

Macrodynamics for a Better Society: The Economics of John Cornwall¹

Mark Setterfield (Department of Economics, Trinity College, Hartford, CT, 06106, USA; mark.setterfield@trincoll.edu)

and

A.P. Thirlwall (Department of Economics, University of Kent, Canterbury, Kent, CT2 7NZ, United Kingdom; A.P.Thirlwall@kent.ac.uk)

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Abstract

John Cornwall devoted his career to advancing macroeconomics with a view to improving the societies in which we live. We identify three distinct phases in Cornwall's mature scholarship, and analyse the substance of each. The first and second phases, devoted to the analysis of growth and inflation, respectively, reveal the three main cornerstones of Cornwall's macrodynamics: the importance of demand (even in the long run), the importance of institutions, and the path-dependent nature of economic change. The third phase saw Cornwall building on these foundations to develop and refine an evolutionary-Keynesian model of long-run capitalist development.

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¹ We write this appreciation as longstanding friends and admirers of John Cornwall. M.S. was originally a PhD student of John's at Dalhousie University in Nova Scotia from 1988-92. He subsequently maintained close contact with John, collaborating on one research paper (Cornwall & Setterfield, 1999) and, with Wendy Cornwall, on what was to have been a book entitled *Economic Policy and Performance: A Keynesian Theory of Capitalist Growth and Transformation*. John had close contact with many post-Keynesian economists in Britain, meanwhile, including A.P.T.. He attended two of the biennial Keynes Seminars at the University of Kent organised by A.P.T.: in 1991 on Keynes and the Role of the State, for which he wrote the paper "Economic Malfunction and the Role of the State" (see Thirlwall, 1993); and in 1993 on Keynes and the Post Keynesians. In 1995, he spent two months with his wife, Wendy, at the University of Kent as a British Academy Visiting Professor. Later he was a frequent visitor to conferences organised by Philip Arestis and John McCombie at the Centre for Economic and Public Policy in Cambridge.

1. Introduction

John Cornwall was born in Spencer, Iowa in 1928 and died on December 4, 2008 in Halifax, Nova Scotia. Throughout his career, John was committed to making sense of the historical evolution of capitalism, his aim always being to do (and encourage others to do) good economics designed to understand and better society. He grew up with the intention of following in his father's footsteps and becoming a "small town Iowa lawyer" (Cornwall, 1992, p.97). But exposure to European émigrés at the University of Iowa, from which he graduated with a B.A. in 1950, proved to be a transformatory experience. His ambitions re-oriented towards an academic career, John went on to graduate from both the London School of Economics (M.Sc., 1952) and Harvard University (Ph.D., 1958). From 1958 to 1970 he taught at Tufts University in Boston, before moving to Southern Illinois University in 1970. In 1976 he joined Dalhousie University, where he was Professor of Economics until 1993 and subsequently McCulloch Emeritus Professor. He was also a Fellow of the Royal Society of Canada.

Throughout his career, John displayed three enduring qualities as a scholar and a teacher. First, as the contributions to his *estschrift* (Setterfield, 1999) attest, he made a number of important contributions to macroeconomics, spanning theory and application. Second, and equally importantly, John took economics seriously. He resented the practice of those who would reduce the discipline to idle game playing in the pursuit of personal advancement. Instead, he insisted at all times on the social significance of economics, believing that the ultimate purpose of economists was to "do some good". This sense of purpose – inherited from James Duesenberry, his mentor at Harvard – infused all of his work. Finally, John was a careful and attentive advisor to several generations of students (see Harcourt & Monadjemi, 1999;

Setterfield, 2009). Although critical of the “invisible hand” metaphor as a tool for understanding the machinations of capitalist economies, John, himself, was a remarkably good “invisible hand” as an advisor – encouraging and guiding without ever being interfering or overbearing.

In the early stages of his career, John published steadily in leading peer-reviewed journals, including the *Review of Economics and Statistics*, the *American Economic Review*, and the *Quarterly Journal of Economics*.² Much of this work focused on economic growth, including growth theory (Cornwall, 1970), the historical growth record (Cornwall, 1962, 1968) and questions of growth policy (Locke Anderson & Cornwall, 1961). As such, it set the stage for what we identify below as the first of the three major phases of John’s mature scholarship. But John rapidly tired of the “one idea, one paper” journal article format. Although he continued to publish articles in peer-reviewed journals throughout his career (and contribute chapters to collective volumes of essays), these were always part of a larger project. By the 1970s, John identified books as the most appropriate and effective way of communicating his ideas to the profession. These books constitute the core of John’s mature scholarship. They are the works for which he is best known, and are the focus of the discussion that follows.

