

THE SOCIALIST 'CALCULATION' DEBATE: LANGE VERSUS MISES AND HAYEK

ANDREW FARRANT

"It is not too much to say that orthodox economists, that is, economists of the school of Marshall and of the Austrian and Lausanne schools, are in part responsible for the poverty of thought concerning the economics of socialism. Holding that the proper field of economic theory is the field of abstraction, where logic and mathematics can be rigorously applied, they have limited their analysis very largely to a condition of static equilibrium — a condition where change is ruled out and economic forces are in balance."

— Benjamin E. Lippincott¹

"Socialistic forms of organization should be rejected if it can indeed be shown that they are inconsistent with material well-being and justice." — Leon Walras²

"Practical policy-makers are faced with the apparent fact that, for some reason or other that they cannot fathom, tolerably high living standards for the masses require private property in the means of production, along with substantially free capital and money markets."

— David Ramsay Steele³

ABOLITION OF THE MARKET WOULD LEAD TO THE BREAKDOWN OF INDUSTRY

In 1920, Ludwig von Mises published an essay "Die Wirtschaftrechnung im Sozialistischen Gemeinwesen" ("Economic Calculation in the Socialist Commonwealth" — 1935 [1920]). Mises's perceptive argument ignited the 'socialist calculation' debate: a fascinating debate in comparative pol-

itical economy that raged during the inter-war years. Although written in a somewhat caustic literary style, the 'Mises' argument⁴ quickly became recognised as a devastating challenge to the pristine Marxist view.⁵ Mises argued that in order to make sensible decisions regarding the allocation of factors of production (for example, to compare the costs of alternative production methods) it is necessary to refer to the prices of these factors. If such prices were to be endowed with any degree of 'economic' rationale, then Mises considered it vital that they be established spontaneously in an 'anarchic' market. Abolition of markets for factors⁶ (whether or not accompanied by the abolition of markets for consumers' goods) would — Mises contended — result in the breakdown of industry.⁷

"Under socialism all the means of production are the property of the community. It is the community alone which can dispose of them and which determines their use in production."⁸ Absent a market for factor inputs, no production good would "ever become the object of exchange". (p. 93) Hence, it would "be impossible to determine its monetary value". (p. 93) Mises argued that — under the anarchic organisation of capitalist industry — market prices acted as "aids to the mind" (p. 102). Although not perfect from an ideal perspective, monetary calculation did at least facilitate the practical co-ordination of highly intricate production processes. The existence of money prices enables each decision maker to take into account much information, which — absent such prices — they could not possibly be aware of. Absent the assistance provided by such "aids to the mind", Mises argued that the human mind would be unable to "orientate itself properly among the bewildering mass of intermediate products and potentialities of production" (p. 103) The exchange ratios that emerged in the course of market exchange, facilitated — argued Mises — a type of "intellectual division of labour", that allowed those participating in trade to draw upon each other's knowledge in an indirect fashion.

Of the vast set of projects that are technically feasible, only a small subset are 'economically rational'. If available resources are to be utilised effectively, it is vital that those in charge of production possess some method that enables them to discriminate between the various methods in which factors can be combined, eliminating those which are considered 'uneconomic' from their consideration. Mises argued that the human mind alone "is too weak to grasp the importance of any single one among the countless many" factors. "No single man can ever master all the possibilities of production, innumerable as they are, as to be in a position to make straightway judgements of value without the aid of some system of computation." (p. 102) Those in charge of industrial production under socialism have need of a surrogate for the price system, a surrogate 'aid to the mind' capable of guiding them through the plethora of potential factor combinations; a guide through the "oppressive plentitude of economic potentialities". (p. 101)

"THE PROBLEM OF CHOICE IS SOLUBLE"

Marxism was the unreasonable⁹ in pursuit of the unfeasible. Its unfeasibility had been strongly hinted at by Friedrich von Wieser in 1889, N. G. Pierson in 1902, Enrico Barone in 1908, and then clearly explained by Mises in 1920. Pareto and Barone had shown that the allocative problem facing any social order was characterised by a large degree of formal similarity. Rather than providing an advance "solution of the problem" (Lange, 1970 [1939] p. 59); they had dem-

Economic Notes No. 71

ISSN 0267-7164 ISBN 1 85637 346 0

An occasional publication of the Libertarian Alliance,
25 Chapter Chambers, Esterbrooke Street, London SW1P 4NN
www.libertarian.co.uk email: admin@libertarian.co.uk

© 1996: Libertarian Alliance; Andrew Farrant.

