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Pluralism, Ecology and Planning

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Abstract: In *Economic Democratic Planning* Robin Hahnel rearticulates and defends the model of participatory planning he developed with Michael Albert. This paper develops three lines of criticism of the model. It argues that the model's principle of distribution of income among workers according to a metric of effort would involve pervasive surveillance of persons and potential humiliation. The use of a price metric of opportunity costs and cost-benefit analysis in the allocation of resources fails to address the implications of value-pluralism and incommensurability for their allocation. In response to Hahnel's criticism of those who argue that environmental constraints entail limits to economic growth, it argues that we need to take those constraints more seriously than he does. The paper focuses on the second and third area of disagreement by placing those differences within the wider history of the socialist calculation debates and ecological economics.

Keywords: growth, incommensurability, socialist calculation, income distribution, ecological economics

JEL Classification: B13, B14, B24, B25, B51, B53, O44, P20, P21, P28

Economic Democratic Planning offers a rearticulation and defence of the model of participatory planning that Robin Hahnel has developed over a number of decades with his colleague Michael Albert. This is the second occasion on which I have discussed the model having commented on a previous articulation in a special edition of *Science and Society* in 2002 (Albert and Hahnel 2002; O'Neill 2002). I want to start this iteration of our discussion, as I did in our previous one, with a statement of points of agreement. Hahnel thinks the socialist calculation debate took a mistaken turn when the model of society of 'associated producers' who could consciously decide among themselves what and how to produce was replaced by a model of a single central 'decider' who would allocate resources

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(Hahnel 2021, 293–297.) He is sceptical of the claim that labour time can provide a metric for socialist planning. I have no disagreement with these claims. He aims to develop a non-market model of socialism. I share that aim.

Where then do our differences lie? In this paper I raise three areas of disagreement.

1. Value-pluralism and incommensurability: Hahnel offers, in response to the failure of market economies, a market-mimicking model of socialism which uses a price metric on opportunity costs and cost-benefit analysis in the allocation of resources. I will argue that this fails to address the implications of value-pluralism and incommensurability for the allocation of resources.
2. Environmental constraints and economic growth: Hahnel is critical of those who argue that environmental constraints entail limits to economic growth. I will argue that we need to take those constraints more seriously than he does.
3. Distribution of income: Hahnel claims that the distribution of income among workers should follow a metric of effort. In my view this would involve unacceptable forms of pervasive surveillance of persons and potential humiliation.

In this paper I want to focus on the first two areas of disagreement by placing our differences within the history of the socialist calculation debates. However, I will start with the third, in part to put the record straight, since the book misstates my position and doesn't address the central arguments I raised in our previous discussion.

1. Distribution of Income

Hahnel's book retains a central feature of the model of socialist planning he developed with Albert, that justice requires that income be distributed among workers based on a rating of effort: "income should be based on effort, or sacrifice, as determined by coworkers, as well as need" (Hahnel 2021, 91). Worker councils are to set up effort rating committees which assign different ratings to workers based on the scores of coworkers. In considering objections to this proposal Hahnel on page 110 includes a quote from me:

> Maximizers would have incentives to perform at less than their best in early stages in order to maximize a later effort score […]. A standard strategic move to maximize winnings over a series of handicap races is to intentionally perform badly in early races in order to get a better handicap in later ones. (O'Neill 2002, 25).

He adds later:

> Weisskopf and O'Neill also worry that people will try to disguise their true abilities to trick workmates into giving them higher effort ratings than they deserve. It is true that competitors in a series of races that they know will be handicapped may have an incentive to go slow in early races to inflate their handicap advantages in later ones. (Hahnel 2021, 113).

This response to me does not do justice to the criticisms I made and would still make of their proposal. The quote from me is taken out of context. Here is the full quote with emphasis added:

> *First to the extent that individuals are self-interested maximisers, as Albert and Hahnel assume, it would be undermined by strategic action.* For example, maximisers would have incentives to perform at less than their best in early stages in order to maximise later effort scores. Albert and Hahnel's appeal to the analogy of rewarding racers according to effort ill-illustrates their point in this respect. A standard strategic move to maximise winnings over a series of handicap races is to intentionally perform badly in early races in order to get a better handicap in later races. (O'Neill 2002, 25–26, my emphasis)

I was presenting an argument turning Albert and Hahnel's own assumptions against the proposal they defend. On their own assumptions it wouldn't work. It was not my view that "people will try to disguise their true abilities to trick workmates into giving them higher effort ratings than they deserve". My argument was that this was an implication of Albert and Hahnel's view. The passage above continues as follows: "Second, and I think more important, individuals are not self interested maximisers in the economic sense". (O'Neill 2002, 26). To reiterate, my view is that Albert and Hahnel's assumption that the agent is a self-interested maximiser is false. I don't make the claim that Hahnel attributes to me.