As intimated above, we identify three distinct phases of John’s mature scholarship. The first corresponds broadly to the 1970s, and includes his first two books: *Growth and Stability in a Mature Economy* (Cornwall, 1972) and *Modern Capitalism: Its Growth and Transformation* (Cornwall, 1977). Both of these books focus on the growth process, and emphasise one of the cornerstones of John Cornwall’s macroeconomics: the importance of aggregate demand in determining real outcomes, even in the long run. The second phase, associated chronologically

with the early-mid 1980s, encompasses John's second and third books: *The Conditions for Economic Recovery: A Post-Keynesian Analysis* (Cornwall, 1983) and (with his wife, Wendy) *Economic Recovery for Canada: A Policy Framework* (Cornwall & Maclean, 1984).³ These books mark a switch in emphasis, from the analysis of growth to the analysis of inflation. We identify this second phase as a period of transition, that led John to the second and third cornerstones of his mature scholarship: the importance of institutions; and the path-dependent nature of capitalist macrodynamics. In this way, it fed directly into the third and final phase of his mature scholarship. Beginning in the mid-late 1980s, and continuing until the end of his career, this third phase corresponds with the development and refinement of John's evolutionary Keynesian model of long-run capitalist development. Originally outlined in *The Theory of Economic Breakdown: An Institutional Analytical Approach* (Cornwall, 1990) and *Economic Breakdown and Recovery: Theory and Policy* (Cornwall, 1994), this model reached its apogee in *Capitalist Development in the Twentieth Century: An Evolutionary Keynesian Analysis*, which he again co-authored with Wendy (Cornwall & Cornwall, 2001).

The remainder of this paper is devoted to exploring in greater detail the three phases of John Cornwall's mature scholarship. We conclude by offering some reflections on the scope and significance of John's work as a whole.

² Cornwall (1963) was published as the lead article in Issue 1, Volume 77 of the *Quarterly Journal of Economics*, at a time when lead articles were prestigious.

³ It also includes the edited volume *After Stagflation: Alternatives to Economic Decline* (Cornwall, 1985). This volume marked the culmination of the Dorothy J. Killam Memorial Lectures that John organized at Dalhousie University in 1982, featuring Erik Lundberg, Wynne Godley and James Tobin.

2. Demand, Supply and the Theory of Economic Growth

The broad purpose of John's first book, *Growth and Stability in a Mature Economy*, was to study the process of growth, and economic stability, when economies are out of equilibrium. What gets economies back on track? Most economists were predicting economic stagnation after the Second World War. Influential growth models pointed in the same direction. Alvin Hansen (1939) developed his stagnation thesis based on the predicted growing gap between income and consumption in Keynes's *General Theory*, and Harrod's (1939) seminal growth model showed formally that with population growth declining, demand would not be sufficient to match full employment saving. Keynes (1937) in a lecture to the Eugenics Society in 1937 had already anticipated the potential problem (and, indeed, Harrod's model itself). And yet for the first 25 years after the war, most western developed countries experienced rapid growth with low unemployment and relative economic stability. John was not persuaded that it was simply the neoclassical price mechanism exerting its magic. The world is more complicated, and so he steers a more complex, but moderate, course between the Scylla of Harrodian instability and the Charybdis of smooth neoclassical adjustment, by invoking and combining all sorts of mechanisms and theories by which in the real world supply can adjust to demand, and vice versa, to produce relative economic stability over the long run.

Demand plays a crucial role, as does the adjustment of supply to demand.⁴ He recognises, as orthodox theory does not, that the supply of labour to an economy, the rate of capital accumulation, and productivity growth, are all a function of the demand for output. Labour

⁴ Indeed, early in the book, John explicitly discusses the conditions under which the elasticity of aggregate supply with respect to aggregate demand will be exactly equal to one. This is a necessary condition for steady-state,

supply is very elastic as a result of variations in hours worked, changes in participation rates, the transfer of labour between sectors, and international migration. Capital accumulation takes place in response to expected output increase, and demand stimulates technical progress through learning by doing and the embodiment of new ways of doing things as investment takes place. At the same time, structural change is likely to be more rapid when demand is strong. As John says : “ if we take account of the fact that a higher rate of growth of demand, capital and output represents a more rapid change in the composition of output, and the structure of capital, the possibility that the rate of growth of productivity may be positively correlated with these variables does not seem unreasonable.” Indeed, these are all the ingredients of the ‘black box’ of Verdoorn’s Law relating the growth of labour productivity in manufacturing to the growth of manufacturing output, which is now very well documented (see McCombie, Pugno & Soro, 2003).⁵

Just as supply adjusts to demand (at least within wide limits), so demand adjusts to supply through a variety of mechanisms, although perhaps the elasticity is less than that of supply to demand. John invokes many mechanisms including the well-known built-in stabilisers; the capital stock adjustment principle, and Arthur Smithies’ ‘ratchet mechanism’ by which spending levels adjust upwards as supply increases (Smithies, 1957). Perhaps John could have emphasised more the sheer size of governments in the post-war period and their commitment to full employment, which were missing in the inter-war years, that allowed the adjustment mechanisms he describes to work more powerfully. The commitment to full employment that

demand-led growth to be sustainable in the long period – a condition that has been “rediscovered” many times since (see Palley, 2002; Setterfield, 2006; Dutt, 2006, forthcoming).

was abandoned in the 1970s, and which has never been reiterated in Europe, made manufacturers and other investors more than willing to absorb full employment saving to take advantage of the variety of new opportunities presented by technical progress. The striking feature of post-war full employment Britain, for example, was not budget deficits to sustain demand, but a more than doubling of the ratio of private investment to GDP (see Matthews, 1968).

