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# Making Pollution into a Market Failure Rather Than a Cost-Shifting Success: The Suppression of Revolutionary Change in Economics

SRE-Discussion-2019/06 2019

**Making Pollution into a Market Failure Rather Than a Cost-Shifting Success:**

**The Suppression of Revolutionary Change in Economics**

**by**

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**November 2019**

## Abstract

This paper explores core failures of environmental economics as a scientific attempt to understand the ecological crises. The case of environmental pollution is used to show how neoclassical externality theory evolved to establish commitment to, and dogmatic support for, an elitist ethics and liberal market ideology. The public policy response to pollution then recommended is to internalise externalities by correcting market prices based on monetary valuation of the social costs (i.e., damages). Pollution as a market failure is deemed a correctible error of the price system. This is contrast with an alternative theory of pollution based on a classic institutional economic theory of cost-shifting that instead requires a public policy response involving regulation and planning. Reflection on the history of thought related to these two theories of pollution reveals how environmental economics became a marginalised field supporting the neoclassical economic orthodoxy with full commitment to its core paradigms. Why the critical and realist institutional approach had to be suppressed is explained as denying the potential for a revolutionary paradigm shift in economic price theory.

**Keywords:** Environmental economics; externalities; cost-shifting; price theory; pollution; Arthur C Pigou; K William Kapp; paradigm shift; neoclassical economics; orthodoxy; institutional economics

JEL: Q5 D62

## I. INTRODUCTION

Environmental economics appeared in the 1960s along with the growth in public environmental awareness, as a direct response to the rise of environmental problems (Spash 1999). By the late 1960s and early 1970s, the promise of material wealth for all through economic growth and post World War II optimism in the abilities of science and technology were faltering. Economic growth was strongly debated and increasingly criticised as positively misleading in terms of the consequences for human society (e.g., Mishan 1969a; Hodson 1972; Meadows et al. 1972; Olson and Landsberg 1973; Barkley and Seckler 1972; Daly 1974, 1972; Hirsch 1977; Scitovsky 1976; Schumacher 1973). Already Boulding (1966) had characterised the economy as being run like the wild west, populated by cowboys who exploited resources, chucked their waste on the ground and rode away to infinite horizons—where lay the promise of fresh resources and new environments to exploit and degrade. This was contrast with Earth as a type of closed system, like a spaceship, where material supplies were fixed, energy limited and waste remained within the system. In order to understand the predicament of human kind, the challenge appeared to be to create a totally new approach to economics.

Environmental economics then appeared both innovative, progressive and potentially revolutionary. For example, Bohm and Kneese (1971: ix-x) introduced their edited volume, *The Economics of the Environment*, stating that this was "a profession rethinking, extending, and revising its concepts, and finding new applications for them". They drew a parallel with "the ferment in the profession when the Keynesian revolution was in progress", and claimed history was in the making. The potential for a paradigm shift in the mode of Kuhn's theory of science seemed possible (Kuhn 1970 [1962]). As Kapp (1978 [1971]: 310) stated:

> "When empirical data and new facts become incompatible with, or can no longer be accounted for by established theories, the time has come for the formulation of new

concepts, new modes of thought and procedures. This is the time of 'scientific revolutions'."

The reality was to be a little different, and some of the reasons why a revolution in economic thought failed are discussed here in terms of a Kuhnian paradigmatic defence of price-making markets.

In doing so, the paradigm shift theory of Kuhn (1970 [1962]) should itself not be adopted uncritically (Spash 2020; Buch-Hansen 2018). While useful for raising issues of sociology of science, Kuhn's approach appears problematic as a general theory for understanding scientific change (especially in the social sciences). In particular, decades of overwhelming evidence of 'anomalies' relating to neoclassical economic theory have not created the collapse of that theory. Instead competing paradigms exist alongside each other. What becomes the mainstream, orthodoxy and dominant economic theory appears to be that most suited to supporting the political hegemonic structure, rather than a theory providing a realistic explanation of the economic process. There is then a tension between realism as to the object of study (i.e., social systems, economies, institutions, provisioning systems), and the creation of an organisational scientific structure that affirms/denies the validity of scientific practice in a field of knowledge.

