so as to ensure compensatory consumption of production. Thus, production administration needs to be encouraged to ensure operational plans that optimise production to maintain a trajectory of steady or declining unit output prices based on rising productivity. In this way, "demand" levels are controlled by overall supply side production efficiency and the transfers to all types of personal income.

The construction of this policy involves a switch from the Aggregate Demand Model to a more supply side adapted Production, Accessibility and Consumption Model. As can be appreciated this is in essence the Say model and the mode of operations between 1945 and 1965 when Britain had full employment and rising real wages.

Policy traction, effectiveness & efficiency

The effectiveness of any policy is related to policy traction. Traction is a steady movement towards a desired state by the required amount within the required time span or maintaining a steady rate of innovation by ensuring inputs are available as required on a sustained basis over the long term. Efficiency requires freedom to allocate resources according to needs.

Target mechanism

For this to be managed by companies and their workforces there needs to be a well-defined generic mechanism that applies to all economic units to enable each one to ensure that the benefits from the change are realized at the level of the enterprise. These impacts at the microeconomic level should combine to generate a general impact at the macroeconomic level. This can establish a microeconomic foundation to macroeconomic policy.

Constitutional aspects of freedom of choice

Concerning constitutional aspects of policy, the impacts of policy on microeconomic mechanisms needs to ensure that the operations of mechanisms applied to benefit any particular economic unit, do not impact other economic units negatively other than by changing competitive prices and thereby requiring price setting adjustments. The policy needs to provide economic units with the freedom of choice in adaptation to the policy while achieving the joint objectives of policy and constituents, thereby securing traction.

Public choice

A constitutional economics needs to be based on a policy framework over which the constituents as self-employed individuals, members of workforces in companies of any size and the ownership and shareholders of companies make mutually beneficial decisions on the basis of an open public choice to design and select the best production and price options.

Financial regulations

Returning to the earlier discussions on the need to sustain freedoms for people to pursue their own activities while not preventing other from doing the same so should policy, legislation and regulations ensure that this operational state is maintained. This will only be possible if the existing lax financial regulations are replaced by more rigorous regulations legal restrictions and sanctions levelled against individuals who transgress legal stipulations. Such changes are not only to the benefit of wage-earners but also to SMEs⁸⁸ and other companies as well as local authorities and public service units who have become bankrupt as a result of deliberate manipulative conditions embedded in financial contracts issued by banks and hedge funds. Sometimes governments have intentionally not used their ability to raise lower interest loans for public service operations and have used far more costly provisions by the private banking sector. In all cases there represent corruptions of process in terms of unethical and manipulative actions and a prevention of the oversight of negotiations and agreements to ensure minimum standards of due

⁸⁸ Alleged behaviour of RBS in association with Global Restructuring Group: HM Parliament Condemns RBS GRG's Parasitic Treatment of SMEs, LEXLAW, January, 2018.

diligence. Clearly if financial regulations are lax and sanctions no more than the cost of doing business the call for due diligence becomes a waste of time.

Legal and natural persons

A major impediment to financial regulations having any bite has been the smothering of processes aimed at identifying culpability by the corporate veil. The practice has been for workers lower down the corporate hierarchy paying the price for operational mistakes or fraudulent practice tolerated by those above. This type of injustice is made possible by the legal process of company registration making the company the equivalent to a “*legal person*”⁸⁹. By giving a corporate entity the same rights as an individual person in terms of contacts and legal protection this is used as a device to protect those with decision-making power within a company from responsibility for the outcomes. At law it therefore becomes problematic to lay the culpability for say, fraud, to be placed on an identified individual because the implementation of decisions it usually carried out by other individuals. As a result, those with decision authority escape sanctions by stating they were not aware of what identified employees were doing.

The main significant difference between a legal person and a constituent is that a constituent has the power to vote whereas a legal person does not.

In terms of corporate decisions affecting consumers or, indeed, the economy this distinction is of significance. Similarly, policies that favour specific corporate activities which prejudice constituents need to be analysed from the standpoint of a voter's obligations to serve other voters.

Constitutional financial regulations

Companies need to maintain their own vigilance over operations at all levels of compliance with regulations and ensure workforce training and indeed equipment and embedded quality management systems to prevent incorrect procedures. Each individual within a company should be assigned specific responsibilities which accumulate in a decision-making hierarchy to identified individuals who remain responsible for the decisions taken anywhere within the staffing under direction. If such standards are not in operation companies should not be allowed to operate.

Legal sanctions must be applicable to all on the basis of the responsibilities assigned to specific individuals, to be plain, to individuals with the right to vote. Companies have no right to vote so sanctions need to be applied to the individuals responsible for corporate decisions. If responsibilities are not assigned as part of a regularly updated ledger, then companies should not be authorised to operate.

Foreign owned companies registered in Britain should therefore be required to have an operational management consisting of an individual who is qualified to vote in this country.

In relation to the notion of banks and companies being “too big to fail” they can maintain their presence through a judicious division into more manageable units but separated and each under new management with, depending upon the gravity of transgressions, previous managers losing their right to operate as managers in the sector concerned.

⁸⁹ *Legal person*: a company that has full legal rights and responsibilities according to the law: A company is a distinct and separate legal person.

Decision analysis briefs for public choice

In the process of introducing new economic policies, associated legislation and regulations it is necessary to state why these are being introduced, what gaps and needs do they address and why is it important enough to introduce a new policy.

The document should describe the policy in theoretical and practical terms (how it operates) presenting options from which constituents can make a choice, if they accept the premises and logic of the theory and feasibility of the proposals.

This information should be contained in a Decision Analysis Brief (DAB)⁹⁰ which is as much a reference document for policy makers as it can provide a mandate for representatives and a basis for a constituent vote.

The basic structure of a DAB is provided in Annex 8.

A Real Incomes Policy DAB

In 1975 at the beginning of the slumpflation crisis two new policy paradigms were developed. One was “Supply Side Economics” and the other “The Real Incomes Approach to Economics”. Supply Side Economics was tested but as is evident did not work. The Real Incomes Approach to Economics was never applied but still presents the potential theory and policy proposition worthy of consideration to resolve the types of problems described in this Review.

Therefore, the basic justification and mode of operation of a Real Incomes Policy is described below in a DAB format.

Decision Analysis Brief on a Real Incomes Policy

Gap and needs analysis

Gaps are deficiencies in provisions or states of constituent circumstances considered not to satisfy wants and attainable levels. Gaps are not procedures or processes. Gaps based on procedures or processes create the notion that to close a gap then more of the same procedures are required when in reality they might refer to the very causes of the gaps so extending such processes might not be the solution. Often other processes and procedures can present more efficient solutions.

Therefore, gaps need to be based on measures of deficiency, for example per capita income, real incomes, inflation rates being in excess of increases in wages indicate a gap in the rate of wage increases and inflation might indicate a gap in the rate of innovation or costs reduction. Gaps can also be unacceptable differentials indicating a constitutional problem such as policy-induced inequitable treatment of constituents.

Gaps created by conventional policies

The gaps in policies can be detected from the operational characteristics of the economy in terms of their impact on constituents. These include:

- Declining real incomes for wage-earners
- Rising real incomes for asset holders

⁹⁰ McNeill, H. W., “*The Briton’s Quest for Freedom .. Our unfinished journey*”, Chapter 26, Parliament, The Decision Analysis Brief, HPC, 2007

- Income disparity gaps rising as opposed to declining
- Declining investment in supply side production
- Deflection of money injections to assets
- The generation of cost-push inflation in supply side production arising from productive asset inflation
- The generation of cost-push inflation in supply side production arising from overhead cost inflation arising from rises in prices and rentals of commercial premises, retail units, offices, industrial units, parking and infrastructural provisions, including logistics and warehousing.
- The decline in wage purchasing power linked to rises in prices of consumption essentials including prices of housing, energy and food as well as housing rents

Need

Rising real incomes, rising investment for productivity increases, a way to react to rising input costs, way to reduce speculative asset prices especially those that are supply side production inputs.

Gaps created by government revenue seeking

- The divergence in sources of income are exacerbated by the impact of taxation such as corporate and personal income tax, VAT and levies of fuels all of which raise unit prices or reduce disposable income and which in combination lower purchasing power of disposable real income

Need

Eliminate the differentials created by government revenue seeking.

The balance of payments

The balance of payment for goods has collapsed starting roughly in 1975 and declining slowly over a 50 years period. In the meantime, this was countered to some extent by financial services employing a small segment of the population.

Today this gap between equilibrium in goods trade and actual deficit makes the UK balance of payments gap the second largest negative national gap in the world.

The pre-Bretton Woods balance of payments adjustment by relying on wage reductions manipulated through fiscal and monetary policy has continued in an indirect manner by policy favouring the asset economy over the supply side production and wage-earners.

The crucial contribution of domestic supply side production of goods was marginalised by policies that actively encouraged the diversion of money into offshore investment.

The growth in contribution of financial services was thought to be a solution to the declining balance of payments by expanding these services even further. However, this growth is associated with a widening gap between overseas investment and asset “investment”, on the one hand, and supply side investment, on the other.

Need

Investment, productivity and ways to enhance the accumulation of tacit and explicit knowledge to stimulate innovation and productivity to enhance international competitive status of the supply side to secure exports and import substitution.

Gaps created by existing corporate accounting regulations

Corporate taxation is not suitable for resolving the constitutional questions in the current circumstances.

- Labour inputs are classified as a variable input cost
- Profits are net of revenue less taxation and all variable costs
- Increasing payments to executives as share options (financial assets) or “performance” linked to asset investment results in significant divergence between workforce and executive pay
- Share buy backs have caused share prices to have no relationship to productivity and prospects of companies

Therefore, the distributive impact of corporate taxation contributes to rising gaps between shareholder and executive income growth rates and wage-earner growth rates.

Need

There needs to be something done to remove the impact of corporate accounting norms in creating a de facto discriminatory bias in decision making in resources and financial allocations to balance the treatment of labour with that of ownership/shareholders.

Gaps created by centralized policy decisions and operations

The setting of interest rates, monetary injections, personal and corporate taxation and government borrowing and directed expenditure is applied within an economy made up of enterprises typified by heterogeneity. No two firms, even within the same sector are alike in terms of: capital equipment, human resources, management competence, work force competence, quality controls, size of order books, cash reserves, assets, payment arrangements for shareholders, ownership, executives, management and the workforce wages. As a result, the central application of the conventional instruments has differential impacts creating gaps as a result of the generation of winners, losers and some who remain in a neutral policy impact state.

In essence macroeconomic policy instruments constitute a form of central planning which constrains the opportunities of constituents to pathways linked to their sources of income.

Need

Policy instruments need to have a direct impact on economic performance in terms of investment and productivity on the supply side. Rather than impose policy instrument values centrally, constituents as self-employed, managers or corporate teams need to be able to manipulate these values to enhance their ability to improve productivity offering more flexibility on price setting and profits.

The issue of policy traction

Because of the arbitrary impacts of conventional policies across the economy, a notable feature is policies very soon lose traction. Unfortunately, this type of disequilibrium in the economy over the last 50 years has been confused with policy traction. This is because the general result has been to react to slow downs or failing asset value growth by increasing volumes of money injection. Policy traction is assessed on the basis of its impact on assets whereas rising debt, falling supply side investment, falling productivity and declining real wages are the real consequences in the form of gaps.

Consequently, there has, in reality, been no policy traction in any positive and predictive sense on real incomes, investment growth and productivity. There has been a state of disequilibrium driven by increasing monetary injections causing income disparity.

Need

Therefore, whatever policy solutions are devised they need to substitute the financialization drive by a productivity drive where the traction comes from real physical productivity to secure sales benefits that affect all of the constituents of the country moderating prices to the degree of eliminating inflation.

Constraints facing policy movements

Currently, private debt involving families of wage-earners has reached over 150% of the GNP and government and public services already consume more than 45% of the GDP

Need

Policy needs to simultaneously encourage rises in productivity while reducing debt. Public services need to come under the same framework geared towards enhanced productivity.