Andrew Farrant is doing an economics degree at the University of London, and is a member of Labour Students.

The views expressed in this publication are those of its author, and not necessarily those of the Libertarian Alliance, its Committee, Advisory Council or subscribers.

Director: Dr Chris R. Tame
Editorial Director: Brian Micklethwait Webmaster: Dr Sean Gabb

FOR LIFE, LIBERTY AND PROPERTY



onstrated — contra the received Marxist ‘wisdom’ of the time — that the attainment of any semblance of effective resource utilisation necessitated — on the part of those ‘in charge’ of production — reliance upon ‘accounting’ categories that would be analogous to ‘prices’, ‘rent’, ‘interest’ and ‘profit’.

Oskar Lange contended that the ‘Misesian’ argument rested upon a fundamental confusion as to the nature of ‘prices’. Lange (drawing upon the writings of Wicksteed) argued that the category of ‘price’ has two meanings: [a] the “ordinary” sense of an exchange ratio between two commodities as it exists in a market setting; [b] a “generalized” and wider sense: that of the “terms on which alternatives are offered”. Lange (p. 60) contends that it is “only prices in the generalized sense which are indispensable to solving the problem” of resource allocation.

Rather than betraying a fundamental confusion as to the nature of ‘price’; Mises’s primary contention is that ‘prices’ in the sense of [a] are the only known means by which ‘prices’ in the sense of [b] can be made practically accessible to decision-makers. Mises argued that absent prices in the sense of [a], those charged with the task of directing production would lack the knowledge that is requisite if production is to proceed in an ‘intelligent’ manner. The problem facing Lange, is to provide an alternative means — a practical one — for endowing factors with ‘prices’.

Lange — for illustrative purposes — outlines the neoclassical theory of ‘optimal’ resource allocation. Given that the economic problem is a “problem of choice between alternatives” (p. 60) — three types of “data” are needed in order for the allocative ‘engineering’ problem to be solved: [1] the consumers’ preference scale; [2] knowledge of the terms on which the various alternatives are offered; [3] knowledge as to the availability of resources. These three data being given, “the problem of choice is soluble”. (p. 60) Lange (p. 60) writes that 1 and 3 are given (for a socialist economy) in at least “as great a degree as they are given in a capitalist economy”. The theorist with knowledge of [1] and [3] is able to determine the point at which the marginal rates of substitution for any two factors or commodities will be equated for all different uses. Assuming the data subsumed under [1] and [3] to be available, [2] can be determined. As Hayek — in particular — was to emphasise, neither [1] nor [3] are given; such ‘knowledge’ exists only in a dispersed and unknowable form, therefore — as Mises had originally contended — market prices are the only known practical substitute for [2].

For Lange, the primary question is as to “whether the data under 2 are accessible to the administrators of a socialist economy”. (p. 60) His answer is that the administrators will have the same knowledge or lack of knowledge of the various production functions, as “capitalist entrepreneurs have”. (p. 61) The essential confusion of Mises’s argument — from the perspective of Lange — is alleged to rest upon his confusion between ‘price’ in the sense of [a] and [b] outlined above. Under public ownership the means of production are “*res extra commercium*”, with no production good ever becoming the object of market exchange. Absent such market exchange and the subsequent generation of exchange ratios (prices in the sense of [a]), there is for Mises, no surrogate “index of alternatives” available in “the sphere of capital goods”. (p. 61)