Environmental understanding is a fundamental criticism of actual capital accumulating economic systems in general and price-making market capitalism in particular. The challenge posed by environmental problems to the economics profession itself means both fundamental rethinking of professional practice, and radically changing the orthodox understanding of modern capital accumulating society and its structure. The importance of political economy is re-established because who gets exploited and polluted and who gets to extract and use resources is fundamentally about power relations in society. The scale and substantive nature

of environmental problems points towards the systemic failures of the modern industrialised economies and the necessity for social ecological transformation of actual economies.

How this need for revolutionary change in actual economics has been denied goes hand-in-hand with the control of economic understanding. This is then a matter of the extent to which economic researchers feel dependent upon the use of existing paradigmatically enforced procedures to construct their own knowledge claims and professional identities. In creating a field of knowledge psychological and political factors combine. A researcher who feels the necessity to convince colleagues of the importance of their particular concerns typically conforms to existing practice in order to obtain a high reputational standing in a given field. The researcher themselves becomes defined by their commitment to the disciplinary doctrines. Economics as a disciplinary field then controls and delimits ideas about the environment, while key individuals that conform to paradigmatic doctrines act to prevent a scientific revolutionary change. In economics has then been an on-going tension between paradigmatic conformity and an encroaching social, ecological and economic reality.

The contributions of economists, during the rise of environmentalism, developed around a distinct set of connected research agendas. First, there was the relationship of environmental problems to the growth economy with its massive input of materials and energy justified as necessary to meet the ever expanding wants of the consumer. Second, there was the analysis of how an economic system, that was meant to be creating wealth and well-being for all, could be creating and justifying harm (i.e., social costs) as a regular part of business practice? Third, there was the need to measure these harms,[1] and develop techniques and tools by which they could be placed on the public policy agenda, which led to monetary valuation of environmental impacts. Fourth, there was the design and recommendation of

1 There were also recognised benefits (e.g. aesthetics, recreation) that economists associated with environmental change, and these were similarly to be measured and monetised.

appropriate policy measures (e.g. regulation, planning, taxes, subsidies, permit trading). All these research agendas posed major potential challenges to the dominant economic theory and could have been revolutionary endeavours, but they became nothing more than mildly reformist or totally conformist.

This paper is part of an ongoing project, addressing the struggle for revolutionary change in economics, that will be published as a book including a chapter covering this four point research agenda. Here I will limit the discussion primarily to the second research agenda with implications for the third. In particular, the practice of regarding occurrences of pollution as externalities will be critically analysed and shown to be inferior to an alternative institutional cost-shifting explanation. The orthodox treatment of pollution events as minor correctible market failures is show to conflict with the realisation—already apparent in the 1960s and the then emerging field of systems ecology—that production and consumption in a modern economy continuously creates harm on a scale and with consequences that are major problems for human society as well as non-human Nature. Pollution is an all pervasive phenomenon, not a minor aberration in an otherwise perfectly functioning price-making market system. That pervasive pollution is an integral part of how competitive agents operate to make profits and gains at others expense is then best understood as cost-shifting. The next section traces the history of thought relating to how the theory arose that established the standard approach of regarding pollution as an externality to be fixed by getting the prices right in the market place. This is followed by an exploration of the cost-shifting approach that reveals how environmental economists rejected their own foundational insights and reinterpreted the works of others, such as Pigou, to conform with neoclassical economics and an increasingly neoliberal agenda.

## II. POLLLUTION AS A MARKET FAILURE

Environmental economists know the market fails to price all the benefits and costs associated with the use of natural resources and the environment. However, this perspective must also be constrained lest it go too far and threaten the political utopian project of achieving an unregulated price-making market economy. So, they argue, price-making markets merely need some expert help to be perfect. This is the basic justification for conducting monetary valuation exercises using cost-benefit analysis. They are part of a weak political reformist agenda going back a hundred years.

