

The Socialist Calculation Debate then and now

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Abstract:

In an age of rampant positivism, most economists agreed that the Austrians had lost the Socialist Calculation Debate. It is more worrying that contemporary economists assess this debate as if we were circa 1940 and take Oskar Lange's arguments, or some sequel of them, as the blueprint for socialism. So is the seemingly popular belief, which Lange also held, that computers render socialism viable. In this paper, we want to establish three propositions, with the hope of correcting basic errors that blemish current debates on socialism. First, Lange's arguments are ambiguous, not least institutionally, and useless for the implementation of socialism. Second, Ludwig von Mises and Friedrich von Hayek understood the nature of the market as the indispensable economic institution in a complex economy. Third, economists interested in investigating the possibility of socialism need to take Hayek seriously: at least one prominent example exists.

Key words: Socialist Calculation Debate, market, institutions, socialism, Hayek, Lange, Mises, Burczak, history of economic thought.

JEL classification: B13; B25; B40; B53

1. Introduction

As an ideal, socialism is not at issue either in this paper or in the Socialist Calculation Debate. The latter was triggered, just over a century ago, by Ludwig von Mises' intervention. Mises' (1920) central argument is simple and powerful. In a socialist economy, there would be no private property and, therefore, no market or money prices for higher order goods. In an economy with an extensive division of labour, market prices enable economic agents to make informed decisions and to revise them, or to learn, in the light of profit and loss. Since the market prices of higher order goods cannot be replaced by arbitrary numbers, it will be impossible to make rational decisions in a planned economy.

Mises' article set off a debate in German, now mostly forgotten, and later the English-language controversy known as the Socialist Calculation Debate. The most important socialist contributions to this debate are Taylor (1929) and Lange (1936; 1937). In Lange's proposal, the prices of capital goods and productive resources (except labour) are initially fixed by the Central Planning Board. Managers of state-owned industries take these prices as given and resort to given production techniques so as to minimise cost. In the face of excess supply or demand, the Central Planning Board sets in motion a successive revision of prices. The economy is viewed as a giant mechanism, which is calibrated until it converges to competitive equilibrium.

Hayek (1940; 1945) protested that the economy is not such a mechanism. Capital goods and production techniques are not 'data'. Rather, it is the competitive market process that enables their identification or discovery. In the absence of this process, much of the knowledge required for a complex economy to function tolerably would not even exist.

By this time, however, most academic economists were not really listening. Positivism had become dominant, with its aversion to ('metaphysical') reflections on the nature of reality; its conception of theory as a 'technique of reasoning', ideologically 'neutral by nature', on which 'objectively scientific' work could be grounded (Schumpeter, 1954, p. 884); and its implicit vision of the economy as a mechanical device, with 'objectively given quantities of commodities impinging directly upon each other, almost, it would seem, without any intervention of human minds' (Hayek, 1945, p. 103).

The Socialist Calculation Debate was over. Yet it rose from the ashes in the 1980s (see, especially, Lavoie, 1985), as the centrally planned economies were about to turn into ashes. Suddenly, Hayek was praised, but perhaps for the wrong reasons. Then, like now, many economists effectively identify economics with *mainstream* economics: much effort is devoted to analysing formal properties of constructs without real-world referents and too little to investigating the nature of the social world. Models of socialism currently proliferate, sometimes resting on surprisingly naïve assessments of the computing wonders of the digital age. The misunderstanding of the original debate is impossible to overlook. Hayek (1982a) once referred to the core of Lange's argument as 'two pages of fiction'. Now we have a plethora of such pages. Whilst there are no doubt many reasons for this, one of them is certainly the insidiousness of positivism.

Perplexing examples of this insidiousness are easy to find. Take, for example, Camarinha Lopes' (2021) rhetorically aggressive paper. The author longs for the time when there was 'a universally accepted reading' (p. 804) of the Socialist Calculation Debate, insisting that 'socialism cannot be scientifically rejected' (p. 787, 806). His position ultimately rests on a distinction between 'technical' and 'political' arguments, a

distinction that will please all positivists. ‘Political’ is mostly used to dismiss ‘bourgeois’, ‘capitalist-allied’ authors wanting ‘to shape economic theory in order to discredit and disable the rise of communism’ (pp. 787, 789; see, however, pp. 791, 798, n. 9). ‘Technical’ refers to a ‘scientific consensus’; to ‘standard economic theory’; to ‘genuinely scientific contribution[s]’; to ‘mainstream economics’; to ‘the established paradigm of economic science’; to ‘official, recognised economic science’; to ‘economic science, as it is studied and taught in the main economic institutions of the world’; to ‘currently accepted scientific economics’; to ‘the criteria of efficiency acknowledged by the international scientific community of economists’ (pp. 787, 789, 790, 792, 794, n. 6, 802, 803, 805).

Camarinha Lopes wants to convince his audience that the success of Lange’s technical arguments, and the forced replacement of Mises’ challenge by Hayek’s ‘political posture’ (p. 787), ‘effectively led to the expulsion of the Austrian School from mainstream economics’ (p. 789 *et passim*)—nay, ‘from universities’ (p. 797)—which was Lange’s strategic goal (see p. 794, n. 6). Lange’s orthodox language, we are told, ‘should not confuse us about his affiliation’ (p. 805). Lange thought that standard economic theory correctly described ‘the fundamentals of the human-nature relation’ as well as ‘the non-sociological aspects of material reproduction’ (p. 793), and was compatible with Marxian economics. Actually, his project was to ‘merge’ both (*ibid.*): ‘the market economy and the socialist economy are equal from the point of view of describing the technical balance of their input and output matrices’ (p. 795). For both, ‘the general state of equilibrium is linked to the total satisfaction of the individual needs of each member of society’ (*ibid.*).

