

Greening economic theory: Heterodox possibilities

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Abstract: *As the debate about the environment has intensified, post-Keynesians, régulationists and Polanyians have been relatively silent compared to neoclassical environmental economics which is the dominant ‘policy voice’. Yet these traditions may offer insights into contemporary environmental problems and their management that could mount a challenge to the embedded character of market-based policy ‘solutions’. Collectively, these three traditions have plenty to say about growth, institutions, the role of prices and markets, events being path dependent and uncertainty. They treat time as historical, are sceptical of the positive/normative distinction, and consider economic issues to be subordinated to politics. These concepts would seem very pertinent to understanding the economic-environment interaction. Thus, their collective environment-deficit-syndrome is surprising. This paper seeks to determine the contribution these three traditions could make to environmental discourse by exploring the conceptions of nature underpinning each methodological approach, and compares the ability of their key conceptual tools to explain the economic-environment relation. It is argued that, despite areas of commonality, the post-Keynesians share a relatively closer relationship to neoclassical environmental economics than the régulationist and Polanyian approaches. These two ‘institutionalist’ perspectives provide more cogent analytical frameworks to explain the character of the contemporary environmental challenge, the responses of capitalism to environmental issues and the challenge to accumulation posed by ‘sustainable development’.*

Keywords: accumulation, capitalism, environment, Polanyi, Post-Keynesian, régulation theory

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1 Introduction

Contemporary capitalism is distinguishable by 'green' consumerism, the development of 'clean' technologies and 'corporate environmentalism' while the concept of sustainability has been re-configured to validate the green credentials of an economic growth agenda. Neoliberalism has reconceptualised environmental degradation and depletion as an 'economic' issue giving markets a prominent place in policy prescriptions. The governance of 'ecological problems' is now increasingly framed through the lens of 'environmental economics' as informed by neoclassical theory. Yet, despite the centrality of 'economy' there has been little ground made on developing a 'green' heterodox alternative capable of shaping contemporary debate about the environment and sustainability. As Lippitt (2005: 158) opined, the "[s]ystemic ties between capitalism and environmental degradation remain under-explored".

Concerns about the sustainability of production, distribution and consumption place the institutions of capitalism at the centre of analysis. However, neoclassical theory is inadequate for the analytical tasks central to understanding how economic activities are organised in relation to non-human nature. It highlights the purportedly 'self-regulating' attributes of exchange in price-making markets and thereby renders invisible the ecological processes and much of the institutional matrix determining such activities. Its approach to theorising neglects the "provisioning" common to all social systems in favour of "the mathematical study of exchange" (Nelson 1993: 24). This is inadequate for understanding the complexity of social, political, and environmental concerns involved in sustainability.

Sustainability entails questions about the relationship between socio-economic organisation and the natural environment which sustains it. These macro and 'meta' level concerns are the professed province of heterodox traditions which often define themselves in opposition to the micro emphasis in neoclassical theory. Yet, beyond the Feminist and Marxian traditions, there is a relative dearth of environmental scholarship. In a context where the idea of a Keynesian inspired 'green new deal' is gaining currency, it seems appropriate to ask how post-Keynesians model the economy-environment relationship and what might they contribute to a 'green heterodoxy'. Similarly, with the resurgent interest in 'institutional analysis', it could be expected that the concerns of *régulationists* or Polanyians

would prompt some theorising of the relationship between economic organisation and environmental resources.

This paper examines the contribution these heterodox traditions could make to environmental discourse. The following three sections explore the possible reasons for each tradition's limited environmental contributions, the conceptions of nature underpinning each methodological approach, and the ability of their key conceptual tools to explain the economic-environment relation. A final section, drawing together points of complementarity and divergence, contends that Post-Keynesians share a relatively closer relationship to neoclassical environmental economics and this has impeded the development of a coherent Post-Keynesian economics of the environment. The *régulationist* and Polanyian approaches are found to provide more cogent analytical frameworks to explain the contemporary environmental challenge and the responses of capitalism to environmental issues.

2 The Post-Keynesians

Post-Keynesians are methodologically distinguishable through an emphasis on realism, historical time, uncertainty and institutions (Holt 1997). The tradition's emphasis on explanation over prediction (realism) means that "history and institutions are an integral part" of its methodology; but it also includes, according to Arestis (1990: 226), a 'prudent use of econometrics' and a 'central position' for effective demand. Yet King (2003: xiv) posits that "stripped down to the bare essentials, Post Keynesian economics rests on the principle of effective demand". These differences of view, about what constitutes Post-Keynesian methodology, point to a consistent theme in the literature, namely a widespread acceptance of methodological pluralism (e.g. Eichner 1979; Harcourt 2006; King 2003; Lavoie 2006). But it also points to the difficulties posed in discerning a Post-Keynesian theoretical and methodological framework which could offer insights to understanding the economic-environment relation.

Why have post-Keynesians paid limited attention to the environment?

