

Capabilities, resources, learning and innovation: a blueprint for a post-classical economics and public policy

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Introduction

The dominant approach in economics, often referred to as neoclassical economics, gradually acquired its leading status in the years following the publication of Lionel Robbins' (1932) famous essay on the nature and significance of economic science. In this essay Robbins argued that economics should be about the efficient allocation of scarce resources, rather than about resource creation and the creation and distribution of wealth as advocated by classical economists such as Adam Smith, David Ricardo and Karl Marx. As Robbins saw it, a focus on scarcity and efficient allocation would delimit economics more clearly from other social sciences and also render it more amenable to scientific and mathematical investigation, particularly once certain subsidiary assumptions such as rational behaviour by economic agents were made.

The debate about Robbins' views and the extent to which they set rather than merely anticipated the future direction of economics continue to this day (Witztum, 2009; Pitelis and Runde, 2011). But either way it is clear that economics took the route he was describing, with an ever-increasing emphasis on exchange relationships over production relationships and, as a result, to various challenges to the scarcity assumption such as the existence of producible resources, technical change, innovation, learning and increasing returns to scale (Pasinetti, 2007; Pitelis, 2016) slipping from view. It also led to deep methodological commitments to rational choice modelling (focusing on risk as opposed to uncertainty in the sense of Keynes (1921, 1937) or Knight (1921)), equilibrium theorising, and an emphasis on comparative static analysis under conditions of perfect (or less often imperfect) competition. Both sets of factors led in very different directions from the focus on evolutionary dynamics under conditions of real life rivalry in the form of Schumpeterian creative destruction, as in Schumpeter (1942) and later Penrose (1959) and Nelson and Winter (1982), or the focus on increasing returns to scale, learning, structural change and uncertainty, found in the work of

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representatives of the Cambridge School such as Kaldor (1972), Robinson (1977), Pasinetti (1981, 2007) and Keynes (1936, 1937).

Nevertheless, at least for a while, these alternative approaches were able to co-exist with their neoclassical counterparts and received recognition and a certain degree of notoriety. Penrose (1955) could publish her key non-neoclassical ideas in the *American Economic Review*, for example, and receive reviews suggesting that her work would demolish neoclassical economics and replace it with a new paradigm (Marris, 1961). Similarly, authors such as Kaldor, Pasinetti, and Robinson could publish in the leading economics journals, often in dialogue with the leading neoclassical economists of the day (Pitelis, 2016). Fast forward a few decades and no major text in microeconomics, industrial organisation or even organisation and management economics cites Penrose's book (Pitelis, 2009). The fate of the Cambridge School was similar (Pasinetti, 2007). What happened?

The full story is longer and more complex than we can relate here (see Pasinetti, 2007 and Pitelis, 2016 for more), and we will focus instead on one of its main strands: the rise and now ubiquity of the business school. Business schools, by definition, deal with the study of business. In their early humble beginnings they could get by with analysing case studies (the famous Harvard approach), using the tools and insights from related disciplines and a slowly emerging body of management knowledge. However, useful as they may be for some purposes, case studies were soon to be found deficient on at least two counts. First, they were too specific with too many variables, and therefore hard to generalise. Second, they were principally about explaining episodes that had already occurred rather than about what might or can be predicted to occur. These two features led to a search for conceptual frameworks and foundations. And this search, in turn, gradually led to the re-discovery of some of the non-neoclassical economists mentioned above, this time by people in management or, in some notable cases such as Harvard Professor Michael Porter, to economists moving from economics to management.

What followed is history. In the past thirty-five years or so, leading economists including Bain (1956), Penrose (1959), Cyert and March (1963) and Nelson and Winter (1982), have found themselves, often to their own surprise and bemusement, hailed for having laid the foundations of (strategic) management scholarship. For example, Bain (1956) became widely regarded as the spiritual father of a prominent approach to business strategy closely linked with the name of Porter (1980). Porter's approach built on the idea that a key determinant of a

company's performance is the industry/sector within which it operates and in particular the forces of competition/rivalry within it, alongside the firm's positioning within the industry in terms of its generic strategy (basically cost leadership, differentiation and focus/niche). Another important figure is Stephen Hymer (1960), who employed and extended Bain-type analysis of market power to the theory of the multinational enterprise. Despite publishing in the *American Economic Review* and declaring his conversion to Marxism, he is now widely recognised—albeit posthumously—as the father of an entire field of business scholarship now known as International Business (Dunning and Pitelis, 2008).