Operational governance needs

Policies need to be able to permit each firm, each with unique sets of circumstances, to be supported by policy instruments designed to benefit companies to the degree that they respond to policy incentives to promote the macroeconomic objectives. Naturally, these objectives need to have been agreed with the constituents of the country.

If such agreement is not reached it would be difficult to bring about mutually beneficial outcomes and maintain traction.

All policies need to manage a reduction in personal and corporate debt while safeguarding existing government expenditures but establishing a transition policy of gradual debt reduction with grants and income transfers being reduced in proportion to the rises in real incomes of the lowest paid.

Fiscal neutrality and transition needs

The notion of “fiscal neutrality” has some significance here but more attention needs to be given, within the Real Incomes Policy environment to the purchasing power of the currency rising with moderated or falling goods prices impacting real disposable incomes in the required manner. In other words, national accounts need to move from a static zero-sum analysis of nominal monetary or budgetary transfers between assignments and allocations to one where genuine gain in productivity in different sectors signify economies in outlays and a real growth enabling a growth in value for money of government expenditures across the board.

Operational corporate needs

Companies need to reduce their reliance on corporate debt while also gaining the benefit of being able to manipulate policy instrument values which encourage rises in productivity to their own benefit.

Operational constituent needs

Constituents as consumers need policies to reduce need for personal debt while also reducing existing personal debt in an environment within which output prices are moderated or lowered to the benefit of consumers.

Main operational objectives that policy needs to support

Policy needs to raise individual productivity of all sector participants and in particular industry and manufacturing. Rises in productivity should be reflected in profits and pay of all levels of workforces including management, executives and all employed by companies. Rises in productivity need to be reflected in unit price movements with price setting based on competitive and financial viability considerations. Profits need to become a central pool to guarantee future growth and employment in an environment of a constant evolution in productivity.

Policy target as an agreed national, corporate & individual need

The generic policy target is real incomes, this being the purchasing power of profits, ownership income and wages. To deliver on the above objective policy instruments need to permit adaptation of performance indicators to the specific circumstances of each company guaranteeing the sustained existence of the company.

Business rules as directives to secure needs

Business rules are agreed directives that are designed to simplify decision making to help a company achieve its specific objectives in a well-managed sense following due diligence procedures to safeguard the company from risks resulting from mistakes arising from miscalculations.

Business rules, besides being designed to safeguard a company's operations also need to support working and income conditions of the work force including details on procedures linked to health and safety, how productivity is measured and how to calculate feasible rates of productivity increases and how to align wage payments to performance.

Central to the successful operation of business rules is a clear understanding of the mechanisms of cause and effect used to achieve productivity objectives.

At the policy level the incentives provided should be designed to lever the effects of the same mechanisms to enhance the likelihood of success in their application at company level. This has the effect of helping align corporate objectives with agreed policy objectives. In this way policy can gain traction and deliver the desired policy impact. Whereas the aggregate demand model applied by Keynesians and monetarists see demand as the driver of economic growth, the Production, Accessibility and Consumption Model centres the foundation of growth on rising productivity and innovation and price moderation to enhance wages and therefore aggregate consumption.

Macro-micro coherence of mechanisms

The mechanisms deployed to improve productivity and raise real incomes at the macroeconomic level need to be the same mechanisms that are deployed at the macroeconomic level to ensure operational coherence.

Therefore, a new set of corporate accounting regulations should require a record of all variable input prices and quantities to measure unit costs of production as well as unit

prices of output in any period. This data should be collected in real time making use of modern information technology state-of-the-art to enable close to real time adjustments to policy where needed.

Elimination of transfer pricing

A significant aspect of international trading company accounting involved the “creative element” of transfer pricing in which all prices and providence are altered post-transaction and today using responsive computer-based algorithms in real time transactions “recorded” to maximise corporate taxation advantages. This type of fraud needs to be avoided under a policy geared to raising productivity.

Policy instruments linked to productivity and competitive prices

There needs to be a policy instrument to measure corporate performance in terms of the ability of the company to set competitive prices at all transactional locations within the segments of supply chains coming within national legislative boundaries.

This includes platform-based corporations such as commercial sales companies and other services.

Results-based incentives

The policy needs to operate on a results-based incentive where benefits that arise from a company having improved performance according to a specific policy performance indicator, to ensure that policy benefits result in a proportional benefit to the company concerned.

Price Performance Policy

At the outset the policy requirement is one that helps companies respond to changes in the relative prices of input cost which in combination contribute to the unit costs of production and to the ability of companies to respond in terms of their unit output price setting. Therefore, the appropriate policy needs to relate to the relative price performance of costs and revenues according to price changes. This can be referred to as a Price Performance Policy.

Policy performance instrument: Price Performance Ratio

The primary policy instrument used to establish the performance of a company within a Real Incomes Policy⁹¹ framework, is the Price Performance Ratio (PPR). The PPR is the ratio of percentage changes in unit to linked to a specific policy instrument prices to percentage changes in unit input costs.

$$PPR = \frac{100 \times (dPo/Po)}{100 \times (dPUC/UC)}$$

or

⁹¹ McNeill, “A Real Incomes Approach”, Rio de Janeiro, 1976 and 1981 monograph.

$$PPR = \frac{(dPo \times UC)}{(dUC \times Po)}$$

Where:

PPR is the price performance ratio;

dPo is the rise in unit price;

Po is the unit price at the beginning of period;

dUC is the rise in aggregate unit costs per unit;

UC is the aggregate unit cost at the beginning of the period.

More details on the PPR can be found in [Annex 2](#)

Under inflationary conditions the price movements, inflation or deflation associated with PPR values, are shown below:

PPR	Unit price movement
> 1.00	Increases rate of input cost changes
= 1.00	Maintains rate of input cost changes
< 1.00	Reduced rate of input cost changes

*Price Performance Ratios (PPRs)
associated with different unit input value movements & movements in unit output prices*

Unit input costs	Unit output price change %								
change %	-20	-15	-10	-5	0	5	10	15	20
20	This area represents the innovation target zone				0.00	0.25	0.50	0.75	1.00
15					0.00	0.33	0.66	1.00	
10					0.00	0.50	1.00		
5					0.00	1.00			
0	0.00	0.00	0.00	0.00	0.00				
-5	0.25	0.33	0.50	1.00					
-10	0.50	0.66	1.00						
-15	0.75	1.00							
-20	1.00								

Innovation target zone Desirable states Undesirable states

Therefore, it is beneficial to reduce PPR values below unity. This fact establishes a broad strategic objective which under normal circumstances required a change in technology and working methods or else stepwise changes linked to in-company innovations. Therefore, depending upon the particular circumstances of any company there is a price performance map or set of values associated with pairs of possible unit cost and unit price

This map is set out below As can be seen values of PPR greater than unity are assigned to a “undesirable state” zone, “Desirable state” are PPR of unity and below and then there is an as yet currently unattainable zone referred to as “innovation target zone” an area that can only be entered as a result of investment and innovation leading to higher productivity associated with the learning curve.

The advance in productivity is achieved through advances gained from throughput adding to tacit and explicit knowledge and the learning curve contributing to improvements and innovation. However, in the short term without changes in technology, technique or productivity, if companies aim to secure a PPR of unity or less than unity, unit margins decline.

However, since this move is also associated with more competitive prices it is likely that in the near future the firm concerned will augment sales through market penetration – the

*Price Performance Ratios (PPRs)
associated with different unit input value movements & movements in unit output prices*



competitive effect. There will be, therefore a momentary drop in cash flow of unknown duration representing a risk associated with competitive pricing.

Risk and productivity

In terms of the overall outcomes resulting from reductions in PPRs the impact of changes in real physical productivity will determine the degree of benefits. Therefore, any additional costs associated with moves to improve productivity would be included in the PPR estimate. However, the practical capability of a company to succeed within this policy environment will depend upon the degree to which productivity does in fact increase. It is therefore important to provide a form of incentive to generate compensatory financial

returns where changes in PPR values reflect both moderated output prices and genuine gains in physical productivity changes.

Notice that the incentive needs to be geared to assisting companies gain genuine productivity improvements and preferably any incentive should be adaptable to company capabilities by enabling companies that invest heavily in improved productivity and price performance so as to be able to maximise their financial results in real time, thereby making the incentive of practical benefit and interest to the company.

Therefore, there needs to be an additional flexibility in the form of enabling the company to not only carry out variable costs allocations and unit price assignment to secure specific PPR values. There is also a need for business rules as guidelines on how to adjust the levels of incentive benefits according to operational preference according to the understanding of market conditions and a need for a compensatory net revenue.

This also requires a view on the unit price elasticity of consumption for the products of the company. The explicit knowledge and data covering these relationships need to be collected and analysed by each company.

Devolved independent strategies

Rather than attempt to impose a national strategy in a top down fashion which is essentially how money injections, interest rates and taxation policies operate, the application of the indicator PPR enables companies, on an individual basis, map out their own growth strategies. By comparing the many options for lowering their PPR and bring it down to a level creating an acceptable balance between pricing income and profits, these calculations can be carried out before taking decisions, to determine the impacts on performance associated with different unit price setting schedules.

Overall there will be past PPR performance, current PPR and future PPRs which will require specific improvements in productivity. As a result, in contrast to Monetarist and Keynesian top down “planning” the Real Incomes Policy enables each company to establish its own specific strategy to identify productivity tactics to continue innovation.

Policy incentive instrument: Price Performance Levy

The Price Performance Levy

The level of PPR achieved by a company rests entirely in the hands of each company. The policy objective expressed as real incomes is also the corporate objective. Therefore, the most flexible means of providing an incentive for companies to pursue the objective of lower PPRs is to increase the incentives in proportion to the levels of PPR achieved.

Therefore, the supporting or auxiliary policy instrument proposed is a levy, the Price Performance Levy (PPL) which varies with the level of the PPR achieved. To intensify the impact of this levy to gain policy traction, companies should be able to manage their resources allocation so as to reduce their levy to zero, thereby maximizing their sales revenue and real incomes.

The PPL paid is therefore a function of the PPR applying a range of possible formats such as:

$$\text{PPL} = \text{BL} \times \text{cf}(\text{PPR})$$

or

$$\text{PPL} = \text{BL} - \text{df}(\text{PPR})$$

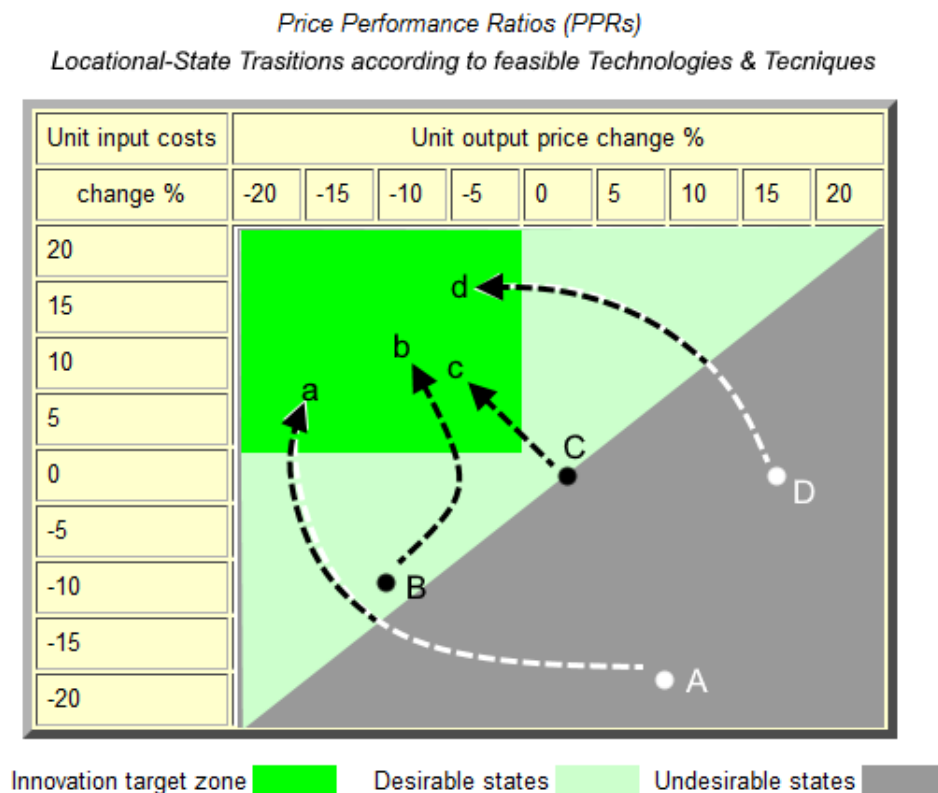
Where:

BL is some basic fixed levy – e.g. 25%

cf(PPR) is a function of the PPR that creates a **coefficient** that raises or reduces the PPL paid.