Mearman (2007: 376) poses three reasons for the Post-Keynesians' "isolated patches of concern" with the environment. First, the Post-Keynesians were busy struggling to break the hegemony of orthodox theorists. While all heterodox economics traditions have similar aspirations, perhaps the Post-Keynesians considered themselves the most likely to succeed because of some commonality or affinity with the concepts and arguments of the orthodoxy. The early 'environmental' focus of Davidson (1979) notably used neoclassical tools and concepts.

A second reason posited for the Post-Keynesian environmental lacuna is that the 'leaders' were preoccupied with "pressing social issues of the day" (*ibid*) not environmental concerns and others followed this lead. According to Mearman's reasoning, Post-Keynesians will devote a far stronger analytical focus *if* their 'leaders' do; 'animal spirits' will lead to the greening of Post-Keynesianism. Joan Robinson (1972), a Post-Keynesian luminary, nominated the environment as a 'critical question' but the leading contemporary Post-Keynesians (such as Arestis, Chick, Dow, Fontana, Harcourt and Toporowski) have not heeded her call which weakens the credibility of this 'environmental deficiency' reason.

Lack of direct exposure to ecological impacts is a further reason Mearman posits for poor environmental engagement along with a perception of environmental issues as being 'microeconomic'. The link between direct exposure to ecological impacts and academic discourse is tenuous at best. The 'micro' perception of environmental issues, which Mearman (2005b) found in a survey of Post-Keynesians, is however much more pertinent to this discussion. It suggests a conceptualisation of nature being subordinate to the 'macro' economy and environmental 'issues' as discrete and treatable with policy solutions that change the behaviour of individuals.

How do post-Keynesians explain the economic-environment relationship?

A conceptualisation of nature as separate and subordinate is evident in Mearman's statement that "the traditional focus on growth is seen as a reason why an environmental perspective has not developed" in Post-Keynesian scholarship (2005a: 124). Statements like these infer that the prism through which Post-Keynesians consider growth has excluded the

environment. Economic growth and the environment are treated as two distinct unrelated arenas which is analogous to the approach of mainstream environmental economics where the extent of interaction is “mainly along defined points such as mines, fishing grounds and so on” (Vatn 2005: 247). The strength of such a ‘separateness’ is less apparent in some Post-Keynesian contributions which focus on questions of sustainability, although ‘nature’ is definitely subordinated to the economic.

According to Holt (2005: 174), for example, “economic sustainability is how you deal with unemployment and poverty today without damaging and depleting the natural resources and ecological systems needed for economic opportunities”. Courvisanos (2005: 187) argues for an ‘eco-sustainable framework’ for the “attainment of sustainable economic and ecological development”. This Post-Keynesian ‘appropriation’ of sustainability means the imperatives of economic growth determine contemporary environmental priorities. The environmental challenge is viewed through an economic prism with the emphasis on “reducing the environmental impact of each unit of economic activity” (Gibbs and Healy 1997: 195) and legitimising certain levels of environmental impact.

Subordination of the environment means that *some* Post-Keynesians, like mainstream orthodoxy, accept continual economic growth is axiomatic to sustainable development. The terms ‘environment’ and ‘sustainable development’ are synonymous with little questioning of the physical limits of economic growth, nor any envisaged resource and environmental restrictions to production. Furthermore, the focus of environmental attention has been heavily skewed towards discussing specific policy measures, not the changing nature of the relationship between the environment and the economy. These emphases bear a striking similarity to the approach of neoclassical environmental economics which regards specific environmental problems as those of optimisation not about the interrelationships of the economic with the environment (Vatn 2005: 247).

Post-Keynesians have lamented their failure to frame a ‘distinctive approach’ to the environment analogous to those developed for growth, methodology and monetary policy (Mearman 2005a: 123). Such yearning invokes the notion that analysis of an issue necessitates the development of an issue-specific approach rather than utilisation of one already established. This idea echoes the contention of eminent Post-Keynesian Geoff

Harcourt (2006: 2) that “Post-Keynesianism should be a situation-and-issue-specific method of doing political economy”. If so, this sits at odds with other heterodox economic traditions which have developed internally consistent theoretical and methodological frameworks (despite likewise being heterogeneous) and applied these to a range of issues rather than use issues to deduce methodological frameworks.

Perhaps the lack of a ‘distinctive Post-Keynesian approach’ is not surprising given the tendency of Post-Keynesians “to define their program in a negative way as a reaction to neo-classical economics” (Arestis 1990: 222). Mearman suggests (as articulated by Winnett 2003), for example, that it is necessary for post-Keynesians to

make clear the redundancy of concepts such as externalities and market failure; not treat price as a reflection of scarcity; not claim that environmental entities can be valued at prices treated as allocatively efficient; be sceptical about concepts of natural capital; and consider environmental issues according to uncertainty (2005b: 129 fn29).

The Post-Keynesian criticisms of neoclassical environmental economics have been well articulated, as have their commonalities and differences with ecological economics. Prominent contributors clearly convey that their Post-Keynesianism provides many concepts which they perceive to be extremely relevant for ‘grasping the environment’. Uncertainty, institutions, dynamism, path dependency, irreversibility, historical time, complexity theory, cumulative causation, procedural rationality and regulation are the most commonly cited concepts (e.g. Beer 2009; Courvisanos 2005; Holt 2005; Mearman 2005a).

