

## THE POLITICAL ECONOMY OF THE TRANSITION TO SUSTAINABILITY

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### ABSTRACT:

The renewed sociological interest in neo-liberalism is important for the development of Human-Centered Sustainable Economic and Social systems for the 21<sup>st</sup> century. This paper explores whether the critical enquiry of knowledge production in social science is suggesting a return to a form of enquiry which does not rely on the abstraction of the economy from society, history and polity. The paper suggests that the Cambridge School of classic political economy and its focus on embedding the economy into society, the fair distribution of economic surpluses and the pursuit of human well-being should form the conceptual basis of the alternative social and economic systems required to transition to sustainability.

**Keywords:** Human Well-Being, Embeddness, Developmentalism, Sustainable Development, Political Economy, Economic Growth Theory

## **INTRODUCTION**

This paper has been prepared as a contribution towards the development of a Human-Centered Sustainable Economic and Social System for the 21st Century, which is the theme of the XIV International Colloquium. The Colloquium aims to provide a platform for the discussion of issues in the world economy that are rarely discussed. The fact that the colloquium is being held and has this as one of its stated objectives is significant. It gives effect to Pieterse's (2012, p. 1 & 4) assertion that despite 'the powerful vested interests which dominate global politics and economics', there is still an 'unprecedented opportunity to contest and recast imaginaries about longer-term futures that are more resilient, inclusive and just'.

This paper suggests that recasting these imaginaries will require a critical review of knowledge production within the social sciences, a return to the exploration of the moral and ethical bases of economic activity, confronting the limitations of liberal democracies and the return to an updated set of alternative humanist sustainable development discourses. Section One of this paper suggests that a return to a classic political economic framework and the exploration of the Cambridge School of classic political economy is required to facilitate the development of the alternative socioeconomic approaches to be debated at the Colloquium. The Cambridge school focusses on embedding the economy into society, the fair distribution of economic surpluses and the pursuit of human well-being which should form the basis for the governance, political and economic systems needed to transition to sustainability. The embedding of the economy into society requires confronting head on the real politik of firm level behaviour in relation to socio-industrial, socio-political and socio-ecological systems. This is explored in section two using Geels (2014) triple level embeddedness framework. Through this framework Geels (2014) examines the externally and internally orientated strategies and mechanisms that firm-in-industries innovate and employ to shape industrial, economic and political regimes. It is suggested that this innovation has been largely incorrectly informed by a premise inherent to endogenous and evolutionary economic theory, which deliberately undersells the importance of the state's role in socio-economic systems.

In section three it is suggested that the development of an alternative economic system will be dependent on accepting interventionist states which are not passive actors in economic systems. More specifically it is suggested that the focus of innovation in industrial regimes cannot continue to prioritise cost saving in labour markets. The usefulness of Keynesian plus Schumpeter economic models are explored and proposed as a suitable base for the development of an alternative economic framework. Lastly in section four, an attempt is made to recast humanist sustainable development discourses which encapsulates the alternative socioeconomic imperatives explored in this paper. Section Five is the conclusion.

## **SECTION ONE**

In Inglis' (2014) indictment of the continued defence of classic sociology, he says that sociologists do not direct their critiques of sociology at the serious foundational problems of the discipline. He identifies the central problem as being the very nature of sociology itself as a historically situated form of knowledge production. Swilling & Annecke (2012) suggest that this process is plagued by methodological reductionism. Pendenza (2015) adds that this process is accused of being afflicted by methodological nationalism. Sitas (2006) shows that the power discourse of classic sociology remains a barrier to more inclusive forms of knowledge production. A critical enquiry into the epistemology of sociology is necessary to prevent the canons of classic sociology from 'placing unnecessary restrictions on the development and articulation of contemporary sociological thought' (Alvesson & Willmott, 1992 in Sousa, 2010, p. 460). If this is not done the current opportunity to re-introduce a set of alternative sustainable development discourses may be missed (Pieterse, 2012).

### **Moving towards better knowledge production**

In the Anthropocene, the wake of the great recession brought on by the 2008 financial crises, stimulated a widespread sociological interest in neo-liberalism – a form of governance that seeks to inject marketised principles of competition into all aspects of society and culture (Nicholas 2014). Nicholas (2014) argues that a strong case can be made that the epistemological history of neo-liberal thought can be traced back to the critical enquiry of two lines of classic sociological thought, namely, the critique of Weber’s methodology writings and the overt positivism of Comte’s work. This highlights why current critical reflection of sociology must be approached with caution.

The argument that neo-liberal thought and classic sociology have points of contact is an extension of an intellectual project originating in new economic sociology. Starting in earnest in the 1980s, the aim of this sub-discipline was to close the gap between sociology and economics (Richter, 2001). The cognitive turn in economics serves as the more recent intellectual impetus for reducing the gap between sociology and economics (Nicholas, 2014). The cognitive turn in economics is premised on a philosophic enquiry into the epistemology of classic economic and classic sociological thought. The first wave of this enquiry started in the 20th century with the revival of Ricardian classic political economy led by Piero Sraffa. He criticised the marginalist framework and recovered the analytical structure of classical political economy in a ‘minimalist’ framework concerned with only prices and quantities (Martins, 2012). The second wave occurring now in the 21st century focuses on the work of Adam Smith (Putnam & Walsh, 2012). The first wave was connected to the need to use Ricardian minimalism to move beyond the old logical positivist/logical empiricist position that supported neoclassical economics. The second wave is concerned with moving beyond the ethics/fact/value dichotomy, which replaced the positivist/empiricist position (Putnam & Walsh, 2012). Putnam and Walsh (2012) argue that the overtly mathematicisation of neoclassical economics was the stimulus for the first wave of the revival of classical political economy and that the focus on Ricardo was necessary, as his minimalist approach lent itself to proving why the structure of neoclassic economic theory was flawed and in a language that neoclassic economics understood.

Swilling and Anneke (2012) argues that the slow rate at which social scientist have embraced the ethics of critical complexity shows that the logical positivist/logical empiricist position still influences knowledge production in the social sciences. This is confirmed by Putnam and Walsh (2012), who argue that the new positivist/logical empiricist position is one which demands the delineation of the classification system to assess the truth of ethical claims before the ethics/fact/value dichotomy is operationalised in economic thought. The search for the way of doing this is the subject of the second wave of the rival of classical political economy. It is driven by the acceptance of the conceptual importance of recognising that one of the most regrettable features of today’s society is the unbridled pursuit of present ‘aims’ and not the prudent following of lifelong self-interest; neither is it the return to the integrated analysis of human behaviour and well-being (Martins, 2012; Putnam & Walsh, 2012). Sen’s (1999) *Development as Freedom* and the way it is complemented by Sen’s (2009) *The Theory of Justice* represents the seminal attempts at the forefront of correcting this. Embedded in this view is an understanding of progress and modernity connected to a moral aspect of classic political economy that relates to the generation and distribution of economic surpluses and self-interest. This is only possible via the reinterpretation of the epistemology of classical political economy (Putnam & Walsh, 2012). Economic surpluses are defined most simply as the sum of the resources a society has at its disposal to achieve growth minus the needs of subsistence; in other words, the amount that could potentially be reinvested into increasing future social output (Weiss, 2014). Inglis (2015), Mota and Delanty (2015) and Swilling and Annecke (2012) confirm that the acceptance of multiple-

modernities and pluralistic notions of progress, as a proxy for the way in which economic surpluses are used, is critical if social theory is to assist in realising the transition to sustainability.