Penrose's (1959) classic *The Theory of the Growth of the Firm* took a different route in arguing that firm growth and performance advantages are best explained in terms of resources and capabilities internal to the firm. While she didn't deny that industry forces and demand conditions matter too, she maintained that they were at least in part endogenous to firm actions and strategies, and in any case only part of the explanation of firm growth. Resources, capabilities and learning were key for her because they engendered growth endogenously by releasing resources that entrepreneurial managers could put to profitable use at almost zero marginal cost. Harold Demsetz (1973) came to a similar appreciation of firm heterogeneity by way of a critique of the traditional industry focus of Bain in which industry concentration was explained predominantly in terms of industry-level barriers to entry. Demsetz thought that this ignored the "differential advantage" that some firms enjoyed over others for many reasons, some of which were internal to the firm as opposed to being industry-based.

Penrose and Demsetz are now widely recognised as the founders of two complementary views that together have become known as the Resource-Based View (RBV) of the firm. The Penrosean variant emphasised learning and endogenous growth. Another variant associated with Barney (1991) and more directly inspired by Demsetz (1973), emphasised intra-organisational barriers to entry known as VRIN (valuable, rare, inimitable and non-substitutable) resources and capabilities. Penrose had also talked in terms of VRIN-type factors, which she called "relatively impregnable bases," as well as industry-wide barriers of the Bain/Porter variety mentioned above. In this way, and as argued by Loasby (2002) she reinvented and indeed extended (Pitelis, 2002) the classical tradition of economics (compare with Adam Smith's pin factory) and helped co-found the resource and capabilities-based theory of the firm that is currently a staple in business schools (see Barney, 1991, Peteraf,

1993, Mahoney and Pandian, 1992, Teece et al., 1997, Teece, 2007, and Pitelis and Teece, 2010).

Joseph Schumpeter's (1942) view on competition as a process of creative destruction (rather than a type of market structure) spearheaded by disruptive innovations by entrepreneurs, had long inspired authors emphasizing the disequilibrium nature of the capitalist economy. The emergent Schumpeterian school had also inspired Penrose, who wrote about the endogenisation of the forces of creative destruction in large firms. Nelson and Winter's (1982) *An Evolutionary Theory of Economic Change*, also drawing on Schumpeter as well as biology, highlighted the role of innovation, capabilities, organizational learning and routines in fostering organisational and economic change and performance. This book has been central to several important advances in political economy, not least the "systems of innovation" and "varieties of capitalism" views. In addition, alongside Penrose, it helped lay the foundations of the dynamic capabilities (DC) perspective on business strategy. The DC view focuses on the role of individual and organisational capabilities in sensing, seizing and reconfiguring/transforming the resource base of organisations—also, up to a point, their external environment—with an eye to acquiring and maintaining sustainable competitive advantage (Teece, 2007).

Another classic contribution, Cyert and March's (1963) *A Behavioural Theory of the Firm*, emphasized intra-organisational conflict and limits to rationality that lead firms to make "satisficing" rather than profit maximising choices. This book unwittingly restored the classical economic focus on the capital/labour divide ("class struggle" in Marxian terms), extended it to intra-organisational groups, and looked at means of intra-organisational conflict resolution including the role of slack resources and negotiated outcomes (Pitelis, 2007). Further, it made the important distinction between innovation resulting from problems and innovation resulting from slack resources, and looked at the role of aspiration levels in motivating business policy. Cyert and March's work helped advance understanding of organisations and organisational and economic performance in all of these respects, and paved the way for what went on to become the now popular behavioural theory of strategy (e.g. Gavetti, 2012).