The synthesis of even a handful of these concepts into a broadly coherent economic-environment framework has yet to be realised. Vatn (2009:130) comes tantalisingly close in a discussion of ‘the environment and economic system’ but slides into a macro policy discussion. Perhaps the difficulty of synthesis lies in the general absence of a theory of production, which is critical to understanding capitalism’s relationship with the environment. Notwithstanding the neoclassical deficit here, Post-Keynesians like Kalecki, Sraffa and Pasinetti *did* develop powerful production models (Gowdy *et al* 2009). However, these have not been taken up by contemporary ‘green’ Post-Keynesians; Schefold’s (1997) Sraffian framework being the exception.

Perhaps the difficulty of synthesis is because “although post-Keynesians have the methodology and approaches which would allow them to avoid the mistakes of neoclassical economics, they remain torn as to whether all orthodox baggage should be dispensed with” (Mearman 2005a: 125). Evidence of this quandary emerges in a number of recent contributions prescribing environmental policies. These policy approaches confirm the absence of a coherent economy-environment model accompanied by a strong predilection that the environment is ‘manageable’ and for the state to ‘take control’.

Although acknowledging micro processes do not necessarily achieve macro logic, Perry’s (2012: 179) proposal of a “suite of policies to achieve a scientifically determined appropriate pollution level” heavily favours micro measures. Their purpose is to induce individual behavioural change and to ‘guide’ future investment in small green firms, notwithstanding the complementary role prescribed for environmental taxes and government expenditure. Perry weaves together the notion that a range of micro and macro policies, that overcome neoclassical weaknesses and address Post-Keynesian concerns like equity, power and uncertainty, can easily coalesce to achieve an ‘appropriate’ pollution level. Explicit acceptance of a ‘pollution level’ sails close to the optimal level utilised by neoclassical environmental economics. It also reinforces neoclassical privileging of the economic over the environment with environmental priorities dictated by the imperatives of the accumulation process.

Moreover, an ‘appropriate’ pollution level translates into an argument that “the appropriate level of environmental improvement must be decided by scientists and the community” (Perry 2012: 176). This places a significant amount of faith in science to have ‘perfect ecological knowledge’ and in the community to overcome divergent interests to ensure implementation of the (scientifically?) prescribed policy. Climate change serves as a humbling example - the (*still* contested) science has long been known yet it has failed to translate into timely policy action. Questions of sustainability stemming from problems like climate change are not just ‘scientific’ or ‘economic’ (positive/objective). They are social and political (normative/subjective) too, with meanings that emerge from public debate and contestation. The faith in experts typically prescribes a ‘suite of policies’ to deal with environmental problems that hinge on a state-led transition to green firms and green technology.

Beer (2009: 29) also advocates a central role for the state which “must urge firms” to undertake the most appropriate ‘green’ investments. Remaining true to the Post-Keynesian characteristics of uncertainty, effective demand, and history, Beer suggests that the ‘ideal’ model should “privilege production over exchange” (*ibid*: 34). This is consistent with the macro focus of Keynesianism, but the implied neglect of the (unknowable and uncertain) micro level is problematic given it is the locus of distribution in the capitalist economy. Furthermore, capitalism is a commodity production system where production is for exchange value (not use value). This Post-Keynesian proposition seems to merely reverse neoclassical one-sidedness.

Harris (2011) offers an adaptation of the Keynesian national income ‘equation’ which supports ‘economic management’ of a ‘green’ kind. This environmental macroeconomics advocates government planning for green investment with market incentives, using environmental problems and solutions as sources of economic growth. It is the latter which is key to reconciling the limits-to-growth perspective of ecological economics with the Keynesian growth-orientation. For Harris, “[i]t is crucial to exploit environmentally beneficial forms of economic growth” in the short to medium term for transformation to a steady state economy in the longer term (2011: 11). This ‘ecological version of Keynesianism’ is conceptually coherent, but it rests on the ‘trick’ of securing environmental policies to stabilise and steer “a renewable energy transition and a human-capital, service-oriented economy” (*ibid*: 12). A worthy goal but are not the Post-Keynesian canons of ‘realism’ and primacy of politics over economics being somewhat marginalised?

Overall, the broad church of Post-Keynesianism has embraced many concepts and, in some cases, explored ‘compatibility’ with ecological economics (e.g. Holt 2005; Vatn 2009). Nevertheless, no distinctive and coherent economy-environment model is discernible nor is an explanation of the economic process in which the environment is situated. Instead the focus has gravitated to policy prescriptions which typically demonstrate an instrumental view of nature, promoting a synthesis of expertise and ‘better policy’ which accepts market logic but places macro limits through government regulation to evoke the spectre of a Green New Deal. Ironically, it was a similar ‘neoclassical synthesis’ that oversaw the environmental degradation of the post-WW2 boom.