My central objections to their proposal revolved around issues of recognition and social self-respect. The proposal would be socially intrusive and potentially humiliating. It would be socially intrusive since it would involve pervasive surveillance of workers on each other's persons. It would be potentially humiliating since it involves a judgement on the person of the worker not simply their work. To reward a low-output worker on the basis of effort would be to make a public negative judgement of their ability and competence. Would I want to work in a cooperative governed by the principle of effort? I would not. Those objections are not considered by Hahnel in the book nor were they considered in the

original reply by Albert and Hahnel. This is I think symptomatic of a general feature of their work, that is the degree which it is grounded in standard assumptions of mainstream economic theory, here about the nature of the economic agent as a self-interested maximiser. However, it is not this assumption that is my main concern here, but a second, the assumption of standard economic theory, value commensurability. It is to this that I now turn.

2. Revisiting the Socialist Calculation Debate: Where Did it Go Wrong?

In the section of the book 'The socialist calculation debate a century later' Hahnel addresses the socialist calculation debates of the last century. The standard story of the debates runs as follows. In a paper of 1920 Ludwig von Mises argued that the absence of market prices in higher order production goods, rational economic choices would not be possible in a socialist society (Mises [1920] 1935). In response Lange ([1936–1937] 1964) and Taylor ([1928] 1964) argued that while a planning agency is not able to use actual market prices, it could use shadow accounting prices to mimic the ideal market of neo-classical theory. Hayek starts the next chapter, by shifting the argument to an epistemic argument about the division of knowledge: knowledge local to time and space and tacit knowledge dispersed throughout the economy cannot be passed onto a central planning board (Hayek 1937, 1945). This epistemic argument generated its own subsequent history (Hahnel 2021, 62–69 and passim).

In his reflection on the debates, Hahnel suggests that the socialist calculation debates went wrong with a shift from a vision of socialism as an economy of associated producers to an economy directed by a single central central 'decider' (Hahnel 2021, 293–297). I think that observation is an important one, but not one I will discuss further here.[1] Here I will focus on second shift in the socialist calculation debate that Hahnel's model inherits. It is a shift that is a central source of the general disagreements Hahnel has with the tradition of ecological economics and his failure to address problems of value pluralism and incommensurability. A feature of the standard story of the socialist calculation debates is that the earlier chapters of the debate are lost in the shift to the debate following Lange's

[1] One central question is whether and to what extent the extensive knowledge required by the Iteration Facilitation Board does avoid Hayek's epistemic argument against central planning. I leave that question open here.

contributions (O'Neill 1998, chs.9–10). The shift is one that was noted by K. William Kapp, one of the founders of ecological economics:

> the controversy initiated by O. Neurath, von Mises and Max Weber got side tracked in various attempts to calculate the prices of productive factors by means of Walras' and Cassel's systems of equations and 0. Lange's later elaboration of a theoretical model of 'competitive socialism'. (Kapp 1955, 682)

The shift occurs with the move from the objections to Neurath's economy in kind by Mises and Weber to the debates about the form of market-mimicking socialism offered by Oscar Lange. Hahnel's model of socialism, while it has important differences from that of Lange, in particular on the institutional model of planning through workers' councils, consumer councils and Iteration Facilitation Board, belongs to the Lange tradition of market-mimicking socialism. The result is the loss of the insights from the early socialist calculation debates concerning planning in kind and the related environmental dimensions of the debate.[2]

Neurath's socialisation plans were premised on a defence of a plurality of measures in kind—*in natura*—that employ physical and social measures of the conditions for and constituents of human well-being. Correspondingly he rejected any single metric for well-being and resource use. His argument was principally aimed against the money metric of the market order, but also rejected labour-time and energy-use alternatives:

> We must at last free ourselves from outmoded prejudices and regard a large-scale economy in kind as a fully valid form of economy which is the more important today in that any completely planned economy amounts to an economy in kind. To socialize therefore means to further an economy in kind. To hold on to the split and uncontrollable monetary order and at the same time to want to socialize is an inner contradiction. (Neurath [1919] 1973, 145)

Neurath's defence of in kind calculation in a socialist economy was the occasion for Mises' contribution to the debate:

> It is an illusion to imagine that in a socialist state calculation *in natura* can take the place of monetary calculation. Calculation *in natura*, in an economy without exchange, can embrace consumption goods only; it completely fails when it comes to dealing with goods of a higher order. And as soon as one gives up the conception of a freely

[2] For more detailed treatment of these environmental dimensions of the debates, see O'Neill 2004, O'Neill 2021, O'Neill and Uebel 2015, and Uebel 2018.