Df(PPR) is a function of the PPR that creates a percentage to be added or deducted from the BL.

Therefore, the PPL provides managers with the second component of the business rule which enables an adaptation of a corporate beneficial response within the bounds of possibilities, based on comparison of PPR options and net of PPL results. As a result, each company has a strategic map of the future performance objectives and each company possesses the business rules to achieve success in terms of growth in real income. Some Price Performance Levy options are described in [Annex 3](#). It is evident that depending where a company is operating on the PPR map and depending upon the combinations of technology and technique deployed the route taken to lower PPRs will vary. The diagram below shows different routes to the innovation zone according to different starting positions for different companies. So, from A to a or C to c in the diagram below.



Gaining policy traction

Policy traction and generalised benefits will continue as long as companies are permitted to maintain the flexibility of their resources allocation and price setting within full range of establishing both their PPR and PPL values with this Real Incomes Policy (RIP) framework.

Normal parameters of natural growth

The realized attainment of productivity growth depends on individual company circumstances with the upper limits being established by the advance in explicit and tacit knowledge and general reorganization of processes and advances in the state-of-the-art technologies and techniques.

Based on normal expectations of productivity growth in the absence of RIP, the average gain in physical productivity would be around 1-2%/per annum (up to 18% per decade) whereas with RIP the gains should exceed 3-4% i.e. 48% per decade which can enable under-scaled operations gain traction to gain returns to scale on a competitive basis and not requiring subsidy.

Disequilibrium for growth

The benefits of this strategy are that it creates a disequilibrium caused by innovation and rising real incomes as opposed to one created by a cascade of money that does not go towards innovation. This transition remains under the control of sector economic units and is an example of Schumpeter's "Creative destruction" concept.

Balance of payments and foreign trade

It will be recalled that in the past the balance of payments used to be an indicator of economic success of an economy. It still is, but this has been over-shadowed by monetarism's provision of special treatment to financial and physical assets traders and holders in the form of banks, hedge funds and other operations. The RIP environment opens up opportunities for finance in lower risk investments in national supply side production and in particular industrial and manufacturing activities.

However, the balance of payments depends upon the nature of global competition and therefore growth of any particular sector is not linear. The relative competitiveness of British manufacturing can be accelerated or slowed down to respond to world market conditions through an alteration in PPL weightings i.e. the base rate and the coefficients that determine the contribution of the PPR to the final PPL estimate.

It will be recalled that pre-Bretton Woods the purposeful suppression of wages was used to stimulate balance of payments increases and this was essentially re-introduced by Denis Healey in 1975. RIP avoids this regrettable approach by basing the balance of payments on productivity and rational price-setting.

Import substitution

The recent issues affecting international supply chains as a result of shutdowns related to Covid precautions as well as personnel being off work combined with the increasing awareness of the carbon foot prints associated with imports contribute to a necessary rethink on components of the balance of payments. In order to correct the balance of payments in the future, there is a need to increase home-produced goods on a competitive basis to substitute imports.

Operational principles:

Somewhat like VAT returns, PPR returns would be produced on a regular basis, probably quarterly. The data recordings of transactions or inputs and sales would be recorded in Accumulogs or cumulative real time data records which are also immutable held in databases to avoid manipulation or alteration of data.

Regulations, security and compliance

The regulatory environment for this policy framework would include data security compliance requirements to ensure an automatic due diligence structure to ensure compliance with requirements such as using the relevant data and completing the required calculations.

All data would be held in a sector database administered by a proposed Commission that represents the interests of participants by sector, known as Productivity Commissions. The Commissions through regulatory and legislative means would be unable to report any corporate data collected to tax authorities but would be responsible for reporting benchmark performance data of sector companies to establish attainable practice performance indicators (references) related to process performance, worker productivity and learning curve coefficients which would be circulated to all sector companies on a regular basis by providing information on poor, average and good practice.

What happens to the PPL funds paid?

The PPL fund accumulated from PPL payments is not a government revenue line but rather a credit registered in the name of the company to be applied in any future investment under the scheme designed to manage PPRs and PPLs. This is to ensure that where there is a current difficulty in improving performance, funds are eventually directed to investment to improve performance. If the situation preventing further advances in productivity relate to state-of-the-art technology or the state of international competition these facts will be known to the extension services – see next section.

Extension services

Extension services disseminate useful information and assistance is assisting company management and workforces take decisions in identifying gaps in productivity by observing benchmarks, identifying required actions and recommending courses of action to improve productivity. Extension services⁹² have existed in the agricultural sectors for over 150 years. The inherent philosophy is based on acceptance of the process of sustained innovation being the foundation of economic growth based on learning and increased productivity. The extension services would provide advice to companies facing issues of management of their PPRs to identify solutions.

Enterprise planning

Early extension systems needing to collect sensitive economic information, were able to secure good quality data from farmers in exchange for the provision of farm plans designed to augment profits and under the condition that no data used was shared with any other entities including tax authorities. The concept of the proposed Productivity Commissions is based on this successful model. In terms of publication of statistical results, farm enterprises were ranked according to productivity and profitability and then published data

⁹² The use of the word "extension" derives from the name given to an educational development in England when the Universities of Oxford and Cambridge became concerned about assisting their local regions with the provision of practical instruction to help in economic development. In 1867 that a first practical attempt was made in what was designated "university extension." by the 1890s agricultural subjects were being covered by field lecturers in rural areas. It isn't clear of this British initiative was motivated by the example of Land Grant Colleges in the USA with University of Michigan being the first agricultural university founded in 1855. The term extension services is synonymous with advisory services.

always contained the data representing a cluster of at least 5 separate farms so as to avoid presenting specific farm data.

Launching a Real Incomes Policy

Richard Wainright, responded to one of the initial proposals for a Real Income Policy, that it would be a major undertaking. As a result of further consultations, just this fact alone would indicate that it would be best introduced in a staged approach.

Corporate choice:

The transition in embarking both on a Real Incomes Policy and the decision by a company on whether or not to participate in the scheme needs to be left to individual companies and it is suggested that mandating this operation under legislation and regulations for the whole country is not feasible.

It would be more rational to initiate this on the basis of pilots involving companies who have volunteered to participate. In the meantime, the rest of the economy, for comparison sake, would operate on the current basis.

Devolved administrations

Under the devolved administrative structures covering Scotland, Wales and Northern Ireland each would have to decide whether or not to launch national pilots of the voluntary scheme suggested.

Responding to national economic development disparity

Following the ravages of monetarism, quantitative easing and the Covid pandemic, the extent of the disparity in economic development in Britain has become very obvious with run down former industrial zones blighted by falling life expectancy, depression and falling real incomes and lack of investment to the extent that many in work cannot afford the basic necessities of life including a nutritious diet.

The Real Incomes Policy can help establish economic activities on a lower debt pathway by emphasising personnel training and productivity including a consideration of cooperative and mutual forms of enterprise.

International perspectives

There are likely to be implications in relation to international trade relations concerning the formation of opinions on whether or not the Real Income Policy framework transgresses international competition principles or subsidy norms.

First of all, there are no subsidies involved because all of the funding involved is generated by the companies who participate in the scheme. This is also why the policy would have no impact with respect to the question of fiscal neutrality. This is because it will help move the country towards a more dynamic approach to national accounts and budgetary logic marked by the recognition that different sectors under a real Incomes Policy will experience different real growth rates under inflation-controlled conditions. Under such circumstances real growth will increase the purchasing power of government revenues by eliminating the zero-sum approach to national accounts and budgetary allocations. The national accounts logic can move from zero-sum to win-win.

Corporate taxation

It is suggested that government revenue seeking should not be based on corporate taxation or personal income tax but should be based on flat circulation taxes such as VAT and service taxes. This is to prevent fiscal policy from distorting, for example the classifications of labour and placing this accounting category at a disadvantage with respect to profits and investment.

Tax rebates

The UK currently provides tax rebates which represent a forgone revenue of more than £500 billion against a total revenue of around £800 million. Under a Real Incomes Policy these will not be needed and this lost revenue would be recoverable on the basis of new sources of revenue arising from real growth.

The notion of public choice

In line with the constitutional economics concept of public choice it is evident that the voting on national legislation to introduce such a scheme is a proposition that should appeal to both company owners, shareholders and wage-earning workers who earn wages. Accordingly, the one person one vote basis for the introduction is the most appropriate basis, based on a referendum, as opposed to political party mandates in a general election. The reason for opting for a referendum is to prevent factions and the media from distorting the costs and benefits according to the interests of specific interest groups who are aligned with specific political parties.

However, at the corporate level, the decision to participate in a pilot brings the vote on such an issue down to the groups affected in the form of the owners, shareholders, managers and work forces of individual companies.

Therefore, joining the pilot would require a majority of the corporate body in the form of owners, shareholders, managers and work force, on the basis of a one person one vote opting for the pilot.

Although this would seem to be an unfair balance since owners and shareholders can be outvoted in companies with larger work forces and there is the issue of ownership of plant and equipment, then a threshold could be established on the basis of majorities within each associated human resource segments divided into:

- Individual owners
- Shareholders
- Work force including executives and managers

The threshold could be set at 60 or 65% within each segment.

Ownership of the means of production

The ability of economies to be organised to be productive and equitable aside, there remains the vexed question that is at the root of much of the rhetoric of political confrontations in the UK over the last 70 years and this related to the ownership of the means of production. The contending sides, at their extremes are laissez faire with all assets privately owned, on one side, and full state ownership of just about everything, on the other. Some on both sides seem to accept that the solution is somewhere to be found in the “mixed economy” somewhere in the middle, but even there, there are strongly held positions.

As always, part of the problem in such discussions is a failure to define what is meant by the “means of production”. We have already reviewed the UK economy’s constituent structure according to income sources in Section 6. It is self-evident that wealthy minority whose income comes from asset ownership, rental and trading don’t want these being nationalized. In the past this fear grew up in relation to land, real estate and gold and even bank account funds⁹³. Therefore, this fear of means of production coming under “common ownership” is understandable. Similarly, the levying of tax on these assets as well as all other types, including financial, is also resisted by this contingent.

However, the other “means of production” include real estate, plant, variable inputs, technologies, human resources, and all that go into industry and manufacturing including the output of this sector to primary production and service sectors.

Over the long term these means of production, unlike land, are variable in type and significance. In terms of enterprise planning what are normally referred to as variable inputs are those inputs applied in the short term such as manufacturing components or seed and fertilizer in agriculture. However, looking at the longer term most resources used are variable and “bought in”. The reality is that most of the means of production are accessible in markets.

In the context of this Review the constantly changing “means of production” is technologies and plant and to be included as a fundamentally important means of production is the advancing competence of work forces in advancing their accumulation of tacit knowledge. Although “space” is required to carry out activities, in relation to all of the land in the country, relatively small amounts are required by all of the economic units and sectors to operate.

It is notable that this extraordinary dynamic makes sense of Kaldorian economics and undermines the concept of the monetarist’s assertion, as yet unestablished, that monetary policy has an impact on prices in the long term; very unlikely in any predictive fashion. As this Review has described the mechanisms are different from those imagined, imagined because monetarists have never described the mechanisms in a logical manner.

Corporations, family firms, cooperatives and mutuals

Most large companies buy or rent their means of production as in the case of individual artisans and others. The majority of the economy is made up of SMEs employing less than 500 people and most of these also buy or rent their means of production.