The line of reasoning adopted by environmental economists is derived from a theory of industrial "external economies" originating with Marshall (1916), and further developed by the conceptualisation of social costs in the work of Pigou (1920). Marshall was concerned about social benefits from infrastructure and how one firms location can benefit from another's (e.g., one builds a road and a second comes along and uses it without having paid anything). Pigou (1920: 159-163) expanded on this idea to cover a range of factors outside the planning process. However, in his widely cited book *The Economics of Welfare*, he never used the term 'externalities'. Instead, he talked of "divergences between marginal social net product and marginal trade net product", as well as "uncompensated services" and "incidental uncharged disservices" (ibid). Pigou gives several examples of disservices, including: building developments that remove play areas, injure the "health and efficiency of families living there", crowd out existing properties and reduce air quality; running of motor cars that wear out the surface of roads; production and sale of intoxicants causing extra costs in terms of policemen and prisons; wars waged to obtain foreign trade and investment returns; and women doing factory work while pregnant impacting on the health of the child (ibid: 162-163). He explained that some such problems could be addressed by government interventions using economic incentives.

> "It is plain that divergences between private and social net product of the kinds we have so far been considering cannot, like divergences due to tenancy laws, be mitigated by a modification of the contractual relation between any two contracting parties, because the divergence arises out of a service or disservice rendered to persons other than the contracting parties. It is, however, possible for the State, if it so chooses, to remove the divergence in any field by "extraordinary encouragements" or "extraordinary restraints" upon investments in that field. The most obvious forms which these encouragements and restraints may assume are, of course, those of bounties [i.e., subsidies] and taxes." (ibid: 168)

The term "extraordinary encouragements" is borrowed from Adam Smith's *Wealth of Nations* (e.g., Smith 1976 [1776]: 14, 182, 275, 493, 742, 838, 914). Smith also uses variations such as extraordinary privileges, restrictions and restraints (ibid: 864, 881, 914) and extraordinary taxes (ibid: 1142). These are general references by Smith to various forms of government intervention to encourage/discourage types of trade and industrial production. Pigou (1920) then proceeds to also give general examples of financial incentives in actual policy (e.g. taxing alcohol, housing developers paying for free playgrounds, petrol taxes and motor car licenses, national insurance taxes, taxing income from foreign investments).[2] However, none of these cases involve economists calculating the social costs to set the "bounties and taxes".

In fact, in a later work, Pigou (1947) explicitly argues that quantifying social costs is impossible. He states that, "the practical difficulties of determining the right rates of bounty and duty would be extraordinarily great" (Pigou 1947: 42). He questions the possibility of ascertaining social cost in terms of money. He specifically asks: "how are we to make the corresponding calculation for a factory industry the smoke of which increase the expenses of

[2] Other types of cases are also considered such as urban planning and zoning laws, slum clearance, worker retraining, maternity leave and liability for healthcare.

the public in washing and cleaning?" (ibid: 43). Similarly, he questions the ability to calculate benefits from planting forests that improve climatic conditions. He makes clear that the examples he gave in *The Economics of Welfare* were of a different sort when he states that:

> "so far as I know, no attempt has ever been made in a capitalist régime to use bounties and duties for bringing about adjustments of the kind I have been describing. Up to the present suggestions in this matter have been confined to the writings of economists; and even they have never attempted the quantitative study that would be necessary before their suggestions could be applied to practice."

That social costs could not be addressed as in "the writings of economists" by a system of "bounties and duties" (i.e., internalised by subsidies and taxes) runs counter to the claims made for 'Pigouvian taxes' by others, after Pigou's demise. Concerning this impossibility Pigou himself speculates that "Maybe, it demonstrates in this field the bankruptcy of capitalism".[3] So, somewhat amazingly, in contradiction of his promotion by neoclassical economists as founder of the method for internalising externalities via tax/subsidy,[4] Pigou here argues against the possibility of the very tax which later bears his name.

Pigou's critique of both the possibility of internalising social costs in this way and of capitalism have both been forgotten. More generally, as noted by Kapp (1978 [1963]: 40), the

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[3] In attempting this social cost calculation he believes a central planning authority would fair no better than the government of a capitalist State. However, he concluded his book in favour of a socialist State agenda including removing inequalities via income taxation, investment in health and education, nationalisation of industries and the central bank, and national planning of most capital investment. At the same time Pigou should not be read as some naïve advocate of government intervention, as ignorantly attempted by Coase (see Aslanbeigui and Oakes 2015: 166-169). Part II Chapter XVII "State Intervention" of his *Economics of Welfare* makes clear his awareness of institutional context determining good outcomes from interventions by public authorities (Pigou 1920).