> established monetary price for goods of a higher order, rational production becomes completely impossible. (Mises [1922] 1981, 13)

Mises' argument against the possibility of a rational socialist economy focuses on Neurath's commensurability claims. He argues that in the absence of a single cardinal measure of value for different factors of production, rational choice is not possible between the alternative uses of "the bewildering mass of intermediate products and potentialities of production" (Mises [1920] 1935, 103). A common cardinal unit of measurement of the relative worth of different productive factors for comparing their employment is provided by market prices: "calculations based upon exchange values enable us to reduce values to a common unit" (Mises [1922] 1981). Through market exchange the relative worth of productive factors can be ascertained on the basis of consumer valuations. However, market prices in the factors of production presuppose the private ownership of the means of production. Hence, the end of the private ownership of the means of production within socialism renders rational choices between the alternative uses of productive resources impossible (Mises [1922] 1981, 15).

Lange's response to Mises' argument accepts the premise of Mises' argument against Neurath—that a rational economic order requires a single price measure of the relative worth of different productive factors.[3] Lange transforms the socialist calculation debate to one about the nature of prices to be extended to all productive resources. He does so by rejecting the assumption in Mises' argument that prices require private ownership of the means of production. This might be the case if one is concerned only with market prices determined by actual market transactions. However, socialist planning is possible on the basis of shadow accounting prices which can be employed to guide the use of productive resources. Lange's response to Mises appeals to a distinction made by Wicksteed between two concepts price. Price in the narrow sense refers to the exchange rate between commodities in the market. This needs to be distinguished from a broader more basic concept of price: 'the terms on which alternatives are offered'.

> Professor Mises' contention that a socialist economy cannot solve the problem of rational allocation of its resources is based on a confusion

[3] Lange endorses of Kautsky's criticisms of Neurath's position, and rejects Marx's and Engels' account of planning in a socialist economy on similar grounds (Lange [1936–1937] 1964, 135). See also Kautsky [1925] 2012, 255–261.

> concerning the nature of 'price'. As Wicksteed has pointed out, the term 'price' has two meanings. It may mean either price in the ordinary sense, that is the exchange ratio of two commodities on a market, or it may have the generalized meaning of 'terms on which alternatives are offered'. (Lange 1936–1937, 59–60)

What is meant by the phrase the "terms on which alternatives are offered?" Wicksteed offers the following characterisation:

> Whatever the nature of the alternatives before us, the question of the terms on which they are offered is always relevant. If we secure this, how much of that must we pay for it, or what shall we sacrifice to it? And is it worth it? What alternatives shall we forgo? And what would be their value to us? (Wicksteed 1910, 21)

Price is measured against the alternatives that are forgone in making the choice. While Wicksteed does not use the term 'opportunity cost', his account appeals to the idea that now takes that title. In the market relative prices reflect opportunity costs. However, Wicksteed takes this to be a special case. Whenever alternatives are foregone the concept of price is implicitly invoked.

> 'Price', […] in the narrower sense of 'the money for which a material thing, a service, or a privilege can be obtained', is simply a special case of 'price' in the wider sense of 'the terms on which alternatives are offered to us'; and to consider whether a thing is worth the price that is asked for it, is to consider whether the possession of it is more to be desired than anything we can have instead of it, and whether it will compensate us for everything we must take along with it. (Wicksteed 1910, 27)

What Wicksteed makes explicit, but which is implicit in later uses of the generalized concept of price, is the assumption of commensurability that underpins it.

> [A]ll the heterogeneous impulses and objects of desire or aversion which appeal to any individual, whether material or spiritual, personal or communal, present or future, actual or ideal, may all be regarded as comparable with each other; for we are, as a matter of fact, constantly comparing them, weighing them against each other, and deciding which is the heaviest. (Wicksteed 1910, 32)

The metric is given by the scale of preferences.

> We may conceive of a general 'scale of preferences' or 'relative scale of estimates' on which all objects of desire or pursuit (positive or

> negative) find their place, and which registers the terms on which they would be accepted as equivalents or preferred one to the other. (Wicksteed 1910, 32–33)

It is this generalised conception of price to which Lange appeals in his response to Mises:

> It is only prices in the generalized sense which are indispensable to solving the problem of allocation of resources. The economic problem is a problem of *choice* between alternatives. To solve a problem three data are needed: (1) a preference scale that guides the acts of choice; (2) knowledge of the 'terms on which alternatives are offered'; and (3) knowledge of the amount of resources available. Those three data given the problem of choice is soluble. (Lange 1936–1937, 60)

Price in Wicksteed's generalised sense is the basis of Lange's model of socialist planning. A central price control office acts as a Walrasian auctioneer replacing the market. There is a market in labour services and consumer goods such that these have a price in the narrow sense. In the sphere of production price in the generalised sense is employed: "Prices of capital goods and productive resources outside of labour are […] prices in the generalized sense, that is mere indices of alternatives available, fixed for accounting purposes" (Lange 1936–1937, 79). Central planners set a price, which is adjusted through a process of trial and error to determine the optimal equilibrium prices between supply and demand. Price expressed in monetary units remains the single measure of value.