The normal structure is one of economic unit ownership either as individuals, families or boards and shareholders whose accountancy records, based on income tax regulations, place executives, owners and shareholders in a pool of people receiving their income in proportion to performance as expressed in profits. Under the same accountancy regulations, the work force (wage-earners) is not within the corporate income generation pool but is assigned to a cost category which creates a tension with the income generation pool. The notion of a “common ownership” of the means of production therefore breaks down as a direct result of the accountancy and income tax regulations.

The way work forces can end up with a “*common ownership of the means of production*” is to sidestep the conventional corporate structure and participate in cooperatives or mutuals. In these organizations all members of the workforce, or in the retail situation including all customers, are the principal shareholders who hold mutual ownership of the

⁹³ Note:

organization's means of production and receive dividends. These are usually set at a fixed percentage of turnover.

Extensive analysis of mutual shows that by not having outside shareholders or a single ownership group (individual, family or hedge fund) mutuals can start off with a 10%-15% operational costs advantage over corporations providing the same service or producing the same products as companies operating under the conventional or public limited company structures, accountancy and tax codes.

The ascent of platform operations within the conventional company structure, accountancy and tax codes use the automation of what was executive decision making to further reduce the real wages of their workforce.

These facts are important in relation to how a Real Incomes Policy would be launched in the United Kingdom.

Public services and health

The age-old controversial topic of public services centres on the topic of value for money or efficiency. Therefore, all public services that are owned or run under government agencies can come under the Real Incomes Price Performance regime where efficiency of provisions becomes the key performance objective.

In the case of all public services that contain a human care element from mental health, general medical primary care, dental, surgery and the care of the elderly need to avoid the tension between profit, budgets and the quality of care. This can be accomplished by allowing the practitioners and not "managers" and Secretaries of State decide how best to run the system. As in all successful projects the principal stakeholders are the providers in the form of qualified and experienced medical and nursing practitioner who should decide what is needed according to the type of intervention. This is, of course, based on the effective mechanisms to be applied in each type of patient condition. The job of management, overseen by the medical practitioners, is to deliver the means in terms of budget and physical resources including equipment and supplies such as medicines.

One the practitioners regain control their incomes can be related to a standard based on qualification and practical experience as well as a PPL rebates arising from gains in productivity.

The bizarre Letwin and Redwood basis for privatization⁹⁴ of the NHS being how closely the service resembles a holiday camp needs to be abandoned. To deliver a service that is free at the point of delivery it needs to be one where the "decks are cleared" to allow the professionals to do their job. Letwin and Redwood complained that the existing system was "puritanical". In the name of efficiency this is probably the state the NHS needs to return to do an effective job for the nation.

Under a price performance policy all subcontracting of supplies and services can be required to operate under the same policy in order to ensure competitively price supplies and services and rising productivity and efficiency.

⁹⁴ Letwin, O., & Redwood, J, "*Britain's Biggest Enterprise: ideas for radical reform of the NHS*", Centre for Policy Studies, 1988

Launching RIP

The problem of implementing RIP is related to entrenched positions and the no-alternative brigade as well as companies and others not wishing to see change to the cosy relationship between monetary policy and the continuing ascent of asset holder power over agenda-setting. Wainright's comments made in 1981, some 40 years ago, are even more relevant today in our current predicament. To get out of a serious economic crisis is going to take an enormous amount of dedicated effort over a considerable amount of time.

As stated in the DAB on this policy it would be preferable to introduce RIP on a voluntary basis inviting companies in all sectors to participate voluntarily in the scheme creating sector panels to ensure that the data collection to run the scheme is adapted to the quite different production circumstances of different sectors which vary according to the degrees of vertical or horizontal integration of company activities.

A pilot scheme would also avoid the general inertia to be expected from political, ideological and holders of other policy beliefs and other reasons.

Start-up schemes

Part of this process should be included a grant scheme for the establishment of cooperatives of mutuals, preferably in the fields of manufacturing to begin to establish a range of companies who by nature fully distribute their incomes to the workforce and starting off which a costs advantage. It will be recalled that in 1983 a Huwaei was established in China as a mutual specializing in communications systems. Today this company dominate this market having introduced several generations of systems and now transitioning from 5G to 6G. Their success contrary to many suggested is related to their continuing competitive advantage based on their accumulation of tacit knowledge and know how gained by descending a leading curve that has lasted for 38 years. A company with this type of competence does not need subsidy to compete on the global market.

Technology transfer

Many technologies have appeared during the last 50 years and the state-of-the-art continues to advance. There is today more to be gained in the short term by introducing state-of-the-art technologies and developing best practice and refining techniques of use than attempting to originate the identification and development of the equipment concerned. However, once state-of-the-art equipment and tools are purchased emphasis needs to be placed on shop floor innovation (SFI). This is motivated by compensating work force teams for coming up with practical suggestions on how to improve productivity within a company. In mutual, there is a definite motivation for this to work well since advances will spill over directly to wages. In larger conventionally structured companies the adjustments in bringing about such change, if not already in place, will take time to implement.

There is almost no doubt that issue-sharing within and across sectors based on an extension service structure can help accelerate the feedback from users of capital equipment to the manufacturers of the equipment helping to advance the state of the art and ranges of feasible efficiencies and effectiveness of use. The same process can also result in more effective substitutes of existing technologies as part of the normal process of disequilibrium associated with innovation.

Production circles

Given the highly integrated state of supply chains across the globe with a few countries dominating industrial and manufactured goods exports, it would be advisable to introduce the concept of production circles where the overall strategy is to develop, within the country, expanding production circles. The expansion would be designed to increase the number of industrial and manufacturing process stages within the country to expand employment as well as achieve import substitution.

Life-long learning

Although it is customary to divide out educational system into life stages, this no longer applies in terms of the need to create life-long learning as a basis for not only learning about anything of interest but also to become engaged in designing and making things either on an informal or professional basis.

Without delving further into the STEM system in the UK there is, without doubt, a need to disseminate information on the need for instruction in all of the disciplines necessary for turning needs into solutions based on a systems engineering economics approach. There appear to two gaps in STEM. One is economics which has an important role in establishing the practical feasibility of a design in financial terms. To introduce economics there is also a need to understand the motivations of people who might be the user group intended for product or design as well as those who in practice will produce the final product for the market. Therefore, an appreciation of tacit and explicit knowledge is required as well as how these interact to generate learning curves. Learning curves are critical quantitative measures linking unit costs and have an important role in determining the switch over from investment phase negative cash flow to eventual positive cash flow (breakeven point).

Although initial designs that find their way to a production company shop floor might start out being produced as intended, shop floor innovation can result in a product being redesigned from the standpoint of ease of assembly. Naturally, taking this into account, also relating to shop floor ergonomics, helps raise the speed of increase in production productivity.

It is these additional practical considerations which, it would seem, need to be added to STEM curricula.

This still leaves a gap in terms of the exposure of students to handling processes in a practical manner, physical aspects of technologies and materials so as to learn to understand and appreciate the practical challenges of dealing with different materials and processes including precision engineering and integrated logic circuit design.

In order to accelerate this transition, it would be important to establish in every town and city a central workshop or lab where there exist appropriate working examples of a wide range of processes and techniques, not as demos but rather where the students can over a period of time attend instruction classes in support of their own design and production of a product. There need to be examinations or certificates which assess a student's logic applied to designs and the quality of their final products. Designs usually are best completed by systems teams but in terms of production of products made with different materials it is necessary to be able to identify and quantify the contributions of each student to the production of components and to assess their ability to coordinate how their final products fit together.

Student between the ages of around 8 to 18 exposed to this type of education, which does not exclude all other curricula, should have developed a particularly applied capabilities (tacit knowledge) that would open up opportunities for them in further education or in the job market. By having been exposed to a far wider range of experience that is commonly made available in private, public schools and academies these students will have been able to make more rational choices in the types of study or career they would wish to pursue on leaving school. Such a student output would enhance the productivity of further educational establishments such as universities as well as the business sector.

Such broader curricula help students discover pursuits that have meaning to them, of what interests them in the sense of pointing to something they might consider to be a vocation around which to build self-fulfilling economic activities.

The coordination of the establishment of City Labs or Workshops could be under the proposed Productivity Commission and linked to the Extension Service as well as STEM organizations where these exist locally, as well as national institutions for engineering, technology and science. Although universities might also be linked it should be emphasised that the although demonstrations might well be performed in City Labs, the main purpose is to provide hands on experience for students within the relevant range of ages.

The cynical build-up of expectations destined for disappointment

In basic terms, the main Conservative party benefactors are physical and financial asset holders, large corporations and financial sector and a small number of media owners whose media dominate the mass opinion-shaping business. Today there is a transition with opinion-shaping under increasing influence of big tech social media and independent media. In this dynamic the ability of the large tech companies to escape tax is an indication of the new dynamic of an extension of parties in government purchasing a positive image on behalf of the same political parties and benefactors as before.

In this changing dynamic the Labour party, in recent months, is attempting to apply the same approach applied by Tony Blair and Gordon Brown. This was to convince the same set of benefactors that they are not a threat to their interests so as to maintain a neutral or friendly press and to increase their chances at winning an election.

As a result, promises made in manifestos, designed to win votes and legitimize the election results, expressed in terms of the balance of MPs from different political parties in parliament, are seldom enacted since this would upset benefactors. With larger majorities political parties will often not accept the majority to deliver on their manifesto and promises. A large majority is taken to justify a cavalier casting aside of manifesto promises and to introduce new legislation, which the public has never had the opportunity to vote on. As a result of a factional benefactor power-by-proxy political parties we have an ineffective democracy that resists genuine participation of the constituents in policy formulation. There remains a constant cycle of expectations arising from electoral promises followed by disappointments in government as a result of their inevitable failure to deliver on the promises to the majority that "justified" their election.

Disenchantment with political parties

In the very early 2000s an increasing disenchantment with our politics became evident amongst the constituents of this country. As a result, the Power Commission was set up to explore how to improve the operation of British democracy.

In reality, because Power Commission recommendations were not acted upon, now, in 2022 we face a similar situation to the very early 2000s. It is, however, worth recording what happened to their recommendations in order to determine what needs to be avoided in terms of recommendations in the future.

The electoral reform roundabout

Power to the people

In 2006, the Power Commission, chaired by Helena Kennedy, published its report, "*Power - To the People*". This laid out the reasons for the malaise in British politics and democracy marked by low election turnouts and a falling confidence in the effectiveness of political parties and democracy in general. This report also made a range of sound proposals for electoral reform.

In spite of the considerable amount of work and comprehensive range of people consulted in the production of this Report, the government (Labour) paid scant attention to it. Likewise, the opposition (Conservatives) made little comment and ignored it. As a result, the implicit hope that the political parties would rise to the occasion of considering and advocating for the changes proposed so that governments would introduce them was proactively frustrated by the political parties themselves; no such change took place.

The shortcomings of "Power to the people"

The Power Commission, having carried out its deliberations within the existing framework dominated by political parties, seemed to misunderstand the significant difference in the motivations and objectives of political party members, on the one hand, and the "party machines", on the other.

In terms of party machines, there is a dynamic of power interests whereby small factional interests control the agendas of political parties through the provision of funds. These same benefactors have a significant influence over the UK corporate media, therefore political parties are caught between serving the majority through participatory democracy or serving the interests of their factional benefactors so as to avoid election defeat at the hands of a hostile media.

The reason this unrepresentative system remains in operation is because of the inexpressive memberships of all British political parties. In total, the membership of all political parties does not surpass 1.25% of the electorate. The main benefactors, whose interests the parties uphold, constitute a voting power of probably less than 0.1% of the electorate. Without a full exposure and an understanding of how party machines operate, reports such as the Power Report are bound to have less effect than they deserve. However, the way to liberate the people of Britain from this severe constraint to secure policies in the interests of the majority is to by-pass these tiny private factional political parties and organize a non-party but a wider spread participation in constituent assemblies on an individual basis at constituency and national levels.

This is why the political party machines strongly resisted the introduction of the necessary legislation advocated in the Power Report because this would reduce their ability to control the agenda in favour of their minority factional benefactors. The default position of the majority of Members of Parliament is to support the "party line" since their future prospects depend upon the degree to which they adhere to this. At the same time, this also means they were, and remain, incapable of prioritizing efforts to resolve the issues affecting the

majority as a result of this self-serving and cynical approach to what should be a public service to deliver the wishes of the majority.