None of this rich body of ideas made much headway within mainstream economics. Textbook renditions of Penrose's contribution tended to reproduce only the bits about managerial constraints on firm growth, while interest in Cyert and March's book was

restricted largely to whether firms profit maximise or “satisfice” and the conditions under which the two would be equivalent. Penrose and Nelson and Winter were almost completely ignored in neoclassical theories of endogenous growth (Romer, 1994), despite dealing with the very same issues (innovation, management, increasing returns and growth). Similarly, any credit Cyert and March’s 1963 book might have received for its role in helping establish behavioural economics (Heap, 2013), falls way short of what might be expected in view of its title, ground-breaking ideas and over 25000 Google scholar citations (mostly by management and innovation studies scholars). Finally, and while it is true that the concept of bounded rationality did garner some traction via Williamson’s (1975) transactions cost project, intra-organisational conflict has been all but ignored by mainstream economists and to a significant extent also by management scholars (Pitelis, 2007).

There is nevertheless a consistent theme running through the contributions surveyed above, namely that, rather than focusing on the efficient allocation of scarce resources taken as given, scarcity and resource creation are treated as objects of analysis in their own right. This second focus is distinctively classical, and it is for this reason that we describe the work Penrose, Teece, Nelson and Winters—as well as their followers and fellow travellers from the Cambridge and Post-Keynesian Schools and the behavioural and Schumpeterian camps—as representative of a new post-classical approach to economics that offers a crucially important counterpart, if not alternative, to the neoclassical resource allocation view. This approach might be defined as *the field of scholarly enquiry that explores the nature, determinants and governance of sustainable resource and wealth creation and its distribution*. Key themes that fall under the post-classical umbrella include:

- Resource creation, production, sustainable capture of co-created value (Pitelis and Teece, 2010)
- Economies of scale, technical change and innovation (Kaldor 1972; Pasinetti, 1981, 2007)
- Disequilibrium, dynamics, structural and evolutionary change (Pitelis 2016)
- Bounded rationality, procedural rationality, decision making under conditions of limited knowledge, uncertainty rather than risk (Faulkner, Feduzi and Runde, 2017)
- Capabilities, knowledge, learning, both at the individual and the organisational level, perhaps endogenously to organisations as suggested by Penrose (1959) and to individuals as suggested by Pasinetti (2007)

- Markets and market failures, but also organisations/hierarchies (Williamson, 1975; Simon, 1991) including the public hierarchy par excellence, the state (Klein et al., 2013)
- Individual and organisational co-operation (Richardson, 1972), but also rivalry and competition and conflict, both within and between organisations.

It is beyond our scope in this paper to delve into the integrative framework and other specificities of a post-classical view (but see Pitelis (2016) for some preliminary suggestions). We focus instead on some implications of the aforementioned ideas for micro-economic public policy, particularly in relation to business policy. This is an area long impoverished by the methods and focus of neoclassical theory. The timing is apposite too, since microeconomic policy is currently experiencing a resurgence both in theory and in policy making at both sides of the Atlantic, under the guise of industrial policy and strategy and/or inter-national competitiveness (another term for the comparative standing of nations in terms of captured co-created value and wealth (Pitelis, 2014)). Indeed, industrial strategy, formerly taboo for all but the extreme left, has now become the flagship policy of the post-Brexit conservative government. This resurgence represents very much a de-facto return to classical themes and therefore offers an opportune moment to revisit and explore the implications for developmental industrial policy from a post-classical viewpoint.

Post-Classical economics, developmental industrial policy and international competitiveness and catching-up

Neoclassical economists could long justify their neglect of active public policy by appealing to the Coase theorem—effectively that public policy is otiose in the absence of transactions costs (see Coase, 1960)—or adopt the view that government failures are at least as significant as market failures. Combined with relative efficiency/remediality considerations, namely the cost of changing the status quo (Williamson, 1975), these attitudes encouraged a strong anti-interventionism in micro-public policy, save for “horizontal” support to business with respect to education, infrastructure, fundamental research and public sector efficiency. Ironically, however, Coase’s own work had highlighted the ubiquity of positive transactions costs, not least his 1937 transactions cost analysis of the nature and existence of the employment relation/capitalist firm. And the focus on a market-government failure dichotomy obscures the complementary relation between the market and the government, which are continually interacting. Going further still, many economists of different persuasions have claimed that it

is government that helps create markets in the first place, sometimes from the barrel of a gun (Hymer, 1970).