Underpinning the argument is an agreement on the key premise in Mises' argument, that rationality in the use of resources requires value commensurability to determine the choice between alternative employment of intermediate productive goods. In making the assumption of commensurability as a condition of rational choice, Lange with Mises denies the possibility of rational choice in the use of resources in its absence. It is the shared shift to an assumption commensurability in monetary terms and the assumptions about the nature of rational choice that, for Kapp, marks the wrong turn taken in the socialist calculation debates and it is in the environmental sphere that the problems with the shift are most apparent.

> The formulation of environmental policies, the evaluation of environmental goals and the establishment of priorities require a substantive economic calculus in terms of social use values (politically evaluated) for which the formal calculus in monetary exchange values fails to provide a real measure—not only in socialist societies but also in

> capitalist economies. Hence the 'revolutionary' aspect of the environmental issue both as a theoretical and a practical problem. In short, we suggest that environmental values are social use values for which markets provide neither a direct measure nor an adequate indirect indicator. (Kapp 1974, 38)

Against the shift to a 'a subjective theory of value and price' in socialist planning, Kapp marks out Neurath and Weber as the exceptions (Kapp 1974, 38). What are the differences that Neurath and Weber offer to the debate that shifted with Mises and Lange?

One central argument from Neurath concerns commensurability and substitutability. More specifically it concerns the incommensurability of different dimensions of well-being and the variety and non-substitutability of goods required for their realisation: "The attempts to characterize the standard of living are like those which try to characterize the 'state of health'. Both are multidimensional structures" (1937, 520). There is no single measure of value, monetary or non-monetary, that is able capture the different dimensions of well-being and the goods required to meet the different dimensions of well-being are heterogeneous and not substitutable for each other. I return to the argument below.

Neurath's rejection of the existence of a single unit for the choice between different uses of resources was aimed not just at the use of price as a single metric, but also of labour-time defended by some socialists or the energy units associated by the early precursors of an energy economics. It informed the environmental dimension of the socialist calculation debates that got lost in the subsequent development of the debate (O'Neill 1998, chs. 9–10; 2004; O'Neill and Uebel 2015). Neurath argued that none of the approaches employing a single metric were adequate to addressing the use of resources across generations. The use of market price fails since the needs and wants of future generations cannot be captured adequately since price expresses the preferences of current generations. A labour time metric fails since it ignores the effects that current labour time saving might have for the use of energy and resources for future generations. An energy metric has the opposite problem, that it fails to include the effects of energy saving on the quality of labour in current conditions:

> The question might arise, should one protect coal mines or put greater strain on men? The answer depends for example on whether one thinks that hydraulic power may be sufficiently developed or that solar heat might come to be better used, etc. If one believes the latter,

> one may 'spend' coal more freely and will hardly waste human effort where coal can be used. If however one is afraid that when one generation uses too much coal thousands will freeze to death in the future, one might use more human power and save coal. Such and many other non-technical matters determine the choice of a technically calculable plan [...] we can see no possibility of reducing the production plan to some kind of unit and then to compare the various plans in terms of such units [...] (Neurath [1928] 1973, 263)

Decisions about resource use over generations cannot be adequately addressed by any single metric.

The rejection of a single metric for decision making also has implications for assumptions about what it is to make a rational choice between options. Specifically, it calls into question the assumption that rationality requires the existence of rules that determine an optimal outcome.[4] That assumption is one that Neurath refers to as a form of 'pseudorationalism'. A mature rationalist needs to recognise the boundaries to the power of reason in arriving at decisions: "Rationalism sees its chief triumph in the clear recognition of the limits of actual insight". (Neurath [1913] 1983, 8).

Assumptions concerning rationality were also at the heart of Weber's response to Neurath's arguments for planning in kind. Weber's response to Neurath is more nuanced than that of Mises. Unlike Mises he does not claim Neurath's proposal renders rational choices between the alternative uses of productive resources impossible. His criticism is more specific. He draws a distinction between formal and substantive rationality.

> The term 'formal rationality of economic action' is used to designate the extent of quantitative calculation or accounting which is technically possible and which is actually applied. The 'substantive rationality', on the other hand, is the degree to which the provisioning of a given group of persons (no matter how delimited) with goods is shaped by economically orientated social action under some criterion […] of ultimate values, regardless of the nature of these ends. (Weber [1921–1922] 1978, 85)

Weber argues that Neurath's socialist economy in kind would be less formally rational than a capitalist economy:

[4] Neurath's rejection of the optimality calls into question the assumption that one can arrive at a general total ordering of alternatives in terms of their betterness. A partial ordering might be all that is possible. With partial orderings, while there might be maximal alternatives, that is alternatives such that there no better alternative, there need be no optimal alternative, that is an alternative that is better or at least as good as every other alternative (Sen 2017, 7).