Following the Cambridge revival of classic political economy, it would suggest that the political economy of the transition to sustainability should be concerned with the ethical distribution of economic surpluses, the embedding of the economy into society, the pursuit of human well-being and an expanded notion of self-interest. On the strength of this reflection, it is suggested that Lizardo’s (2014) collapsing of the Comtean schema can be adapted schematically, as indicated in table 1.3.1. This way the not so harmonious division of labour in the social sciences is dealt with by returning to a form of enquiry and intellectual pursuit which is not premised on the abstraction of economy from society, history and polity.

**Table 1.3.1:** Representation of the collapse of the Comtean schema

<b>Sociology</b>	}	<b>Socio-linguistic sociology</b>	}	<b>Political Economy</b>
	}	<b>Cultural sociology</b>		
	}	<b>Economic sociology</b>		
	}	<b>Political sociology</b>		
	}	<b>Environmental sociology</b>		

(Source: Adapted from Lizardo, 2014)

**The political economy of the transition to sustainability**

A closer look at the Cambridge revival of classic political economy reveals that, while the overall tenor of the revival was united in the effort for economics to re-embrace the multidimensionality of the way in which the reproduction of society was considered, there are, nonetheless, significant differences in the way in which the classics are interpreted (Martins, 2012). Unfortunately, neither recognises the value of the Chang (2002)/Johnson (1982)/Mkandawire (2002) capitalist development state praxis contemplated in Khan (2010). Piero Sraffa led the first stage of the revival, as mentioned in the previous section. He criticised the marginalist framework and recovered the analytical structure of classical political economy in a ‘minimalist’ framework concerned with only prices and quantities. The second stage is Amartya Sen’s return to the integrated analysis of human behaviour and well-being, which characterised classical political economy (Martins, 2012; Putnam & Walsh, 2012). The aforementioned capitalist development-state praxis, if considered, would provide critical insight into operationalising the end of value-free economics touted by the second wave revival of classic political economy.

For Sraffa, it was incredibly important that a return was made to the multidimensional perspective of production, which is central to classic political economy. This method of analyses has as its central tenet the idea that the reproduction of the economic process must be considered in its entirety, together with the conditions that cause the permanent repetition of the process in its totality (Martins, 2012). Sen, on the other hand, proposes a multidimensional framework in which behaviour is understood in terms of the multiple motivations that influence the human agent, while human well-being also depends on multiple dimensions, as explained in his ‘capability approach’ (Sen, 1999; Martins, 2012). While the first and second

waves of the revival disproved the central tenets of neoclassical thought – such as its marginalist theory of aggregate production, its highlighting of the inconsistencies of neoclassical aggregate utility function, and the dispelling of the reliance on interpreting economic systems as closed systems – it did not result in the conceptualising of a growth theory that challenges the hegemony of neoclassicism (Martins, 2012). As described in the sections that follow, it merely stimulated the proliferation of endogenous economic growth theories and then evolutionary economic growth theories. This study asserts that both are too flawed to achieve the intended aims of both the first and second waves of the revival of classic political economy.

Martins (2012) argues that while Sraffa and Sen produced complementary frameworks, neither presented complete social theories that could establish the dominance of one of the various economic traditions within the Cambridge school. The Cambridge school consists, amongst others, of the Keynesian tradition (a vigorous critique of mainstream economics beginning with Keynes) and the Cambridge welfare tradition (which emphasised consensus with neoclassicism that began with Sidgwick, Marshall and Pigou, as in Marshall's attempt to reconcile marginalism with classical political economy) (Martins, 2012). A central issue is that while Sen draws upon Smith, Mill and Marx, Sraffa does not see these authors as engaged in the same project; according to him, classic political economy refers only to Smith, Ricardo and Marx (Martins, 2012). The importance of this schism becomes apparent when one considers what this means for how labour processes are understood in terms of the Cambridge school revival of classic political economy. When Sraffa and Sen declare that economic systems are not closed – as conceptualised by neoclassic economic thought – they imply that there is acknowledgement that prices and the distribution of income are not automatically determined (Martins, 2012). The reason for this is that the setting of wages, profits or the price of a given commodity is determined outside the system (Martins, 2012).

Mercato (1981) concurs and he says that, in classic political economy, employment and wages are not autonomously determined; employment is determined by output, technology and power relationships between and within classes; and wages are basically determined by the historical processes of the social reproduction of labour, and embodying power relationships in which the state is central. Sen (1999) asserts that liberal democracies are required to create the conditions which support the premises of the second wave revival of classic political economy. This paper asserts that this perspective may not adequately consider the role of the state in the historical process which frame employment and wages as described by Mercato (1981). The social and economic transformational project advocated by the second wave of the revival of classic political economy will need to take heed of Fukuyama's (2012) assertion that liberal politics could result in the suppression of the social structure of certain groups of society.

New economic growth theory premised on the fair distribution of economic surpluses will have to consider the actual behaviour and realisations of agents in the reproduction of society (Martins, 2012). The development of this new economic growth theory will necessitate moving beyond the way in which both Sen and Sraffa delineate the boundaries of classic political economy (Martins, 2012). This can be achieved only if there is an expansion of the sources of knowledge informing the critical enquiry of the epistemology of classic political economy. This is the only way to convert Sen's and Sraffa's ontological approaches into complete social theories that could inform new economic growth theory. Martins (2012) suggests that there is a need to extract value from – and seek to complement – Sraffa's pure theory, the contributions of heterodox economics (including the Cambridge Keynesian tradition) and Sen's own institutional analysis of the political economy of the transition to sustainability.

The problematic dogmas of neoclassical economics (Pressman, 2005) are highlighted by Sraffa and Sen. The impacts of neoclassical economics on the increasingly city-bound precariat is severe. This paper suggests that this can be overcome only by an economic growth strategy which recognises that it is essential to redistribute resources and economic surpluses. This requires the exploration of the various traditions of the Cambridge revival of classic political economy and the literature which explores the characteristics of capitalist developmental states. The observed 'market guidance, governed market, market-rational, market-conforming, and plan rational interventions' that characterise capitalist developmental states (Khan, 2010, p. 62) are particularly important. One has to take cognisance of the body of literature that suggests that urban unemployment resulting from economic weakness and the deficient demand for labour was historically an important cause of poverty, hardship, homelessness, disease, crime and other social problems (Gordon & Turok, 2005). Important, is Turok's (1999) assertion that the labour market plays a key role in mediating the relationship between economic competitiveness and social cohesion within nations, cities and regions. This means that the new economic growth strategy, which emanates from re-embedding the economy and state in society, cannot rely on the premises which currently underpins economic theory.