[4] For example the Pigou Club established by Gregory Mankiw in 2006 has advocated 'Pigouvian taxes', e.g., to address human induced climate change and road congestion (Lovejoy Knight 2018: 65). This Club has included amongst its members: Gary Becker, Robert Frank, Paul Krugman, Nouriel Roubini and Lawrence Summers (Aslanbeigui and Oakes 2015: 97).

dismissal by economists of problems in social cost calculation, and the narrowing down of the concept itself, resulted from the rise of 'new welfare economics' (e.g., Little 1950). This claims to remove the need for social evaluation and defines social welfare as the sum of individual utility. Its methodological individualism denies the existence of social phenomenon and society as distinct or having emergent properties. The underlying ethical basis is preference utilitarianism. Welfare comparisons across individuals (i.e., how much a change harms or benefits different individuals) are meant to be avoided by adopting the criteria of only making policies that make people better-off and none worse-off. This is attributed to the Italian economist and sociologist Vilfredo Pareto (1948-1923) and regarded by neoclassical economists as a criterion of efficiency (i.e. prescribing whether a resource reallocation would be desirable on grounds of maximising welfare or utility). Mainstream economists seem to regard this Pareto Criterion as an uncontroversial ethical concept. Some suspicion as to its ethical bias might have been raised by the fact that its originator supported elitist social theories and welcomed Mussolini's fascism. Indeed, consistent with this political ideology, the theory allows policies that make the elite better-off while doing nothing for anyone else.

In policy terms, the Pareto Criterion is typically unworkable because somebody is nearly always made worse-off. Hence Kaldor and Hicks tried to salvage the situation by putting forward an alternative prescriptive criterion where only the ability to potentially (but not actually) compensate for harm was now promoted as a good test for making efficient policy (Hanley and Spash 1993). Mishan (1969b) notes that Kaldor and Hicks erroneously claimed "an objective method of detecting increases in 'wealth' or 'efficiency' had been discovered", and that its implications were also ethically unacceptable. In addition, this merely reintroduced the problem of assessing welfare differences; that is, in order to

determine the amount of monetary transfers necessary to leave those harmed potentially no worse-off. Such problems are learnt by mainstream economists and duly forgotten.

New welfare economics then combined with externality theory to justify mild reformism in response to ecological destruction, because the projects causing this destruction could be deemed to create greater benefits (to the elite) than harms (to the poor). This may also be described more crudely as jobs (code for capitalist profits) are more valuable than the environment (i.e., health of poor people and non-humans). Pollution impacts could, the argument goes, *potentially* be paid for and harm compensated, making nobody worse-off and somebody better-off. More than this, contra Pigou, the harm could be converted into money and included in a calculation of marginal social costs relating to a production process so that the price mechanisms could be adjusted to achieve allocative (Pareto) efficiency, i.e., externalities could be internalised. However, this theory of pollution externalities took some decades to appear.

Besides Pigou's work the discussion of external economies and diseconomies developed little from Marshall into the 1950s, and actually paid small or no attention to pollution. For example, Scitovsky (1954) noted the potential for activities of a producer impacting on people's "personal satisfaction" and occurring "in ways that do not operate through the market mechanism". More specifically he stated that: "These may be called the producer's "direct" (i.e., nonmarket) influence on personal satisfaction and are best known by the example of the factory that inconveniences the neighborhood with the fumes or noise that emanate from it" (Scitovsky 1954: 144). However, his primary concern was with Marshallian industrial external economies affecting businesses profitability and productivity. The external diseconomy as found in the case of industrial pollution he thought was "exceptional, because most instances of it can be and usually are eliminated by zoning ordinances and industrial regulation concerned with public health and safety" (ibid).