> From a purely technical point of view, money is the most 'perfect' means of economic calculation. That is, it is formally the most rational means of orienting economic activity. Calculation in terms of money, and not its actual use, is thus the specific means of instrumentally rational economic provision. (Weber [1921–1922] 1978, 86)

However, considerations of formal rationality are not all the matter in judgements about the rationality of different economic orders. Economies could still be open to judgement in terms of their substantive rationality according to some ends, where "'purely formal' rationality of calculation in monetary terms is of quite secondary importance or even is fundamentally inimical to their respective ultimate ends […]" (Weber [1921–1922] 1978, 86).

Weber's distinction is central to Kapp's contributions to ecological economics. While monetary measures might improve calculability in economic choices, it does not follow that they make them more rational in the substantive sense.

> Thinking about environmental goods requires the exercise of substantive rationality. The formulation of environmental policies, the evaluation of environmental goals and the establishment of priorities require a substantive economic calculus in terms of social use values (politically evaluated) for which the formal calculus in monetary exchange values fails to provide a real measure—not only in socialist societies but also in capitalist economies. (Kapp 1974, 38)

Substantive rationality is concerned with the economy a system of provisioning, with the meeting human needs by the physical and social resources available. It requires democratic deliberation about our needs, not simply calculation. And insofar as it requires calculation, it requires "calculation in real terms rather than in terms of prices" (Kapp 1963, 195):

> As far as social benefits are concerned the criteria available are social minima based upon a substantive and democratic evaluation of social needs and requirements and their comparison in real (physical) terms. (Kapp 1963, 195)

This line of argument from the debates between Neurath and Weber, through the work of Kapp had a large influence on the European traditions of ecological economics (Martinez-Alier 1990; Spash 2024). It formulates the basic question of meeting needs in the context of environmental constraints. How do we provide for the plural central dimensions of well-being given the environmental constraints we live within and the

resources we have? Neurath and Kapp properly ask that question. However, this problem gets lost in shadow price socialism which attempts to mimic market economies rather than replace the forms of decision making they embody. Historically, we can see the source of the difference between Hahnel's economic model of socialism and that developed in the tradition of social ecological economics.

3. Value Pluralism and Commensurability

The parecon model that Robin Hahnel developed with Michael Albert which Hahnel articulates *Economic Democratic Planning* offers a libertarian model of socialism from within the Lange tradition. The three central bodies are workers councils, consumer councils and an Iteration Facilitation Board (IFB). The IFP acts as the new version of the Walrasian auctioneer. At the heart of Hahnel's model is the estimation of opportunity costs and social costs in the use of resources. The IFB sets an indicative price on basis of an estimation of the opportunity costs and social costs of all the alternative uses of labour, natural resources, capital goods and intermediate goods. Consumer councils respond by setting out what consumers want to consume based on surveys. Workers council set out the outputs they want to produce and what inputs they need to produce them—natural resources, capital goods, intermediate goods. The IFB calculates excess demands and supplies for goods, and recalculates opportunity costs on this basis. There is an iteration of the process with new proposals from consumer councils and workers councils until demand and supply meet at equilibrium (Hahnel 2021, 93–94 and passim).

While Hahnel is critical of labour-time as a metric for socialist planning, like labour-time models of socialism he assumes the need for a single universal metric of value. He makes the same assumptions about commensurability, compensation and substitutability that the Neurath-Kapp tradition criticised. At the heart of Hahnel's model is the estimation of opportunity costs and social costs in the use of resources in terms of a single price metric. The process requires that a price be placed on all goods:

> While an aversion to putting prices on things is understandable in the context of capitalism, which, in the words of Oscar Wilde, 'knows the price of everything and the value of nothing', unfortunately, without reasonably accurate estimates of opportunity and social costs, it is impossible for ordinary people to participate in planning sensibly and in a timely way […]. Unless I know the opportunity costs of scarce

> resources and categories of labor a work proposal requires, unless I know the social costs of producing the intermediate inputs needed, and unless I can compare these costs to the social benefits of the outputs the workers propose to deliver, how can I sensibly decide if a work proposal is socially responsible? (Hahnel 2021, 213)

It requires a price metric to be extended to public goods, including environmental goods, that are unpriced in markets such as a biodiversity and clean air and water. The response within standard environmental economics has been the extension of willingness to pay metric to capture preferences for such unpriced goods, through inferences from preferences revealed in market behaviour (for example travel costs or property markets), or by surveys of stated preferences for the goods in some hypothetical market contexts (for example contingent valuation). Hahnel argues that the internal problems raised by economists about stated preference surveys—that individuals will behave strategically to underreport their willingness to pay—can be overcome (Hahnel 2021, 136–138). However, other criticisms of willingness to pay around value commensurability and its distributional implications are not considered. I will return to these below. Once all the opportunity and social costs are available, through the iterative process that eliminate unfeasible projects from consumer and workers councils, Hahnel argues that, given certain assumptions, the final outcome is Pareto optimal (Hahnel 2021, 124–158).