The emphasis in neoclassical microeconomics on the efficient allocation of scarce resources through optimal market structures such as perfect competition and perfect contestability, was matched by a corresponding neglect of the implications of resource knowledge and/or firm capabilities-based frameworks for intertemporal efficiency and performance (and thus public policy) in the context of heterogeneous firms and “imperfect competition” (Baumol, 1991). It is true that there were exceptions. Macroeconomic “endogenous growth” theories such as those of Romer (1994), for example, acknowledged the importance of innovation and increasing returns to scale, and derived more interventionist policy implications that were often at odds with neoclassical economic theory (Furman et al., 2002). Jorde and Teece (1990) explored implications for anti-trust policy of evolutionary, resource-based and innovation economics. And more recent work on the issue of “competitiveness” such as Porter’s “diamond” (Porter 1990), the “national systems of innovation” and “varieties of capitalism” approaches (Lundvall 2007, Fagerberg et al., 2017), as well as the debate on “clusters” and other forms of “public-private” partnership, were directly informed by Schumpeterian, evolutionary and resource- and capability-based views (Pitelis, 2012). Taken overall, though, the interaction between public and business policy continues to remain relatively under-explored.

Part of the reason for this neglect, perhaps, is the tensions that such interactions might entail. By way of example, traditional Industrial Organisation (IO) theory of the Bain (1956) variety, implanted in business strategy by Porter (1980; 1981), can produce a sometimes contradictory relation between public policy and business policy. Porter-style advice to management to reduce the five forces of competition, for example, can lead to collusive or non-collusive oligopoly structures and monopoly rents. Yet monopoly is anathema to neoclassical public policy because it engenders static welfare losses, inefficient allocation of resources, and therefore the need for government intervention to correct “market failures” (Tirole, 1988). IO economists could make a living by advising firms to become monopolies, and then turn around to advise governments to undo exactly what they had advised firms to do. And some surely did. The efficiency implications of transaction costs theory, notably that firm integration (and thus oligopolistic market structures) could be explained in terms of transactional efficiency, helped moderate the implications of traditional IO theory of “monopoly welfare losses” once transactional benefits were taken into account. But

transaction costs theory remained at the level of exchange; it ignored (or assumed constant) production efficiency (Pitelis, 1991).

Nevertheless, and as Chandler (1977), Penrose (1959) and numerous others have observed, organisations and business are key determinants of the sustainable (or otherwise) comparative and competitive advantage of nations (Porter, 1990). Public industrial policy analysis therefore cannot afford to ignore business and its relation to policy.

Penrose's (1959) own contribution to the theory of public policy was significant, even if not that well known amongst IO economists and RBV scholars. She claimed that growth is efficient by definition as it involves innovation and knowledge generation, but that the eventual outcome may be inefficient if firms that grow to be large are tempted to engage in monopolistic practices to capture monopoly rents. In this context, the Jekyll and Hyde syndrome of traditional IO-based theory disappears. Government should not be concerned with size *per se*, on this view, and especially not with its generation. Rather, it should focus on the abuse of monopoly power through suitable anti-trust (competition) policies, as well as by supporting small firms—Penrose's "interstices"—that are able to challenge large firms from the supply side. At the same time, she argued that managers should not attempt to pursue rents through monopoly, as that is a precarious policy, especially in the long run. Rather, in her view, they should focus on being innovative and creative, on internalising the Schumpeterian process of creative destruction. Innovation/creativity-based competition by firms, combined with appropriate anti-trust and regulation policy as well as support for small firms by governments, would then help engender a process of sustainable wealth creation.