## **SECTION TWO**

### **Embeddedness**

This section explores embeddedness, which is the heuristic concept first conceptualised by Polanyi in 1946 and then by Granovetter in 1985 (Kaup, 2015). This has regained prominence, and its popularity, Kaup (2015) argues, is due to the ease with which it allows the avoidance of the Parsonian trap. The Parsonian trap refers to the separation of the economy and society (Kaup, 2015). The discussion of embeddedness undertaken here follows Krippner and Alvarez's (2007) understanding that when viewed as a concept from within the confines of economic sociology, as opposed to sociology, it allows for the proliferation of the idea that Polanyi's and Granovetter's intellectual project is the same. Krippner and Alvarez (2007) suggest that this detracts from the usefulness of embeddedness in making a sociological argument against neoclassicism. While Polanyi's description of the concept is widely accepted as being an important contribution to political economy (Watson, 2014), Granovetter's is firmly entrenched in the social structure of the economic sociology discipline (Krippner & Alvarez, 2007).

The meta-theoretical framework delineated for this paper suggests that embeddedness should be interpreted in the classic political economic sense. This entails reconciling the way in which the concept of embeddedness is interpreted in the economic and sociological sense with the need for imagining the economy in distinctly ethical terms, as suggested by the second wave of the Cambridge revival of classic political economy. Watson (2014, p. 604) argues convincingly that the ethical turn in Polanyi's understanding of embeddedness is apparent if one accepts that it represents an analysis in his 'anthropologist's, historian's and activist's voice'. Granovetter's conception of embeddedness is posed at micro- and meso-levels (Krippner & Alvarez, 2007). It deals fundamentally with the problem of atomism in the economic sense and the identification of relational bases of social action in economic contexts in the sociological sense (Krippner & Alvarez, 2007). Polanyi's conception of embeddedness, however, is posed at a macro-level (Krippner & Alvarez, 2007). This conception of embeddedness deals primarily with the problem of the analytically autonomous economy in the economic sense and with the integration of the economy into broader social systems in the sociological sense (Krippner & Alvarez, 2007). Krippner and Alvarez's (2007) insistence that embeddedness be discussed in sociological terms means that embeddedness is useful in the following ways. First it makes a contribution to ending the hegemony of neo-liberalism. Second it contributes in

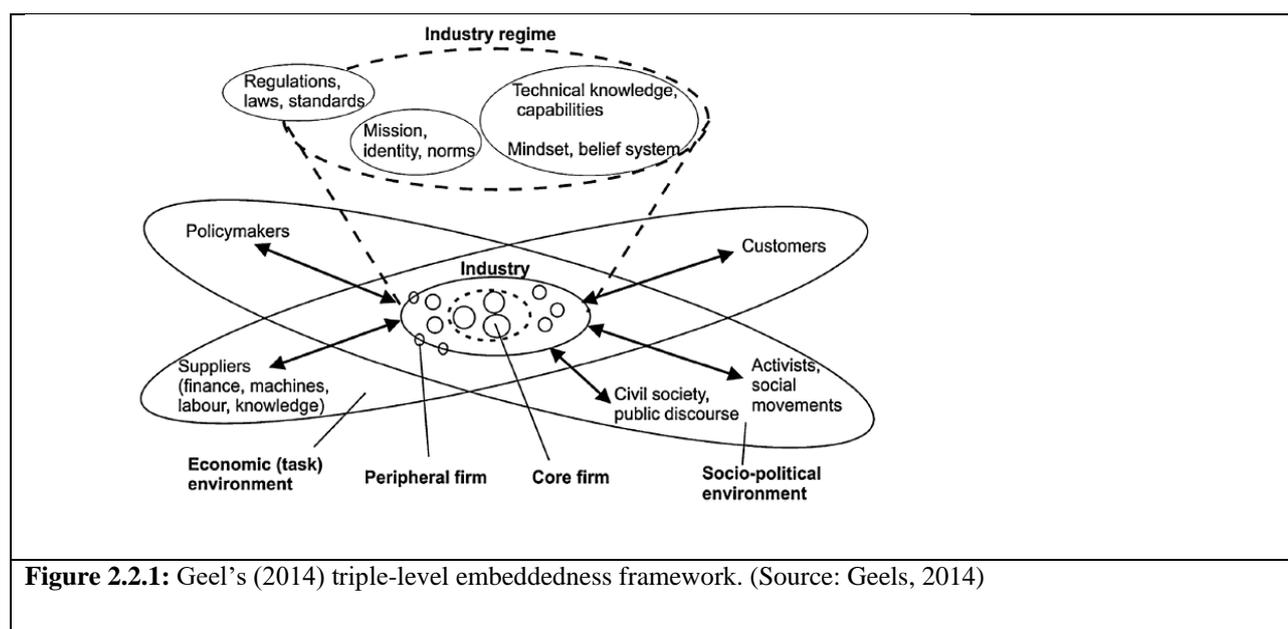
furthering the cause of contemporary sociological projects, which test the plausibility of social theory, namely, post-colonialism and the ‘death of society’ thesis. Post-colonialism could be explained in terms of it exploring the following sets of causal mechanisms: capitalism; geopolitics; war and violence; cultural representations and subjectivity; resistance and collaboration by the colonised; institutional dimensions of empires and colonies; and conflict and compromise among colonisers at the heart of colonial states (Steinmetz, 2014). The death of society thesis is concerned with finding contemporary definitions of society through discourse in the following registers: society as structure; society as solidarity; and society as creation (Elliott & Turner, 2013). Collectively this highlights the complexity of the mechanics of re-embedding the economy and state within society.