In the early 1960s the terms ‘externality’ and ‘externalities’ started appearing in the context of theoretical papers on diseconomies and social costs and including passing references to localised industrial smoke pollution (Turvey 1963; Buchanan and Stubblebine 1962). The specific term ‘externalities’ is attributed by Kapp (1978 [1971]: 8) to Samuelson, appearing on page 476 of the 1961 edition of his influential neoclassical textbook, *Economics*. An earlier reference using the term externalities is the discussion by Bator (1958), who includes discussion of the importance of Samuelson’s (1954) work on public goods as being connected to aspects of externalities, although that work does not actually include the term. Regardless of origins, by the mid-60s Castle (1965: 548) can be found specifically discussing pollution externalities and noting more emphatically that: “The economics of quality of the environment is emerging as a problem of major importance”. Yet, despite this development and expanding attention to externality theory, half a decade later, in his review of the externality literature, Mishan (1971b: 1) noted that:

> “although environmental spillovers have been prominent in the news over the last few years, the bulk of the recent literature has confined its investigations to inter-industry, inter-firm, and inter-person externalities. Economists respond to real world problems with a time lag, initially making use of more familiar, if less relevant, bits of apparatus.”

In addition, Kapp (1978 [1971]: 8) notes that despite the increasing discussion of externalities, what remained unrecognised was that “these so-called external diseconomies and social benefits are not isolated cases but are widespread and inevitable phenomena under conditions of business enterprise”.

This situation seems to have only substantively changed in the 1970s. Undoubtedly interest was stimulated by concerns over the impacts of economic growth (e.g., Mishan 1969a; Meadows et al. 1972). In addition, within environmental economics, the development of materials balance theory pointed to the systemic aspects of pollution due to the material

and energy throughput of industrial society (Kneese, Ayres, and d'Arge 1970; Ayres and Kneese 1969). Discussions of what were now called Pigouvian taxes on pollution externalities were also underway (Baumol 1972; Baumol and Oates 1971). By the mid-1970s an externality theory of pollution was well established and appearing in the new textbooks on environmental economics, along with the idea of internalising externalities via Pigouvian taxes (e.g., Pearce 1978 [1976]; Mäler 1974).

Externality theory then proceeded to develop into a more elaborate justification for all environmental problems as being correctable market failures. The resulting modern neoclassical externality theory treats environmental problems as minor aberrations in an otherwise perfectly functioning price-making market system. Hence the rhetoric of 'getting the prices right' to 'solve' environmental problems. For example, Lord Stern calls human induced climate change the largest market failure ever (Benjamin 2007), not because he wishes to overthrow price-making markets under capitalism, but exactly the opposite. As a market failure it is subject to correction by adjusting market prices to supposedly account for the harm created, and through economic instruments markets can be made to 'internalise externalities'. This allows Stern to promote his favoured solution, carbon emission trading, regardless of its problems and the divorce between economic models and reality (Spash 2009).

Environmental economists then pursue and teach a model that places a liberal (and increasingly neoliberal) political ideology at its core. That is, they assume that individuals can freely negotiate constraints on their own freedom and establish contracts that enforce the outcome. They characterise pollution as one-off market failures occurring as local problems between two actors (e.g., smoke producing factor and laundry). Pollution problems are claimed to be easily and optimally corrected simply by getting people to negotiate independently, which is a common misreading of Coase (1960) by economists (see

Frischmann and Marciano 2014). Where such negotiation is absent the claim is that pollution is already 'optimal' due to transactions costs—a Panglossian flaw in their logic noted by Mishan (1971a).[5] Those in the economics profession who are ideologically anti-government (a stance popular since the rise of neoliberalism) employ the transaction cost argument to oppose intervention into price-making markets. Although, even on its own grounds, a counter argument is that governments/regulators can use a variety of institutional arrangements (e.g., liability rules and laws) designed to reduce overall societal costs so making their intervention more efficient (Coase 1960: 17-18). Interestingly the simplistic or 'toy model' of pollution externalities that justify neoclassical economists analysis were imposed by mainstream economists on Coase, contrary to his opposition to them (Frischmann and Marciano 2014). What the abstract simple model achieves is to set down the core conceptual parameters within which further discussion is to be held. More specifically pollution policy is then framed in terms of monetary costs and benefits, in a world where agents possess equal power and knowledge, and consequences are knowable and known.