In his discussion of the concept of Pareto optimality (Hahnel 2021, 12–14), Hahnel notes that since policy choices involve both gains and losses to well-being, the Pareto improvement criterion of efficiency—situation A represents an improvement over another situation B if someone is better off in A than B but no one is better off in B than A—is inapplicable. The standard response made by economists is the Kaldor-Hicks potential improvement criterion: a situation A is an improvement over B if the gains are greater than the losses, so that the gainers could compensate the losers and still be better off. That response is not that which Hahnel pursues. As an alternative he drops the assumption that informs the Kaldor-Hicks approach, that no interpersonal comparisons should be employed. He argues such comparisons are possible and unavoidable. Rather, in applying cost-benefit analysis to choices, the IFB should apply an assumption of giving equal weight to the well-being of each person (Hahnel 2021, 13). The upshot is a version of preference utilitarianism. The optimal choice is that which maximises total wellbeing understood as

preference satisfaction measured by individuals' willingness to pay at the margin for a good. It maximises benefits over costs.

This approach to policy making is open to a number of well-discussed objections, in particular where they are applied to public goods, such as environmental quality, which Hahnel does not consider. Among these are the following. One is a problem of reason-blindness. Willingness to pay and monetary valuations express the strength of persons' preferences for some good. They do not reflect the soundness of the reasons they have for those preferences (O'Neill 2007, ch.1). The preferences do not have to pass the test of being able to survive deliberative scrutiny. Market mimicking processes such as cost-benefit share this feature with markets. They realise choices without rational assessment and debate. Judgments about environmental goods should be expressed and resolved through public deliberation not by technical market-mimicking procedures. A second is with the account of well-being the approach presupposes. A monetary metric simply measures the strength of preferences. It is grounded on a preference satisfaction account of well-being. There are good reasons to reject that account. In particular it fails to distinguish the satisfaction of trivial preferences and the satisfaction of vital needs, that is needs which, if unsatisfied, harm a person taking them below a minimal threshold of human well-being. Third, the utilitarian approach that Hahnel assumes is aggregative. The optimal choice is that which maximises total well-being. As such it allows the loss of vital needs for some community if it leads to the greatest overall improvement in well-being across a population. Typical is its use for the construction of projects such as roads, in which the saving of time of a large enough group of individuals overwhelms the loss of access to vital needs of a much smaller community (Wiggins 2006, 27).

The arguments of Neurath and Kapp in the socialist calculation debates point to a problem with the assumption of commensurability that underpins the whole approach. It assumes with Lange and Wicksteed, a single price metric through which different alternatives can be compared. However, given value plurality, there is no reason to assume that such metric is to be found. On this view, there exist a variety of different values, irreducible to each other or some super value, which cannot be captured by a single metric of value or more specifically a monetary metric of value. One form value pluralism might take is that other things matter apart from human well-being—for example the flourishing of non-humans or the value of biodiversity in itself. However, a pluralist view can

also be sustained within a framework concerned with human well-being, given a pluralist understanding of well-being according to which there are plurality of constitutive dimensions of well-being—physical health, personal relations, wider social relationships, autonomy, knowledge, aesthetic experience, accomplishment and achievement, sensual and intellectual pleasures, a well-constituted relation with the non-human world, and so on. Pluralist objective accounts of well-being that appeal to needs (Wiggins 1998, essay I) and capabilities (Sen 1993; Nussbaum 2000) offer examples.

Neurath's argument that different dimensions of well-being and the goods required to meet the different dimensions of well-being are heterogeneous and not substitutable for each other is one that is shared by any multi-dimensional approach to well-being. A general implication of multidimensional accounts of well-being, such as needs based or capabilities approaches in which there exist thresholds in each dimension of well-being, are forms of non-substitutability and non-compensability. If an agent suffers a loss in one dimension of well-being that takes her below a certain minimal threshold, it will not necessarily be the case that there will a gain to be had in some other dimension of well-being that compensates for that loss and maintains the same aggregate level of well-being. A person suffering from severe malnutrition requires specific nutritional goods to meet that need. Goods in some other dimension of well-being—say of education or leisure—will not be substitutes. Given plural dimensions of well-being, there is no reason to assume a loss in one dimension of well-being can be compensated for by a gain in another.[5] There is no reason to assume a single metric for opportunity costs of the kind that Wicksteed assumes, an assumption that Lange and Hahnel inherit.