Their stand-out message is the classic Keynesian one of state ('expert') management of the economy. Where it was once unemployment (labour, wages and effective demand) and investment (money, growth and uncertainty), now the environment is a potential policy concern. All three are deemed too important to be left up to the vagaries and uncertainty of microeconomic processes. Just as there is no natural tendency to full employment equilibrium, so too there is no natural tendency to equilibrium in the sustainable drawdown of natural resources. If the economy is not self-regulating with respect to employment, natural resources, and investment, then the state must 'take control'.

3 *The Régulationists*

Régulation theory seeks to explain the long run changes in capitalist economies which characterise distinctive phases of economic growth, the dimensions of capitalist development and the forms of economic crisis. The theory is underpinned by a Marxian view of capitalism where the mode of production is structured around two fundamental conflictual and unequal social relations: the commodity relation and the wage relation. Lipietz (1988: 14-15) observes that "the notion of social relations points to the regularity and repetitiveness of certain practices". This does not mean that change cannot occur. It does mean that certain elements - invariant aspects - are sustained and their inherent contradictions are contained partially whilst their historical form and precise articulation will alter over longer periods ensuring capitalism's hegemony (Boyer 1990: 37). This 'invariant reproduction', 'contradiction containment' and 'historical representation' requires a set of regularities. These are distinctive social and economic patterns, the *regime of accumulation*, that ensure the long term stabilisation of the process of accumulation. The concrete expression of the accumulation regime is the *mode of régulation*. The mode coheres particular periods of accumulation by reproducing capitalism's social relations through a conjunction of institutional forms (Boyer 1990). In other words, the mode of *régulation* governs and secures an accumulation regime by reducing, containing, and mediating - regulating – conflictual social relations (Lipietz 1987).

Why have *régulationists* paid limited attention to the environment?

Lipietz, the most prominent ecological *régulationist*, acknowledges the scant attention given to the environment. Chester (2010) rejects Lipietz's (2002: 223) claim of few *régulationists* being environmentalists to explain the limited focus and contends that the answer lies in the conceptual framework, genesis and evolution of *régulation* theory.

To explain the processes and dimensions of capitalism, its growth, reproduction and crises, *régulationists* analyse the five institutional forms of the mode of *régulation* which are "any kind of codification of one or several fundamental social relations" (Boyer 1990: 37). The inherent conflict of capitalism's social relations is contained – although not indefinitely - in a number of ways. Each institutional form may include compromises between socio-economic groups "when none of the forces present manages to dominate the opposing forces sufficiently to enable it to impose its own interests entirely" (Boyer *et al* 2002a: 340). Examples include the adoption of limits for water usage with breach penalties, local development planning rules and charges for waste collection. These compromises impose discipline in relation to an institution through which behaviour is adapted but which subsequently grow into an object of increasing tension. More importantly, the institutionalised compromises of capitalism only exist between human beings in relation to that which "unify or set them in opposition to one another" (Lipietz 2002: 224). Consequently *régulationists* reject any notion of institutionalised compromises with the environment. Hence their analytical preoccupation has been the constructed context of capitalism not the economic-environment relation.

The theory's genesis and evolution provides another reason for an environmental gap in the body of *régulationist* work. The 1970s economic crisis meant "there was a need to understand why things no longer worked, a need which first required an understanding of what had previously worked, and why" (Lipietz 1988: 14). Early studies focused on forms of crisis with subsequent research directed at specific aspects of crisis such as inflation and state expenditure. *Régulationists* sought to explain the causes for the crisis of Fordism and these were not found to be within the economic-environment relation (Lipietz 2002).

Can régulation theory explain the economic-environment relation?

The environmental consequences of the contemporary accumulation regime are becoming evident from *régulationist* analysis, despite the environment not being at analytical centre stage. Lipietz (1997, 2002) has shown: forms of ecological *régulation*; that the ‘most developed, highest energy consumer countries with the highest carbon emissions’ regard environmental protection as preventing growth and development; and, the economic-environment relation may act as a constraint on post-crisis growth. Given its role vis-à-vis accumulation, changes within the mode – such as ecological *régulation* - indicate some form of impediment to accumulation to which responses within the mode are seeking to alleviate or eliminate. This means the environment-economic relation is becoming more explicit to the dynamics of post-Fordist capitalism evidenced through changes within the mode of *régulation*.

Zuindeau (2007: 282) posits that the ‘particular form’ of the economic-environment relation may be expressed in terms of environmental impact, the environment’s impact on economic activities and environmental management methods. He also suggests that different accumulation regimes display different economic-environment relations which “will be influenced by the content and development of institutional forms” (*ibid*: 287). A complementarity exists, according to Zuindeau, between the economic-environment relation and three of the mode’s five institutional forms (competition, form of the state and international position). This view negates any complementarity with the *conjunction* of all institutional forms (the mode) although it is this very conjunction which legitimates – and reinforces - the ability of the mode to sustain accumulation. This view of complementarity also means the wage-labour nexus and monetary constraint (the other two institutional forms) are deemed to have no association or interaction with the economic-environment relation. How is this reconcilable with the dominance of the wage-labour nexus during Fordism and the ascendancy of the monetary regime during the post-Fordist regime (Boyer *et al* 2002b)? Zuindeau is silent on this point and if any of his selected institutional forms has a more dominant complementarity to the economic-environment relation.