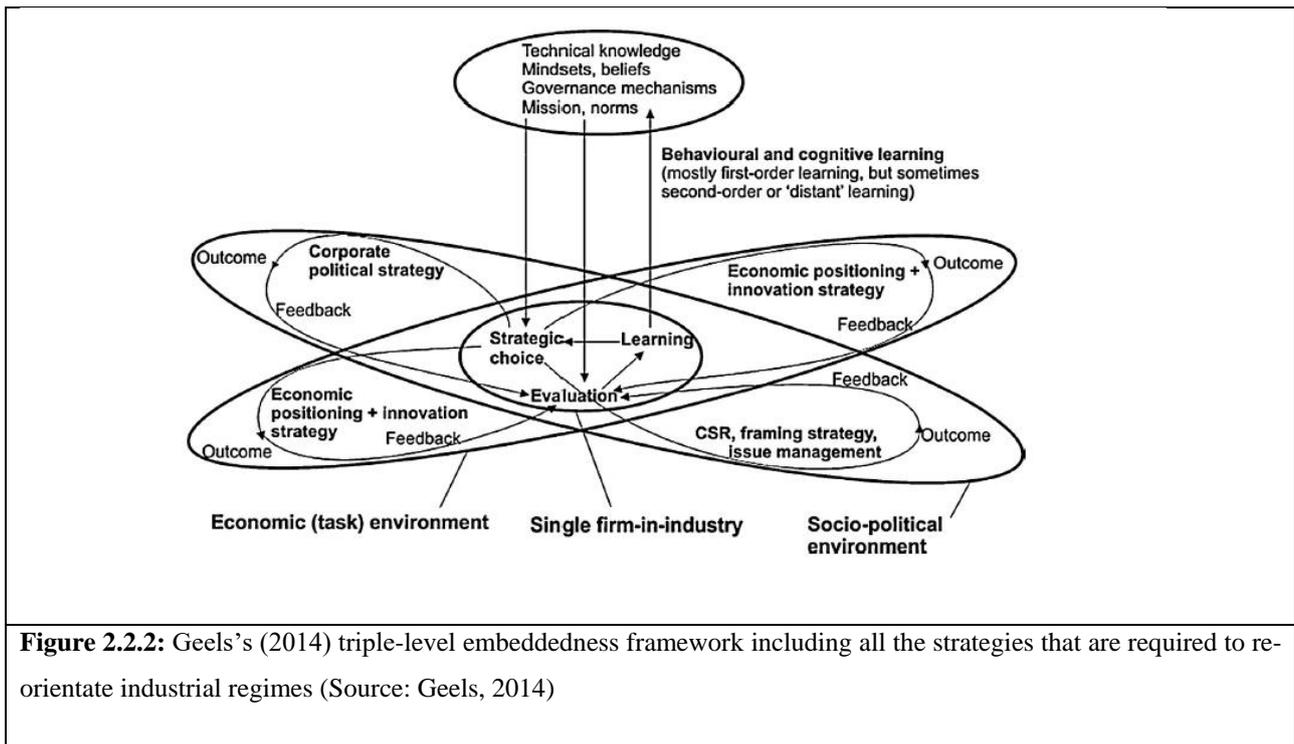
The use of Polanyi’s work on embeddedness to elicit theoretic assistance in the development of progressive economics is hamstrung by a reliance on the use of an abstract Ricardian conception of the economy (Watson, 2014). In his early work, Polanyi used such an abstraction of the economy as a reference point for his analysis of economic theory (Watson, 2014). Watson (2014) argues, it is his substantive conception of the economy evident in his later work that should enjoy prominence. This substantive definition of economy – i.e. all forms of economic life are to be understood within the context of complex interlocking social, cultural and legal structures – is one that is rooted in a pre-Ricardian lineage of economics which is the starting point for the second wave of the Cambridge revival of economics. The Polanyian conception of embeddedness is set firmly in the understanding of processes at a meso level. In Section One it was argued that methodical nationalism, the exclusive priority of national states as a unit of analyses, is as damaging as methodical reductionism or methodical excludability. This paper suggests that Geels’s (2014) triple-level embeddedness enables the reconciliation of Polanyi’s and Granovetter’s concepts of embeddedness, as discussed in the following section.

### **Triple-level embeddedness**

Geels (2014) developed a triple-level embeddedness framework to explain the co-evolution of industries and their economic, cultural, political and social environments for use in the field of innovation studies. Delineating a new economic growth theory necessitates an exploration of what re-embedding the economy and state within society really means. Geels (2014) locates the industrial regime in relation to socio-political and socio-environmental systems, while attempting to show that it ultimately operates within a different context to these two external environments. He draws on the strengths and weaknesses of evolutionary economics, neo-institutional economics and economic sociology to construct his triple-level embeddedness framework. The first point of engagement with this framework concerns Geels’s (2014) use of the notion of political embeddedness from economic sociology, which concerns the bidirectional relationship between the state and the economy. Governments constitute markets by establishing property rights, rules of exchange (obligations of contracts) and corporate governance structures. They also shape specific industries via tariff protection, loans, cash grants, government purchases, patents, tax concessions, and information and research services (Fligstein, 1996 cited in Geels, 2014). However, Geels (2014) highlights the importance of acknowledging the bidirectionality of this relationship. Industries and firms use these political relationships to shape formal institutions to their own advantage (Khan, 2010). Geels’s (2014) framework, as described above, aims to show how firms-in-industries are embedded (horizontally) in two external environments and are shaped (vertically) by industry regimes which contain the following elements: (1) technical knowledge and capabilities, which enable and constrain what firms-in-industries can do; (2) mindsets and cognitive frames, which constitute how actors perceive the nature of social reality; (3) values, identity and mission, which specify what actors see as appropriate; and finally (4) formal regulations, laws and standards.

The first three elements constitute endogenous organising principles that require ongoing reproduction, while the fourth element is part of a ‘governance system’. This governance system consists of externally imposed (by policy-makers) rules and regulations, and internally enacted regulation via compliance mechanisms enacted by industry associations or industry codes of conduct (Geels, 2014). This is why the fourth element is represented as being both inside and outside industry regimes in Figure 2.2.1. These elements of the regime cluster together into semi-coherent configurations that orient firms-in-industries and provide directionality, which in turn is stabilised by various lock-in mechanisms (Geels, 2014). These lock-in mechanisms result in firms reacting strategically to both external and internal pressures to re-orientate the directionality of industrial regimes so that they not only adapt to external pressures, but also attempt to strategically shape their environments. Geels (2014) reviewed the externally and internally oriented strategy approaches and delineated the different ways in which firms adapt and achieve fit between themselves and their environments. Externally orientated mechanisms shape economic environments via firms-in-an-industry’s economic positioning strategies, such as marketing and sales, supply-chain management, operations and production management (Geels, 2014) and the political environment via different kinds of cooperate political strategies. Stiglitz (2012) concurs that these are very efficient methods of shaping external economic environments. These methods include information strategy, financial incentives strategy, organised pressure strategy, direct lobbying strategy, and confrontational strategies (Stiglitz, 2012; Geels, 2014). In addition, Geels (2014) noted that in the face of a common threat, political strategy often takes the form of collective action. This is particularly effective in shaping the diagnostic framing (which identifies and defines a problem) and the prognostic framing (which advances solutions to a problem) of public debates (Geels 2014). Geels’s (2014) triple-level embeddedness framework including the strategies required to re-orientate industrial regimes is shown in figure 2.2.2. This re-affirms the assertion by Moore (2011) that the accumulation of capital and the production of all nature, including humans, are dialectically constituted. The logic of the evaluation of capital accumulation as the outcome of historical processes weaves together the ethereal valences of finance capital and the prosaic routines of everyday life in new crystallisations of power and profit, pivoting on the commodity (Moore 2011). The bidirectionality of the political embeddedness that Geels (2014) uses to construct his triple-level embeddedness framework should thus be situated within the context of geopolitical project that underpinned economic development since the middle of the 20<sup>th</sup> century.