Our aim is not a critique of this, or indeed any, modern paper on socialism. We do, however, want to falsify the central points shared by most arguments of this type. In Section 2, we focus on Lange to show that his proposal is not just ambiguous but flawed—~~not least in its inability to specify a credible institutional setting. Lange cannot provide a blueprint for socialism in practice. In Section 3, we turn to Mises and Hayek, who actually won the Socialist Calculation Debate—Lange does not remotely respond to Mises and, in any event, Hayek comprehensively demolishes Lange—because they understood the nature of the market, the indispensable economic institution in a complex economy, and of its supporting political and moral institutions. In Section 4 we turn to contemporary socialist proposals, of which there are many varieties. But proposals that ignore the Austrian arguments which they are unable to challenge are just not credible. We consider in some detail a prominent example that is, Burczak (2006). Concluding comments appear in Section 5.~~

2. On Lange’s blueprint for socialism

2.1 Ontological prolegomena

As readers of Tony Lawson will know, any method presupposes a theory of the nature and structure of reality (or of specific existents)—an *ontology*. It is immaterial whether researchers are aware of this. Implicitly, they assume a world with certain properties, rather than others, properties that accord with their choice of methods.

Lawson (2006, pp. 28ff.) argues that the constitutive feature of mainstream economics is the stipulation that mathematical-deductive methods be systematically applied—a stipulation oblivious of the fact that methods have implicit ontological presuppositions. Conversely, heterodox economics, ‘*qua* heterodoxy’, is ‘first and

foremost an orientation in ontology ... distinguished from the mainstream by its willingness to approach theory and method in a manner informed by available insights into the nature of social reality' (ibid., p. 48).

But what can we know about the nature of social reality? At a very general level, the following conception would not seem to be especially contentious:¹

Social reality is ... *structured*, in that it does not reduce to atomistic human practices but is constituted in large part by *emergent* social properties including social rules, relations, institutions, and so forth; ... *intrinsically dynamic* or *processual*, in that its mode of being is a continual process of becoming; and ... ubiquitous in *internal relationality* in that economic agents are what they are and/or can do what they do, by virtue of constitutive relations in which they stand to each other (Lawson, 2010, p. 205)

Before we turn to a preliminary assessment of Lange's argument—an assessment independent of specifically Austrian insights—we want to underscore the *mismatch* between the conception of the social world just sketched and the mainstream's orientation. As Lawson (2005) argues, the history of economics displays an oscillation between understanding some sort of order or balance that actually exists and modelling the conditions under which specific notions of equilibrium would obtain. Authors drawn to the first project dissent from the view of economics as pure logic and its mathematising tendency. Authors drawn to the second project focus on the properties of a theoretical conception rather than on what a theoretical conception is about (p. 431). Debreu's description of the axiomatic method, according to which theory is logically entirely

¹ This conception is at least implicit in the writings of many heterodox economists. For references to work in the history of economic thought assessing the extent to which this is the case, see Lourenço and Graça Moura (2020, pp. 998ff.).

independent of its interpretations (Lawson, 2003, p. 272), is in this respect especially eloquent.

2.2 On the nature of Lange's argument

Lange (1936), though not mathematically formulated, is a general equilibrium argument, belonging to the tradition focussed on the properties of a particular theoretical conception rather than on its referent. Its implicitly assumed world is clearly *not* structured in the sense explained above, it is *not* intrinsically dynamic or processual, and it is *not* characterised by internal relationality. Such an argument seems singularly ill-suited for the analysis of market processes, or their putative socialist replacements, and of the institutions which facilitate them. Indeed, there is no space for institutions in a construct of this type, certainly if the latter are understood 'as systems of established and prevalent social rules that structure social interactions', dependent upon, but irreducible to, human action (Hodgson, 2006, p. 2). It is not by chance that, in a paper to which we will return and which anticipates contemporary 'digital socialism', Lange (1967) describes the market (or the pseudo-market envisaged for a socialist economy), as a primitive form of a computer. In other words, instead of human action guided by, and dependent upon, institutions, we have a concept of the economy as a machine and a set of pre-determined reactions to particular impulses.²

The basic features of Lange's (1936) proposal can be quickly summarized. '[A] statue of Professor Mises', Lange (p. 53) writes, 'ought to occupy an honourable place in the great hall of the Ministry of Socialisation or of the Central Planning Board of the

² Brus (1990, pp. 165-66) interestingly writes that '[t]he real behaviour of actors in capitalist markets is by no means determined by the propositions of general equilibrium theory, whereas [if Lange's model is taken as a normative proposal] socialists managers are to be *instructed* to follow the textbook rules'.

socialist state’, where it would exemplify ‘the Hegelian *List der Vernunft* which made even the staunchest of *bourgeois* economists unwittingly serve the proletarian cause’. Lange adds, however, that ‘[t]he economist will scarcely find it possible to accept’ Mises’ claim that economic calculation is impossible under socialism—a claim which rests ‘on a confusion regarding the nature of prices’ (p. 54). The economic problem, Lange (pp. 54-55) proceeds,

is a problem of *choice* between different alternatives. To solve the problem three data are needed: (1) a preference scale which guides the activity of choice, (2) knowledge of the “terms on which alternatives are offered,” and, finally, (3) knowledge of the amount of resources available. Those three data given, the problem of choice is soluble ... a careful study of price theory and of the theory of production convinces us that, the data under (1) and under (3) being given, the “terms on which alternatives are given” are determined ultimately by the technical possibilities of transformation of one commodity into another, i.e. by the production functions. The administrators of a socialist economy will have exactly the same knowledge, or lack of knowledge, of the production functions as the capitalist entrepreneurs have.