Zuindeau uses the term ‘complementarity’ to mean the influence exerted on the economic-environment relation “by the content and development of institutional forms” (*op cit*).

Complementarity refers to an interrelation of reciprocity where one thing depends on or supplements the other. To complement often refers to forming a complete whole, or making up what is lacking in another. Amable (2000: 656 cited by Zuideau 2007: 287, our emphasis) posits that “the concept of complementary institutions is based on multilateral reinforcement mechanisms between institutional arrangements: each one, by its *existence*, *permits or facilitates the existence of the others*”. This statement is a direct reference to complementarity *between* the mode’s institutional forms with which we have no issue. However, Zuideau’s extension to suggest an institutional complementarity exists between the mode of *régulation* and the economic-environment relation ascribes to this relation the status of an institutional form equivalent to those of the mode. Is it? Is the economic-environment relation a codification, as are the mode’s institutional forms, of capitalism’s fundamental social relations to contain, mediate, and thus regulate the inherent conflicts of those social relations through laws, rules, regulations, compromises, negotiated outcomes, a common value system or representations?

The economic-environment relation as a core social relation of capitalism has generated considerable debate.¹ This relation is a well-established feature of economic activity which is strongly exemplified by the environment’s ‘tap and sink’ role. But is the economic-environment relation a codification of a *particular* capitalist social relation? The evolution of capitalism has placed increasing pressures on the environment, neoliberal capitalism has progressively applied forms of commodification as a solution to environmental problems, and the concept of sustainability has been re-configured to validate the holy grail of economic growth (Carruthers 2001). Zuideau (2007) notes pre-capitalist forms of the economic-environment relation. These observations lead us to conclude that the capitalist economic-environment relation is subject to ongoing metamorphosis (as do the mode’s institutional forms) and there is increasing evidence of ecological *régulation*, within the mode, directed at mediating and containing environmental issues.

The historical form and precise articulation of capitalism’s fundamental social relations, we noted earlier, will continually alter as certain invariant aspects are sustained and their inherent contradictions contained. This invariant reproduction, contradiction containment

¹ For example, see: Burkett 2006; Lipietz 1996, 2000; and the six responses to Lipietz in the June 2000 issue of *Capitalism, Nature, Socialism* along with his rejoinder.

and historical representation requires a set of regularities to ensure accumulation, and we know the materialisation of those regularities is the mode of *régulation*. The economic-environmental relation has historical representation. It has contradiction containment evidenced by the heightened prevalence of ecological *régulation*. But what are its invariant aspects upon which capitalism depends for its reproduction?

A further issue is posed by Zuindeau's usage of 'complementarity'; namely, the assertion that the economic-environment relation is not fully realised without reference to the mode of *régulation* and the converse. It is our contention that the mode of *régulation* does *not* give existence per se to the economic-environment relation. Rather, it gives *definition to* - not complements - the nature, scope and form of this relation and, as such, explains some of the mode's complexity. How?

We know that the mode of *régulation* coheres the accumulation regime and seeks to avoid crisis. It does this through the conjunction of its five institutional forms which in the post-Fordist regime encompasses ecological *régulation* – a range of actions and policies primarily initiated by the state to deal with the environmental degradation caused by the accumulation process (environmental managerialism). For example: the trading schemes to purportedly reduce greenhouse gas emissions; the environmental impact assessments conducted for new infrastructure projects and used to negotiate compromises for projects to proceed; the fishing quotas imposed to allegedly ensure species survival but also maintain economic activity; the legislation imposing penalties for large scale oil spills (but not preventing or prohibiting); and, local land use regulations which legitimate certain levels of environmental damage from vehicle access to national parks and ocean beaches.

These actions and policies, we contend, point to the nature, scope and form of the economic-environment relation because they are directed at removal or alleviation of impediments to accumulation. They are evidence of the *type and form* of interaction between the economic system and environment. Albeit a handful of examples, they nevertheless characterise, delineate and thus define aspects of the contemporary capitalist economic-environment relation. Consequently, the term 'complementarity' does not adequately depict the interaction between the economic-environment relation and the mode of *régulation*.