The instability of western capitalist economies since the early 1970s, which resulted in cost push inflation and the breakdown of the international monetary system, has undermined somewhat John's Panglossian view of the functioning of capitalism experienced in the Golden Age, but he was well aware that the equilibrating processes he described will not automatically occur: "there is no certainty that a capitalist system will always be operating in an employment and capacity utilization region that brings the various stabilising constraints into play during a boom. This does not mean that if conditions like those that prevailed in the interwar period should come into play a depression like that of the 1930s would develop. Sooner or later, as a recession intensifies, the fiscal and monetary authorities would devise new instruments to stimulate demand" (p.260). The current financial and economic crisis in the world economy, and the response to it, has proved him right. We are all Keynesians now! This recognition that capitalist economies are not necessarily self-equilibrating undoubtedly provided the inspiration for some of his later books on 'capitalist breakdown'.

But before the stagflation of the 1970s and 1980s there was a sequel to *Growth and Stability*, which became his most famous and cited work, namely *Modern Capitalism: Its Growth*

⁵ As, it should be added, is the endogeneity of the natural rate of growth to the actual rate of growth, to which all of the various responses of supply to demand discussed above contribute. See Leon-Ledesma & Thirlwall (2000, 2002); Leon-Ledesma & Lanzafame (forthcoming).

and Transformation, published in 1977. The golden age of capitalism from 1945 to 1973 was not only characterised by the rapid growth of output and low unemployment, but also by a rapid transformation and structural change – in modes of production, consumption and distribution, and in the allocation of labour and capital between firms, industries and nations. In this sequel book, John tries to provide an economic explanation of this great transformation, and why growth was more rapid in some advanced countries than others. He did not believe that conventional neoclassical growth theory could answer these questions satisfactorily because the basic (Solow-Swan) model is a one-sector model and far too supply oriented. The structure of production matters for growth because different outputs have different supply and demand characteristics, and factors of production are endogenous to demand, not exogenously given, as argued in his previous book. Thus John rejected the orthodox aggregate production function approach to the analysis of why growth rates differ in favour of a structural, demand-oriented approach, conceding intellectual debts to both predecessors and contemporaries such as Svernilson, Schumpeter, Kaldor and Kindleberger. As intimated in the discussion of his first book, John was one of the first to challenge in a systematic way the concept of an exogenously given natural rate of growth made famous by Harrod (1939), and largely accepted in the great growth debates between Cambridge, England and Cambridge, Massachusetts in the following years which largely focussed on the adjustment of the warranted growth rate to the natural rate. For John, there was no such thing as a single full employment growth path, but rather a variety of paths depending on the strength and constraints on demand.⁶

⁶ See also Harcourt and Monadjemi (1999, p.12).

If the factors of production and technical progress are endogenous to demand, the question then is why did the growth of demand differ between countries bringing in its train differential supply responses and structural changes? John's answer was that in some countries demand expanded faster because of the characteristics of the goods they produce, greater entrepreneurial dynamism, and more rapid technical change. All three factors are interrelated in a model reminiscent of the circular and cumulative causation models of Young (1928), Myrdal (1957) and Kaldor (1970) in which increasing returns and increased competitiveness reinforce success in expanding economies, while other economies lag behind and stagnate. John rejected the neoclassical one-sector framework for the analysis of differential growth performance in favour of a more classical model of a dual economy, recognising sectoral differences in the methods of production and the availability of labour between manufacturing industry and other sectors of the economy – agriculture and services – in the spirit of Lewis (1954) and Kalecki (1976).⁷ Like Kaldor (1966), he places heavy emphasis on the manufacturing sector as the engine of overall growth because manufacturing output growth induces productivity growth within manufacturing (based on static and dynamic increasing returns), and also outside of manufacturing where there is surplus labour and the marginal product of labour is generally below the average product.

In that period of economic history – in the three decades after the Second World War – Britain was the 'sick man of Europe'. Its growth performance was poor compared with its European neighbours (although high by historical standards). John (like Kaldor) was an

⁷ Throughout his career, and despite the subsequent reorientation of his attention away from the subject of economic growth, John remained committed to the view that capitalistic growth is an unbalanced process of which structural

anglophile. He loved Britain, and was concerned with Britain's relative economic decline. He located it in the stagnation (deindustrialisation) of its manufacturing sector associated with two major factors: first, the low income elasticity of demand for British manufactured goods in both domestic and foreign markets ; and second, the slow rate of technical change. John believed in general that technical progress and productivity growth in manufacturing are always likely to be higher in countries imitating technology rather than producing it (such as Britain) because the elasticity of inventions is greater for imitators, and imitators can be more flexible and choosy in what they take and the techniques they employ. Technology leaders bear the cost, and by definition the scope for catch-up is less. Indeed, technological leaders may even come to suffer an acute first-mover disadvantage, if the accumulation of a large and diverse capital stock compatible with a particular set of common technical standards results in lock in, with the result that subsequent technical advances are harder to assimilate (Setterfield, 1997).