After falsely claiming that Hayek does not subscribe to Mises’ position and only doubts whether a rational allocation of resources can be achieved ‘by a simple method of *trial and error*, as it is solved in the capitalist economy’ (p. 56), Lange explains how this ‘simple method’ works in a capitalist and, subsequently, in a socialist setting. In the latter’s basic version, there are market prices for consumers’ goods and labour services but all production is conducted in state-owned firms. All other prices are thus accounting prices. However, the centrepiece of this argument has too many tensions and lacunae to be persuasive, even if one should accept Lange’s approach (i.e., even before we turn to the Austrians). Let us see why.

2.3 A *practical solution*?

Throughout his paper, Lange's 'market socialism' is presented as a *practical* solution. But the mismatch between the world implicit in his equilibrium framework and the world in which those proposals would have to be implemented manifests itself in ambiguities and omissions in the 'institutional setup' and the workings of his scheme. An example will suffice to illustrate this.

'As Walras has so brilliantly shown', Lange (1936, p. 59) observes, the actual competitive equilibrium solution is found 'by a series of trials (*tâtonnements*)'. Lange (p. 59, n. 3) refers to various pages of the definitive edition of the *Éléments*, including those where Walras (1926, p. 215) states that, for a rigorous *tâtonnement*, one must suppose that entrepreneurs represent by *bons* (or pledges) the quantities of products initially determined *au hasard* and then successively raised or lowered, whilst landlords, capitalists and workers similarly represent by *bons* the successive quantities of services.

In describing how equilibrium is reached in a capitalist setting, however, Lange (1936, p. 59) does not mention *bons* or pledges, though he starts from a set of prices referred to as Walras' *prix criés par hasard*. It would seem, then, that out-of-equilibrium production and trade are permitted after all. Lange writes that, '[i]f ... the quantities demanded and the quantities supplied diverge, the competition of the buyers and sellers will alter the prices' (p. 59): we get a new set of prices and a new set of quantities demanded and supplied, 'until ... equilibrium is finally reached' (p. 60). He goes on to distinguish 'industries where changes of output can be effected in a more or less continuous way' from those where this is not so, claiming that the former, 'Marshallian type of adaptation', seems to predominate (p. 60, n. 1).

Regarding Lange's socialism, as we have seen, 'we have a genuine market (in the institutional sense of the word) for consumers' goods and for the services of labour. But there is no market for capital goods and productive resources outside of labour' (pp. 60-1), for which accounting prices are set and revised by the Central Planning Board. The latter also fixes the rules that managers of plants and industries must follow so as to retain the parametric function of prices (see p. 63). The equilibrium solution in a socialist economy so conceived is said to be found, as in competitive capitalism, by a process of trial and error. Once again, there appears to be out-of-equilibrium production and trade:

This process of trial and error has been described excellently by the late Professor Fred M. Taylor. He assumes that the administrators of the socialist economy would assign provisional values to the factors of production ... and he continues: "If, in regulating productive processes, the authorities were actually using for any particular factor a valuation which was too high or too low, that fact would soon disclose itself in unmistakable ways. Thus, ... too high a valuation of any factor would cause the stock of that factor to show a surplus at the end of the productive period." Similarly, too low a valuation would cause a deficit in the stock of that factor ... By a set of successive trials the right accounting prices of the factors are found. Thus the accounting prices in a socialist economy can be determined by the same process of trial and error by which prices on a competitive market are determined. (Lange, 1936, p. 66)

To allow trade and production out of equilibrium indicates perhaps a tenuous concern with the real world, as is apt for a proposal that describes itself as a practical solution. But why, then, is Walras' rigorous *tâtonnement*, a mere methodological device, referred to? There is an obvious tension here. And, if trade and production happen continuously, how is Lange's process supposed to lead to general equilibrium? He certainly does not explain. As Lavoie (1985, p. 139) puts it,

[w]hat remains unclear ... is just what is supposed to be happening while the planning board is conducting its trials and somehow identifying its errors. Depending on the answer to this question, two fundamentally different kinds of trial and error models can be reconciled with Lange's presentation. If, as in the Walrasian auctioneer model, no activity begins until the full implications of tentative demands and supplies are worked out, then we would have a nonrivalrous 'planometric' model that would involve ... misleading 'static' assumptions ... If, on the other hand, production activity proceeds during a rivalrous trial and error process, then we would have trading at false prices, which would, as it does under capitalism, prevent the system from ever attaining general equilibrium.

In fact, the most obvious practical rules, such as the period for which prices are supposed to be set by the Central Planning Board, are left unclear in Lange. Hayek (1940, pp. 125-26) calls this 'one of the most serious obscurities in the exposition' and rightly asks whether Lange and other market socialists 'have made a real effort to visualize their system at work'. In other words, it is difficult to comprehend the claim that Lange provides a blueprint for socialism in practice.

Interestingly, Lange himself concedes, in a letter written to Hayek in 1940, that his proposal for market socialism is *not* intended as a practical solution—whereas in 1936 he had claimed that Hayek and Lionel Robbins 'only doubt the possibility of a satisfactory *practical* solution of the problem [of a rational allocation of resources in a socialist economy]' (p. 56):³

There is one point where there is a misunderstanding, I do not propose price fixing by a real central planning board as a practical solution. It was used, in my paper, only as a methodological device to show how equilibrium prices can be determined

³ Lange (1936, p. 67) attempts to ridicule Hayek and Robbins, claiming that no equations are 'solved' by a method of trial and error: consumers 'solve' them by spending their income, managers by making small variations at the margin. 'Professor Hayek and Professor Robbins themselves "solve" at least hundreds of equations daily ... and presumably they do not use determinants or Jacobians for that purpose.'

by trial and error even in the absence of a market in the institutional sense of the word. Practically, I should, of course, recommend the determination of prices by a thorough market process whenever this is feasible, i.e., whenever the number of selling and purchasing units is sufficiently large. (Lange, quoted in Caldwell, 2004, p. 218, n. 8)

Kowalik (1990) traces further changes of opinion. In two 1942 lectures on the workings of a socialist economy, for example, Lange ‘tacitly dropped what was perhaps the chief feature of his classical model, namely the central authority’s prerogative of setting and reviewing prices as a road towards equilibrium’ (p. 141). Later on, ‘he envisaged the socialization only of key industries’, so as to end monopoly capitalism, whilst cautioning against the power of the state bureaucracy, advocating that medium-sized enterprises remain private, and praising the flexibility of private initiative (p. 142).