Lange alleges (p. 62) that Hayek and Robbins (the principal adherents — aside from Mises — of the ‘Misesian’ position

during the calculation debate) “do not deny the theoretical possibility” of a rational allocation of resources under socialism; but “only doubt” the possibility of a practical solution to the problem. Lange makes the astonishing claim (p. 63) that “Hayek and Robbins have given up the essential point” of Mises’s position, retreating to a “second line of defense”. They are alleged (p. 64) to concede that ‘prices’ — in the sense of [b] — are “given also without an actual market”. The function of the market for Hayek and Robbins — in Lange’s eyes — is to allocate resources by a process of “trial and error”.

Lange reveals his essential confusion¹⁰ at this juncture. Mises — in his 1920 article — had conceded the possibility of socialism given appropriate theoretical assumptions.¹¹ However, he considered this to be “only conceptually possible”. (1935 [1920] p. 109) Does Mises stand accused — in the dock with Hayek and Robbins — of retreating to a ‘second line of defense’? Lange appears to miss the point that the whole debate relates to the practical adequacy — or otherwise — of an alternative to the market system. On the question of whether or not socialism is — given certain assumptions — theoretically possible, Hayek (as did Mises) readily concedes that it is. Of the type of analyses whereby:

On the assumption of a complete knowledge of all relevant data, the values and the quantities of the different commodities to be produced might be determined by the application of the apparatus by which theoretical economics explains the formation of prices and the direction of production in a competitive system. (Hayek, 1935, pp. 207-208)

Hayek readily admits that

this is not an impossibility in the sense that it is logically contradictory. But to argue that a determination of prices by such a procedure being logically conceivable in any way invalidates the contention that it is not a possible solution, only proves that the real nature of the problem has not been perceived.¹²

TRIAL AND ERROR

Of ‘trial and error’ as a practical procedure by which to allocate resources, Lange invokes the earlier contribution to the debate of Taylor (1970 [1928, 1939] pp. 41-54) as having “indicated” the method by which trial and error will “solve” the problem under socialism. Taylor is viewed as having provided “in substance the answer” (p. 65) to the arguments of Hayek and Robbins. The adequacy of the ‘solution’ of trial and error; along with its importance to Lange’s contribution will be explored below.

The importance to Lange’s argument of ‘trial and error’ should not be under-estimated. Prior to discussing the role it plays under socialism, Lange recounts the basic elements of neoclassical price theory to illustrate the role that trial and error — supposedly — plays in a “competitive market”. Price taking behaviour is vital, with all agents treating prices as ‘parametric’ variables “independent of [their] behaviour”. (p. 65) The ‘optimisation’ problem is outlined; as is the manner in which Walras illustrated how the ‘problem’ could be ‘solved’.¹³ (p. 70)

Lange writes that the problem is solved “actually by trial and error”; the solution being attained by a “series of successive trials (*tatonnements*)”. The *tatonnement* process begins with a set of prices given at random; agents then attempt to ‘optimise’ upon the basis of these ‘prices’. Adjust-

ments are made to these ‘prices’, until an equilibrium is attained with all ‘markets’ clearing simultaneously.

Lange initiates his discussion of the “method of allocating resources in a socialist economy” (p. 72) by outlining the institutional framework that he envisages. The means of production are subject to public ownership and control, with freedom of choice in consumption and freedom of choice in occupation being maintained. A genuine market (“in the institutional sense of the word” — p. 73) is retained for consumer goods and labour services. Lange holds that the ‘prices’ of capital goods and other productive resources will exist — under socialism — only as prices in the “generalized sense”. They will exist as “mere indices of alternatives available, fixed for accounting purposes”.

From the perspective of Lange’s theory, equilibrium is determined in such a system on the basis of “given indices”. These indices will consist of actual market prices in the case of consumer goods and labour services; with ‘accounting’ prices (set by Lange’s envisaged Central Planning Board) sufficing in all other cases. Just as occurs in the Walrasian ‘market’ *tatonnement* process, Lange’s ‘prices’ (whether market or accounting) will be determined by the condition that supply and demand mesh for every commodity.