This geopolitical narrative is represented typically by identifying significant movements within the following categories: (1) technological revolutions; (2) the receptiveness to multinational firms in developing countries; (3) governance; (4) the main premises of the political economy; (5) trade and developmental aid architecture; and (6) the governance of the international financial system from the end of World War II to the present (Pieterse 2015a). The significant movements of categories 1–5 are shown in Table 2.2.3. It is important to note that these categories are not meant to be exhaustive. One glaring omission is the category of violence. The response of countries or coalitions to perceived threats to global peace and security forms a significant aspect of the geopolitical narrative. The global response to terror and war e.g. the United Nations Security Councils resolutions on Syria and the Ukraine or the European Parliament resolution on migration and the situation of refugees could drastically alter the geopolitical context within which sustainability should be considered. Also important are the recent trends toward nationalism and patriotism emerging within a few key western liberal democracies e.g. United States, Britain, France, Netherlands and Germany.

The aspect of the geopolitical thesis that is important for this research project is the degree to which participation (the embeddedness of industrial regimes and their two external environments seen in figure 3.1) is first and foremost the outcome of how geopolitical privilege is distributed. This privilege is maintained by a nation state's ability to create spaces (e.g. cities) governed in a way that supports whichever niche specialisation is assigned to it. The logic of locality specialisation – which Swilling and Annecke (2012) argue is responsible for much of the character of the second wave of urbanism – is the outcome of both the embedding of local factor, production configurations within the supply demands generated by global capital flows, and its decoupling from localised aggregate demand. Geels's (2012) framework sheds light on the strategies that firms employ to take advantage of the logic of specialisation. Following the progress that has been made in neo-Polanyian interpretations of embeddedness will aid in refining exactly how the triple-level embeddedness framework is applicable. Carrol & Sapinski (2013) and Worth (2013) suggest that adopting a neo-Polanyian understanding of embeddedness is useful as a means to dislodge neo-liberalism from its embeddedness within the common sense of the

dominant class. This is required, so that their intellectual production extends beyond the critique of alternative visions, strategies and policies (Carroll & Sapinski, 2013; Worth, 2013). Feiock (2012) suggest that neo-Polanyian application of the embeddness framework can assist in the development of the taxonomy of regional collaborative governance mechanisms which would result in the efficient production of public goods and services (Feiock, 2012).

**Table 2.2.3:** The important elements of the geopolitical narrative (Source: Adapted from Pieterse (2015b) and capital flows into developing countries from 1975–1990 (Source: Akyuz & Cornford, 1999)

Technological revolution	Deployment phase of post-war boom	Installation & deployment phase of the ICT revolution				
<b>Receptiveness to multinational firms in developing countries</b>	Excluded from communist countries & some newly liberated former colonies	Low receptiveness rates continued	Increase in receptiveness rates			Greatly reduced receptiveness rates
<b>Governance</b>	State-led developmentalism & import substitution policies	State-led developmentalism & import substitution policies	Neo-liberal counterpoint	Neo-liberal counterpoint	Washington Consensus-Post Washington Consensus	State-led developmentalism (?)
<b>Main premise of political economy</b>	Modernisation via industrialisation	Basic-needs focus	Diminished state influence-led growth	Pro-poor growth	Shared growth	Redistributive & sustainable growth (?) Embedding of economy in society, fair distribution of surplus & pursuit of human well-being
<b>Trade/development aid architecture</b>	Marshal Plan/general trade agreements	Abrogation of Bretton Woods Agreement	Structural adjustment programmes	Regional trade agreements	Regional trade agreements + bilateral trade agreements + free trade agreement	Regional trade agreements + end of preferential trade agreements (?)
<b>Period</b>	<b>1940-1960s</b>	<b>1970s</b>	<b>1980s</b>	<b>1990s</b>	<b>2000s</b>	<b>2015+</b>

Geels (2014) intuitively drew on evolutionary economics to construct his triple-level framework. This included the way in which the change in directionality of innovation is conceptualised within the industrial technological regime, the difficulty of re-orientating this regime due to path dependency, and the notion that the agency of this regime is able to shape wider environments (Geels, 2014). Geels's drawing on evolutionary economics potentially overlooks the legacy of the relationship between evolutionary economics and endogenous economic theory. This assertion emanates from a review of Romer's (1994) critical reflection on the shortcomings of endogenous growth theory. In this work Romer (1994) asserts that there is a link between endogenous and evolutionary growth theory. He identifies a binary distinction between the type of goods that the state and firms can produce is inherent to endogenous growth theory (Romer, 1994). This binary distinction is between the production of non-rival and non-excludible goods by the state and the production of non-rival and excludible goods by firms (Romer, 1994). Economists distinguish between rival and non-rival goods. A non-rival good is one that can be consumed without detriment to others (Tuomi, 2012). A distinction is also made between excludable and non-excludable goods (Tuomi, 2012). This refers to whether access to a good can be restricted or not. If goods are non-rival and access to them is not restricted they are public goods (Tuomi, 2012). Rival goods are excludible, in that access to these goods can be restricted.

In the resource-stressed Anthropocene, it follows that this binary distinction is no longer relevant. Swilling and Annecke's (2012) assessment of the environmental challenges confirms that public goods are not non-rival goods. State institutions are active, competitive players in material-resource markets by virtue of their role in the provision of public goods and infrastructure, without which the technological and industrial regimes cannot be sustained. Geels (2014) draws on institutional theory and identifies that institutions exert pressure on firm-in-industries by means of coercive isomorphism (government regulations and mandates, etc.) and normative pressures (professional standards or behaviour that must be adhered to). Geels's (2014) analyses however shows that the agency of firms-in-industries remains the most significant factor in the realisation of the structural reorientation of the industry regime. What emerges from the acceptance of the end of the binary regarding the provision of public goods and infrastructure is that innovation within socio-political regimes should enjoy greater prominence than envisioned by evolutionary and neo-institutional theory. This is important because the ontology of this innovation is different from that which occurs on the supply side within the industrial regime. Innovation in evolutionary economics is based on a particular understanding of the process of innovation, yet Perez-Luno *et al* (2007) argue that there are two classic conceptualisations of innovation that are representative of the contemporary definition of the innovation debate. These are Schumpeter and Thompson conceptualisation of innovation. Schumpeter's definition contains implicit conditions that innovation must have positive effects on economic growth and result in market success, whereas Thompson's definition is free of the market-success proviso (Perez-Luno *et al* 2007). Swilling and Annecke (2012) correctly argue that there is an urgent need to rethink innovation. Rethinking innovation must be driven by the ending of the Cartesian distinction between nature and society and the acceptance that state intervention is an absolute must. The focus of innovation must be on that which deals most closely with our material exchanges with nature and that which serves as the interface between the centre of innovation on the demand and supply sides. These include the provision of public goods and infrastructure, and the labour market.

Martins (2012) suggests that there is a need to extract value from, and seek to complement, Sraffa's pure theory, the contributions of heterodox economics (including the Cambridge Keynesian tradition) and Sen's own institutional analysis when describing the political economy of the transition to sustainability. This together with Geels's (2014) analyses of the

industrial regime provides important clues as to what needs to be encompassed in the required new economic growth framework.