However, his last article (Lange, 1967) reverses this trajectory and retrieves the 1936 style.⁴ The basic idea of this article is the claim that the market is a primitive form of a computer:

In my [1936] essay I refuted the Hayek-Robbins arguments by showing how a market mechanism could be established in a socialist society which would lead to the solution of the [Pareto-Barone] simultaneous equations by means of an empirical procedure of trial and error ... Were I to rewrite my essay today my task would be much simpler. My answer to Hayek and Robbins would be: so what’s the trouble? Let us put the simultaneous equations on an electronic computer and we shall obtain

⁴ Kowalik (1990, pp. 142-43) writes that ‘[t]he evolution of Lange’s views of socialism in the postwar years is much harder to follow because he became so deeply involved in politics’, as a member of parliament and of the Polish State Council. During this period, in a singularly unedifying episode, Lange submits that a work by Stalin on Soviet socialism is ‘a momentous event in the history of science’. Even Camarinha Lopes (2021), who lauds ‘the impressive performance of socialist economic planning’ (p. 800) and the alleged, ‘tremendous’ successes of Soviet socialism (p. 798), omits this faux pas. Confronting ‘real’ socialism and Lange’s involvement in it with his 1936 nonsense on Mises’ argument unwittingly serving the proletarian cause illustrates the wisdom of Schumpeter’s (1942, p. 375) dictum that ‘history sometimes indulges in jokes of questionable taste’.

the solution in less than a second. The market process with its cumbersome *tâtonnements* appears old-fashioned. Indeed, it may be considered as a computing device of the pre-electronic age ... [The electronic computer] works with enormous speed, does not produce fluctuations in real economic processes and the convergence of iterations is assured by its very construction ... An important limitation of the market is that it treats the accounting problem only in static terms, i.e. as an equilibrium problem ... Mathematical programming ... [is] an essential instrument of optimal long-term planning ... It fulfils a function which the market never was able to perform.

Clearly, *tâtonnement* is a computational procedure. But it does not follow that the market is a primitive form of the computer, unless one assumes that the market is an equilibrating mechanism and that equilibrium is attained by *tâtonnement*. Both these assumptions happen to be false.

In this section, however, we have just provided an illustration of tensions and lacunae in Lange's account of market socialism, which reflect his commitment to a formal reasoning that assumes away features of the real world that the planners would need to address. Institutionally, what he offers is just *very poor*. It does not yet follow that socialism cannot function acceptably, though, nor has the nature of the market been discussed. To this we now turn, reviewing the Austrian arguments. As we move forward, Lange's faith in programming—which, like his belated concern for dynamic efficiency, seems to suggest that we just need to summon Kantorovich from the other margin of the Styx—will not be forgotten. His errant belief in the marvels of the computer world reappears in contemporary socialist proposals. He never understood what Hayek was saying, but he is one in a crowd.

3. Mises, Hayek, and the Socialist Calculation Debate

3.1 Mises and the possibility of economic calculation

Mises' 1920 challenge against socialism targeted Marxists who believed that the problems with which 'bourgeois' economists concerned themselves would disappear if capitalism were abolished. For Mises, this was a mistake. Any action takes scarce time that could be spent satisfying another need. That is, whoever acts '*eo ipso* makes a judgment of value' (p. 95). Whoever acts, allocates scarce resources. Whoever acts solves *economic* problems. Action therefore necessitates economic categories. Unless a socialist community abolishes action, it will have economic problems to solve. What is institutionally contingent is the concrete content, not the existence, of such problems.

An economic problem is a problem of how to act, including how to use available means to satisfy needs. A single agent, alone in its household perhaps, would solve most of its problems without ado (p. 96). If the household includes other agents, new problems arise, better solved in coordination. Language, mores, customs, and other social structures and institutions foster that coordination, facilitate interactions, help decide the distribution of the surplus, and so on. Nothing in Mises' arguments defies the claim that collectivistic forms of organisation could lead to satisfactory solutions to the simple economic problems of the household or of the relatively small community.

Instead, Mises is concerned with the complex economic problems that arise in a technologically advanced economy with significant division of labour—specifically, with making a satisfactory use of means of production that usually have a wide array of alternative employments and applications. A satisfactory solution to such problems transcends any agent's cognitive scope. As Mises writes, any agent would falter due to the 'oppressive plenitude of economic potentialities' (p. 101).

Yet such problems *are* constantly solved well enough in capitalist economies. How can this be? The essence of Mises' argument goes as follows. In capitalist economies, agents own property. This means that, within the rules of their community, they have a right to dispose of what they own as they see fit. When acting, agents may consume or exploit what they own, but they may also transfer it with a view to obtaining something else (p. 89). To act is to change the world in accordance with the agent's subjectivity, its judgments of value, its desires, beliefs, etc. Regulated by institutions limiting coercion, agents enter exchanges only if they believe that what they obtain will mediate or immediately satisfy a more pressing need than what they give up. Any exchange therefore reflects the subjective attitudes of both parties, their judgments of what is a good use of what they own.

In capitalist economies exchanges are often monetary exchanges. These have important systemic consequences. A widespread means of exchange obviates the need for coincidence of wants, fostering transactions. Moreover, the greater the frequency and, especially, the scope of *competitive* transactions against money, the more the terms of exchange against it, i.e., monetary prices, reflect the judgments of those in the community. As Mises (p. 101) puts it:

[Monetary calculation] enables us to extend to all goods of a higher order the judgment of value, which is bound up with, and clearly evident in, the case of goods ready for consumption or at best of production-goods of the lowest order. It renders their value capable of computation and thereby gives us the primary basis for all economic operations with goods of higher order.