In recent years, the subject of public developmental industrial policy and its link to international trade theory and policy has come back with a vengeance (Pitelis, 2014). In its new incarnation, public developmental industrial policy has returned to the post-classical themes surveyed in the previous section, often involving issues of knowledge/capabilities transfer, learning, market co-creation, clusters, ecosystems and the promotion of entrepreneurship. It is interesting that a number of reformed neoclassical or what we call post-neoclassical economists are joining in. For example, work by Rodrik (2009), Hausmann et al. (2011) and Lin (2011) recognises the need for developmental public industrial policy where there are information asymmetries, missing inputs and coordination failures. Lin's "new structural approach" to industrial policy was aimed at explaining Chinese economic growth in terms of its comparative-advantage-following, as opposed to its comparative-

advantage-defying, strategy to catching up. According to Lin, this strategy involved building new advantages (in contrast to the static comparative advantage theory of neoclassical trade theory). Even the more neoclassically-flavoured “new industrial policy” of Aghion et al., (2011) involves recognition that vertical public industrial policy interventions that target particular sectors, may be more effective than hitherto appreciated by neoclassicals.

However, such post-neoclassical contributions on public industrial policy tend to remain wedded to the traditional market failure/efficient resource allocation view. They accordingly remain very different from the market extension/resource creation approach of both the business organisation and strategy authors already mentioned above and members of the Cambridge school such as Kaldor (1972), Robinson (1977) and Pasinetti (2007). While the emphasis in the new post-neoclassical economics on the importance of structures and interventionist public policies is welcome, it continues to have little to say about the role of organisation and production that are such key themes for the post classical school.

As things stand, Stiglitz and Greenwald (2014) have arguably come closest to the post-classical perspective (Pitelis, 2016). Much in line with Pasinetti (2007), they argued that improved standards of living are due to advances in technology rather than the accumulation of capital, and that what separates developed from less-developed countries is more a gap in knowledge than a gap in resources or output. The pace of growth and catching-up by developing countries, in their view, is then largely dependent on the pace at which they are able close knowledge gaps. This brings centre stage the question of how countries might learn, become more productive, and how public policy might foster this. Well-designed trade and industrial policies might foster a learning society, while poorly designed ones could stymie learning. “Neoliberal” approaches that focus on *static* resource allocation, in Stiglitz and Greenwald’s view, might actually have helped impede learning and catching up. Free trade may not be the panacea it is often supposed to be, and may even lead to economic malaise. Instead, they suggest, broad-based industrial protection and exchange rate interventions can sometimes help engender sectoral and wider economic benefits.

The emerging consensus that developmental industrial policy and supporting trade policies for inter-national competitiveness and catching up matter more than originally acknowledged by neoclassical theory create a rare opportunity for the development of post classical economic thinking. The purpose of this special issue is to add some impetus for those who have already taken up the challenge and to encourage others to do so.

The papers in this special issue

The special issue comprises papers on a host of complementary themes on and around the possibility of a post classical synthesis and its mostly micro-economic developmental public industrial policy implications. Of course the papers included, even when taken collectively, do not in themselves provide this synthesis. But they do raise key important issues and explore ideas that we hope might set the scene for and encourage the continuing development of a unified post classical perspective.

In line with CJE policy we solicited contributions directly from a few authors concurrently with an open call for submissions. All submissions invited or no, went through the same rigorous process of independent refereeing.

The first two papers set the scene for those that follow and consist of retrospective surveys by two of the most prominent figures in the field. The first is by David Teece (2017), who takes the opportunity to revisit his contributions on Dynamic Capabilities (DC). His guiding theme is that the way in which mainstream economics tends to reduce firms to homogeneous black boxes run by self-interested managers, fails to do justice to the business enterprise as the motor of economic development and growth in market economies. Teece argues that the strategic management literature has done far more than the mainstream to promote understanding of the various aspects of the emergence, organization and growth of firms, their management, and how they compete and innovate. Teece compares and contrasts the DC perspective and competing theories of the firm, and draws various links with the Cambridge School. He closes by calling for closer intellectual exchange between the disciplines of economics and strategic management.