Democracy without parties

The author's book, "*The Briton's Quest for Freedom ... Our unfinished journey*", published in 2007⁹⁵, listed some 49 specific decisions supported by political parties which constrained the freedoms of British constituents. These constraints were brought to the surface by the political parties' ability to cast aside sound recommendations in the Power Report.

It was and remains evident that political parties are not the solution to such problems, they are the problem.

In the final nine chapters of the "*Briton's Quest*", a proposal, based on a "*Minority Principle*", on how British democracy could operate without political parties is presented.

In 2009, Sir Paul Judge launched the Jury Team as the first attempt to launch an independent movement not aligned to any political party but rather aligned to constituency interests. The Jury Team had three over-riding principles:

- Government should be run for the benefit of the people and not for the benefit of any political party.
- Elected representatives should vote according to their view of what is best for the country and their constituents and not at the direction of a political party.
- Politicians should fully comply with the Nolan Principles of Public Life (see Annex 7) and have externally decided and transparent remuneration.

Judge's analysis and proposals covered much of the Power Commission's recommendations as well as the proposals outlined by in the Briton's Quest for Freedom. However, the "language", the semantics and the notion of "politics without parties" is somewhat alien to the British electorate and the Jury Team initiative was not successful. Many consider the initiative to have lacked funding and, although the logic of the justifications for this approach in the Jury Team documentation was sound, media coverage was inadequate and purposely luke-warm. An odd fact was that in order to participate in elections (General Election and EU Parliament) the Jury Team was required to register as a political party.

As a result, this country remains stuck with a two-party dominated system.

John Adams (1735-1826) pointed out that, "... a division of the republic into two great parties ... is to be dreaded as the great political evil."

This is exactly what has become the norm in the United States and the United Kingdom, and yet both countries constantly proclaim their status as exemplary democracies.

Economic implications

Within an economy dominated by the decisions of political parties we have seen that the macroeconomic paradigm has been forms of monetarism since 1975 up until today. However, this has also seen a concentration of the financial sector and the centre of control.

⁹⁵ McNeill, H. W., "*The Briton's Quest for Freedom ... Our unfinished journey*", 345 pp., HPC, 2007, ISBN: 9780907833017

Ludwig von Mises' essay, *"Economic Calculation in the Socialist Commonwealth"* was written just over a century ago in 1920 as a specific criticism of socialism (Soviet economic system) where he pointed out the dangers of creating a single central bank under a socialist regime where he states,

"Once the banks merge into a single bank, their essence is wholly transformed; they are then in a position to issue credit without any limitation".

This is, of however, the state of affairs which now reigns in the United Kingdom. He also makes a very important observation concerning banking under socialism but describes the state of affairs that has emerged under the current regime of continuous relaxations of financial regulations,

"If all banks are nationalized and amalgamated into a single central bank, then its administrative board becomes "the supreme economic authority, the chief administrative organ of the whole economy".

We have, therefore in the United Kingdom where the central banks and the banking system that can issue credit without limitation because the central bank will always step in to bail them out. The supportive "monetary policy" is in reality a rampant Socialism, the benefits of which flow to a small faction of the constituency while the majority are marginalized who happen to be asset holders.

It is apparent that to arrive at this point required the agreement of political party managers and the compliance of MPs of both major parties in the United Kingdom. These parties resist quite reasonable proposals for electoral reform and other constitutional improvements to enhance the participation of the British constituency in shaping the decisions that affect them. This Review has concentrated on the economic policy questions and the political questions remain a topic for a subsequent Review.

ANNEX 1

Experience with political parties:

A bare bones proposition of the Real Incomes Approach was circulated by the author to all UK political parties i.e. at the time Conservative, Liberal and Labour in 1981.

Richard Wainright, the Liberal Party Economics Spokesman, was the one of the only people who demonstrated in his questions to have obviously read and understood the proposition and to have reflected on it in practical terms. He was reticent, he said, not because of the logic but more on the practical point of view,

"If we propose this and win the election, we will then be faced with the problem of having to implement it!"

Simply put he was quite right since the question of how to introduce such a policy which changes several operational norms both in terms of theory and practice would throw up several challenges. However, the current state of the proposition as a voluntary pilot scheme appears to be the solution.

The main Conservative representative, now in the House of Lords, couldn't advance our exchange because he became fixated with the fact that one of my real income projections generate a growth of 2.75% each year under a specific scenario. This he considered to be impossible, based, of course on ADM experience, and he suggested 0.25% or maybe 0.5% would be more realistic; if he had read the paper circulated with more care, he might have understood or at least queried the author on the model. But also, the monetarist frame of mind hindered a better understanding of the concepts involved.

Labour asked the author to speak to Len Murray, the General Secretary of the TUC but he would not entertain anything that differed from the existing "position of Congress".

However, a senior manager from KMPG, associated with a Conservative group, had to leave a group luncheon early, so he made the point of to say he found the proposition to be of interest but, in order to introduce it, thought need to be given to required administrative changes because, at that time, companies and/or authorities did not collect the type of data required to make use of the PPR (price performance ratio) and the PPL (price performance levy) as policy instruments.

This message hit home immediately since, at that time, the details of how this would be accomplished at the national administrative level had not been detailed. The document circulated went as far as explaining the microeconomic operation or rudimentary business rules and associate benefits in lowering inflation. These were integrated to project the microeconomic impacts to the macroeconomic level.

However, on the political side, and based on feedback at that time, it was evident that more attention needed be given to a specification of the Real Incomes Policy administrative framework linked to the business rules.

There are several reasons why the current UK administrative framework needs to change and some aspects have been explored in short articles on "paradoxes" (the profit paradox, the fiscal paradox and the monetary paradox) of how current administrative frameworks currently constrain desired change and innovation.

Hovering in the background, given how we arrived at this location in space-time, and under what policy circumstances, there will be enormous pressure to not disturb government revenue seeking, or what Gordon Brown frequently referred to as the fiscal neutrality rule. Having analysed this since 1981 the pilot approach to introduction would avoid any significant disturbance on this front.

The state-of-the-art database technologies, the state of cloud communications and platform operations can greatly facilitate the integration of individual company data to sector level Productivity Commissions (see Review) as a basis for supporting an extension system geared to assisting companies identify the most productive development pathways.

In doing the political rounds a notable oddity was the tendency of politicians to take not of key phrases more because they sounded "convincing" as opposed to what they actually conveyed.

ANNEX 2

The Price Performance Ratio

The construction of the significance of the PPR is contained in the archive material taken from McNeill, H. W., "Inflation - Its control through Price Performance Fiscal Policy² - A Real Incomes Approach, Rio de Janeiro, 1976 and from the summaries and updated version McNeill, Price Performance Fiscal Policy - A Real Incomes Approach, HPC, December 1981. What is presented below benefits from feedback received from Professor Robin C. O. Matthews of Cambridge University who suggested that the PPR needed to include cases for deflationary conditions in addition to the original conditions that emphasized inflationary conditions.

In analysing data on the changes in real incomes or purchasing power of a specific quantity of currency, the relative changes in unit output prices need to be monitored and measured. More significantly, the real incomes approach to economics is concerned with the degree to which a company contributes to the general state of real incomes of customers, employees and ownership of the business.

The origins of inflation

As a result of the development work within the Real Incomes Policy domain it has been established that the unit prices of supply side production of goods and services are determined price setting

decisions of each economic unit. Under competitive conditions companies that set prices above the prices of competing companies, lose market share. Therefore, monetary injections have no direct impact on supply side unit prices. The main cause of market conditions that result in rising unit prices in supply side output is rising input prices which result in a cost-push inflation.

Cost-push inflation arises from unit price increases of inputs including land, real estate, plant and equipment, human resources, variable physical inputs including energy resources.

Policy-led monetary injections into the economy at moderate to low interest rates leads to speculative purchases of resources held onto as assets because of their likely rise in value (unit prices). These prices can be augmented as a result of large interventions in markets and price call manipulations which cause such asset prices to rise. These price rises, are a form of inflation where competitive price setting is attenuated because asset holding is practiced in the hope of higher sales prices. This effect is accentuated by the fact that the assets concerned are in short supply, either over the long term or momentarily, according to market conditions. Those resources held as assets by asset holders and traders and which are also critical inputs for supply side production, including land, real estate, commodities and energy (e.g. petroleum), are the main sources of cost-push inflation.

The main difference in asset and supply side production inflation is that asset inflation is roughly proportional to monetary injections while supply side output inflation is not directly related to monetary injections but rather to the leakage of asset inflation into the factor input markets of the supply side.

Measuring the contribution of supply side company to inflation

A convenient measure of the degree and direction of contribute on of a specific company to real incomes is the price performance ratio or PPR. This measures the response of unit output prices to changes in unit input costs. The PPR can be generalized to take as the "pointer" the direction of travel of unit input costs. If these are positive, that is, rising, or negative, that is falling the objective of the PPR is to monitor the response of output prices to the recorded changes in unit input costs. The purpose of the PPR coefficient is therefore to see by how much output unit prices rise in response to input unit costs rises with lower rates of unit output price rises reducing the upward pressure on prices. In the case of unit input cost declines there is an interest in seeing by how much unit output prices fall in response to indicate the degree to which benefits are passed on.

As mentioned above the "lead" is taken by the direction of travel of input unit costs. Thus, there are two sets of PPR equations. One for rising unit input costs and one for falling unit input costs.

Inflation

Thus, under inflationary conditions the degree and direction in which a company influences price inflation is the Price Performance Ratio (PPR). The PPR can be measured as the ratio of the percentage increase in unit output prices to the percentage increase in total unit input values over a given period of time:

$$PPR = (100(dPo)/Po)/(100(dUC)/UC)$$

$$PPR = (dPo .UC)/(dUC.Po) (1)$$

where:

dPo is the increase in unit output prices during the period and Po is the unit output price at the beginning of the period;

dUC is the increase in total input costs per unit during the period and UC is the unit input cost at the beginning of the period.

Deflation

Thus, under deflationary conditions the degree and direction in which a company influences prices can be measured as the ratio of the percentage fall in unit input costs to the percentage fall in unit output prices over a given period of time. Note that this is the inverse of the equation 1 above and it is therefore of the following form:

$$PPR = (100(dUC)/UC)/(100(dPo)/Po)$$

$$PPR = (dUC .Po)/(dPo.UC) \dots (2)$$

where:

dPo is the decrease in unit output prices during the period and Po is the unit output price at the beginning of the period;

dUC is the decrease in total input costs per unit during the period and UC is the unit input costs at the beginning of the period.

Desirable & Undesirable States

The relationship between PPR values and the degree to which companies pass on input prices inflation is as follows:

A PPR value of greater than unity (>1.00) results in the rate of input inflation increasing. A PPR value of unity (=1.00) results in the rate of input inflation being maintained at the input rate of increase in the supply side unit output prices. A PPR value of less than unity (<1.00) results in the rate of unit output price inflation being lower than the input rate of unit costs inflation.

The Table below summarises these relationships

PPR value	Change in rate of change
> 1.00	Increased rate of input cost changes
= 1.00	Maintained rate of input cost changes
< 1.00	Reduced rate of input cost of changes

The PPR provides an indication of the degree to which individual firms in a supply chain impact the overall efficiency of the supply chain. The aggregate impact can be arrived at by aggregating the unit input costs (transacted) and the unit output prices (transacted) across a transformation process including: input procurement transaction, external input logistics, internal input logistics, transformation process, internal output logistics (product or services), product sales transactions, external output logistics (product or services) and delivered product or service.

Innovation target zones

In term of the impact of inflation on the purchasing power of the currency both companies and final consumers benefit from a trend that manages to reduce inflation. With current state-of-the-art technology, techniques and accumulated tacit knowledge, there is a frontier beyond which it is increasingly difficult to reduce input costs inflation⁹⁶. For example, if unit input costs rise by 20% it would normally be difficult to secure a 20% reduction in unit output prices without losing a considerable amount of money. However, through re-adaptations of state of the art, systems engineering and rational decision analysis it is possible to redesign processes and maximize process throughput so as to develop technological and economic performance. To achieve this, it is useful to establish innovation target zones where there will a significant rise in supply side-generated real income as a result of lower unit prices and market penetration.