4. Ecosocialism, Growth and Capitalism

Hahnel's libertarian version of Lange's market mimicking model of socialism inherits his departure from the older debate initiated by Neurath, and which, through the work of Kapp, informed the development of social ecological economics. In terms of economic analysis, Kapp's approach fostered an analysis of existing economies as systems of provisioning

[5] The non-substitutability of goods across the different dimensions of well-being has particular significance in discussions of sustainability. If sustainability is understood in terms of the maintenance or improvement of human well-being over generations, then it requires each generation to pass on to succeeding generations a bundle of goods that is disaggregated across these different dimensions if well-being (O'Neill 2010).

with real material and energy flows through the economy that meet or fail to meet human needs. In terms of alternatives, it developed a form of economic decision making grounded in Weber's substantive rationality. It is concerned with meeting the plurality of dimensions of well-being within environmental constraints, employing "calculation in real terms rather than in terms of prices" (Kapp 1963, 195). It is this approach that gets lost in Lange's shift of the debate to market mimicking models of socialism. The differences of approach emerge in the discussion of capitalism, growth and sustainability and the nature of alternatives.

Hahnel's own approach to sustainability comes with the unfortunate title of 'kicking the can down the road'—the standard term for avoiding a problem rather than solving it. However, that is not what Hahnel intends by the use of the term. His argument is rather that we can rely on technological developments in production to resolve the problem of scarce non-renewable resources:

> What 'kicking the can down the road' consists of is: In production (a) substitute renewable resources for non-renewable resources, (b) substitute more abundant non-renewable resources for ones that are more scarce, and (c) develop technologies that do not use non-renewable resources before they run out. In consumption (a) substitute goods produced with renewable resources for goods produced with non-renewable resources and (b) substitute goods produced with less scarce non-renewable resources for goods produced with non-renewable resources that are more scarce. Fortunately—contrary to what many in the de-growth movement seem to believe—this kind of 'kicking the can down the road' can be done while increasing economic well-being far longer than humans need worry about! (Hahnel 2021, 263)

As will be evident, critics of economic growth are the particular objects of Hahnel's argument. If his characterisation of critics of continual economic growth is that they are critical of increasing well-being, then his argument does look to set up something of a straw opponent. Any plausible criticism of growth relies upon a distinction between increasing economic growth and improving human well-being, knowledge and culture. As Mill put it, a stationary state economy "implies no stationary state of human improvement" (Mill [1848] 1909, IV.6.9; cf. Rawls 1999, 257–258). While there is clearly a relationship between material consumption and energy in meeting certain basic needs, and many in the world fail to meet that basic level, beyond a certain point increasing consumption of material goods is not a necessary condition for improvements in human well-

being. The improvement of the quality of social relationships, autonomy, meaningful work, knowledge and enjoyment of the natural world and other dimensions of well-being are not necessarily tied to increasing material consumption opportunities.

A particular object of Hahnel's criticism are forms of Marxism that appeal to observation that the structural imperatives to growth within capitalism render it unsustainable. The central Marxian claim turns on the systemic drives for capital accumulation in capitalism: the capitalist is forced by market competition to continually recycle surplus value into expanding total capital (Marx [1887] 1970, ch.4). Both the worker and nature are subordinated to the demands of capital accumulation to the detriment of both (Marx [1887] 1970, ch.15. section 10). This imperative to growth is increasingly unsustainable. In the absence of a decoupling of economic growth and increasing energy and material throughput, economic growth drives the increasing emissions in greenhouse gases. The demand for new materials for capital accumulation entails the expansion of the commodity frontiers for the extraction of resources putting increasing pressure on biodiversity and habitats, and the dispossession of those whose livelihoods depend on them (Moore 2000; Temper et al. 2015). Hahnel in response to this line of argument does not deny that historically increasing growth within capitalism has been correlated with increasing environmental damage and he offers his own analysis of the features of capitalism responsible (Hahnel 2012, 32–40). However, he rejects the claim that economic growth as such, in capitalism or socialism, is necessarily unsustainable. The point is made thus in his book, *Radical Political Economy*:

> [T]he latest version of 'inevitable collapse Marxism' by a group of 'ecological Marxists' who claim that environmental disaster is unavoidable unless capitalism is replaced by eco-socialism because a continual increase in the growth of capitalist accumulation of surplus value is impossible on a finite planet does not survive the sniff test. Those who make this claim fail to realize that value is not throughput, carelessly applying reasoning to value as if it were throughput, and, in effect, are guilty of assuming their conclusion. As Sraffian theory demonstrates, if hours worked in every industry remain constant, environmental sustainability reduces to whether or not increases in throughput efficiency keep pace with increases in labor productivity, or, as environmental economists put it, on whether or not we can sufficiently 'de-couple' growth of output from growth of throughput. (Hahnel 2017, 74; cf. Hahnel 2012, 28–29)

Hahnel makes a similar point against Daly's distinct arguments against continuing economic growth, arguing that it confuses growth in GDP with the growth in the material and energy throughput of an economy. (Hahnel 2012, 24–28)

Hahnel makes a logical point here that is quite correct. A distinction needs to be drawn between two senses of growth: growth in the sense of an increase in the energy and material throughput of the economy and growth in the sense of an increase in total monetary value of the goods and services in an economy. The two concepts are logically distinct. However, as I have noted previously, it is a fallacy to move from logical claims to empirical claims about the relationship between the two forms of growth.