While the basic model is a recognised simplistic abstraction its features are carried over to the more advanced texts that include more complex models and all sorts of caveats to address 'anomalies'. Some physical characteristics of real environmental problems may then be brought in, but in highly restricted ways that must conform to the formalist model and its method. Environmental economists then spend their time relaxing single constraints, one at a time, in the *ceteris paribus* mechanical world of mathematical marginal analysis, static models and partial equilibria.

[5] Dr. Pangloss is a character in *Candide* (1759) a satirical story by Voltaire. Dr. Pangloss believes the world as actualised cannot be improved upon, despite repeatedly confronting evidence to the contrary. Voltaire was caricaturing and lampooning the German idealist philosopher Leibniz for his claim that God must have made the best world possible.

What comes first is the model not the actuality of any pollutant or ecosystem or the fallibility of human knowledge about them. Regardless of model complexity, the basic logical flaw remains, namely trying to explain reality by extrapolating from a totally deductive theoretical construct that has little or nothing to do with the object of study in the first place and that builds from false premises. Real and substantive pollution problems involve such things as long-range transport of multiple air pollutants from dispersed sources with multiple impacts from now into the distant future subject to strong uncertainty, i.e., indeterminacy and ignorance (Spash 2002). However, the unreality of the environmental economists' approach does not prevent use of the theory for justify actual policy prescriptions and associated claims of ability to achieve optimal pollution control and efficient outcomes.[6] The point is that the power of the theory lies in its political usefulness as a rhetorical tool. In the neoliberal era an ideological commitment to a price-making market paradigm is required for designation as an expert economist, not the scientific validity of explanations let alone descriptive reality.

## III. POLLUTION AS A COST-SHIFTING SUCCESS

Interestingly, the story of pollution as externality, and associated correction of market failure via pricing, was already contradicted by environmental economists' own early work on the laws of thermodynamics (Kneese, Ayres, and d'Arge 1970). What was termed 'materials balance theory' incorporated the law of conservation of mass, i.e. that it could be neither created nor destroyed. The conclusion was that pollution is all pervasive and a normal part of economic activity. Externalities associated with the disposal of residuals from modern

[6] For an example of the resulting problems for policy see my papers on carbon trading (Spash 2010) and biodiversity offsets (Spash 2015).

consumption and production activities cannot then be treated as exceptional, rare or unimportant. As Kneese, Ayres and d′Arge (1970: 4-5) make very clear:

> "In reality they are a normal, indeed inevitable, part of these processes. Their economic significance tends to increases as economic development proceeds, and the ability of the natural environment to receive and assimilate them is an important natural resource of rapidly increasing value. We suggest below that the common failure to recognize these facts in economic theory may result from viewing the production and consumption processes in a manner which is somewhat at variance with the fundamental physical law of conservation of mass."

Once the all pervasiveness of pollution is apparent then so also is the way in which pollution is misconceptualised as external rather than internal to economic systems.

Complementing this critical insight is the reinterpretation of social relationships integral in modern economic systems as explored, in a little know article, by Hunt and d′Arge (1973). They show how the combination of pervasive pollution with standard economic assumptions about agents and markets turns economic theory on its head. The argument runs as follows. *Homo œconomicus* will maximize the value of participating in organised markets and creating nonmarket transactions. Such agents gain by imposing losses on others, and they gain more the more they can shift costs on to others. The same incentive Adam Smith regarded as producing only unintended good is responsible for selecting only highly productive 'external effects'. All individuals acting independently to 'externalise costs' will yield a maximum of these costs imposed on others. Rather than the benevolent invisible hand, guiding the allocation of resources to the benefit of all, the capitalist price-making market economy had an invisible foot, continuously booting the majority of people in the backside (Hunt and d'Arge 1973: 348). Successful agents shift costs on to others to the maximum of their ability and must be paid, or rather bribed, to reduce their damaging activities by the recipient of their

costs. Such an outcome is described in positive terms by various supporters of ‘free’ market ideology and so is a case of efficient neoclassical arbitrage, a liberal Coasian solution and a neoliberal ideal.