The innovation target zones, desirable and undesirable states are shown in the table below based on the coordinate PPRs associated with different rates of unit cost variations and rates of unit output prices.

Price Performance Ratios (PPRs) associated with different unit input value movements & movements in unit output prices

*Price Performance Ratios (PPRs)
associated with different unit input value movements & movements in unit output prices*

Unit input costs	Unit output price change %									
change %	-20	-15	-10	-5	0	5	10	15	20	
20	This area represents the innovation target zone				0.00	0.25	0.50	0.75	1.00	
15					0.00	0.33	0.66	1.00		
10					0.00	0.50	1.00			
5					0.00	1.00				
0	0.00	0.00	0.00	0.00	0.00					
-5	0.25	0.33	0.50	1.00						
-10	0.50	0.66	1.00							
-15	0.75	1.00								
-20	1.00									

Innovation target zone Desirable states Undesirable states

This table provides a map of the distribution of states of costs and output prices that can enhance real incomes of consumers. In addition, since the supply side production sectors also produce plant and equipment for the supply side it is apparent that the supply side performance has an important contribution to overall inflation reduction through technical and pricing means.

However, the extent of real income generation at the macroeconomic level can only be estimated by applying sector demand schedules for local and regional markets. In the case of global markets, the elasticity of demand for competitive price-setters is usually well above the market norm so the returns to lower PPR states are enhanced by market penetration, returns to scale, better

⁹⁶ McNeill, "Tacit & Explicit Knowledge", RIO

procurement conditions and the accumulation of tacit knowledge leading to quantifiable increases in performance measured in terms of unit costs of production.

The PPR map is not only a useful guide to feasible attainment in terms of real income growth according to the sector/technologies but it also provides a map of targets for research and development and technology requirements linked to critical components of technology or to enabling input substitution of commodities experiencing long term price rises, such as petroleum.

At all times these explicit descriptions will be improved, in practice, through the refinement of techniques, that is, the way people apply technology, achieved through practice and the further accumulation of tacit knowledge. The PPR map also provides an indication of the evolutionary transition of where we stand today in terms of the given past and the necessary future.



The role of business rules in policy

Business rules are, in essence, the decision analysis strategy to be adopted to maximise the real income of a company and its workforce. Rather than rely on creative accounting, the Real Incomes Policy, provides an open access means for each company, according to their specific capabilities and resource complement to maximise their real incomes growth path by making use of a simple indicator, the PPR.

Why the Real Incomes Approach is different

The Real Incomes approach makes use of such factors as critical and coherent policy and business rules to be applied by economic unit management and labour forces to maximise real incomes. It makes use of an easy-to-calculate indicator, the PPR used to monitor and manage transactional pricing behaviour by both input supplier and input buyer, to stimulate the proactive application of these mutually beneficial growth factors.

It is notable that the main conventional texts on Keynesianism, monetarism and supply side pay scant attention to these factors and as a result provide no basis for gaining traction and real economic growth when attempts are made to apply these theories as policy. By the same score, Keynesianism and monetarism pay little attention to the role of technology and technique in moderating or even preventing inflation.

Income disparity

For some 50 years there has been a rise in income disparity, especially between constituents who earn their income from asset holding and trading and those who receive their income from supply side employment in the form of wages. Income disparity has risen rapidly during the last 12 months under the intense financialization regime of quantitative easing. During this period, in net terms over 50% of wage earners have experienced a decline in their real incomes, reflected in a rise in the

cost of living, largely caused by the impact of QE on asset market inflation and the feeding through of these high rates of inflation into supply side production inputs.

Therefore, the policy-based monetary injections that enhance the incomes of a minority of constituents whose income comes from asset holding and trading, simultaneously prejudice and majority of constituents who are wage earners. Indeed, in the period 2008 to 2022 income disparity in the UK overtook income disparity levels in some developing and transition economies.

Making the application of business rules a success

During the last 50 years, in spite of the range of sophisticated operations research methods to optimize production, financialization has resulted in a failure to benefit fully from these intellectual resources. Income disparity has increased together with falling investment and productivity.

There is therefore need to create policy incentives that make business rules particularly effective and to help companies incur less risk. Therefore, rather than leaving the unit costs calculation remain a passive item which only relate to the aggregate input costs incentives and business rules can be combined to expand the degree of freedom open to management to manipulate the PPR value. This can be accomplished by including marginal investments and shop floor innovation costs in a period's input costs making it easier to lower PPR values. However, this introduces a risk element because costs are increased against the strategic objective of lowering unit prices. It is therefore necessary to introduce an incentive mechanism which allows managers to set prices against raised costs while at the same time minimizing risks.

The proposed solution is to ensure that the incentive augments the utility of business rules to achieve the result desired by the economic units. The incentive policy instrument proposed is a Price Performance Levy (PPL). This is described in Annex 3.

ANNEX 3

The Price Performance Levy

The PPL is a productivity incentive levy whose formula is heavily weighted by the price performance ratio (PPR). Its purpose is to lower the levy to the degree the PPR is lowered as an incentive to apply business rules to maximize returns while reducing inflation.

The PPL is not a source of government revenue and is not a fiscal instrument. The levy provides rebates in proportion to the degree that companies regulate prices through increased productivity so as to stabilize or reduce unit prices and thereby enhance real incomes by increasing the value of the currency. The PPL also has the function of reducing financial risks associated with technology investment.

This article discusses some PPL formulae options and their effects.

Policy - distribution of aggregate real incomes through a Price Performance Levy

The objective of the Price Performance Levy (PPL) is to share out the benefits of lower PPRs and therefore the corporate contributions to real income levels between consumers, corporate ownership and employees. The measure of real incomes "performance" is the PPR (Price Performance Ratio) so the PPL is designed to respond to the PPR values achieved in an equitable fashion by allowing this performance measure to provide a fair net of levy position. This is essential for microeconomic management to gain transparency and predictability of outcomes through business rules that permit the manipulation PPR values to achieve desired net of levy real incomes benefits.

Examples of Price Performance Levies

The Real Incomes Approach provides for a very large range of options for applying PPLs to aggregate incomes according to the PPR. Below two types are discussed. The basic calculation of PPLs is to apply a corrective coefficient based on the PPR value to a Basic Levy expressed as a percentage e.g. 20%.

Power functions (intensification)

When policy makers wish to change the intensity of size of the incentive to lower PPRs a power function can be used to calculate the PPL coefficient. Thus, the table below shows the effect of different PPR power functions on the size of the Levy to be applied to operational margins with a basic levy of 20%:

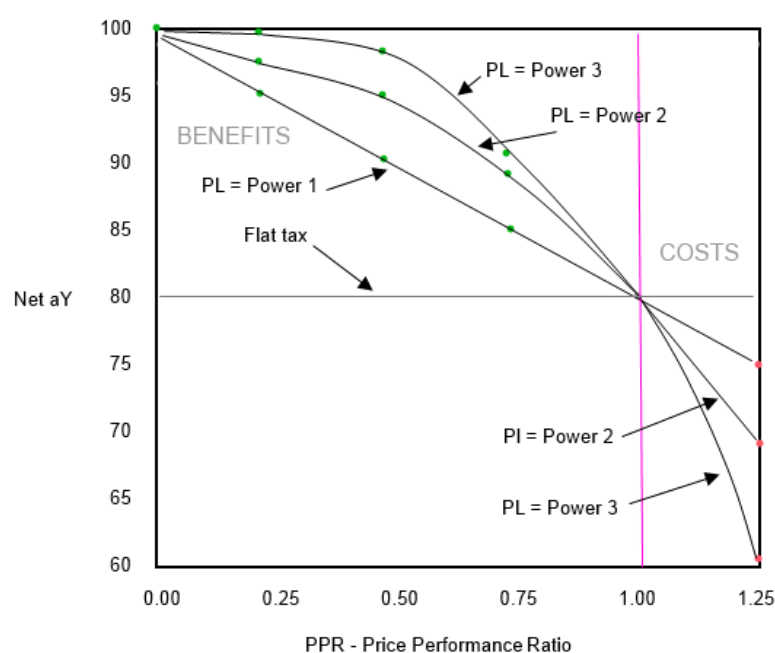
Some PPL power functions applied to a basic levy of 20%.

Some PPL power functions applied to a basic levy of 20%
The percentages indicate the levy to be paid according to the respective PPR
For comparison a conventional tax or flat tax can be assumed to be 20%

PPR	PPR power function					
	PPR ¹		PPR ²		PPR ³	
	PPL%	net aY%	PPL%	net aY%	PPL%	net aY%
0.00	0.00%	100.00%	0.00%	100.00	0.00%	100.00%
0.25	5.00%	95.00%	1.25%	98.75%	0.31%	99.69%
0.50	10.00%	90.00%	5.00%	95.00%	2.50%	97.50%
0.75	15.00%	85.00%	11.25%	88.75%	8.44%	91.56%
1.00	20.00%	80.00%	20.00%	80.00%	20.00%	80.00%
1.25	25.00%	75.00%	31.25%	68.75%	39.06%	60.94%

Key:	Benefit		Flat tax		Prejudice	
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Price Performance Levies based on PPR power functions & net incomes



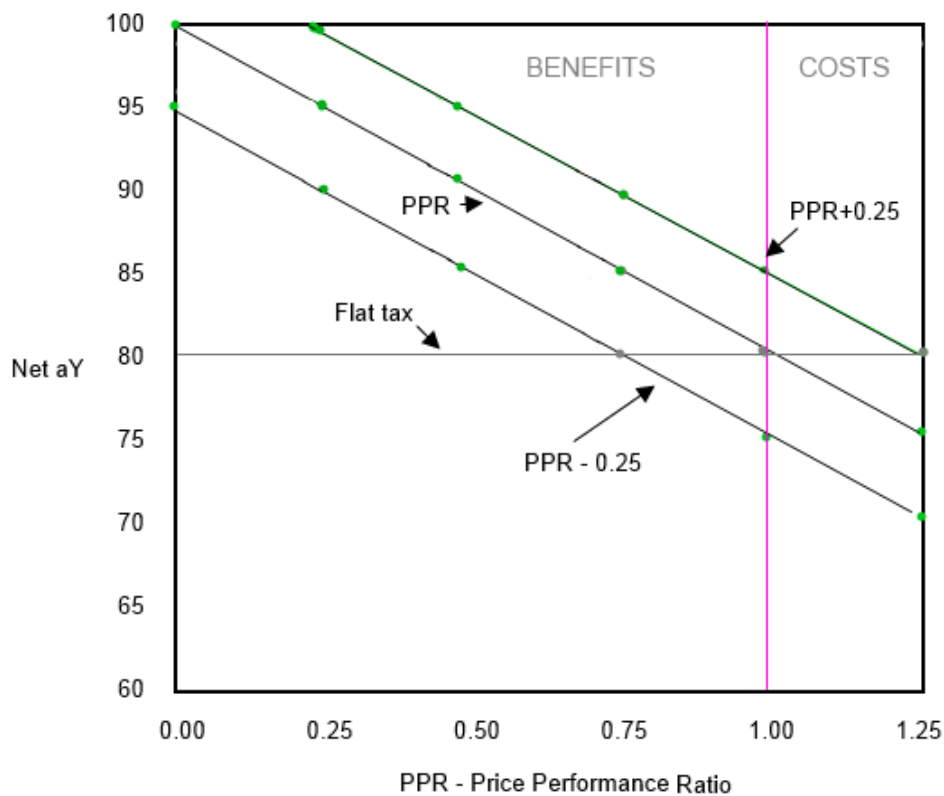
Slide or i-d functions (increments or decrements)

Some i-d functions applied to a basic levy of 20%
The percentages indicate the levy to be paid according to the respective PPR
For comparison a conventional tax or flat tax can be assumed to be 20%

PPR	PPR i-c function					
	PPR+0.25		PPR		PPR-0.25	
PPR	PPL%	net aY%	PPL%	net aY%	PPL%	net aY%
0.00	5.00%	95.00%	0.00%	100.00%	0.00%	100.00%
0.25	10.00%	90.00%	5.00%	95.00%	0.00%	100.00%
0.50	15.00%	85.00%	5.00%	95.00%	5.00%	95.00%
0.75	20.00%	80.00%	15.00%	85.00%	10.00%	90.00%
1.00	25.00%	75.00%	20.00%	80.00%	15.00%	85.00%
1.25	30.00%	70.00%	25.00%	75.00%	20.00%	80.00%

Key:	Benefit		Flat tax		Prejudice	
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Price Performance Levies based on i-d functions & net incomes



A Note on conventional and flat taxes⁹⁷

In order to provide a comparison of the relative impacts of Price Performance Levy formulae and conventional and flat taxes one can assume in the above tables that the flat tax is where the PPR values are ignored and the tax remains at 20%. The Real Incomes Approach sets out to compensate companies for their contribution to real incomes whereas flat taxes and conventional taxes are neutral to performance and pay no attention to the contribution of the company to the increase in real incomes. Accordingly, irrespective of the performance of a company the tax rate remains the same. Thus, a company undergoing significant growth in nominal terms and generating a high return and profits might also be operating in a non-competitive fashion and in fact be a generator of inflation and contributing to the reduction in real incomes. This company will, under a flat tax regime pay the same tax rate as a company investing and achieving higher performance in terms of contribution to real incomes.