But what about constraints on demand? Interestingly,⁸ John dismissed the balance of payments as an independent constraint on demand, using the argument that those forces determining the growth of output, allowing demand to expand, also relieve a country of a balance of payments constraint. This was not the experience of Britain in the period of the 1950s to the 1970s when there was productivity growth in manufacturing, and yet demand had to be continually constrained to preserve the balance of payments and the exchange rate. This was a

change (i.e., changes in the sectoral composition of output and employment) is an intrinsic feature. This is reflected in some of his later writings, including Cornwall & Cornwall, 1994, 2002).

⁸ And surprisingly for one of us (A.P.T.).

major cause of the process of deindustrialisation in Britain during these years (Singh, 1977; Thirlwall & Gibson, 1992 ; Bazen & Thirlwall, 1997).⁹

3. Stagflation

During the early 1980s, John turned his attention to the macroeconomic debacle of the 1970s and its aftermath. By his own admission (Cornwall, 1992, p. 99), he had grown increasingly self-conscious of his focus on economic growth even during the preparation of *Modern Capitalism*. Not surprisingly, then, his next two books mark a change in focus, from the quantity dynamics that had pre-occupied him for the preceding two decades, to price dynamics. Hence both *The Conditions for Economic Recovery* (1983) and *Economic Recovery for Canada: A Policy Framework* (1984) – the latter co-authored with his wife, Wendy – focus on the causes of and appropriate policy responses to the ills of simultaneous high unemployment and high inflation.

One significant feature of these books is their extensive critique of the natural rate of unemployment (NRU) hypothesis, and its accompanying accelerationist (i.e., long-run, vertical) Phillips curve. John viewed these constructs as little more than a modern codification of pre-Keynesian (supply-side) macroeconomics. In particular, he saw them as resting on a flawed, pre-Keynesian treatment of the workings of the labour market, in which the latter functions in isolation in the same manner as any other flex-price commodity market, with changes in price (the real wage) initiating automatic movements towards a point of market clearing. Following Keynes (1936, ch 19), John was especially critical of this orthodox stability mechanism and its capacity to move the economy towards a supply-determined equilibrium. Again following

⁹ We return to the topic of constraints on demand, and in particular John's thoughts on the role of the balance of

Keynes, he argued instead that an expansion in the demand for goods was required to produce higher employment, and that this would be accompanied (not caused) by a fall in the real wage owing to diminishing returns to labour.¹⁰

In place of the NRU hypothesis, John emphasized outward shifts in an orthodox, downward-sloping Phillips curve as the crux of the stagflation episode. These shifts he traced to “certain structural changes that have been accumulating under market capitalism ... [that] give rise to an inflationary bias” (Cornwall, 1983, p. 33). The “structural changes” are, in turn, associated with various institutional changes in wage and price setting dynamics. John argues that the key to resolving stagnation lies in the implementation of permanent incomes policies designed to redress “the permanent structural changes that have overtaken modern economies and will not permit full employment and price stability to be realized simultaneously” (Cornwall, 1983, p. 203). In short, the purpose of an incomes policy is to shift the Phillips curve inwards and thus alleviate the inflation constraint on full employment, allowing for an expansion of demand to lower unemployment without this leading to an unacceptable rate of inflation.¹¹

payments constraint, in section 4 below.

¹⁰ In later work, John broadened his criticisms of Classical labour market theory. For example, in a correspondence with John during the mid-1990s, one of us (A.P.T.) wrote of the NRU (and its companion concept, the NAIRU) that “both are dependent on the highly dubious assumption that there are diminishing returns to labour and that therefore the demand curve for labour is drawn downward sloping. As soon as one relaxes that assumption and assumes either constant costs or increasing returns to labour, the concept of the natural rate loses any meaning. There is plenty of evidence in the short and long run to suggest that there are not diminishing returns to labour (employment and real wages are not negatively related, but positively related)”. An argument to this effect appears in the critique of NAIRU theory in Cornwall & Cornwall (2001, p.47), where it is pointed out that non-diminishing returns to labour negates the inverse relationship between real wages and employment characteristic of Classical labour demand conditions, and hence any possibility that lowering real wages will be associated with – much less stimulate – higher employment. While John was never less than steadfast in his views, then, he was always willing to listen to reasoned argument and incorporate it into his own thinking when persuaded of its merits.

¹¹ The notion of permanent incomes policies – to which multiple chapters of *Conditions* and *Economic Recovery* are devoted – has a long pedigree in Post-Keynesian economics. Both Joan Robinson and Richard Kahn were early advocates of incomes policies (Harcourt, 2006, p. 149), while post-war Australian economists such as Wilfred Salter advocated incomes policies as a means of accelerating productivity growth in an environment of un-balanced growth (see Salter, 1960, 1965; Harcourt, 2006, p. 147-157).

His third and fourth books marked a period of transition for John. In conversations with one of us (M.S.), he frequently remarked that *Conditions* was one of his least favourite books. Nevertheless, this second phase of his mature scholarship, every bit as much as his earlier work on demand-led growth, contributed directly to the “grand synthesis” that was to follow in the third phase. In particular, it is where John’s emphasis on the importance of *institutions* comes to the fore, and where he begins to recognize that not only do institutions affect macroeconomic performance, but performance, in turn, influences institutions, in a recursive and path-dependent process of economic change.¹² These ideas, together with the notion that the income-generating process is demand-led even in the long run, are the three great *leitmotifs* of his mature scholarship.