The second paper by Sidney Winter (2017) reviews and extends themes from his classic book with Richard Nelson, *An Evolutionary Theory of Economic Change* (Nelson and Winter, 1982). Winter begins with what he and Nelson were trying to accomplish in this work, before moving to recent controversies and contributions, and where the literature might be headed next. The central theme in the paper is that the evolutionary approach requires researchers to engage with real life business organisations and their pursuit of profit to a much higher degree than seen in mainstream economics. Winter submits that the failure of economics to do this is a key reason why the evolutionary program has been relatively more influential in fields such as strategic management, innovation studies and organization theory. Looking

ahead, he stresses the need for researchers to engage with and account for the intertwined roles of time, uncertainty, knowledge and change.

The third and fourth papers, by Trau and Dosi et al. respectively, continue by extending DC, evolutionary and Penrosean thinking on organisational theory and strategy. Trau (2017), examines the role of the Penrosean notions of the organisational and managerial factors in firm growth. Trau suggests that firm growth might be interpreted as an indicator of a firm's capability to cope successfully with the problems flowing from increasing complexity. Following Penrose, he suggests that this capability may be restricted by a lack of managerial resources that stimulate the development of "uniquely valuable" services that give the firm a differential advantage over its competitors. Trau observes that in the DC view, such advantages need to be continuously modified through search and selection, and that this is particularly so in the context of the hyper-competition he sees as characterising the latest phase of industrial development. This form of competition requires firms' managers to develop the capability to find creative solutions to continuously moving targets, which in turn renders the management function of firms a key driver to change.

Dosi et al., (2017) analyse and model the nature and dynamics of organizational memory, which they see as a key ingredient of the organizational capabilities that inform strategic choices. The authors identify two sides of memory, a cognitive side that involves the beliefs and interpretative frameworks through which the organization perceives its external and internal environments, and an operational one, which includes routines and operating procedures that embody know-how. The paper formalizes these two memory types and investigates their performance in environments characterized by varying degrees of complexity. The authors find that while memory does not matter much in simple and stable environments, more memory may provide an advantage in more complex environments. While this result will probably be in accordance with most peoples' intuitions, they also report the more surprising finding that there may exist a critical level of environmental instability, above which forgetfulness may become evolutionary superior to memory in promoting sustainable organisational performance.

The fifth paper, by Buckley et al., (2017), provides an empirical analysis of the role of alliances between countries in fostering cross border expansion by firms through reducing transaction costs. They test their ideas using longitudinal multi-industry data on 623 acquisitions by Indian MNEs between 2000 and 2007 on a panel of 65 host countries. Their

results show that country alliances foster internationalization by reducing transaction costs arising from home-host country “distance”, but where the extent of this influence is sensitive to the type of country alliance involved.

The following three papers, by Pender, Wade, and Andreoni, Frattini and Prodi respectively, focus squarely on the issue of public policy. Peneder (2017) proposes a novel rationale for industrial policy that focuses on means to strengthen the socio-economic system’s ability to evolve. He is critical of the market government failure focus in mainstream debates, which he sees rooted in the standard practice of using hypothetical perfect states as normative benchmarks. He proposes that a dynamic rationale for intervention should start instead with the question of that the system aims to accomplish. He then combines a structuralist ontology of the micro, meso and macro levels of the economic system with functional principles of evolutionary change, and proposes a typology of economic policies based on their contribution to the ability of the economic system to evolve.

Wade (2017) looks at US government agencies at the federal, state and city levels. He argues that all three have developed a sui generis approach to industrial policy over the past two to three decades, with decentralized agencies attempting to promote selected technologies and products and aid their commercialization by creating networks between firms, finance, labs and universities, all without an apparent nationwide strategy. While some of these projects were successful and others not, Wade argues that this form of industrial policy was deliberately pursued under the radar in the US, to escape the attention and hostility towards more obvious “interventionist policies.” Drawing on lessons learned, Wade goes on to develop criteria for evaluating network-building industrial policy and applies them to the case of the US.