> It is logically possible to have increasing GDP and a decreasing physical and energy throughput in an economy. However, it is a fallacy to move from claims about what is logically possible to claims about what is physically possible and another from what is physically possible to what is empirically actual. (O'Neill 2018, 141)

The question that needs to be addressed is not a logical question but an empirical question—can increasing growth in the sense of ever-increasing GDP be decoupled from increasing material and energy throughputs that bring with not just increasing greenhouse gas emissions but also a variety of other environmental problems such as accelerating levels of biodiversity loss?

Hahnel addresses the question in terms of substitution and increasing throughput efficiency creating the possibility of a decoupling of economic growth and the growth of material and energy throughputs in the economy. A number of different senses of decoupling need to be distinguished here. One is the distinction between relative and absolute decoupling, that is between a decoupling of the rate of growth in materials and energy relative to economic growth, and an absolute decline in material energy and material use as the economy grows. A second is the distinction between local and global decoupling. Decoupling can be local in two ways—geographic and sectoral. In both cases, local decoupling need not be associated with global decoupling where it is the result of displacement. Offshoring production might mean that emissions in the productive activities in one region or country fall as the GDP grows, while global emissions continue to rise. Increased efficiency in some sector may not lead to a corresponding lowering of environmental impacts due to rebound effects. Displacement can also occur through substitution. Renewable

sources of energy production bring their own commodity frontiers, for example for lithium mining, with corresponding new environmental impacts on both communities and biodiversity. What Hahnel is supposing is the possibility of absolute global decoupling of continuing economic growth and material and energy throughput. An argument for this requires not a logical argument or general observations about efficiency, substitution and technological development, but detailed empirical evidence. Finally, there is the question of how far the question of limits can be addressed purely in terms of decoupling even in absolute global forms. There are limits, for example, in the carbon budget to be met before dangerous levels of climate change are reached, which are such that even with absolute global decoupling the rate of use of physical and energy resources is still unsustainable. Even if absolute global decoupling was to happen, it still might be the case that economic growth slows the decrease in throughput to a level which is not consistent of staying within that limit. Such limits matter for Hahnel's strategy. Kicking the can down the road is not a good strategy as you approach the end of the street. You need to sort out the problem before you get there.

The conceptual distinction between economic growth and growth in the material and energy throughput of an economy is now widely recognised by both sides of the debate. The debate that matters is an empirical one. Engaging in the debate is beyond scope of this paper. My own view is that given the evidence it is implausible to assume that the kinds of efficiency savings and substitution Hahnel outlines can do the work he believes it can do. They will not be sufficient. In this empirical context, the appeal to Marx's claim about the imperative to capital accumulation as a central source of environmental problems looks to be quite correct. Given the shrinking carbon budget, the trajectory of current capitalist economies with respect to climate change remains grim. So also does the accelerating loss in biodiversity.

What this empirical debate does illustrate is the continuing relevance of the early chapters of the socialist calculation debates that were lost, as Kapp notes, with the turn to the market mimicking models of socialism offered by Lange. The Neurath-Kapp approach retains its significance both for the analysis of capitalism and consideration of socialist alternatives. We need an in-kind analysis of economic systems in terms of their material and energy flows and how they enable or disable the realisation of human well-being. Socialist planning needs to address the problem in those terms. As Kapp put it, we need "a substantive and democratic

evaluation of social needs and requirements and their comparison in real (physical) terms" (Kapp 1963, 195). It is this evaluation that needs to be addressed.[6] The market mimicking tools of economic valuation that Hahnel offers don't address the environmental challenges we are facing.

I will finish again with points of agreement between Hahnel and myself. We both are committed to a form of non-market socialism. And I have no disagreement with Hahnel that the socialist calculation debate took a mistaken turn when the model of society of 'associated producers' was replaced a model of socialism a single central 'decider' (Hahnel 2021, 293–297.) However, I have suggested that this is not the only mistaken turn in the socialist calculation debate. It also took a wrong turn, when Lange transformed the debate into one about pricing to mimic markets rather than address Neurath's framing of planning in kind. In particular, the environmental dimensions of the debate got lost. The question that through Kapp was taken up from Neurath's contributions has become increasingly pressing: how do we meet the plurality of human needs with the resources we have within environmental limits? The answer requires democratic deliberation about needs and real physical accounts of resources and limits. Problems of value pluralism and incommensurability need to be taken seriously in addressing that question. Addressing a defensible form of socialist planning requires not a single monetary price metric of benefits and costs and the aggregative procedures of cost-benefit analysis. It requires the exploration of deliberative non-compensatory forms of multi-criteria decision analysis in planning. I look forward to the conversations on that project.

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[6] For recent work addressing this question see Gough 2020, Bärnthaler and Gough 2023 and O'Neill et al. 2018.

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