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Technology, technique & real incomes



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The Series: Economic Briefs

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Technology, technique & real incomes

In the second Economic Brief, “Why the purchasing power of wages falls” reference was made to the Say Model which considers the economy to gravitate to an equilibrium between supply side production of goods, services and capital goods and this process affording wages that, in sum, constituted consumption or demand. Say also made clear the importance of entrepreneurs in organizing the transactions and running the different sectors to adjust to imbalances.

This Brief expands more on this role to explain why in the panic surrounding events linked to money management, causing wild speculation before 1929 and hoarding of money and saving in the 1930s, caused a breakdown in the Say Model. As emphasised in the previous brief this failure was caused by poor money management exacerbated by the irresponsible behaviour of most governments in a race to the bottom to maintain competitive status through devaluations.

It is worth noting that the normal way of managing the economy under the gold standard, and before Bretton Woods, was to raise international competitiveness by imposing lower wages. Naturally this would lower domestic demand generated from wages and make lower exchange-rate-adjusted priced domestic output more attractive to foreign buyers. This routinely cavalier way of managing the incomes of the majority of the population was the result monetary policy, as macroeconomic management policy, being completely divorced from essential concepts of notions of supply side production efficiency. The role of economic management on the supply side having a central role in protecting the wellbeing of the majority had been eroded by the dominance of monetary policy decision priorities. We are describing here conditions during a period when many countries were only just transitioning to a state of universal suffrage; the working population had no real means of influencing policy decisions.

John Maynard Keynes was frustrated with the then mainstream economic theory as taught at Cambridge University because it was incapable of explaining the persistence of the slump afflicting Britain, the USA and other countries. In his solution, which he considered to be a new economic theory, published in 1936 as, “*The General Theory of Employment, Interest and Money*”, it was evident that he had not included much concerning entrepreneurship or technological means of reducing costs; in reality he had an overriding desire to propose something to reduce main challenge of high unemployment through managing what he understood, money.

Technology and techniques

It so happens that in the same year as the publication of Keynes’ General Theory, Theodore Wright¹ published a paper that described the learning curve. This gave rise to generic law which evolved into a reliable framework for forecasting cost declines as a function of cumulative production. More specifically Wright’s Law is a reliable basis for predicting the impact of tacit knowledge on the productivity of processes involving human learning. It can be used to extend this analysis to plan savings from current production to invest in better production techniques leading to moderated or even lower unit prices. This can result in a rise in the purchasing power of wages, in many cases it can also result in rises in nominal wages.

Keynesianism as a technological desert

The General Theory had been written before Wright’s publication but even without this, Keynesianism makes no substantive reference nor provides any central function for learning and technological productivity in lowering prices and raising real incomes and wages.

Keynesianism ignores the central role of productivity in avoiding slumps and maintaining consumption and demand at equilibrium levels. As a result, Keynesianism as a whole is devoid of any structural motivations or incentives that help guide the behaviour of economic units towards greater competitiveness

¹ Wright, T., “*Factors Affecting the Cost of Airplanes*”, *Journal of Aeronautical Science*, Volume 3, No.2, pp. 122-128, 1936.

to raise consumption and demand through adjustments in productivity and wage levels to maintain the levels of aggregate consumption or demand as a contemporary dynamic equilibrium Say Model.

Today we struggle with Keynesianism as the mainstream conventional economic theory being taught in universities worldwide as being in a serious need of a replacement.

The advance in evidence and knowledge on the contribution of learning and innovation to economic growth

John Maynard Keynes died in 1946 in a period when seminal work had been or was about to be published on the central role of learning. It is now well understood that something like 80% of all real economic growth is the result of learning along the lines of Wright's learning curve analysis which increases the competence of individuals who build up skills or internalised tacit knowledge. The analysis of these processes in the form of observation and data build up easily recorded, communicated and understood information in the form of explicit knowledge². Such information is the basis of decision analysis used to identify better ways to achieve objectives and refine processes in a process of innovation. Technology³ provided the leading edge of productivity and real economic growth⁴.

Moore's law

In 1965, Gordon E. Moore predicted a steady rate in the increase of the increasing capabilities of placing more logical circuits onto a given area of integrated circuits known as Moore's law⁵ has revolutionised modern digital technologies by lowering the costs and raising the processing power of digital capabilities on a constant basis.