Under a Price Performance Policy, the benefits accruing to companies who contribute to real incomes levels can be observed in the tables above and the accompanying graphs. Under the flat tax the net of tax is the remaining 80% of income. In the case of PPP net of tax income can vary from 80%-100% of gross income, that is levies of between 0% and 20% for PPRs below unity (1.00). Where the PPR is greater than unity (1.00) the flat tax remains the same with a net income of 80% of gross but under PPP the levy becomes a surcharge leaving, in the examples above, net incomes of 61% to 80%. Under PPP companies pay a PL at a rate falling to zero (0%).

ANNEX 4

Top countries in the global Balance of Payments League

Rank	Country Union Zone	Balance of Payments \$US billions – 2019
1	Euro Zone	(2017) 387
2	Germany	280
3	European Union	(2017) 202
4	Japan	186
5	China	171
6	Netherlands	90
7	Switzerland	80
8	Russia	65
9	Taiwan	65
10	Singapore	63
11	South Korea	60
12	Italy	60
13	Thailand	37
14	Denmark	31
15	Spain	30
16	UAE	26
17	Sweden	22
18	Israel	21
19	Norway	17
20	Saudi Arabia	15

⁹⁷ Under the real incomes policy of PPP where the PPL is deployed there is in fact no corporate taxation so the comparisons with conventional and flat taxes does not really compare equivalent situations but the advantage of PPP is evident. All revenues under real incomes policies would normally come from personal taxation requiring, of course, reasonable rates of pay for employees made feasible by the more efficient allocation of resources and real income generation.

Annex 5

Bottom countries in the lowest global Balance of Payments League

Rank	Country	Balance of Payments \$US billions - 2019
1	USA	- 480
2	UK	- 122
3	Kenya	- 58
4	Brazil	- 51
5	Ireland	- 45
6	Canada	- 35
7	Indonesia	- 30
8	India	- 30
9	Algeria	- 22
10	France	- 18
11	Colombia	- 14
12	Lebanon	- 12
13	Romania	- 11
14	Chile	- 11
15	Oman	- 11
16	South Africa	- 11
17	Egypt	- 9
18	Kazakhstan	- 7
19	Pakistan	- 7
20	New Zealand	- 7

Annex 6

Power Report

COMMENT: Helena Kennedy's Foreword to the Power report is a relevant today as it was 16 years go in 2006. It is presented below in full.

Foreword

This is not a report simply about constitutional change. It is a report about giving people real influence over the bread and butter issues which affect their lives. The disengagement from politics described in these pages cannot be dismissed as the preoccupation of the chattering classes. Its substance has come from the voices of thousands of people around the country who feel quietly angry or depressed. When it comes to politics they feel they are eating stones. Principle and ideas seem to have been replaced with managerialism and public relations. It is as though Proctor and Gamble or Abbey National are running the country. And in answer to this malaise, the parties seem to believe that all problems will be solved by having a new face replace the one that has fallen out of favour alongside the colonising of each other's policies.

However, the blame cannot all be put at the door of politicians and when people are moved beyond the first wave of emotion about political lying and politicians' self-interest or ruminations about the fault of the media, a very different public complaint surfaces. The disquiet is really about having no say. It is about feeling disconnected because voting once every four or five years does not feel like real engagement. Asking people set questions in focus groups or polling is a poor substitute for real democratic processes. Voting itself seems irrelevant to increasing numbers of people: even supposing there is a candidate you like, if you are in a constituency where the outcome is preordained and your favoured choice is not IT, there is no point turning out to the draughty church hall and inserting your vote in the ballot box. It is also about feeling that there is no choice, despite

our living in the era when choice is the dominant political mantra – there is very little on offer as the main parties now seem to be much the same. It is about a belief that even Members of Parliament have little say because all the decisions are made by a handful of people at the centre and then driven through the system. Politics and government are increasingly slipping back into the hands of privileged elites as if democracy has run out of steam.

The world has changed immeasurably in the last fifty years. When I was a child our politicians were grainy photographs in the newspapers, distant voices on the radio, ghostly figures on television. We knew next to nothing about their wives or their children or their sexual predilections. Now we have the Prime Minister and other party leaders sit on the confessional sofas of daytime television and, as though being counselled by a therapist for marital breakdown, apologise for creating distrust and promise a sceptical public that they will do better.

People have changed. Lives are being lived in very different ways but the political institutions and the main political parties have failed to keep up. What was most stark in the Commission's work was that the insiders, the people within the political mainframe, could do the analysis. They could describe the shift away from an industrial society where two main parties represented two clear interest groups but their response was all about strategy. They tell us class has disappeared into a meritocratic land of opportunity when what has happened is a reconfiguring of class with new margins, growing inequality but increasingly ugly consequences. I remember seeing the writing on the wall back in the days of Mrs. Thatcher when a young woman who helped look after my children remarked that my mother and family did not seem working class, having seen my background described in a newspaper. I asked her who she thought were working class and she said people who did not work. While it is true that people no longer have the same tribal attachments or ways of describing themselves as in the past, class divisions are as defining of life chances as they ever were.

As we took evidence the difference between the public response and the 'insider' response was palpable. The politicians have no idea of the extent of the alienation that is out there. The people round the Westminster water coolers are clearly not having the same conversations as they are everywhere else. Their temperature gauge is seriously out of kilter. When politicians or party managers were asked for ideas for re-engagement, the suggested solutions were almost all about tweaking the existing system, with a bit of new technology here and a consultation there. The result is that no political space is being created for new politics and new ideas to emerge; a new politics – whether in the form of new parties or the genuine revival of the existing parties – will only be born once the structural problems within the current system are addressed.

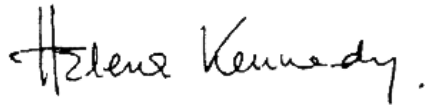
We have no doubt that concern will be expressed that this report does not deal with certain issues close to the hearts of some reformers. At our meetings and in our evidence, issues as diverse as an English Parliament, the relationship between the civil service and government, and the emasculation of the Cabinet were raised along with others. There are many different problems with the political system, some of which need urgent attention, but we were specifically addressing non-engagement and not all of these problems relate directly to this concern. We do, however, feel that if the programme of change we advocate is put in place many of the other problems will begin to find solutions.

What political leaderships seem to misunderstand is that if you want to unite people around a distinct and common purpose you have to draw people in. Too often citizens are being evicted from the processes.

Ways have to be found to engage people. Markets, contracts and economic rationality provide a necessary but insufficient basis for the stability and prosperity of post-industrial societies; these must be leavened with reciprocity, moral obligation, duty to the community, trust and political engagement. People in Britain still volunteer; they run in marathons for charity; they hold car boot sales to raise funds for good causes; they take part in Red Nose days and wear ribbons for breast cancer or AIDS. They sit as school governors, do prison visiting, read with children who have learning difficulties. They take part in school races and run the school disco. They march against the Iraq war and in favour of the countryside. They sign petitions for extra street lights and more

frequent bin collection. They send their savings to the victims of tsunamis and want to end world poverty. What they no longer want to do is join a party or get involved in formal politics. And increasingly they see no point in voting.

This is a travesty for democracy and if it continues the price will be high. The only way to download power is by rebalancing the system towards the people. This is the agenda. Now we need the political will.



Helena Kennedy
QC Member of the House of Lords
February 2006

Power to the People Executive Summary and Recommendations

(Redacted)

COMMENT: Most of this content and recommendations are still relevant today.

The Commission's work sought to avoid:

- the weakening of the mandate and legitimacy for elected governments – whichever party is in power – because of plummeting turnout;
- the further weakening of political equality because whole sections of the community feel estranged from politics;
- the weakening of effective dialogue between governed and governors;
- the weakening of effective recruitment into politics;
- the rise of undemocratic political forces;
- the rise of a 'quiet authoritarianism' within government.

Analysis of the Problem of Disengagement

The Myth of Apathy

Three fundamental characteristics of political disengagement in Britain have been particularly influential in Power's thinking about the causes of the problem.

- Contrary to much of the public debate around political disengagement, the British public are not apathetic. There is now a great deal of research evidence to show that very large numbers of citizens are engaged in community and charity work outside of politics. There is also clear evidence that involvement in pressure politics – such as signing petitions, supporting consumer boycotts, joining campaign groups – has been growing significantly for many years. In addition, research shows that interest in 'political issues' is high. The area of decline is in formal politics: turnout for general elections has declined very significantly since 1997; turnout for other elections has remained stubbornly low for years; party membership and allegiance has declined very severely over the last thirty years; elected representatives are held in very low esteem and widely distrusted.

- Power's own research and experience over the last eighteen months has established that the level of alienation felt towards politicians, the main political parties and the key institutions of the political system is extremely high and widespread.
- The problem of disengagement from formal democracy is not unique to Britain. Nearly all of the established democracies are suffering from similar problems

Red Herrings

Disengagement is NOT caused by:

- an apathetic and uninterested public with a weak sense of civic duty;
- a widespread economic and political contentment;
- the supposedly low calibre and probity of politicians;
- the lack of competitive elections (this may have a minor impact on election turnout but it needs to be set in the wider context of an electoral system which is widely perceived to lead to unequal and wasted votes);
- an overly negative news media;
- lack of time on the part of citizens.

The Reality

- citizens do not feel that the processes of formal democracy offer them enough influence over political decisions – this includes party members who feel they have no say in policy making and are increasingly disaffected;
- the main political parties are widely perceived to be too similar and lacking in principle;
- the electoral system is widely perceived as leading to unequal and wasted votes;
- political parties and elections require citizens to commit to too broad a range of policies;
- many people feel they lack information or knowledge about formal politics;
- voting procedures are regarded by some as inconvenient and unattractive.

The Rise of New Citizens

The deeper cause behind these factors is the shift from an industrial to a post-industrial economy. Post-industrialisation has had two major impacts relevant to the issue of disengagement. The first is the creation of a large section of British society which is now better educated, more affluent, expects greater control and choice over many aspects of life, feels no deference towards those in positions of authority, and is not as bound by the traditional bonds of place, class and institution that developed during the industrial era. The second is the creation of permanently marginalised groups in society which live in persistent poverty, with low educational attainment, poor working and living conditions and a multiplicity of other deprivations associated with life on low or very low incomes. However, the British political system is structured as though the lifestyles, expectations and values of the industrial era are still in place. Citizens have changed. This profound shift has caused two major disjunctions between the system and citizens.

- The British parliamentary system of elected representation and considerable executive power was built in an era of very limited educational provision and in which deference and rigid hierarchy and static social relations were taken for granted.
- The British party system is based on the dominance of two parties constructed around the pursuit of the interests and ideological leanings of the two dominant classes that existed during the industrial era.