Nevertheless, Zuindeau along with Jäger *et al* (2001), Lipietz and the *régulationist* geographers (e.g. Angel 2000; Bridge 2008; Gibbs 2006; Peck 2000) provide useful insights about the economic-environment relation. For example: the accumulation process depends on the exploitation of labour and nature as ‘a tap and sink’; certain accumulation strategies require specific forms of access to specific forms of nature which will require specific forms of ecological *régulation*; the relation between ecological *régulation* and the mode’s institutional forms will vary depending on the accumulation regime; and capitalism’s relationship with nature is governed by the imperative of accumulation. These conclusions underpin the *régulationist* framework proposed by Chester (2010: 33) for empirical investigation of the economic-environment relation which requires the identification of four elements:

- (1) the social and historical origins of the economic-environment relation, its collective actors and spatial implications;
- (2) the constituent elements defining the economic-environment relation within each institutional form of the mode of *régulation*, and the relationship between ecological *régulation* and the macro mode;
- (3) the environment’s place in the accumulation regime and macroeconomic relationships; and
- (4) the drivers which cause transformations in the economic-environment relation.

This framework requires each institutional form to be analysed before assessing the impact of each, and their conjunction, on the economic-environment relation. Such an approach is necessary because the changing nature of the economic-environment relation can only be understood by reference to the macro mode of *régulation*. The five-dimensional grid is not enough to explain the economic-environment dynamic which can only be explained within the context of the mode. An ‘economic-environment analysis’ against the conjunction of all five macro forms will enable conclusions to be drawn as to the nature of any particular institutional arrangements which define the economic-environment relation and ensure its functioning. The analytical method posited also does not presuppose if any one institutional form is particularly influential.

This analytical schema and approach is analogous to *régulationist* sector-based studies (Chester 2007: 64-70). There is, however, a critical difference. The environment is not subsumed, like a sector, within the economic system and thus ecological *régulation* will not mirror or replicate the macro mode as does sector *régulation*. Ecological *régulation*, and thus the economic-environment relation, nevertheless can only be understood in terms of the overall prevailing mode of *régulation*. The proposed method focuses on the dynamics of capitalism over time to explain the impact on the environment, does not conceive nature as being subordinate to the economic nor that there are 'acceptable' levels of environmental degradation. Thus, we contend a *régulationist* analysis can yield a greater depth of understanding about the dynamics of the contemporary economic-environment relation, the sources of change and the forms in which change occurs than those offered by neoclassical environmental economics or other traditions using similar static ahistorical methods.

4 The Polanyians

Karl Polanyi (1944) is most well-known in heterodox circles for *The Great Transformation* (TGT). In that book, he explored the empirical and historical problem of the rise and fall of nineteenth century "market society" and its associated "breakdown of the international political economic system" (Stanfield 1980: 594). Thereafter, his conceptual concerns became more pre-occupied with the methodological underpinnings of economic theory and its limitations for understanding economies historically and comparatively. Polanyian scholarship has tended to be fractured accordingly, with TGT achieving greater prominence than Polanyi's later 'anthropological' works. The distinctive non-capitalist focus of this later period may partly explain such tendencies, although Polanyi *did* have a significant impact in the field of economic anthropology (Dalton 1990: 251).

However, in the Keynesian 'mainstream' of the post-WW2 era, Polanyi's work remained marginal until the onset of neoliberalism and its 'free market' approach to policy development. With the resurgence of *laissez-faire*, there has been a renewed interest in TGT where Polanyi points toward an alternative way of framing economic processes to that posited in the 'iron law of the market'. He demonstrated how 'free markets' were politically

constituted during the nineteenth century, arguing that “*laissez faire* itself was enforced by the state” (1944:139). The same is true of the neoliberal milieu where the illusory ‘self-regulatory’ character of the economy has once again been asserted for policy purposes. Much contemporary Polanyian scholarship is thus channeled into a critical engagement with the ideas and practices of neoliberalism.

Why have Polanyians paid limited attention to the environment?

The TGT points to the socially instituted, or ‘embedded’, character of the capitalist economy and the role of politics necessary to its constitution and management by markets. However, Polanyi, also specifically identified ‘nature’ as a crucial underpinning of economy that was a casualty of the market system. It is therefore surprising that contemporary Polanyians have not engaged more comprehensively with environmental discourse. One possible explanation for this neglect is that theorists have tended to concentrate on debating the meaning or significance of key concepts in TGT such as ‘embeddedness’, ‘fictitious commodities’, or ‘double movement’. In this way, a dedicated focus on environmental concern may have been subsumed in broader analytical tasks designed to augment the critical engagement with neoliberalism.

Can Polanyian theory explain the economic-environment relation?

In TGT, Polanyi (1944) explicitly drew attention to the precarious economy-environment relationship evident in the nineteenth century international ‘self-regulating’ market system. He argued that persistence of such a utopia “would result in the demolition of society” and that “[n]ature would be reduced to its elements, neighbourhoods and landscapes defiled, rivers polluted...the power to produce food and raw materials destroyed” (1944:73). For Polanyi, the regulation of land and the natural environment through a ‘self-regulating’ market-system would jeopardise the very ecological conditions necessary for the reproduction of society. The source of this potential tragedy lay in the logic of neoclassical economics which supported the *laissez-faire* argument for ‘non-interference’ in economic matters.