4. Evolutionary Keynesianism: Demand, Institutions and Path Dependency in the Theory of Capitalist Development¹³

After more than a decade of slow growth, high unemployment and high inflation post-1973 – a period that he came to refer to as the Age of Decline – John decided that accounting for protracted periods of either better or worse macroeconomic performance (as he had done in his first four books) simply wasn’t enough. Instead, the challenge lay in explaining how these episodes could rise and fall as part of a broader historical process in which successive episodes

Discussion of permanent incomes policies may seem anachronistic from a contemporary vantage point. But it can be argued that: (i) this is exactly the type of policy – albeit based on generating fear and insecurity in the labour market rather than the consensual view of just outcomes that John favoured – that has been pursued in the US since the early 1980s; and (ii) that this policy contributed directly to the improved macroeconomic performance of the US beginning in the 1990s. See, for example, Setterfield (2007).

¹² John, himself, understood these to be the crucial contributions to his thinking of what we identify as the second phase of his mature scholarship. See Cornwall (1992, p. 99-100).

¹³ Parts of the discussion in this section are based on Setterfield (2009).

are causally related, and hence ultimately give rise to one another.¹⁴

For John, the key to unlocking this puzzle was institutions, broadly defined to include norms, customs, conventions and formal laws – i.e., all forms of social structure that specify behavioural procedures of the sort “whenever confronted with situation *x*, do *y*”.¹⁵ In an environment of uncertainty, institutions enable action, by prescribing behaviour when it is impossible to identify an optimal response to a situation. In the process, they play an important cognitive function, by making the likely future behaviour of others more predictable. Institutions also codify and regularize interactions between parties, and thus have the potential to reduce conflict. The very inertia of institutions, which in John’s turn of phrase renders them “exogenous in the short run but endogenous in the long run”, makes them ideally suited to these roles. The upshot of all this is that institutions provide relatively enduring *macrofoundations* for economic behaviour: they act as a quasi-inert “operating system” within which the income-generating process functions, producing protracted periods of either better or worse macroeconomic performance depending on the degree of “institutional fitness”.¹⁶

¹⁴ This is, of course, a project that John shared with numerous other heterodox economists, including Geoff Harcourt (see Harcourt, 2006, ch 6), with whom John maintained a life-long friendship following their meeting in Cambridge during the early 1960s.

¹⁵ As will become clear in what follows, John’s institutionalism was closer in spirit to that of the original institutional economists (on whom see Hodgson, 2004), rather than “new” institutionalists such as North (1990). See Cornwall and Cornwall (2001, ch 5) for a critique of new institutionalism.

¹⁶ Institutions are not the only constituent of the economy’s macrofoundations in John’s view: power relations are also important. John himself wrote relatively little about the nature and exercise of power (see, for example, the terse definition in Cornwall & Cornwall, 2001, p. 73). Nevertheless, in conversations with one of us (M.S.) he expressed sympathy for the distinction (found in the work of authors such as Lukes, 1974) between “simple” forms of power associated with the exercise of authority within a hierarchical command structure (as, for example, when managers supervise workers at the point of production), and more subtle “structural” forms of power associated with the exercise of influence. (Consider, for example, a situation where person Y does person X’s bidding not because they are acting under the command of person X, but seemingly out of their own free will and volition, because person Y’s values, aspirations, preferences and/or goals – i.e., their intrinsic structure – have been deliberately influenced by person X with the intent (on the part of X) of achieving their own ends. This is consistent with the process of “reconstitutive downward causation” (Hodgson, 2002), according to which parts are influenced by wholes, emphasized by institutional economists.) John expressed particular concerns about the role of the modern media in

But institutions are not immutable – ultimately, they can and do change over time. Moreover, John’s specific conception of this long-run *endogeneity* of institutions involved their being sensitive to past macroeconomic outcomes, and hence previously existing institutions. As a result, he saw the entire capitalist system as being subject to a path-dependent process of evolutionary change in the long run. In this vision, relatively enduring institutions give rise to episodes of macroeconomic performance lasting for several successive business cycles. But each episode of performance has feedback effects on the very institutions on which it is based. These feedback effects do not alter institutions instantaneously, however. Instead, their cumulative impact over successive business cycles eventually causes discontinuous institutional change. The latter will involve *novelty* – hence the allusion earlier to the process of change being not just path dependent (i.e., sensitive to events in the past), but also evolutionary. The new institutions so-formed will give rise to a new episode of macroeconomic performance, the outcomes of which will cumulatively feedback onto the institutional macrofoundations on which the episode is based, and so on.