Competitive prices are not arbitrary figures or figures with a merely subjective significance. They do have subjective significance, in so far as they facilitate the agent's recruitment of what is under the control of others to better satisfy its needs. But prices

also reflect the *intersubjective*, present consensus of each good's worth. As a tendency, an agent will only intend to own and use a means of production if it believes or *calculates* that in so doing it will satisfy needs worth more than the good's price. The agent need not concern itself with any *actual* alternative uses that others in the community might have for the means of production in question. Only with its price, which already implicitly factors in many of those alternative uses. The agent's success is gauged by its bottom-line, usually profits and losses, increases and diminutions of the worth of what it owns. In Mises' (pp. 97-8) words:

Calculation by exchange-value furnishes a control over the appropriate employment of goods. Anyone who wishes to make calculations in regard to a complicated process of production will immediately notice whether he has worked more economically than others or not; if he finds, from reference to the exchange relations obtaining in the market that he will not be able to produce profitably, this shows that others understand how to make a better use of the goods of a higher order in question.

Agents' decisions are hardly optimal, a notion alien to the spirit of Austrian economics. But, Mises contends, in an economy with a competitive market process and widespread exchanges against money, made possible by private property and other ancillary institutions, individual agents tend to dispose of what they own in a subjectively and intersubjectively satisfactory way (p. 101).

For Mises, socialism *is* the common ownership of the means of production. Yet an owner of property cannot exchange with itself. No intersubjectively meaningful prices for the means of production are therefore possible in a socialist commonwealth. There may be prices for other goods, but the extent of the price system, and therefore its meaningfulness, is fatally diminished (p. 92). Socialism, under this definition,

necessarily lacks the ‘intellectual division of labour’ (p. 102) that decentralized ownership of the means of production permits. In other words, the planning body lacks meaningful monetary prices to calculate and identify reasonable uses of its means of production. Its actions result from ‘groping in the dark’ (p. 110). Accordingly, socialism is incapable of solving the complex economic problems of advanced economies. In a nutshell, socialism is *impossible*.

3.2. From Mises to Lange and Hayek: on the Socialist Calculation Debate

Mises’ argument seeks to establish that socialism excludes institutions—namely money, competitive markets, and private property in the means of production—necessary for a rational, advanced economy. Lange (1936) aims to show that Mises is mistaken. But, as we have seen in the previous section, Lange is reasoning—quite vaguely, as it happens—in a purely formal plane. He wheels in Walras, unable to grasp that markets are not devices to compute equilibria (by *tâtonnement* or otherwise). He therefore does not explain how a *plausible* economy could function in the absence of private property and competitive markets, notably of higher order goods.

Hayek’s writings in the 1930s and 1940s further elucidate why Lange, contrary to the prevalent opinion, lost the Socialist Calculation Debate. As seen earlier, Lange pleonastically affirms that—but fails to explain how—the same ‘data’ would be ‘given’ to the administrators of his socialist economy as to capitalist entrepreneurs. His setup presupposes, for example, that productive resources are objectively determined and that their list would be known to the Central Planning Board (1936, pp. 63-4). Or that managers of state-owned firms would know the available techniques and be in a position to choose production levels so as to minimize well-defined average costs, whatever the time horizon (p. 62).

Hayek, as we shall see, shows that presuppositions such as these assume away the crucial difficulties that any form of economic organisation faces. The knowledge necessary to reasonably solve economic problems in the community is not given to anyone. A functioning economy requires an institutional framework that fosters the use of ineluctably dispersed, subjective, partly contradictory knowledge, as well as its renewal in the face of ever-changing circumstances. Private property and a decentralized, competitive market process are therefore essential.

3.3. Hayek on knowledge and institutions

A convenient entry point into Hayek's contributions in the 1930s and 1940s is his vision of the nature of knowledge. For Hayek, what an agent knows is not limited to propositional knowledge that could be articulated in words (1945, p. 95). Skills are an obvious example. Further, much knowledge could only emerge from the agent's unique set of experiences and circumstances, it is 'knowledge of the particular circumstances of time and place' (ibid.), it is 'incomplete and frequently contradictory' (p. 93). Finally, much knowledge is far from the agent's awareness, even if it affects the agent's action.

If such is the nature of knowledge, then much that agents know is either not *transmissible* to others, or could only be partially transmitted, at a cost and with a lag. For Hayek, the challenge to any form of economic organisation is, then, to ensure that as much knowledge as possible is nevertheless *used* in a meaningful way. Since knowledge is ineluctably dispersed across the agents in the community, 'the man on the spot' (p. 98) is usually best positioned to judge how best to act in its circumstances. Only a decentralized form of socioeconomic organisation could give it the freedom to act in view of its idiosyncratic, subjective knowledge. In Hayek's words (ibid.):

If we can agree that the economic problem of society is mainly one of rapid adaptation to changes in the particular circumstances of time and place, it would seem to follow that the ultimate decisions must be left to the people who are familiar with these circumstances, who know directly of the relevant changes and of the resources immediately available to meet them. We cannot expect that this problem will be solved by first communicating all this knowledge to a central board which, after integrating all knowledge, issues its orders. We must solve it by some form of decentralization.

But decentralisation, of itself, is insufficient. It must, of course, be accompanied by the right ‘inducements’ for agents to ‘do the desirable things’ (p. 101), i.e., to act using the relevant knowledge. In his perspective, private property and profit and loss offer such inducements. Moreover, decentralization would do little good if agents lacked a means of communication that promoted the coordination of their plans of action, especially when circumstances change (pp. 96-9).