Andreoni, Frattini and Prodi (2017) focus on changes in the interaction between business organisations, local governments and public technology intermediaries that flow from business organisations moving towards higher-value product opportunities. They propose the concept of “structural cycle”, comprising two interdependent processes of “technology transition” and “organisational reconfiguration” that firms negotiate when moving from mature or declining value product segments towards higher-value product segments. The authors put this concept to work in investigating the private-public nexus in the context of the Emilian packaging valley, focusing on the case of IMA Spa moving from the packing of tea, coffee, food and cosmetics products to the production and processing of pharma products

(and the evolving relationships with regional public policies and institutions that this involved). The paper closes with industrial policy implications for sustainable value creation in the context of local production systems.

The next paper, by Fagerberg and Srholec (2017), extends the concept of capabilities, normally applied in the study of individual business organisations, to the national level. They begin with a discussion of the relationship between knowledge and economic development, and the role the concept of capabilities might play in illuminating this relationship at different levels of analysis. This is followed by a section in which they derive composite indicators of what they call national technological capabilities and national social capabilities, drawing on data from 144 countries for the period 1995-2013. They go on to analyse the relationship between these indicators and economic development, conclude that they are positively related, and draw implications for policy and future research.

In the penultimate paper, Malerba and Landini (2017) explore the effects of four different types of public policy—strengthening capability building, favouring firms’ learning, protectionism, and supporting entry of new domestic firms—on catch-up by latecomers in the context of changing and uncertain technological environments. The authors use simulation modelling to analyse these four policies, first separately and then jointly to uncover possible complementarities between them. Their results indicate that capability building and firms learning are important drivers of catching-up. In addition, in cases of large technological discontinuities, support for entry favours catching-up while protectionism stymies it. Protectionism only favours catching-up in the absence of technological discontinuities. Finally, the authors find policy complementarities may differ depending on technological conditions involved, and that the particular policy mixes should accordingly take such conditions into account.

The final paper by Argitis (2017) draws on the writings of Hyman Minsky to arrive at a neo-Schumpeterian account of evolutionary finance and central banking. Following Minsky, Argitis depicts evolutionary finance as a process of institutional adaptation that encourages financial innovation, competition and leverage, but which eventually leads to financial fragility and economic instability by encouraging financial and business firms to adopt Ponzi-type schemes (leading to unsustainable leverage structures, poor liability structures and precarious margins of safety through position-making processes). Argitis examines how discount window procedures and lender of last resort interventions might be used to deal with Ponzi leverage structures, and ends with how the guidelines and objectives provided by

evolutionary advance understanding of the monetary policies adopted by central banks after the 2007-2008 financial crisis and the limitations of non-conventional monetary policies.

Conclusion

The emphasis on allocative efficiency in neoclassical economics has led the discipline away from the topics of the creation and distribution of wealth and resources that so preoccupied the classical economists. These topics have been kept alive, but predominantly in business schools and then in a way that has been both a blessing and a curse. It has been a blessing because it allowed many non-neoclassical economists to find a home and recognition that would have eluded them in economics departments. It has been a curse because the gradual development of business scholarship with its own journals and conferences made it possible for leading non-neoclassical economists to withdraw from the economics profession. The ideas surveyed above have been all but expunged from economics departments as a result, to the impoverishment of those same departments, the economics discipline, and the economy as a whole.

We have argued that there is scope for redressing this situation and that there already exists a common body of economic thought that offers a basis for a viable post-classical economics in general, and a viable post-classical approach to economic and public policy in particular. We believe the papers in the special issue provide confirmation of this claim and hope that they will encourage further work in the area. While there will always be a need to pay attention to achieving efficient resource allocation as articulated by Lionel Robbins all those years ago, the subjects of the creation and distribution of wealth and resources, as well as that of scarcities *per se*, are no less and possibly even more important. There are significant opportunities here for continuing the project of developing and bringing together under one umbrella the kind of themes explored in the eleven papers that follow below.

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