The first fully developed accounts of these ideas can be found in John’s *Breakdown* books (Cornwall, 1990; 1994). The similarities between John’s vision and other (past and contemporaneous) approaches to heterodox macrodynamics will be immediately obvious to those familiar with the field. In the first instance, his use of the evolutionary Keynesian model outlined above to explain the demise of the post-war Golden Age focuses on the pressures brought to bear on co-operative labour market institutions by a period of sustained full

connection with the exercise of this second form of power – again, a theme that has recently been discussed by institutionalists (see Champlin & Knoedler, 2008) following the work of the American linguist Noam Chomsky (see Herman & Chomsky, 1988). Ultimately, John thought of power as an influence on institutions, and institutions as

employment. In this regard, it resembles nothing so much as a re-interpretation of Kalecki's (1943) political business cycle as a long term rather than short run theory of fluctuations in macroeconomic performance.¹⁷ The links to Kalecki are strengthened by the sentiments expressed by the latter in his later work, to the effect that "the long-run trend is but a slowly changing component of a chain of short-period situations; it has no independent identity", and that this principle is "key to the realistic analysis of the dynamics of a capitalist economy" (Kalecki, 1962, p. 263). Bearing in mind that John was, first and foremost, a "Kaldor man", these observations are indicative of the extent to which there exists a unified vision of macrodynamics within the Cambridge tradition. Finally, there are strong links between John's vision and the contemporary, neo-Marxist approaches to macrodynamics associated with Social Structure of Accumulation (SSA) theory and the French Regulation school (see, respectively, Kotz et al., 1994 and Boyer, 1990). John was well aware of these links and of the *differences* between his own work and both SSA and Regulation theory, further discussion of which appears below.

John continued to refine and hone the model of capitalist development laid out in the *Breakdown* books throughout the last twenty years of his life. Perhaps its finest expression is to be found in *Capitalist Development in the Twentieth Century: An Evolutionary Keynesian Analysis*, which he co-authored with Wendy (Cornwall & Cornwall, 2001). Figure 1 below provides a schematic account of the core model in this book, which is used to analyse capitalist development since World War I. As shown in Figure 1, social preferences (for example, the willingness to trade off higher inflation for lower unemployment) and constraints (such as the

codifying and legitimizing power, so that institutions and power together can ultimately be thought of as two sides of the same coin.

ability to trade off higher inflation for lower unemployment, as captured by the Phillips curve) influence macroeconomic policies, and hence aggregate demand conditions, and hence macroeconomic outcomes. The preferences and constraints that are the root of these outcomes are, themselves, a product of the institutional framework,¹⁸ while the latter is eventually influenced by cumulative exposure to the very outcomes to which it gives rise.

[FIGURE 1 GOES HERE]

By the time of *Capitalist Development*, John had begun to explicitly identify the medium run as the fundamental building block of macrodynamic analysis. Consistent with the thinking outlined above (and summarised in Figure 1), John took the defining feature of a medium run episode of macroeconomic performance to be the institutional framework that provides its foundation. He treated this institutional framework as robust to the aggregate fluctuations associated with the business cycle in the short run, but ultimately endogenous to trends in performance over two or more consecutive business cycles. By providing an explicit definition of the medium run in terms of relatively enduring but ultimately transmutable institutions, John created both a basis for empirical identification of such intervals, and an abstract conception of the medium run that is better specified (and therefore more useful) than anything found in

¹⁷ See also Harcourt (2006, pp.80-82). In this sense, John's vision is also of a piece with contemporary interpretations of Minsky's financial instability hypothesis as explaining longer-term waves or phases of activity rather than business cycle oscillations. See, for example, Wray (2009).

¹⁸ Note that the entire macroeconomic process that gives rise to final outcomes is embedded in the institutional framework in Figure 1 – hence the box drawn with the solid line. Meanwhile, in keeping with the analysis of Cornwall & Cornwall (2001), the preferences and constraints associated with macroeconomic policy and aggregate demand formation are singled out as the primary “channels” through which feedback effects from macroeconomic performance eventually affect the institutional framework of the economy and hence the next episode of macroeconomic performance. This explains the partitioning of these features of the model by the box drawn with the dashed line.

mainstream macroeconomics.¹⁹ In this way, his development and use of the concept of the medium run make an important contribution to the basic “building blocks” of macrodynamic analysis.

Capitalist Development also succeeds in delineating the “Cornwall view” from other, similar visions of macrodynamics, including SSA theory and Regulation theory. Despite its emphasis on negative feedbacks in the long run (as a result of which episodes of superior macroeconomic performance are expected to bequeath episodes of inferior performance, and *vice versa*), the Cornwalls’ evolutionary Keynesianism eschews the more strictly cyclical view of capitalist growth traditionally associated with the SSA and Regulation approaches. Ultimately, it bears greater resemblance to Maddison’s (1991) conception of distinct but aperiodic phases of economic growth than the rhythms of the long wave. *Capitalist Development* also makes clear the Cornwalls’ strictly Keynesian view of the income-generating process, even in the long run. This contrasts with the more Classical inspiration of much (although not all) descriptions of growth in the SSA and Regulation traditions.²⁰

Capitalist Development (in tandem with the *Breakdown* books) also makes clear John’s view that the most important constraint on aggregate demand and hence the evolution of capitalist macroeconomic performance is inflation. John was well aware that other constraints existed and, in particular, of the possibility that the balance of payments (BP) constraint could, at

¹⁹ The mainstream uses the term “medium run” (if at all) to denote an analytically and temporally ill-defined interval between the applicability of fix-price (“Keynesian”) analysis in the short run, and the orthodox neoclassical (supply-determined) analysis of the long run (see, for example, Solow, 2000).