In 2012 Wright's Law and Moore's law were compared⁶ to determine which provided the most reliable projections of performance. Most significantly, the results show that technological progress is forecastable and linked to this are reliable cost projections. These results are important for theories of technological change, and assessments of candidate technologies and economic growth policies.

The encouraging aspect of this analysis was that Wright's Law, which is more generally applicable to all economic sectors, was marginally better than Moore's Law which is exclusively linked to digital systems.

Monetarism as a technological desert

The initiation of slumpflation in 1975, had been caused by a severe case of cost-push inflation linked to rapid rises in the international price of petroleum. In spite of the fact the copious evidence of the role of learning and technological innovation was well established by 1970, the silo nature of academia resulted in none of these factors being embedded into monetary theory. No effort was made by leading monetarists such as Milton Friedman, to incorporate the core significance of this knowledge into monetary theory.

Very clearly the solution to slumpflation was wholly a question of substitution of petroleum and the acceleration of transitions to alternative forms of energy in line with the findings of the report, "The Limits of Growth" published in 1975 by the Club of Rome. More relevant policy making at that time is likely to

² Arrow, K. J., "The economic implications of learning by doing". *The Review of Economic Studies*. Oxford Journals. 29 (3): 155–73, 1962.

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

⁴ Kaldor, N., "A Model of Economic Growth", *The Economic Journal*, Volume 67, Issue 268, Pages 591–624, 1957.

⁵ Moore, G. E., "Cramming more components onto integrated circuits", *Electronics*, Volume 38, Number 8, April 19, 1965

⁶ Nagy, B., J. Farmer, J. D., Bui, Q. M., Trancik, J. E., "Statistical Basis for Predicting Technological Progress", 2012, Santa Fe Institute, St. John's College, and Engineering Systems Division, Massachusetts Institute of Technology, Cambridge, MA, 02139, USA. 2012

have landed the planet in a far more sustainable state of affairs than we now find ourselves under the current circumstances.

The advent of slumpflation, however, resulted in many believing the inability of Keynesianism to solve this problem meant that more emphasis should be given to monetarism to “solve the issue” when there was absolutely no evidence to support this contention. The acceptance of monetarism was based on no more than assertions made by academics such as Milton Friedman.

In spite of monetarism’s parallel inability to control the causes of slumpflation, even today monetarism makes no substantive reference nor provides any central function for technological productivity in lowering prices and raising real income and wages. This is because it ignores the central role of productivity in avoiding slumps and maintaining consumption and demand at equilibrium levels. Like Keynesianism, monetarism is devoid of any structural motivations or incentives that help guide the behaviour of economic units towards greater competitiveness to raise consumption and demand through adjustments in productivity and wage levels to maintain the levels of aggregate consumption or demand as a contemporary dynamic equilibrium Say Model.

Today we also struggle with monetarism, like Keynesianism, as a mainstream conventional economic theory being taught in universities worldwide as being in a serious need of a replacement.

The Real Incomes Approach

In 1975 the British economist Hector McNeill who received his economics training at both Cambridge and Stanford Universities, realised that neither Keynesianism and monetarism theory and their policy instruments could solve slumpflation. He realised that their application would seriously prejudice constituents and he became frustrated that nothing in what he had been taught as economic theory or as policy solutions, provided any mechanisms for solving the issue.

He essentially “went back to basics” to work out how the economy operates to identify gaps in theory and practice. By 1976, he identified errors in the stated causes of inflation and the significant failure in conventional theory and practice to incorporate the roles of learning in technological innovation in economic growth. As a result, having started with no preconceived notions of its significance, he identified real incomes as the single most important economic indicator of economic performance and the purchasing power of wages of the majority. This work established a Real Incomes Approach to economics as the only macroeconomic theory directed at supply side decision making to augment productivity and real incomes based on changes in technology.