Several structures and institutions, in Hayek’s view, help promote that coordination. In his work in the aftermath of the Debate, Hayek emphasizes the competitive price system (p. 100), which allows the community to economize on the transmission without economizing on the use of extant knowledge⁵. An agent hardly ever needs to know the minute details that coalesced into a specific price level or change. Only *that* such is now the price of a specific good (pp. 98-100). Yet, as noticed, from an Austrian perspective, prices are not arbitrary figures, but the result of the competitive (inter)actions of many agents, also bearing the imprint of what they subjectively know.

⁵ Of course, the competitive price system does not function without other institutions and correlative social rules, such as those of language, property, or even perception, to which Hayek dedicates considerable attention in later works (e.g., Hayek, 1962, pp. 234ff; 1982b, *passim*).

To sum up, Hayek clarifies that extant knowledge is not an objective given that could be transmitted to, and processed by, a planning authority; and that the competitive price system and ancillary institutions are necessary for a decentralized economy to function. But he further argues that knowledge is not a static bloc. If, in neoclassical perspectives such as Lange's, all relevant facts about a static world are assumed to be known *to the agents who need to know them*, in a real, and therefore transformational, economy no such knowledge is ever *given* to anyone (1948, pp. 108). Instead, agents must continuously (re)discover the relevant facts, be it presently available alternative courses of action, or how best to use resources. As Hayek writes (p. 112):

The solution of the economic problem of society is ... always a voyage of exploration into the unknown, an attempt to discover new ways of doing things better than they have been done before. This must always remain so as long as there are any economic problems to be solved at all, because all economic problems are created by unforeseen changes which require adaptation. Only what we have not foreseen and provided for requires new decisions. If no such adaptations were required, if at any moment we knew that all change had stopped and things would forever go on exactly as they are now, there would be no more questions of the use of resources to be solved.

According to Hayek, it is thanks to competitive pressure that agents *discover* those relevant facts, that they are incentivized to innovate on goods and processes to survive in the face of new circumstances, be it changing preferences, customs, or technological opportunities (pp. 113-14). In other words, the competitive market process is necessary for the renewal of knowledge, or its correction, and, therefore, to any functioning socioeconomic order. Essentially, the competitive market is a transformational process that is both dependent on human action and a precondition of successful interaction: a process that unfolds through time and changing circumstances. This contrasts with the

fictitious, pseudo-markets in neoclassical textbooks or Lange's proposal, which are merely algorithmic mechanisms for calculating the optimal behaviour of reactive cogs in an evenly rotating world.

4. Socialism after Hayek

4.1 Forms of socialism and economic problems

The socialist ideal remains alive and new proposals proliferate. But many of them need not be considered in detail, because they fail to take account of, or falsify, what Mises and Hayek have taught us.

For the sake of clarity, let us start with an overview of forms of socialism and the economic problems they must solve. In Mises' 1920 article, socialism entails that the community be the sole owner of higher order goods and that their competitive exchange against money be excluded. Socialists responding to Mises made several concessions. Lange's blueprint might be socialism *de jure*, insofar as means of production are state-owned, but Hayek (1940, p. 121) pointedly asks 'how far this kind of socialist system still conforms to the hopes that were placed on the substitution of a planned socialist system for the chaos of competition'.

Authors like Cohen (2009, p. 22) separate socialist principles from the specific 'modes of organisation' that seek to foster them. In this spirit, Roemer (1994, pp. 124-25) writes that 'the goal of socialism is best thought of as a kind of egalitarianism, not the implementation of a specific property relation'. If collective means of production and a centrally planned economy do not bring us closer to that goal, it does not follow that socialism is impossible.

However, any form of socialism must ensure reasonable solutions to the complex problems of resource allocation in advanced economies, which require an economically sound use of knowledge and its renewal. The possibility of socialism hinges on whether those reasonable solutions fit with socialist principles.

For Cohen (2009, p. 17), an important socialist principle is radical equality of opportunity, which seeks, *inter alia*, the correction of all social and natural disadvantages. Roemer (2017, p. 263), in turn, argues that ‘the *ethics* of socialism should be reformulated, from being characterized as the elimination of exploitation, to being characterized as the elimination of distributive injustice’. Cohen (2009, pp.12, 34ff) also singles out a principle of community as a central socialist principle. According to Roemer (2017, p. 306), this principle requires ‘that people be *altruistic* (in the sense of caring for each other) and *reciprocating* (in the sense of wishing to serve others, and in turn be served by them)’.⁶

Potential conflicts between such principles and the institutional preconditions of reasonable economic solutions are easy to find. Many concede that decentralised decision-making in competitive markets is a feature of *any* functioning, advanced economy. Roemer (1994, p. 27), for instance, writes that ‘any complex society must use markets in order to produce and distribute the goods that people need for their self-realization and welfare.’ Yet some doubt whether markets are compatible with the principles of equality, community or cooperation. For Cohen (2009, p. 82), ‘every market, even a socialist market, is a system of predation’.

⁶ Roemer (2017, p. 307) prefers attributing to socialism an ethos ‘that says people should address their problems in a cooperative and solidaristic manner.’

Unsurprisingly, many recent socialist proposals seek either a significant curtailment of the market process or, in accordance with Marx's vision, its elimination. Many of these proposals rely on an algorithmic understanding of the economy and on a messianic vision of digital technology.⁷

An early example of such a vision is Cottrell and Cockshott (1993), for whom 'computer hardware and algorithms of fairly recent origin' have made the use of labour time for economic calculation and planning feasible and rational, whereas data collection could be solved 'using an economy-wide network of cheap personal computers ... in conjunction with a national teletext system and a system of universal product codes' (p. 103). Much criticised by Hodgson (1999, pp. 53ff.), this proposal is rightly considered by Adaman and Devine (1996, p. 523) an example of socialists' failure to address the Austrian challenge.