Lange’s CPB (Central Planning Board) imposes a set of rules upon the managers’ of industrial plants. These rules determine the combination of factor inputs to be utilised, and the scale of output to be produced. The first rule decrees that each manager choose the combination of factor inputs (chosen upon the basis of the ‘prices’ announced by the CPB) that will minimise the average cost of production.

The second rule is that output should be set such as to equate marginal cost to the price of the product. Upon the basis of this rule, industry managers decide whether to expand or contract production in particular industries. Adherence to the second rule is supposed to mimic the effects of free entry and exit under competitive conditions.

Each industrial plant is to ‘account’ (in an unspecified manner) for the inputs utilised. Lange (p. 79) addresses the concern of Mises that absent a market in the “institutional sense of the word” for capital goods, can “their prices be determined” in an objective manner? Is it not the case that the “prices fixed by the Central Planning Board [must] necessarily be quite arbitrary?” (p. 80) If so, then “their arbitrary character would deprive them of any economic significance as indices of the terms on which alternatives are offered.”

A competitive market has an ‘objective’ price structure — in Lange’s eyes — because there is generally only one set of prices that can satisfy the objective equilibrium conditions.¹⁴ This same “objective price structure can be obtained in a socialist economy if the parametric function of prices is retained.”

Once the “parametric function of prices is adopted as an accounting rule, the price structure is established by the objective equilibrium condition.” (p. 81) Equilibrium prices “alone assure the compatibility of all decisions taken”. (p. 82) Any price announced by the CPB that deviates from the equilibrium price would show itself at the end of the “accounting period”¹⁵ as a surplus or shortage of the commodity in question. Any mistake would announce itself in a “very objective way” — a physical surplus or shortage. Such efforts would necessitate that the price structure be continually “corrected in order to keep production running smoothly”. In such a manner, Lange holds the process of

price determination to be “quite analogous to that in a competitive market”. (p. 82) The CPB performs the functions of the market. “It follows that a substitution of planning for the functions of the market is quite possible and workable.”¹⁶ (p. 83)

Lange argues that although the CPB could start with a set of prices chosen at “random”, in actuality the “process of trial and error would, of course, proceed on the basis of the [disequilibrium] prices historically given.” (p. 86) In light of this, Lange argues that relatively small adjustments of prices will suffice to keep industry running smoothly. There is no need to build up an “entirely new price system”. Invoking the spirit of Taylor’s ‘factor valuation tables’, Lange contends that a set of successive trials will enable the right accounting prices for factors to be ascertained.

INFORMATION IS DISPERSED

In the course of the debate with Lange, Hayek elaborated upon the argument of Mises; teasing out the subtle implications of the Misesian challenge. In the course of this elaboration, Hayek gave emphasis to the essentially different fashion in which, the ‘Austrian’ and ‘Lange-esque’ perspectives, view the functioning of the market.

The problem of ‘economic calculation’ as it confronts a factory manager — the original Misesian argument — can be best be interpreted as the surface manifestation (at the firm level) of a deeper underlying ‘knowledge problem’. It is an appreciation of the latter that radically differentiates Hayek from Lange; providing an insight as to why Hayek found Lange’s purported ‘solution’ to be less than adequate.

An individual producer is faced with the problem of coordinating his activities with those of N other economic agents; his decision making process must take account of a vast plethora of esoteric detail, relating to matters concerning his factor inputs, the relative cost of potential substitutes, and so forth — ‘details’ that are widely dispersed throughout the global productive structure. The vast majority of this ‘knowledge’ is unavailable to any individual producer in an easily accessible form. No producer can know — it being an epistemological impossibility — every intricate facet relating to the manufacture (or extraction, in the case of raw materials) of his factor inputs. Yet, as Hayek’s opponents readily admitted, such detail *must* be taken into account, if production is to proceed in a sensible manner.