None of this was in fact new in the early 1970s. The idea of cost shifting had been thoroughly explored and explained, without the connection to the laws of physics, by Kapp (1950, 1963). Kapp was highly critical of the mainstream economic conceptualisation of social costs as externalities (Kapp 1970, 1969). Indeed, he rejected the idea of pollution as an externality because it inaccurately describes what are deliberate acts of cost-shifting in the search for profit; a critique that corresponds to that of institutional economist Clark’s theories concerning the operation of the firm (Berger 2017: 99-114). Accordingly, success in business is achieved by passing on costs to others, and/or taking benefits from them without incurring personal costs. Kapp’s 1963 book, posthumously reprinted in 1978, presented a detailed thesis of the manner in which private enterprise, under conditions of unregulated competition, gives rise to social costs that are shifted to and borne by third persons and the community as a whole (Kapp 1978 [1963]: 29).

Kapp (1978 [1963]: 14) defined such social costs as harmful effects and inefficiencies that: (i) must be avoidable and (ii) were a part of productive activities that could be shifted to others. That is, producers could avoid or minimise the harm of pollution that they create in their production processes, but instead they chose to pass on the harm to their workers and the wider environment in order to make personal gains. The pursuit of private gain places a premium on the minimization of the private costs of current production, and the more this is emphasised the greater the probability of social costs. The analysis applied equally to a Russian Soviet style incentive system as to that of the Western market economies. Industrial managers in planned economic systems operating under competitive institutions are as susceptible as profit seeking capitalists operating in competitive market systems. Indeed the

problem might be found anywhere that the emphasis is placed on the individual competing with and achieving advantage over others for their own personal gain.

More than this Kapp highlighted the failure at the heart of neoclassical economics as a means for addressing environmental pollution and other social costs.

> "For the fact that private entrepreneurs are able to shift part of the total costs of production to other persons or to the community as a whole, points to one of the most important limitations of the scope of neoclassical value theory. As long as it continues to confine itself to market value neoclassical economics will fail to assimilate to its reasoning and to its conceptual system many of the costs (and returns) which cannot be expressed in dollars and cents." (Kapp 1971: 11)

Kapp then advocated government regulation and planning as a means to achieve socially acceptable standards for pollutants, e.g., natural balance, maximum permissible concentration, safe minimum standards and objective requirements of human health (Kapp 1978 [1963]: 93). This corresponds with a critical institutional economic approach that emphasises the cumulative character of social causation and the need for objective criteria of social welfare for the appraisal of the social efficiency of economic systems. It also raises the importance of addressing the quality of human life and behaviour under different institutional arrangements (Kapp 1978 [1963]: xxvii). Kapp had written extensively on the link with institutional economics and highlighted this as a central concern of his work on social costs.[7]

In summary, externalities are not external to economic actors, but part of how the modern growth economy, and its profit seeking and utility maximising self-obsessed actors,

[7] Bringing the work closer to a tradition in institutional analysis was given as the reason why he had adjusted the book's title (see the preface dated 1962 for the second edition of his book on social costs Kapp 1978 [1963] xxvii). Another book specifically addressing the foundations of institutional economics was left incomplete when he died, but was finally published after some diligent research and editorial work by Berger and Steppacher (Kapp, Berger, and Steppacher 2011).

must function within the competitive institutions of the price-making market system. Kapp (1950, 1963, 1978 [1963]) had already been at pains to explain this cost-shifting activity and the various ways in which it could be seen operating both environmentally, via pollution, but also socially in the relationships of the work place and the institutions of consumerism. This was a fundamentally different critique than the 'all social costs are minor problems and can be fixed by taxes' approach of mainstream economics attributed, rather misleadingly, to Pigou.

In fact Pigou himself actually recognised the limits to markets and the need for central planning and regulation. As he states, before praising the introduction of the 1909 Housing and Town Planning Act:

> "It is as idle to expect a well planned town to result from the independent activities of isolated speculators as it would be to expect a satisfactory picture to result if each separate square inch were painted by an independent artist. No 'invisible hand' can be relied on to produce a good arrangement of the whole from a combination of separate treatments of the parts. It is, therefore, necessary that an authority of wider reach should intervene and should tackle the collective problems of beauty, of air, and of light, as those other collective problems of gas and water have been already tackled." (Pigou 1920: 170-171)

Pigou has been selectively read, and the embedding of market institutions in a planning system that he recommended has conveniently been forgotten in the move to economic systems dominated by price-making markets where government intervention is derided as authoritarian control.