Neoclassical theory suggested that the factors of production (land, labour and money) could be commodified in order to manifest an equilibrating international economic system where all prices would be determined by market forces. Yet, as Polanyi explains, although markets for these 'commodities' "are essential to a market economy, no society could stand the effects of such a system of crude fictions...unless its human and natural substance...was protected" (1944: 73). Indeed, there were strong 'moral' motives for protectionist actions in the late nineteenth century context of rising wealth alongside growing poverty, disease and environmental stress. Thus, in what Polanyi referred to as a "double movement", early social reformers obstructed market liberalisation by forcing institutional 'protections' for the 'fictitious' commodities in the interest of "society" (1944: 143).

However, the need for governance beyond the market also represents a contradiction for the economic arguments underpinning *laissez faire*. Hence, in the neoliberal milieu, Polanyi has invoked consideration of the ways in which social and political action is central to, not 'outside', the economy. TGT has inspired demands for 'protection' against abstract 'market forces' and an end to 'free market' policies that impact negatively on society and the natural environment. At the policy level, the instability of the economy-environment relation stemming from the commodity fiction invokes the need for specific policies and forms of regulation. However, as Polanyi suggested, these forms are not pre-determined but stem from the "values, motives and policy" shaping economic practice in any specific empirical context (1957: 250).

In identifying the social determinants of the economic process, Polanyi acknowledged the pivotal role of prevailing cultural, political and ideological norms. Thus, the realm of 'pragmatic politics' is where we find the Polanyian mechanism for shaping a green economic life in a market-based system. In the context of widespread concern about the ecological environment and its sustainability, Polanyians would typically look to ways the political sphere can be harnessed for planning environmental protections to provide economic security into the future. For example, through 'ecological modernisation' where 'socialisation', rather than 'marketisation', of environmental amenities and resources is the path taken by the state for transforming capitalist economies (Low 2002:55).

However, while the emphasis on social movements and democratic planning supports a critical engagement with policies and ideas informed by 'economics', it is yet to translate into a systematic exploration and transformation of economic theory itself. Contemporary Polanyians seek to ensure that social and ecological realities are not subordinated to market abstractions, but what might a green Polanyian *theory of economy* look like? At this level, their contribution has been somewhat meagre. Halperin's (1994) *Cultural economies past and present* (1994) and Paton's *Seeking sustainability* (2011) provide exceptions. Emanating from economic anthropology and political economy respectively, both explore and articulate the environmental significance of the economic theorising Polanyi developed in the years following TGT.

In *Trade and Market in the Early Empires* (1957) and *Livelihood of Man* (1977), Polanyi gave analytical substance to the metaphor of 'embeddedness' by modelling the different ways in which 'economy' is systematised on a social scale (Paton 2011:30). Drawing on Marx and anthropological scholarship (Halperin 1994:34), Polanyi developed a universal or 'meta-theory' that put 'nature', as "the silent obstructor and furtherer", front and centre of the human activities associated with economy (Polanyi 1977: 33). However, rather than a logically constituted 'thing' – i.e. 'the economy' of economic orthodoxy – Polanyi's economy is a material, or "substantive", *process* (1957:243) described as

the institutionalised process of interaction...between man...nature and his fellows...which functions to provide material means in society...Without an economy in this sense, no society could exist for any length of time (1977:31-34).

On this substantivist view, economy is effectively a "conduit" for provisioning (Paton 2011:16) that constitutes the ways in which "humans, in interaction with each other and the environment, provide for their survival and health" (Nelson 1993: 34). This focus directs attention beyond the exchange problematic of neoclassical theory to the tangible practices of production and distribution that must be sustainable in order for societies to be reproduced over time. Polanyi's "substantive economy" is a general model common to all social systems, while the institutional patterns the provisioning process may take in any given society are represented by specific "forms of integration" (Polanyi 1957: 250; 1977:

35). Together, these constitute a “universal frame of reference” for understanding empirical economies (Polanyi 1957: 245).

Polanyi defined economy in its substantive sense as “an instituted process” geared to the “ordered advance of all material means towards the consumption stage of livelihood” (1977: 31-32). He suggested two types of “movements” could be observed in the interactions between “man...nature and his fellows” as they go about producing and reproducing their social existence (Polanyi 1957: 243). First, the spatial, or “*locational*”, movements in production which also involves the gathering together of the technical elements required for production, whether ecological, technological, or human/social (Polanyi 1977: 32). Second, the organisational, or “*appropriational*”, movements of distribution which represent changes in the rights of disposal over the elements of production and the output it generates, including goods, tribute, income, or taxation (Polanyi 1977: 31).²

These locational and appropriational movements constitute the economic *process* but they have no separate existence. Production and distribution cannot, in Polanyi’s words, “be physically detached from the ecological, technological, and societal tissue” (1977: 34). Hence, they are associated with the “presence of definite structures in society” which constitute the *institutional* level of the substantive model (Polanyi 1977: 36; 1957: 250). Here, Polanyi identified three common institutional patterns – reciprocity; redistribution; exchange – that shape the economic process in different social, historical and environmental settings (1977: 35; 1957: 250). These “forms of integration” determine “the institutionalised movements through which the elements of the economic process...are connected” (Polanyi 1977: 35).