²⁰ As David Colander noted in the foreword to *Capitalist Development*, John was a Keynesian to the core. Indeed, he frequently referred to his work of the last twenty years as essentially an effort to deepen and extend Keynes’ short-run analysis, by uncovering the institutional foundations of the process of aggregate demand formation (the “deepening” project) and providing an evolutionary, demand-determined account of the long run (the “extension” project).

times, “trump” the inflation constraint as the critical determinant of macroeconomic outcomes. He was also aware that the BP constraint could easily be incorporated into his evolutionary Keynesian model and, in several conversations with one of us (M.S.), drew the diagram reproduced in Figure 2 below to demonstrate this.

[FIGURE 2 GOES HERE]

In Figure 2, PR denotes the political preferences and PC the Phillips curve constraint alluded to in Figure 1 (see Cornwall & Cornwall, 2001, pp. 86-90 and especially Cornwall, 1999). U_B , meanwhile, denotes the “balance of payments constrained level of unemployment” – i.e., the unique level of unemployment consistent with the satisfaction of the balance of payments constraint on real activity at any given point in time.²¹ U^*, p^* is the optimal outcome associated with the inflation constraint on macroeconomic performance (captured by the slope and position of the Phillips curve), given the political preference function. But if the BP constraint is binding (as in Figure 2), we will observe U_B, p_B as actual macroeconomic outcomes. The BP constraint will therefore “trump” the inflation constraint in the determination of macroeconomic outcomes.

Figure 2 illustrates that John had a straightforward way of incorporating the BP constraint into his framework of analysis. But he made little use of this diagram. The reason appears to be that he regarded the outcome depicted in Figure 2 as either *transitory*, or else as representing a “hidden” inflation constraint. Hence John seems to have had faith in currency depreciation as an efficient balance of payments adjustment mechanism, except in cases where this mechanism is thwarted by the inflationary consequences of a depreciation. This is illustrated in the

²¹ The derivation of the balance of payments constrained level of unemployment, U_B , is provided in the appendix.

correspondence he had with one of us (A.P.T.) in 2000. He wrote: “consider the present world with flexible exchange rates and highly mobile capital, and consider the following argument. Under today’s conditions, the inability to achieve external balance at FE [full employment] can be considered as an inflation constraint in the following sense. Again assume some economy starts from a position of high unemployment and payments balance [i.e., U_B in Figure 2] but decides to move to FE [or alternatively, U^* in Figure 2] through unilaterally stimulating AD [aggregate demand]. This is to be done (hopefully) through a limited once-over depreciation of the exchange rate,²² but assume that the attempt fails because capital flight leads to an unintended large depreciation of the exchange rate, serious inflation and an unacceptable decline in real wages. In this scenario, could it not be said that the economy suffers from an inflation constraint?” It is not for us to answer this question here; only to give John’s view.

At the time of his death, John, together with Wendy and M.S., was working on the latest refinement of his evolutionary Keynesian model. John had begun to turn his attention towards the inherent instability of a financialised growth process. In the summer of 2008, he contributed to extensive discussion of the irony of macroeconomists’ obsession with a “great moderation” in macroeconomic time series, at a time when capitalism appeared to be better characterized by “latent instability”, owing to the unsustainable process of debt accumulation by households seeking to fuel growing consumption expenditures in the face of stagnant real earnings. Of course, this “latent instability” has become dramatically manifest since then, and talk of the

²² In terms of Figure 2 and the derivation of U_B in the appendix, assume that $X = X(e)$, $X' > 0$, where e is the nominal exchange rate (more specifically, the domestic price of foreign currency). Then it seems to have been John’s view that any reduction in U – say, a movement towards U^* in Figure 2 – could, in principle, be accommodated by an accompanying increase in e (i.e., an exchange depreciation) resulting in a rise in X and hence a fall in U_B , thus reconciling the BP constrained rate of unemployment with the preferred rate.

perils of financial instability for the real economy is now commonplace.²³

As a true student of Keynes, however, John's interest in the topic ran far deeper than that of many who are now suddenly professing that money and finance matter. In *Growth and Stability*, John outlined a model of the business cycle in which investment-led booms prompt savers to re-allocate their portfolios, away from deposits at thrift institutions (building societies) and towards corporate debt and equity. By reducing the capacity of the thrifts to finance residential construction, this development moderates the boom. During the downturn, savings flow back into thrifts which are then well placed to finance the pent-up demand for residential construction, thus moderating the slump. Given certain financial institutions, then, the housing cycle moderates the business cycle when the latter is investment-led. In *Capitalist Development*, John and Wendy used this model to explain the macroeconomic instability of the interwar years, when a consumption-led boom during the 1920s meant that the housing cycle was in phase with the business cycle and thus failed to play the stabilizing role described above. Thinking about macroeconomic developments over of the past twenty years, it is hard to overstate the extent of institutional change in the financial sector, which has seen thrifts become more like banks, banks entering the mortgage market, and both declining to hold the liabilities they create thanks to the "originate and distribute" model facilitated by securitization – all of which have de-coupled mortgage lending from the flow of savings towards thrifts on which it was previously dependent. It is easy to imagine how such institutional change has antagonized the disturbance-amplifying role of the housing cycle that John previously associated with weak investment booms.