As resource and environmental economics was largely an American phenomena, developed in the years of the cold war, so its approach took on facets of political ideology from that context. This meant denouncing planning under the rhetoric of 'command and control' in opposition to the 'free market'. A hidden ideological and political discourse was

employed to frame the debate as totalitarianism vs. democracy, communism vs. liberalism, evil vs. good. In the mid-1980s university higher education in environmental economics was still basically limited to North America where the approach to topics was itself controlled and the curriculum restricted (e.g., postgraduate education excluding philosophy of science and history of thought). In this atmosphere ecological economics would appear as a challenge to what had become a captured orthodox economics of the environment that heavily delimited what was legitimate to research and discuss, as well as the terms in which that discussion might be conducted (Spash 1999). Yet, the emergence of such an alternative was far from straight forward and it has remained in a paradigmatic contest with the mainstream (Spash 2013, 2011, 2020).

## IV. CONCLUSIONS

The failure of a revolutionary heterodox environmental economics to appear was in part a reflection of the power which lies in orthodox economics to control debate, forgive mild non-conformists and excommunicate heretics and blasphemers. Most fundamentally, the entire thrust of the original work towards a new and challenging research agenda had to be denied whenever and wherever this proved problematic for price theory, price-making markets or a growth economy. At the end of the day, environmental economics came to offer a narrow, constricted and dogmatic approach to the four challenging research agendas set-out in the introduction.

In the space of twenty years, or so, environmental economics had become totally conformist. First, the growth economy was no longer to be questioned but merely accepted, and in light of 'sustainable development' was to be regarded as leading to a better world. The early concern expressed for incorporating biophysical reality into economics was dropped completely. Nature was now to be treated as capital and made totally substitutable. This

meant that environmental losses could be compensated perfectly by more human artefacts, education and social relationships (i.e. man-made capital, human capital and social capital). Second, the creation of harm was simply a matter of the wrong price structure, a simple externality that could easily be corrected if there were the political will to do so. Even better the system could be left to itself if government would just extend private property rights to cover everything in the world and individuals were free to trade and bargain this property. Third, the extent of any externality (i.e. harm created to others both human and non-human) could be assessed through monetary valuation, which could also determine the optimal level of pollution by setting the value of all the harms against the costs of pollution control. Cost-benefit analysis was then the central means for justifying public policy intervention, or non-intervention, as the case may be. The use of revealed preferences in markets gave way to stated preferences inferred from expert designed public surveys (i.e. contingent valuation and choice experiments). Fourth, the regulatory mechanisms to be employed in any government intervention should be those of the price-making market. Initially taxes and subsidies were favoured, but these soon fell by the wayside as the rise of neoliberalism hollowed-out central government and replaced it with central corporatism. Instead price-making markets would provide the best solution, and this meant creating new markets for buying and selling the environment in all its aspects, e.g., pollution, wildlife, biodiversity, ecosystem services. Tradable permits became the policy option of choice. Any social and economic critique was marginalised and the field divorced from biophysical reality.

Substantive alternative answers to the four research questions, prior to the arrival of modern ecological economics, were most comprehensively given by Kapp, whose writing provides foundational work for a social ecological economics (see Spash 2012, 2017). His thesis describes a very different world from the mainstream economic positions prevalent today. The capital accumulating economy, with its emphasis on competition and individual

self-interest, is the road to social misery and environmental destruction. The social metabolism of the economic structure needs to be explicitly planned and the institutions of exploitation and alienation deconstructed and replaced by those of social inclusion. Environmental and social harms need to be addressed via social minima to provide for basic objective needs and protection of the innocent. Monetary valuation is not a good approach and results in misdirecting public policy. Planning not markets are the favoured approach and this requires participation, accountability and multi-level governance. This is the agenda awaiting a radical social ecological reformation of economics.

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