The forms integrate the movements between people and between ‘society’ and ‘nature’ thereby securing “order in production and distribution processes” (Polanyi 1944: 47). Where there is co-existence of different forms, Polanyi argued the pivotal factor determining “dominance” was “the degree to which it comprises land and labour in society” (1957: 255; 1977: 42). The dominant form organises productive forces, creating their institutionalised interdependence and mobilisation on a social scale. These ideas are not inconsistent with

² According to Halperin (1994: 44), the locational/appropriational categories are analogous to Marx’s forces and relations of production.

the Marxian principle that the nature of the economy is determined by the status of labour but, as Polanyi argued, “the integration of land into the economy should be regarded as hardly less vital” (1977: 43; 1957: 256).

Polanyi’s economic substantivism provides a basis for reconceiving ‘economy’ in universal terms as a process dependent on ‘nature’ as both ‘source and sink’. Moving from the general to the particular, the ‘forms of integration’ can also explain the precarious economy-environment relation within the specifics of capitalism. Market exchange may be the dominant form of integration because it organises the productive forces, including the integration of land and natural resources into the economic process. However, because of the ‘fictitious’ commodity status of those forces, the market cannot be “independent of non-market institutions in doing so” (Paton 2011:48). Thus, ‘double movements’ reflect efforts to find the appropriate ‘balance’ between exchange (market) and other forms like redistribution (state/household).

The substantive reading of Polanyi brings out an underlying theoretical cohesion in the purportedly dual focus of his oeuvre (Paton 2011:30; cf Stanfield 1980). It also highlights Polanyi’s lifelong concern about the method and use of neoclassical theory in relation to empirical (real, rather than merely logical) economies. He sought to counter the formalist “logic” of neoclassical theory with an approach derived from “fact”: the human need for a sustaining physical environment (Polanyi 1977: 19; 1957: 243). The model shifts the unit of analysis from the atomistic individual to society and its institutions, thereby providing a basis for understanding the social organisation of production and reproduction so critical to questions of ecological sustainability and the economic-environment relation.

5 Concluding comments

Mainstream neoclassical economics fails to elucidate the interaction of the capitalist economic system with the environment, treating each as virtually independent of the other and without a theory of production. Its analytical focus rests on conceptualising environmental issues as externalities arising from market failure. Similarly, the Post-Keynesians have endeavoured to ‘graft’ Keynesian concepts into an ‘environmental

economics'. This has not yielded a clearly articulated theoretical and methodological framework to explain the economic-environment relation. Perhaps a synthesis is not achievable given the different Post-Keynesian methodological strands. They are on stronger conceptual ground, however, when engaging in the potential for macro-economic management of environmental resources. Nevertheless, the Post-Keynesian contribution embodies a conceptualisation of the environment shared by many mainstream environmental economists, namely its subordination to the economic.

Régulation theory, on the other hand, does not subordinate nature to the economic or assume 'acceptable' levels of environmental degradation. It provides an alternative analytical context, the focus of which is the dimensions, dynamics and crises of capitalism. The mode of *régulation* embodies ecological *regulation*, the range of policies, actions, arrangements and norms to deal with environmental degradation while not impeding accumulation. Thus, the constituent institutional forms of the mode of *régulation* and their conjunction, define the scope and form of interaction between the capitalist economic system and the environment. Consequently, the mode of *régulation* provides the context to understand capitalism's economic-environment relation and its evolving nature. This is starkly illustrated by the morphing of the mode of *régulation* dominant throughout the Keynesian-Fordist era (managerialist command-and-control measures) to its contemporary neoliberal form (market-based measures) (Chester 2008).

Similarly, in the Polanyian case, a cogent 'meta' analytical framework for explaining the contemporary environmental challenge and the responses of capitalism to environmental issues is evident. The substantive model potentially provides the basis for an alternative 'economics of sustainability'. At the same time, it reveals the political and contingent mechanisms by which capitalist reproduction is secured through the 'balancing' of institutional forms governing the fictitious commodity status of 'nature'. However, at the micro level, Polanyi did not specifically problematise the neoclassical analysis of price determination (1977: 43). Instead he asserted a 'more general' model of economy which, in the capitalist case, rests significantly, but not absolutely, on a price-making market system. It is in this space of the 'not absolutely' in which contestation over the form and extent of ecological governance in capitalism necessarily takes place.

All three of our potential 'green' heterodox approaches bring us back, in one form or another, to the social and political management of economy-environment relations. In this, they demonstrate their 'realism' in a way in which neoclassical theory is incapable. It is thus fitting that *régulationist* and Polanyian approaches do not engage with neoclassical theory on its own terrain. The Post-Keynesians sometimes do and have become stuck on a 'methodological pluralist treadmill' risking capture in a vortex of abstractions that will remain 'logical possibilities' unrelated to the real world (Knight 1941). Institutionalists are also methodologically pluralist, but we have shown two that can offer 'green' insights. Post-Keynesians are encouraged to do the same.

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