To illustrate this point, Hayek recounts a (justly famous) story about the market for tin. The price of tin reflects (admittedly, in a less than ideal way) a vast plethora of detail, that cannot by its nature be ‘known’ to those for whom tin serves as a factor input. The price of tin reflects — encapsulates — factual detail pertaining to: the supply of tin; various demands for it as an industrial input; the various supply and demands for tin substitutes; the costs of producing tin; factors relating to tin complements; and so forth *ad infinitum*. By reference to the price of tin, a producer — problems of signal-extraction notwithstanding — can adapt his activities to a change in any of the various factors enumerated above. An increase in the price of tin — due perhaps, to a decrease in the supply of a tin substitute, an increase in the demand for tin, or a strike at a tin mine — will have the result that tin user’s will be made aware that it is now necessary to utilise tin more sparingly; perhaps — in the case of a marginal usage — foregoing the use of tin entirely.

For Hayek, the price increase will tend to bring about that the “solution which (it is just conceptually possible) might have been arrived at by one single mind possessing all the information which is in fact dispersed among all the people involved in the process.” (Hayek, 1948 [1945] p. 86) By means of a continual process of such mutual adjustments, there is a constant ‘groping’ towards the optimal ‘plan’ (an unplanned approximation to what the hypothetical optimal plan would have been), without anyone ever knowing what it is. In the case of a scarcity of one raw material, without “an order being issued, without more than perhaps a handful of people knowing the cause, tens of thousands of people whose identity could not be ascertained by months of investigation, are made to use the material or its products more sparingly; that is, they move in the right direction.” (p. 87) The price system enables millions of people to harmonise their activities to an extent that could not possibly be replicated by legislative edict — or Lange’s CPB.

ANYTHING BUT AN EXERCISE IN ENGINEERING

Whereas Lange appears to envisage the concentration of all knowledge in the administrative section of the CPB, Hayek’s statement that the “data” from which “the economic calculus starts are never for the whole society “given” to a single mind which would work out the implications and can never be so given” is far nearer to reality. As Hayek (1948 [1945], p. 77) readily concedes, “If we possess all the relevant information”, if “we can start out from a system of given preferences, and if we command complete knowledge of available means”, the problem which remains is “purely one of logic”. The solution to such an ‘economic’ problem is implicit in the assumptions; the problem is reduced to one of engineering. The problem as it confronts real world decision makers is emphatically anything but an exercise in engineering.

NOTES

1. Lippincott (1970 [1939]), p. 6.
2. Walras (1954 [1874, 1926]), p. 55.
3. Steele (1992), p.xvii.
4. Lange (1970 [1939], p. 57) credits Mises — in recognition of his ‘services’ to the cause of socialist economics — with the title “*advocatus diaboli*” of the Socialist cause. The vituperative literary style of Mises is matched by the ‘tongue in cheek’ fashion in which Lange addresses his opponents.
5. To provide a detailed textual exegesis of the views held by Marx and his followers would require a separate essay. I refer the reader to the fascinating discussion in Walicki (1988, pp. 10-59).
6. The scenario envisioned by Classical Marxism.
7. Such an industrial collapse occurred in Russia during 1918-1921. Excellent studies of the ‘economic’ policies pursued during the ‘War’ Communism period are provided in: Boettke (1990, pp. 63-113); and Roberts (1990 [1971], pp. 20-48).
8. Mises (1935 [1920] p. 89).
9. Steele (1992, p. 375) contends that if Marxism had been “more unabashedly utopian, it would not have had the same motive to evade discussions of the mechanics of its proposed future society. The attempt to abstain from utopianism merely leads to unexamined utopias.” Further, there is “no escape from utopianism, other than mute abstentionism. But we can criticize our utopias, discard those convicted of unfeasibility, and replace them with better utopias. Wishful thinking is no vice, but openness to argument is a wonderful virtue.”
10. The condition of being subject to a degree of confusion was not limited to Lange. Hayek (1948 [1940], pp. 181-208) considered Lange’s contribution to be a form of ‘competitive socialism’. Lavoie (1985, pp. 117-144) — in an otherwise excellent discussion of the calculation debate — considers Lange to be a ‘market socialist’. Bardhan and Roemer (1993, p. 3) write about a realisation on