John was on the verge of pulling together the pieces of this analysis at the time of his

²³ Sometimes it even makes appropriate references to the work of Minsky (1978; 1982).

death, but unfortunately we will now never know exactly how the financialised capitalism of the last two decades fitted into his vision of evolutionary long-run growth and development.

5. Conclusion

This essay has identified three major phases of John Cornwall's mature scholarship. From the first two of these phases, the three central themes of John's macrodynamics emerge: the importance of aggregate demand in the income generating process (in both the short run and the long run); the importance of institutions as constituents of the "macrofoundations" of macroeconomic outcomes; and the path-dependent nature of long-run capitalist development. In the third phase of his mature scholarship, John – both individually and with his wife, Wendy – worked to develop and refine a model of "evolutionary Keynesianism" that synthesised these themes. In this model, relatively enduring institutions define the macrofoundations of medium run episodes of macroeconomic performance. Fluctuations in aggregate demand give rise to short-run business cycles within these episodes, while the average level and rate of expansion of aggregate demand (themselves a function of the economy's institutional macrofoundations) determine the real macroeconomic performance (the average rate of unemployment and the rate of growth of income per worker) characteristic of the medium run episode as a whole. Meanwhile, the cumulative impact of feedback effects running from macroeconomic performance to the very macrofoundations on which it is based gives rise to discontinuous institutional change, bringing to an end one medium run episode of performance and bequeathing the next. Hence the ongoing, causal-recursive interaction of institutions and macroeconomic performance sets up a long-run dynamic of capitalist development (i.e., growth and structural

change) that is both path dependent (in the sense that earlier states of the economy influence later ones, even in the long run) and evolutionary (in the sense that path-dependent institutional change involves novelty). The long run itself is thus defined as the evolutionary sequence of medium run episodes of macroeconomic performance that emerges from this dynamic.

If nothing else, the brief description of the main themes of his work provided in this essay illustrate the sheer breadth of the canvas on which John worked throughout his career. He took on the big issues, and did so in a literary style reminiscent of the great political economists of old. Never one for fiddling at the margins (and despite his preference for Nicholas Kaldor!) John would surely have delighted in Joan Robinson's approval of those who stride through the discipline wearing seven league boots. He was, without doubt, just such an economist – a true proponent of what Colander (2004) calls “big think” economics.

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Appendix: Derivation of the balance of payments constrained rate of unemployment

In its simplest form the BP constraint of economic growth requires that, in any short-period equilibrium consistent with the BP constraint, we observe:

$$mY = \bar{X} \quad [1]$$

where m is the propensity to import, y is real income, and \bar{X} is the (assumed given) volume of real exports. Meanwhile, it is true by definition that:

$$Y = \frac{N}{a} \quad [2]$$

where N is the level of employment and a is the labour: output ratio, which can be taken as given in the short run. Substituting [2] into [1] and re-arranging yields:

$$N = \frac{a\bar{X}}{m}$$

Finally, since by definition:

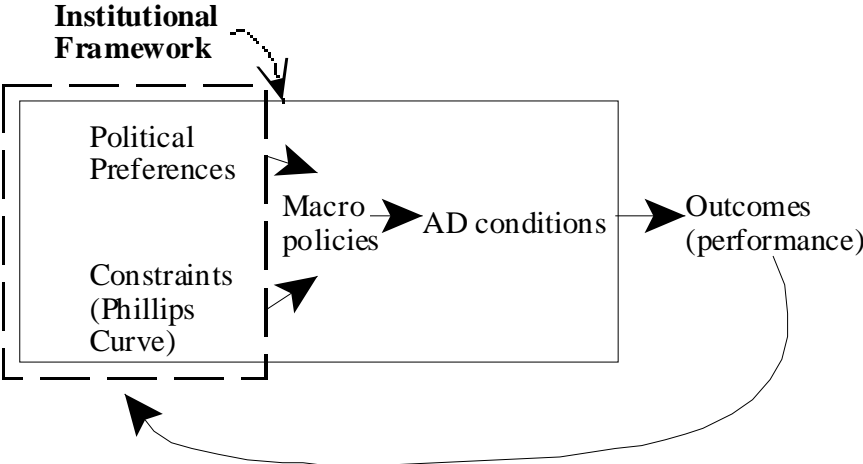
$$U = 1 - \frac{N}{L}$$

where L denotes the labour force (again assumed given in the short run), we can write:

$$U_B = 1 - \frac{a\bar{X}}{mL} \quad [3]$$

where U_B is the rate of unemployment consistent with the BP constraint.

Figure 1: Evolutionary Keynesianism: a schematic interpretation



Note: Solid arrow denotes causal relation

Figure 2: Incorporating the balance of payments constraint into the “Cornwall view”