But, as (capitalist) technology evolves, more recent proposals of 'digital socialism' make basically the same errors in different guises. Examining the possibility of digital socialism, Morozov (2019, p. 63) asks: 'Why insist on central planning, when a more decentralized, automated and apparatchik-free alternative might be achievable by putting the digital feedback infrastructure to work?' Yet he goes on to endorse Saros' (2014) 'guild socialism', a proposal that ignores Hayekian knowledge problems. Saros assumes there could be 'a General Catalog of all existing use-values' (p. 173), a

⁷ Adaman and Devine (1996, p. 533), an exception to this sort of messianic visions, propose an economic system fostering generalised participation, negotiation and cooperation, replacing private property with ownership 'by those ... affected by the use of the assets involved'. They seek to retain market *exchange* of the output of existing capacity, but to eliminate the market *forces* behind investment decisions (2002, p. 346). The cogency of this distinction is challenged by Hodgson (1999; 2005). By bringing more perspectives to bear on economic decisions, Adaman and Devine (1996, p. 526) believe their proposal overcomes the Austrian challenge of the use of fragmented and tacit knowledge in an ever-changing world. Hodgson (1999, p. 46) is rightly unconvinced.

‘Producers’ Section of the General Catalog ... [containing] all physical means of production with complete descriptions of their characteristics’ (p. 178), and that ‘each workers’ council has an ideal input mix in mind at a particular point in time’ (p. 178). A ‘Council of Scientists’ (p. 181) serves as the *deus ex machina* that would correctly determine ‘the availability of resources in each region’, ‘the appropriate use of resources such that needs fulfilment remains within the bounds necessary to achieve ecological and climate goals’ (p. 192), and resource consumption limits defining aggregate investment.⁸

In our view, those interested in seriously investigating the possibility of socialism should follow a different route, to which we now turn. Burczak’s (2006) market socialist proposal does not resort to the convenient fictions of equilibrium theorising and is noteworthy for presenting an institutional framework that explicitly seeks to address Hayek’s challenge.

4.2 Burczak’s market socialism

Burczak’s (2006) proposal is built on a three-pronged foundation. Burczak relies on Austrian contributions on the nature of knowledge and of the market process; on the Marxian vision of class ‘as a process of producing, appropriating and distributing surplus labour’; and on Martha Nussbaum and Amartya Sen’s capability approach to obtain ‘an intersubjectivist method to make interpersonal comparisons of well-being’ (p. 4). Rejecting the mechanistic vision of ‘neoclassical economics’ (p. 17), he seeks ‘interparadigmatic learning’ (p. 8).

Burczak understands that knowledge is at the core of Hayek’s critique of socialism. For Hayek, only forms of organisation with decentralised decision making and

⁸ For a detailed analysis of Morozov (2019) and Saros (2014), see Medeiros (2022).

market competition can hope to achieve a reasonable use of dispersed, often tacit knowledge and the timely transmission of signals needed for plans of action to dovetail. Burczak concludes that ‘post-Hayekian socialism must inevitably be market socialism; national economic planning is a dubious ambition for the future of socialism’ (p. 13).

But Hayek also raises an ‘ethical’—rather than ‘factual’—knowledge problem (p. 2): the impossibility of an ‘objective theory of distributive justice that can be used to justify or criticize any particular distribution of resources among people, provided that the distribution has emerged from a process regulated by impartial rules’ (pp. 55-6). This problem stems from the absence of an ‘objective, unprejudiced assessment about the nature of a fair outcome and the definition of human need’ (p. 2). Even if this assessment existed, though, the ‘factual’ knowledge problem suffices for Hayek to be sceptic and wary of any practical attempts to foster social or distributive justice (see p. 56).

Burczak notices, however, that Hayek’s ‘thin theory of the common good’ (p. 37), with its focus on procedural justice, often leads to ethically negative outcomes. Legally sanctioned reinforcement or perpetuation of (dis)advantage provide evidence of this. In the light of Hayek’s scepticism about notions of social justice, Burczak claims that ‘the articulation of the common good needs to be created’ and proposes that we ‘conceive justice to be a goal—not a given—of an ongoing and collective conversation about the meaning of social welfare’ (p. 81). He further argues ‘that the principle that should focus a democratic and socialist discussion of the common good is the goal of developing in all people the capabilities to achieve an intersubjective account of human well-being’ (p. 83). Participating in the process of ‘appropriating and distributing surplus labor [is] one of the capabilities that promote human flourishing’ (p. 99).

Burczak envisages a market economy, with competition and free initiative, that seeks ‘the abolition of exploitative class processes’ (p. 13). Central to his proposal are ‘labour-appropriating firms’ (p. 118), democratically managed by workers according to a principle of one worker, one vote. In this economy, the exchange of labour-power for a wage would be prohibited (see pp. 3-4). Capital could be privately owned by firm workers or by third parties, but capital ownership would confer no rights to control workers or to appropriate the results of their productive efforts (see p. 122). Earnings of capital owners would be contractually defined (see p. 118).

This institutional arrangement would secure ‘appropriative justice’, i.e., ‘an end to the exploitative appropriation of surplus labor by nonproducers’ (p. 9). In his view, exploitation does not stem from private property or markets, but from ‘the direction of the hiring contract’: ‘if labor hired capital ..., workers would be the last owners of their labor time and the first owners of the newly created goods and services’ (p. 114).

Burczak also wants to foster distributive justice, by seeking ‘forms of distribution that would enhance the economic viability of workplace democracy and democratic appropriation’ (p. 4). To this end, he takes a leaf from Bruce Ackerman and Anne Alstott and proposes that, upon majority, everyone receive ‘the means to purchase the average capital stock per worker’ (p. 133) in the form of a grant. These funds could be used only to promote ‘nonexploitative forms of good living ... by providing a social inheritance to finance investments in human and physical capital’ (ibid.). A proportional wealth tax in the region of 3% would finance this expenditure.