Lange’s part, “that markets of some kind would indeed be required to find the socialist equilibrium”. As Steele (1992, p. 156) wryly — and correctly — observes, “if there are any students who actually read Lange’s article with their own eyes, instead of reading into it the ‘market socialism’ their professors tell them is in it, they may be quite puzzled at the pains Lange takes to avoid admitting factor markets (other than labor markets) into socialism.” Lange (1967, p. 158) adds to the confusion by writing: “in my [1939] essay I refuted the Hayek-Robbins argument by showing how a *market mechanism* could be established in a socialist economy.” (emphasis added).

11. “The static state can dispense with economic calculation. For here the same events in economic life are recurring ... we might at all events conceive of a socialist production system which is rationally controlled from an economic point of view.” Mises 1935 [1920] p. 109)
12. “It is only necessary to attempt to visualise what the application of this method would imply in practice in order to rule it out as humanly impracticable and impossible.” Hayek (1935, p. 208)
13. When considered as a heuristic fiction, an illustrative device by which to elucidate the inter-relatedness of all markets, the Walrasian *tatonnement* process may have various merits. It must however, be seen as just that: an *illustrative* fiction. Lange appears to think that his opponents actually consider the Walrasian system to be representative of reality.
14. For analytical ease, the question of multiple equilibria is ignored.
15. This begs the question as to the length and nature of the latter. Do the *tatonnement* trials occur in the CPB office prior to production, or does production proceed on the basis of set prices, equilibrium or otherwise?
16. This raises a variety of interesting questions. For example, is Lange suggesting that the Walrasian auctioneer could replace the actual market?

BIBLIOGRAPHY

- P. Bardhan and J. Roemer (1993), *Market Socialism: The Current Debate*, Oxford University Press.
- Peter J. Boettke (1990), *The Political Economy of Soviet Socialism: The Formative Years, 1918-1928*, Kluwer, Boston.
- Friedrich A. Hayek (1935, ed.), *Collectivist Economic Planning*, Routledge, London.
- (1948 [1945]) “The Use of Knowledge in Society”, reprinted in *Individualism and Economic Order*, University of Chicago Press, pp. 77-91.
- Oskar Lange (1939 [1970]), “On the Economic Theory of Socialism”, reprinted in Lippincott (1939 [1970] ed., pp. 57-143).
- (1967), “The Computer and the Market”, in C. H. Feinstein (ed.), *Socialism, Capitalism And Economic Growth*, pp. 158-161, Cambridge University Press.
- Benjamin E. Lippincott (1939 [1970] ed.), *On the Economic Theory of Socialism*, Augustus M. Kelley, New York, “Editorial Introduction”, pp. 1-38.
- Don Lavoie (1985), *Rivalry and Central Planning: The Socialist Calculation Debate Reconsidered*, Cambridge University Press.
- Ludwig von Mises (1935 [1920]), “Economic Calculation in the Socialist Commonwealth”, reprinted in Hayek (1935, ed.), pp. 87-130.
- Paul Craig Roberts (1990 [1971]), *Alienation and the Soviet Economy*, Holmes and Meier, London.
- David Ramsay Steele (1992), *From Marx to Mises: Post-Capitalist Society and the Challenge of Economic Calculation*, Open Court, La Salle, Illinois.
- F. M. Taylor (1939 [1929, 1970]), “The Guidance of Production in a Socialist State”, reprinted in Lippincott (1939 [1970], ed.), pp. 57-143.
- Andrzej Walicki (1988), “Karl Marx as Philosopher of Freedom”, *Critical Review*, 2:4, pp. 10-59.
- Leon Walras (1954 [1874, 1926]), *Elements of Pure Economics, or the Theory of Social Wealth*, Irwin, Homewood, Illinois.