### **SECTION THREE**

#### **Introduction**

Palma (2014) offers that if a degree of simplification is applied, one can classify growth theories into three camps. The first camp is Solow-type models (both traditional and ‘augmented’ ones), and the branch of ‘endogenous’ theories that associate growth with increasing returns that are activity-indifferent. Examples include early total-factor productivity (TFP) and capital (AK) models, and more recent ones in which changes in the rate of growth are the result of the cumulative effect of market imperfections arising in the process of technical change. The second camp consists of Romer’s work and neo-Schumpeterian models. In these models, increasing returns – though generated by research-intensive activities – are not associated explicitly with manufacturing activities as such, or with investment in manufacturing, nor do they allow for specific effects of manufacturing on research and development (R&D) activities (Palma, 2014). The last camp comprises mainly post-Keynesian, Schumpeterian and structuralist theories, which argue that growth is both ‘sector-specific’ and ‘activity-specific’ (Palma, 2014). A common factor in these ‘sector-specific’ growth theories is that the pattern and the dynamic of growth are crucially dependent on the specific capital accumulation effects on growth stemming from manufacturing (Palma, 2014).

Kurz and Salvadori (2006) argue that the need to instil the sociological turn in economic growth theory is derived from the misconception of embeddness prevalent in the economic discipline, where it is accepted that history is a consequence of human action but not of human design. Within this context, economic growth theory is the outcome of the need ‘to come to grips, as best as one could, with the consequence of purposeful human actions, both intended and unintended’ (Kurz & Salvadori, 2006, p. 247). The discursive nature of such deduction is that it supports the idea of value-free economics (Putnam & Walsh, 2012) and enables the proliferation of both the underestimation and under-reporting of the importance of statecraft in the history/human action/human design paradigm. The sociological argument against neo-liberalism is the rejection of value-free economics. The embedding of capital flows in a geopolitical framework is the rejection of the underestimation and under-reporting of the importance of statecraft.

Developing economies’ share in world GDP rose from 15% to 22% from the start of the Information Age until 2005. However, as a proportion of advanced economies income per capita, developing economies remained below 5% (Saad-Filho, 2013). Agnew (2001) adds that divergence between rich and poor countries has increased significantly during the globalisation era (1970 to the present) compared to previous periods. In the Global South during the Anthropocene, the scenario among poorer countries was that a fortunate few, largely in East and Southeast Asia, have successfully created export platforms for goods that are sold largely in the advanced capitalist world (Agnew, 2001). These countries have also built domestic markets for themselves and some larger countries (e.g. Brazil) and oil-rich countries (e.g. Iran and Saudi Arabia) have developed large domestic markets (and have reasonably strong import-substitution sectors) or crucial commodities that underwrite at least a modicum of growth (Agnew, 2001). Then, there are the other countries that have few commodities in world trade and little in the way of labour-market, consumer-market or resource advantages to offer the rich countries and their investors (Agnew, 2001).

### **Capitalist developmental state praxis**

The stark reality of the unevenness of global economic development (Saad-Filho, 2013; Agnew, 2001) and the bucking of this trend by a select group of the fortunate few underpins most of the intellectual contestation around developmental statecraft (Swilling & Annecke, 2012). Khan's (2010) synthesis of the Chalmers/Chang/Mkandawire capitalist developmental-state praxis frames this contestation and the dialectal debate about which set of state interventions best counteracts the hegemony of neo-liberal development ideology. Khan's (2010) work also shows why it is so difficult to implement the required economic constitutionalism in developing countries, when this is exactly what many developed countries did at the beginning of their industrial project. The prize that awaits those developing countries which manage to operationalise their capitalist developmental-state programme is an accelerated transition from an agricultural to a manufacturing-based economy via managed industrialisation (Evans, 1995; Chang, 2002; Leftwich, 2000 in Swilling & Annecke, 2012), the transition from one type of capital-intensive industrial production to another (Khan, 2010), or some other variation of these two scenarios. The difference in the typology of capital-intensive industrial production relates to the costing of capital being done using a purely neo-classic economic analytical framework or a classic political economic analytical framework.

The interest in the aforementioned capitalist, interventionist state praxis in relation to the transition to sustainability cannot be understood without adopting a perspective which is disapproving of the role of the state in historic and current capital accumulation patterns. Swilling and Annecke (2012) argue that resource constraints and the effects of the imbroglios of modernity will inevitably trigger the transition to a new industrial production regime. This will necessitate state intervention in the economy. Swilling and Annecke (2012) suggest that the focus of the capitalist developmental state in the Anthropocene must be informed by endogenous growth theory which places innovation, not capital, at the centre of the growth and development narrative. This argument is premised on a multilevel notion of sustainability-orientated innovation, which is decidedly different from the (rightly) much maligned, one-dimensional, techno-fix approach (Swilling & Annecke, 2012). The distinction between sustainability orientated innovation and the one dimensional techno-fix approach to innovation is very important. As explained in the section which follows, it can be argued that the techno-fix approach is one of the core premises of endogenous growth theory.

### **Endogenous economic growth theory: A critical review**

Endogenous theory does not completely externalise technological advancement as neo-classic models do (Romer 1994). It does however externalise the conditions required for the realisation of circumstance that could completely offset the propensity for the diminishing returns of capital (Pack, 1994). Pack (1994) describes two ways in which endogenous growth theory proposes how this could be achieved: (1) by using the investment in physical and human capital as the basis for the establishment of strong external economies, and (2) by increasing the variety, quality and efficiency of machinery by devoting skilled labour to research and development. Most telling, however, is Romer's (1994) description of an important corollary to this theoretic deduction. Romer (1994) asserts that knowledge spillovers from capital investment not only increase the stock of physical capital but also increase the level of technology for all firms in the economy through knowledge spillovers. An increase in the total supply of labour causes negative spillover effects because it reduces the incentives for firms to discover and implement labour-saving innovations (Romer, 1994). For endogenous economic growth theory this is bad as labour saving innovations have positive spillover effects on production throughout the economy (Romer, 1994). This results in a particular orientation of engagements between state and private enterprise. These

engagements underpin the interaction between external economies in different geographical spaces. Examples of such interaction include how capital investment in production inputs are assigned and how outputs are captured, and the process whereby inventions are operationalised (Geels, 2012). The problem is that these engagements are primed at achieving the conditions required to offset the propensity for there to be diminishing returns on capital by targeting cost-saving in the labour market (Romer, 1994). This is a concern because Geels's (2014) embeddedness framework shows that the bidirectional relationship between the industrial regime and the socio-political regime can shape society.