This measure would solve two issues. First, it ‘should encourage individuals and collectives to take more productivity-enhancing risks’. Second, it ‘would reduce the difficulties faced by a collective of asset-poor workers in trying to obtain credit to start

up or expand a new self-managed enterprise'. It might even facilitate entry and foster competition (p. 134). But it would not be enough for distributive justice, so Burczak also defends a 'capabilities-enhancing welfare state' (p. 143)—warning that 'socialists must have some humility regarding the knowledge that government officials can acquire to implement welfare-enhancing policies successfully' (p. 139).

Burczak (2006) has received much attention, notably from Austrians.⁹ Observing that Austrians should read him, Storr (2007) finds Burczak's understanding of exploitation 'suspect', noting that some people would flourish better working for a wage. He remarks that, as 'we have no way of knowing the consequences of preventing individuals from entering into certain kinds of relationships', Hayek's ethical problem 'returns again'. He argues that 'it is not, simply, access to resources that determine any particular person's success or failure' and that 'we can assume that outcomes will be different if everyone is given a stake but we cannot assume that outcomes will be better' (p. 315). In turn, Farrant (2009) remarks that many 'will challenge Burczak's contention that democratic labor-managed firms can reap efficiency gains that are unavailable to the conventional capitalist firms' (p. 283). If they were more efficient, why would they not be more common in competitive capitalist economies? Andersson (2010) notices that 'Burczak's 'labor-managed market' is ... less flexible than a market that permits both capitalist and cooperative firms', which could 'induce systemic knowledge losses' (p. 540). Rosser and Rosser (2009) concur with Burczak on many of the advantages of worker-management, but find that his universal grant, though it would help cooperatives

⁹ Including a symposium in the *Review of Austrian Economics* (see Farrant, 2009). Horwitz (2007, p. 65) thinks Burczak's is 'the most fundamental challenge to Hayek's defences of the market' since Lange. Andersson (2010, p. 352) notes that 'Burczakian market socialism involves real rather than simulated markets. Burczak (2006) is therefore able to engage Austrians to an extent that is unusual for socialists.'

getting started, seems insufficient for firm growth. They suggest that ‘if a system as Burczak advocates were really to survive, more than just the wealth tax might be needed to provide financing’ (p. 291).

It is impossible to assess this proposal, much less its ethical foundations, here. It certainly warrants attention, not least because it does take Hayek seriously. But Burczak’s notion of ‘labour-appropriating firms’ is difficult to visualize, as the present legal difficulties in distinguishing workers from independent contractors suggest. There is a risk that his proposal would degenerate into a fettered form of capitalism, where exchanges of labour power for a wage would *de facto* continue, with resources wasted manoeuvring legal prohibitions. In truth, it may be legitimate to go somewhat farther: is a proposal that retains rivalrous market competition among privately owned firms a form of socialism or a regulated form of capitalism?

5. Concluding comments

This paper’s aim has been to establish three propositions about the economics of socialism. First, we have shown that Lange’s argument, contrary to what positivists are still propagating, is not a viable blueprint for socialism. Institutionally, it is both vague and utterly implausible. Second, Mises’ reflections on the indispensable institutions for a complex economy to function are not even addressed by Lange. Instead, it is Hayek who gives Lange the *coup de grâce* with his arguments about the discovery and use of knowledge under rivalrous market competition. Third, proposals as to how socialism might work should recall Hayek, as Burczak (2006) does.

Broadly speaking, where do we presently stand regarding socialism? According to Marx’s theory of history, socialism meant the end of markets. Consistently with this vision, many remain sceptical of market socialism in whatever form. Rector (2021)

argues that ‘market practices are competitive, self-regarding, instrumental, impersonal, and property-centric’ and that, in the market, ‘the principle of community can furnish no guiding norms, no directive or evaluative oughts’ (p. 18). For him, ‘socialism cannot endure as the political logic of a market society, in which subjection to market dynamics is the principal experience of most agents’ lives as individual producers and consumers’ (p. 5).¹⁰

But, after Hayek, is there a compelling alternative to markets? Considering the literature we have examined, it would seem wise not to place many hopes on digital substitutes of the market process. None of these proposals shows a clear understanding of Hayek’s as yet unchallenged central points. Hodgson (2019, p. 124) reaches a similar conclusion when he writes that ‘humane socialism without markets is unfeasible, not because it is out of reach, but because it cannot exist as a workable system.’ Believing markets to be incompatible with the socialist ideal, Cohen (2009, p. 57) writes that ‘the principal problem that faces the socialist ideal is that we do not know how to design the machinery that would make it run’.

If we should accept that a viable socialism must be a market socialism, other problems may arise. A case could plausibly be made that market socialism is unstable and will exhibit a tendency to ‘degenerate’ (or evolve) into capitalism:

Workers would tend to lose both effective income rights as well as effective control over the means of production (use rights). The manager-entrepreneurs would begin to function more and more like old-fashioned capitalists and workers would be virtually indistinguishable from proletarians ... [A]s long as the conditions for rivalrous competition are met (e.g., unexpected changes in supply or demand,

¹⁰ Yunker (1995, p. 712) interestingly observes that one of the advantages of his market socialist proposal is that it is so similar to capitalism that, if it does not work, one could easily revert to the old regime.

quality differences, differential technological change, etc.), some competitors will have the ability and incentive to outstrip others. This unleashes the forces that destabilize market socialist relations of production. (Arnold, 1987, pp. 38, 45).

So a provisional summary might be something like this: without markets (and their supporting institutional framework), we do not know how economic problems can be tolerably solved; with markets, however, even if we assume that the system in question could be socialist and work reasonably, it may be the case that it would converge to capitalism.

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