In this development work it was established that inflation of goods and services in the supply side economy was generally caused by cost push inflation and not by demand or money volumes⁷. This applied not only in the slumpflation period but also to periods of so-called price stability. This proposition has always been contested by monetarists pointing to the Quantity Theory of Money (QTM) as the “proof” rather than referring to the evidence of the mechanisms of inflation. Milton Friedman, for example, could never explain the mechanism whereby money volumes create inflation. His “explanation” was that it happens in the “long run”, which, of course, is not an explanation of the mechanism. Indeed, evidence generated by 12 years of quantitative easing (QE) does not support the monetarist’s position. McNeill used the copious evidence of the outcome of QE to show how this atomizes the economy into at least 7 main encapsulated asset markets, which are isolated from the supply side transactional economy. These isolated markets involving a small faction of high-income individuals are highly speculative with prices driven upwards intentionally by directing QE funds into them. Offshore investment also drains QE funds resulting in reduction in onshore employment. Savings are run down because interest rates are close-to-zero. No matter how much money QE has injected, inflation in the products and services purchased by wage-earners only becomes evident as a result of cost-push inflation caused by leakage of the speculative rises in the prices of land and real estate prices, driven by QE. This is explained in more detail the document, “Why monetarism does not work”.

⁷ The case of hyper-inflation (HI) is a specific case for which McNeill provided an explanation based on direct experience of this phenomenon in Brazil. Although there is a correlation between HI and money volumes the cause and effect can be explained by price-setters attempting to maintain their real incomes by compensating for the currency devaluation impacts on their real incomes by setting pre-empting likely future inflation by raising their unit prices.

This analysis was also used to disprove the validity of the Quantity Theory of Money. Monetarists need to adjust their knowledge base on the real causes of inflation. After reviewing in more depth, the main references on Keynesianism and monetarism, McNeill recorded the absence of adequate reference to the role of technology and techniques as significant gaps in Keynesian, monetarism (KM) theory and practice⁸.

Constitutional economics

Advances in technologies, techniques and the central role of human learning to this process means that human capabilities are the central economic resource. Macroeconomic policies have a direct impact on the wellbeing of each constituent. However, our constitution is designed in such a manner as to break this essential link between the constituency and macroeconomic policy decision making processes. There is a significant democratic deficit constituting a serious economic and constitutional issue.

Monetary policy is under the control of the Bank of England which operates out of reach of parliament and any participatory oversight by the constituents of the country. Bank of England decisions remain in the hands of a tiny committee. It is more than evident that the basic orientation of decisions comes from the financial services sector and banks with nods from the Treasury. Monetary policy and the status of and the role of the Bank of England never appears in political party manifestos at the time of General Elections.

During the last 12 years this constitutional arrangement created and has administered quantitative easing (QE) to maintain an abusive state of affairs where policy does nothing to advance technology, techniques and innovation to benefit real incomes of the majority but rather benefits very few constituents who pass QE funds into speculative markets to bolster their own wealth. Corporate shares, which in the past represented investments in companies who were investing to improve the prospects of their future and that of their employees, have become speculative assets where the price-to-earnings ratios have been destroyed by wholesale, formerly illegal, buy backs of shares with QE funds.

In the meantime, the QE-driven speculative rises in land and real estate markets have resulted in inflationary leakages into the prices and rents of land, housing, flats, offices, retail units, industrial units, warehouses, port facilities and some commodities to generate cost-push inflation in supply side operations leading to a need to raise prices or suffer reduced margins making any investment virtually impossible. Necessary QE-imposed price rises reduce the real value of wages and have driven many in work to a state of pauperism.

In parallel needed funds for technological and technique development are denied through excessive interest rates, justified by banks on the basis of their assessment of the risk created by the QE environment. Saving to invest is penalised by close-to-zero interest rates imposed by the Bank of England.

In spite of universal suffrage, the United Kingdom's macroeconomic management today maintains the cavalier approach to the majority applied at the end of the 20th Century. International competitiveness was based on imposing lower wages on the majority. Policy makers have still not adjusted to the fact that supply side decision making has a central role in protecting the wellbeing of the majority through learning and technological advances to promote real growth.

This requires less centralised and arbitrary impositions in interest rate levels and money volumes and making use of incentives to encourage companies and individuals to maximise productivity based on their own independent decisions. There is an urgent need to transition to a constitutional economy where most of the population can determine the state of the economy based on their exercise of a responsible freedom that results in a common good.

⁸ McNeill, H. W., "*On the Problem of Technological Ignorance amongst KM Economists*", Charter House Essays in Political Economy, HPC, December 1981, ISBN: 978-0-907833-10-9