Alienation from politics takes many forms for different groups – women, black and minority ethnic communities, those on low incomes, young people – ranging from a general sense that the system is out-of-date to a deep disgust at the fact that politics has failed to bring about fundamental improvements in the lives of the most disadvantaged. Fundamentally, however, all of these alienations are exacerbated by a political system that cannot respond to the diverse and complex values and interests of the individuals which make up our post-industrial society.

The response of the political system to post-industrialism and to political disengagement has been either technocratic or self-interested in the sense that the parties have adapted their policies and campaigning simply to win elections. The political strategy of “triangulation”, for example, is democracy by numbers. It is a mathematical equation that secures power, but in the end drives down people’s desire to be politically engaged. It hollows out democracy because it inevitably means by-passing party members who want debate and neglects the democratic channels of engagement which might get in the way of the strategy.

By contrast, the Power Commission has developed a response to disengagement which is democratic. This has drawn on an understanding of democracy which sees the concept as a set of broad principles which can be applied in a variety of ways beyond a simple focus on representative institutions and elections.

The Response to the Problem of Disengagement

Power has set its recommendations within the context of a changed society. These recommendations primarily aim to create a political system which allows citizens a more direct and focused influence on the political decisions that concern them. It is also an attempt to bring greater flexibility and responsiveness to politics so that new alliances can form and new ways of debating be generated. There have to be real opportunities and spaces where the changing values in our society can be fed into politics. The recommendations are based on three major shifts in political practice:

- a rebalancing of power away from the Executive and unaccountable bodies towards Parliament and local government;
- the introduction of greater responsiveness and choice into the electoral and party systems;
- allowing citizens a much more direct and focused say over political decisions and policies. These three imperatives stand or fall alongside each other. The implementation of only one or two of the three will not create the re engagement with formal democracy which many people now want. Cherry-picking – a folly repeated time and time again by our political masters – will not work.

Rebalancing Power

There needs to be a re-balancing of power between the constituent elements of the political system: a shift of power away from the Executive to Parliament and from central to local government. Much greater clarity, transparency and accountability should be introduced into the relationship between the Executive and supra-national bodies, quangos, business, and interest groups. Too much power goes unchecked. The aim here is to allow the freedom for our elected representatives to be the eyes, ears and mouths of British citizens at the heart of government.

Recommendations

1. A Concordat should be drawn up between Executive and Parliament indicating where key powers lie and providing significant powers of scrutiny and initiation for Parliament.
2. Select Committees should be given independence and enhanced powers including the power to scrutinise and veto key government appointments and to subpoena witnesses to appear and testify before them. This should include proper resourcing so that committees can fulfil their remit effectively. The specialist committees in the Upper House should have the power to co-opt people from outside the legislature who have singular expertise, such as specialist scientists, when considering complex areas of legislation or policy.
3. Limits should be placed on the power of the whips.
4. Parliament should have greater powers to initiate legislation, to launch public inquiries and to act on public petitions.
5. 70 per cent of the members of the House of Lords should be elected by a 'responsive electoral system' (see 12 below) – and not on a closed party list system – for three parliamentary terms. To ensure that this part of the legislature is not comprised of career politicians with no experience outside politics, candidates should be at least 40 years of age.
6. There should be an unambiguous process of decentralisation of powers from central to local government.
7. A Concordat should be drawn up between central and local government setting out their respective powers.
8. Local government should have enhanced powers to raise taxes and administer its own finances.
9. The Government should commission an independent mapping of quangos and other public bodies to clarify and renew lines of accountability between elected and unelected authority.

10. Ministerial meetings with representatives of business including lobbyists should be logged and listed on a monthly basis.
11. A new overarching select committee should be established to scrutinise the Executive's activities in supranational bodies and multilateral negotiations, particularly in relation to the European Union, and to ensure these activities are held to account and conducted in the best interests of the British people.

Real Parties and True Elections

The current way of doing politics is killing politics. An electoral and party system which is responsive to the changing values and demands of today's population should be created. This will allow the development of new political alliances and value systems which will both regenerate existing parties and also stimulate the creation of others.

Recommendations

12. A responsive electoral system – which offers voters a greater choice and diversity of parties and candidates – should be introduced for elections to the House of Commons, House of Lords and local councils in England and Wales to replace the first-past-the-post system.
13. The closed party list system should have no place in modern elections.
14. The system whereby candidates have to pay a deposit which is lost if their votes fall below a certain threshold should be replaced with a system where the candidate has to collect the signatures of a set number of supporters in order to appear on the ballot paper.
15. The Electoral Commission should take a more active role in promoting candidacy so that more women, people from black and minority ethnic communities, people on lower incomes, young people and independents are encouraged to stand.
16. The voting and candidacy age should be reduced to sixteen (with the exception of candidacy for the House of Lords).
17. Automatic, individual voter registration at age sixteen should be introduced. This can be done in tandem with the allocation of National Insurance numbers.
18. The citizenship curriculum should be shorter, more practical and result in a qualification.
19. Donations from individuals to parties should be capped at £10,000, and organisational donations capped at £100 per member, subject to full democratic scrutiny within the organisation.
20. State funding to support local activity by political parties should be introduced based on the allocation of individual voter vouchers. This would mean that at a general election a voter will be able to tick a box allocating a £3 donation per year from public funds to a party of his or her choice to be used by that party for local activity. It would be open to the voter to make the donation to a party other than the one they have just voted for.
21. Text voting or email voting should only be considered following other reform of our democratic arrangements.
22. The realignment of constituency boundaries should be accelerated.

Downloading Power

We should be creating a culture of political engagement in which it becomes the norm for policy and decision-making to occur with direct input from citizens. This means reform which provides citizens with clear entitlements and procedures by which to exercise that input – from conception through to implementation of any policy or decision.

Recommendations

23. All public bodies should be required to meet a duty of public involvement in their decision and policy-making processes.
24. Citizens should be given the right to initiate legislative processes, public inquiries and hearings into public bodies and their senior management.

25. The rules on the plurality of media ownership should be reformed. This is always a controversial issue but there should be special consideration given to this issue in light of the developments in digital broadcast and the internet.

26. A requirement should be introduced that public service broadcasters develop strategies to involve viewers in deliberation on matters of public importance – this would be aided by the use of digital technology.

27. MPs should be required and resourced to produce annual reports, hold AGMs and make more use of innovative engagement techniques.

28. Ministerial meetings with campaign groups and their representatives should be logged and listed on a monthly basis.

29. A new independent National Statistical and Information Service should be created to provide the public with key information free of political spin.

30. 'Democracy hubs' should be established in each local authority area. These would be resource centres based in the community where people can access information and advice to navigate their way through the democratic system.

Change of this magnitude cannot be left simply to elected representatives. An alliance for change needs to be built amongst the most clear-sighted MPs, local councillors, MEPs and members of the devolved institutions, but only a sustained campaign for change from **outside** the democratic assemblies and parliaments of the UK will ensure that meaningful reform occurs. We, the people, have to stake our claim on power.

Annex 7

Noland's principles of public life

1. The Seven Principles of Public Life

The Seven Principles of Public Life (also known as the Nolan Principles) apply to anyone who works as a public office-holder. This includes all those who are elected or appointed to public office, nationally and locally, and all people appointed to work in the Civil Service, local government, the police, courts and probation services, non-departmental public bodies (NDPBs), and in the health, education, social and care services. All public office-holders are both servants of the public and stewards of public resources. The principles also apply to all those in other sectors delivering public services.

1.1 Selflessness

Holders of public office should act solely in terms of the public interest.

1.2 Integrity

Holders of public office must avoid placing themselves under any obligation to people or organisations that might try inappropriately to influence them in their work. They should not act or take decisions in order to gain financial or other material benefits for themselves, their family, or their friends. They must declare and resolve any interests and relationships.

1.3 Objectivity

Holders of public office must act and take decisions impartially, fairly and on merit, using the best evidence and without discrimination or bias.

1.4 Accountability

Holders of public office are accountable to the public for their decisions and actions and must submit themselves to the scrutiny necessary to ensure this.

1.5 Openness

Holders of public office should act and take decisions in an open and transparent manner. Information should not be withheld from the public unless there are clear and lawful reasons for so doing.

1.6 Honesty

Holders of public office should be truthful.

1.7 Leadership

Holders of public office should exhibit these principles in their own behaviour. They should actively promote and robustly support the principles and be willing to challenge poor behaviour wherever it occurs.

Annex 8

General Format of a Decision Analysis Brief

The general format of a Decision Analysis Brief⁹⁸ sets out in a sequence the considerations that need to be considered to characterise an issue of concern, identified as a gap in the state of some measure of wellbeing in terms of what is considered to be a desirable state measured on the basis of comparisons or absolute quantities:-

1. The identification of the issue to be addressed expressed in terms of gaps and needs

1.1. Observation: Gaps should not be identified as processes, but rather existing states.

Explanation: In the end the solution is usually a new process. By identifying a process as a gap automatically presumes more of the existing processes will fill the gap when in reality it is the process that is deficient and a different process might be the best option.

2. The identification of the existing constraints that have contributed to the development, existence or growth in gaps.

3. A description of the cause and effect relationships creating gaps linked to each identified constraint.

4. The construction of a determinant mechanism, or enterprise level model to analyse the way in which constraints create gaps

5. The use of the same model modified by types of solution options applying the microeconomic mechanisms that have the potential to modify the extent to which gaps can be closed.

6. identification of possible solutions that can be modelled based on the cause and effect relationship model to create options from which a solution can be identified.

7. Review the scale of the national problem and scale up the solution options to the national requirement.

8. Check local circumstances which might affect constraints as well as feasibilities.

9. Add to this data set unit prices of both inputs to the solution and to the output, if applicable, to estimate costs and benefits in strata (according to 8) at the macroeconomic level.

⁹⁸ McNeill, H. W., *"The Briton's Quest for Freedom .. Our unfinished journey"*, DABs, HPC, 2007.

10. Select the best options by local circumstances is necessary.

Author's profile

Hector Wetherell McNeill MA (Cantab), D.A.S.(Cantab), MA (Stanford)

Born in Portsmouth, Hampshire, England. Son of Mary (Né: Mary Wetherell) and Thomas Cragg McNeill the headmaster of the Portsmouth Technical High School and sometime adviser to the Colombo Plan on technical education to the Government of Pakistan covering East and West Pakistan.

Hector attended Friends School, Great Ayton, North Yorkshire and the Southern Grammar School in Portsmouth, Hampshire. He was a member of Clare College, Cambridge University, where he followed the Agricultural Tripos at the School of Agriculture. He completed the post-graduate course in Agricultural Economics and Cambridge completed at the Schools of Agriculture and Faculty of Economics. He was Fellow of the Food Research Institute at Stanford University, Palo Alto, California, USA where he completed courses in economics at the Department of Economics and systems engineering at the School of Engineering.

With over 45 years of experience in the application of decision analysis to economics and agriculture. He initiated and has led the development of the Real Incomes Approach to Economics since 1975.

He established the Systems Engineering Economics Lab (SEEL) in 1983 to trace the advance of state-of-the-art global network technologies and establish the Decision Analysis Group concerned with research into decision analysis. In 1986 he initiated work on remotely accessed data veracity issues which developed into Locational-State Theory (LST) as an important contribution to leading-edge developments in decision analysis.

As the lead developer for Advanced Silicon Compilers Ltd, he managed the early introduction of Altera Programmable Logic Devices in the UK in 1988 completing work for Express Lifts and Mars Electronics.

He established the George Boole Foundation Limited and the Open Quality Standards Initiative in 2010.

He was the first remote sensing expert of the Food and Agriculture Plant Production Division of the United Nations leading a systems team that created the world's first automatic crop inventory system in 1974. He was a Senior Scientific Officer responsible for the management of the development of learning systems initiatives at the Information Technology and Telecommunications Task Force at the European Commission, and was the Environmental Economist with the G7 Rain Forest Trust Fund in Brazil.

Hector enjoys building cloud applications linked to economic simulation and analytical tools.