Kurz and Salvadori (2006) argue that the endogenisation of the growth rate is central to classic political economy. Neo-classic Solow growth models try to replicate this by treating labour as a non-producible and non-accumulable factor of production, whose fixed rate of growth constrains the long-term expansion of the economic system (Kurz & Salvadori, 2006). In newer growth models, this factor is replaced by 'human capital' or 'knowledge', which is taken to be producible, accumulable or costlessly transferable among subsequent generations of the population (Kurz & Salvadori, 2006). The assertion here is that sustainable-orientated innovations must work to counter this underlying premise of endogenous growth theory. In capitalist economies labour is measured by a provider's degree of proletarianisation. In the classic political economy sense, capital accumulation regulates the pace at which the labouring population grows and economic growth generates labour (Mercato, 1981). Crucially, labour and its growth rate, does not exogenously limit economic growth (Mercato, 1981). As confirmed earlier this research projects relies on a classic political economic perspective. This means accepting that the mechanics of the labour market enjoys a position of primacy in economic analyses. In the resource-constrained environment of the Anthropocene the increasing proletarianisation of society is coupled with the effects on human well-being emanating from the unequal distribution of economic surpluses. It is thus critical that the economic growth model that is employed in the transition to sustainability is imbued with premises which address this.

### **Keynes plus Schumpeter economic growth model**

This section suggests that, the suite of Keynesian plus Schumpeter evolutionary, agent-based models are useful for the analyses of economic growth in transition theory. These models study the effects of a rich ensemble of innovation, industrial dynamics and macroeconomic policies on the long-term growth and short-run fluctuations of the economy (Dosi *et al*, 2014). Dosi *et al* (2014) contend that these types of models are able to endogenously generate long-run growth while taking into account business cycles and major financial crisis. This is accomplished by embedding the Schumpeterian growth paradigm into the complex system comprising of the relationships between heterogeneous interacting firms and banks (Dosi *et al*, 2014). This complex system is marked by imperfect coordination between firms and banks and the heterogeneity of firms and banks within it (Dosi *et al*, 2014). This conception ensures that Keynesian (demand-related) and Minskian (credit-cycle) elements feed back into the meso and macro dynamics that together are important for economic growth (Dosi *et al*, 2014). This is possible by opportunistically using the presence of strong complementarities between Schumpeterian (technological) and Keynesian (demand-related) policies to ensure that the economic system follows a path of sustained stable growth and employment (Dosi *et al*, 2014). Dosi *et al* (2014) develop their model by drawing on Keynesian models to address shortcomings of Schumpeterian models. It aims to supplement Schumpeter's incomplete explanation of how technological innovation drives economic growth and how the potential negative impacts of the process of creative destruction can be mitigated. Drawing on Keynesian models Dosi *et al* (2014) attempts to overcome the tendency for innovation driven economic growth models to ignore the role of aggregate demand and macroeconomic conditions (unemployment, access to credit, income inequality) on the evolution of technology. Dosi *et al* (2014) assert

that this contributes to addressing the weakness in the way economic growth theory is translated into policy. This study suggests that Keynesian plus Schumpeter economic growth models provides a suitable starting point for the development of the economic growth models required to transition to sustainability.

## **SECTION FOUR**

### **The sustainable development challenge**

Pretty (2013) provides a good outline of the challenge of defining sustainability by stating that what is needed is to solve the compounded relationship between population (P), affluence (A) (a measure of consumption), technology (T) and their impacts (I) with interventions which will result in convergence of consumption at lower levels without increasing or further entrenching the systemic levels of social inequality. It is also a challenge that needs to be met without exceeding the planetary boundary limits (Steffen *et al* 2015). This means rejecting the belief in the existence of a number of 'Kuznets curve' type relationships that are central tenets of current efforts to achieve sustainability. The first is rejecting the assumed relationship between increased global aggregate consumption and decreasing environmental externalities (Pretty, 2013). The second is the assumed relationship between increased global wealth and a decrease in the unevenness of urban development (Pieterse, 2015a). Third is that increased rates of capital accumulation will result in decreasing rates of income inequality (Stiglitz, 2012). This provides the context for debating the governance, political and economic configurations needed to ensure the equitable and sustainable use of ecosystem services.

### **Expanding the sustainability framework**

Seghazzo (2013) and Allen (2001) both present five-dimensional sustainable-development frameworks. These are just two examples of frameworks aiming to move the understanding of the sustainable-development concept beyond the limitations highlighted by the critique of ecological modernisation. The intention here is to first show how Seghazzo and Allen's frameworks complement each other and then demonstrate why they provide a foundation for the synthesis of an expanded sustainable development framework suitable for achieving the objectives of this research project. It is suggested here that Seghazzo's (2013) model provides the theoretical framework that is congruent with what was determined should be the basic premise of the political economy of the transition to sustainability. Allen's (2001) model is more pragmatic and provides an indication of the methodology that needs to be employed.

It is, however, necessary to supplement these paradigms with insights drawn from models that deal with understanding the interface between society (framed as both the industrial and socio-political regime) and ecosystem services, and the process of innovation. This research project suggested that an examination of the excludability of government-produced public goods in relation to innovation is necessary in the Anthropocene. Important then is Bodin and Tengo's (2012) modelling of asymmetrical access to ecosystem services. While many aspects of endogenous and evolutionary economic growth theory were critiqued earlier, the overall importance of innovation was not disputed. Instead, it was suggested that the focus of innovation should be redirected from an implied exclusive focus on supply-side dynamics to demand-side dynamics. Kiesling *et al*'s (2012) agent-based model of innovation diffusion is thus useful for completing the synthesis of the sustainable development analytical framework.

### **Description of expanded models**

Both Seghazzo (2013) and Allen (2001) acknowledge the weakness of ecological modernisation as an analytical framework in which to have a conversation about sustainability. Allen (2001) suggests that the application of the ecological modernisation framework results in a process of industrial restructuring that only accelerates competition over environmental resources and promotes the short-term maximisation of profits through socially and environmentally unsustainable mechanisms. Sustainable development in this guise, does not account for the fact that the social and environmental impacts of this process manifest in urban areas (Allen 2001). Seghazzo (2013) highlights that the ecological modernisation framework overestimates the power of neo-liberal economic reasoning and that it does not pay enough attention to other, fundamental aspects of development. The assessment of the way in which macroeconomic policy influences the production of space is critically important to both Seghazzo (2013) and Allen (2001).

Allen's (2001) and Seghazzo's (2013) sustainable development models are represented schematically in figure 4.3.1. The definition of the key concepts of each model are also provided in figure 4.3.1 In Seghazzo's (2013) model, the triangle is formed by Place, Permanence and Persons. Five dimensions are observable as Place consists of three dimensions of space (x, y and z). Permanence is the fourth dimension of time (t), and the Persons corner adds a fifth individual and interior human dimension (i). The complimentary concepts of Place and Persons form the base of the triangle, representing 'real', objective and concrete things that exist in the present time (Seghazzo 2013). Permanence, which is located in the upper (or the farthest) corner, is a more 'ideal', abstract and subjective projection of events from the other corners into the future (Seghazzo, 2013). In Allen's (2001) model, economic, social, natural and physical sustainability are represented as the four corners of the development process. Political sustainability is represented as the governance framework regulating the performance of the other dimensions (Allen, 2001). The circle represents the ecological capacity of the urban region, while the arrows emanating from the four, corner dimensions represent the pressures these place on natural resources.

Seghazzo's (2013) delineation of the complementary concepts of Place and Persons provides a fuller description of what should constitute sustainable development. It contributes towards the reassessment of the changing nature of human settlements which challenge the conventional definitions of places in terms of their location, physical structure, institutional context and cultural outlook (Allen 2009). Allen (2009) suggests that globalisation has also changed the way in which places relate to each other. Of particular importance, is the way in which globalisation has changed the functional relationship between the global and the local, the urban and the rural and the rich and the poor (Allen 2009). Allen (2001) suggest that there has been a re-primisation of urban economies so that they more attuned to global macro-economic aims instead of being responsive to local socio-economic conditions and the need to conserve of ecosystem services.

<p><b>Place (three dimensions):</b> Places are a source of facts, identities and behaviours. Place is, to a certain extent, a social construct that helps people build a sense of belonging. Place can help transcend the nature/culture dichotomy and integrate or reconcile opposite worldviews such as anthropocentrism and non-anthropocentrism. Place, as the acknowledgment of local conditions, constraints and opportunities. Place is also viewed as the restricted realm of intergenerational equity. <b>Permanence:</b> Not only maintenance of present conditions, it includes changes and improvements. Permanence could be seen as the main realm of intergenerational equity as it is concerned with inter-temporal morals. <b>Persons:</b> Represents recognition that an individual ‘person’ exists within each human being, each being similar yet entirely different from those around them.</p>	<p><b>Economic sustainability (ES):</b> Implies maximising productivity of local economy in relation to the sustainability of the other four dimensions. <b>Social sustainability (SS):</b> A set of actions and policies aimed at the improvement of the quality of life through fair access and distribution of rights over the use of natural and built environment. <b>Natural sustainability (NS):</b> Understood as the rational management of natural resources. <b>Physical sustainability (PS):</b> The capacity and aptitude of the urban built environment and techno-structures to support life and productive activity. <b>Political sustainability (PS):</b> Understood as the democratisation of political capital, so that local society can use it to regulate its relation with the four other dimensions.</p>
<p><b>Figure 3.4:</b> Schematic representation of Seghazzo’s expanded model (left) and Allan’s model (right) (Sources: Seghazzo, 2013; Allen, 2001)</p>	

Allen (2001) asserts that the re-primisation of urban economies can only be reversed via state intervention in capital and labour markets. Governments must ensure that investment in public infrastructure serves the interest of local market actors and be cognisant of the uniqueness of the spaces in which these local market actors are active (Allen 2001). Seghazzo (2013) asserts that Place is instead spatialised, timed, sensed and embodied dimensions of nature. Places are thus a source of unique facts, identities and behaviours (Seghazzo 2013). In addition Seghazzo (2013) asserts that Permanence- not just the maintenance of present conditions but ensuring the future is better – must be one of the objectives of sustainability.

Permanence provides an ideological frame for the objectives of the reorientation of urban economies. Swilling and Annecke's (2012) assert that the reorientation of economies occur only when sustainable-orientated inventions become sustainable-orientated innovations. There are two key differences between an invention and an innovation. Inventions refer to the creation of new products or processes, while an innovation is the improvement of an existing product or process. Innovation also refers to the process of ensuring that an invention becomes engrained within socio-technical systems i.e. used or applied at a significant scale. (Swilling & Annecke 2012). Swilling and Annecke (2012) assert that the process of facilitating the diffusion of sustainable-orientated inventions so that they become sustainable-orientated innovations is difficult and that its study must be a part of sustainability science. Kiesling *et al's* (2012) asserts that it is important to recognise the danger of trying to assess the diffusion of innovation, using computer generated aggregate models of innovation. Such models are typically based on a formulation of differential equations which specify the flow(s) between mutually exclusive and collectively exhaustive subgroups, such as adopters and non-adopters (Kiesling *et al*, 2012).

The study of the diffusion of innovation is an interdisciplinary field, with roots in anthropology, sociology, geography, political science, economics and marketing (Kiesling *et al*,2012).The use of aggregate models is however an interpretation of a complex process using the discredited Ricardian minimalist analytical framework. Mol and Spaargaren (2000) confirm that ecological modernisation was initially heavily reliant on the role of technological innovation, especially in the sphere of industrial production. This perspective was coupled with a relatively underdeveloped notion of human agency (Mol & Spaargaren, 2000). There are two aspects of aggregate innovation models that are particularly discursive and which have been an integral part of ecological modernisation. Firstly, they are unable to reproduce the complexity of real-world diffusion patterns, such as innovation failures, oscillations and the collapses of initially successful diffusions (Kiesling *et al*, 2012). Secondly, they are all premised on the homogenisation of populations where everyone has the same potential to adapt to innovations, which the empirical evidence on inequality shows is simply not true. This rejection of the tendency for sustainable development paradigms to smooth over real-world processes is the final pillar of the sustainable development paradigm developed in this project. It aims to be 'the conceptual framework within which the territorial, temporal, and personal aspects of development can be openly discussed' (Seghazzo 2013, p.547).

## **SECTION FIVE: CONCLUSION**

This paper set out to contribute to the debates on the development of a Human-Centered Sustainable Economic and Social System for the 21st Century. Its starting position was that a re-organisation of knowledge production within social science was necessary and that a return to a classic political economic framework would facilitate this. Furthermore, it was suggested in section one that the Cambridge school with its focus on the fair distribution of economic surpluses, the embedding of the economy in society, human well-being and the pursuit of expanded notions of self-interest should be at the core of the political economy of the transition to sustainability.

Next it was suggested that the development of alternative socioeconomic theory would need to confront the real politik of global political and economic systems. In section two Geels's (2014) triple-level embeddedness framework was used to highlight what is involved in realising the aims of the Cambridge revival of classic political economy. The study of firm level behaviour and how external environmental are shaped by this behaviour confirmed the importance of capitalist developmental statecraft and sustainability orientated innovation. In section three literature critical of endogenous economic growth theory was reviewed, which showed that cost saving in the labour market is inherent to modern endogenous growth theory. It was suggested that Keynes-Schumpeter's agent-based growth models do not rely on this corollary and, therefore, are better suited to being the economic growth theory of choice during the transition to sustainability. In the final section, an attempt is made to craft a sustainable development paradigm that aims to encapsulate the essence of the points of advocacy raised in the preceding sections. It is suggested that Seghazzo's (2013) and Allen's (2001) expanded sustainable-development paradigms provide a solid foundation for the recasting of sustainable development frameworks. This is supplemented by drawing on insights from Bodin's and Tengo's (2012) model of the asymmetrical access to ecosystem services. This reflects the importance of the state's provision of public and infrastructure as a critical driver towards sustainability. Lastly it was suggested that innovation cannot be assessed using aggregate diffusion models. The use of these models will result in sustainable development paradigms not having an understanding of the real social processes involved in transforming inventions into innovation.

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