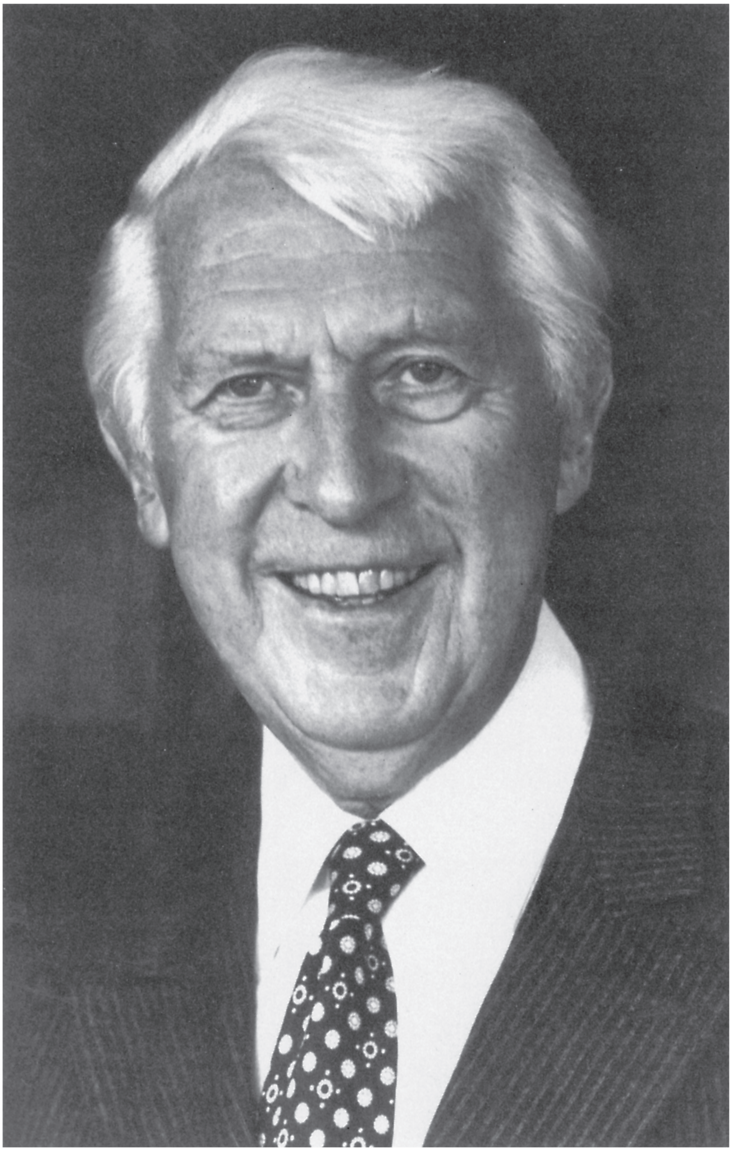
Economic Calculation in the Socialist Society



Trygve J. B. Hoff

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Liberty Fund
Indianapolis

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The cuneiform inscription that serves as our logo and as the design motif for our endpapers is the earliest-known written appearance of the word "freedom" (*amagi*), or "liberty." It is taken from a clay document written about 2300 B.C. in the Sumerian city-state of Lagash.

Originally published as *Økonomisk kalkulasjon i socialistiske samfund* by H. Ashekovg, Oslo, in 1938. English translation published by William Hodge and Company, Limited, London, in 1949.

Translated from the original Norwegian by M. A. Michael.

The publisher acknowledges the cooperation of the Institute for Humane Studies. This book is included in the Institute's Studies in Economic Theory Series.

Library of Congress Cataloging in Publication Data

Hoff, Trygve J. B.
Economic calculation in the socialist society.

Translation of: Økonomisk kalkulasjon i socialistiske samfund.
Reprint. Originally published: London: W. Hodge, 1949. With new introd.
Bibliography: p.
1. Marxian economics. I. Title.
HB97.5.H5613 1981 335.4 80–83795
ISBN 0–913966–93–2 AACR 2
ISBN 0–913966–94–0 (pbk.)

85 84 83 82 81 C 5 4 3 2 1
02 01 00 99 98 P 6 5 4 3 2

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Introduction

In 1940, two years after the publication of Trygve J. B. Hoff's *Okonomisk kalkulasjon i socialistiske samfund* (Oslo: H. Ashehovg, 1938), the original Norwegian version of the book you are about to read, the socialist economist, H. D. Dickinson wrote in a very favorable review article:

> The problem of economic calculation in a social system where the ownership of all means of production is, in the ultimate analysis, vested in a single organ of social administration has been a live issue among economists for some years. It seems now to have reached a stage in which none of the disputants has very much new to say. Consequently, it is now ripe for a comprehensive survey and a judicial summing-up. This has been very successfully attempted by a Norwegian scholar in the work before us. The author has produced a critical review, at a very high level of theoretical competence of practically everything that has been written on the subject in German and English. [*Economic Journal.* 50 (June-Sept. 1940): 270–274.]

The controversy that is the subject of Hoff's book was exactly twenty years old when Dickinson wrote his review. It was a controversy that raged first in the German and later in the English economic literature. During its twenty-year life span, there was lively and sometimes acrimonious debate in which both sides to the dispute brought up issues that are fundamental to the understanding of both the socialist and the market economy and of the models which economists use to describe them. At the time, the participants in the discussion perceived the question to be which form of economic organization yields the most desirable economic consequences, capitalism or socialism. For most of the participants, the criterion for evaluating the two economic systems was the maximization of social welfare in the technical economic sense, and the question they tried to resolve was whether socialism or capitalism could satisfy the wants and needs of consumers more efficiently.

While the early socialist writers had simply asserted the superiority of their system by claiming its historic inevitability, the genuine debate about the problem of economic calculation began in 1920 with the publication of Ludwig von Mises' article, "Die Wirtschaftsrechnung im socialistischen Gemeinwesen" in the *Archiv fur Sozialwissenschaften;* translated as "Economic Calculation in the Socialist Commonwealth" in F. A. Hayek, *Collectivist Economic Planning* (London: George Routledge and Sons, Ltd, 1935). Here, Mises pointed to the vagueness of the socialists' economic programs and to the unreliability of their claims for economic superiority, and argued that far from being a superior economic system, socialism in fact was totally incompatible with rational economic behavior. The essence of Mises' argument was that in order to make rational economic decisions (that is, to produce the greatest valued output for the smallest use of resources), producers and consumers need to know the market prices of producer goods and consumer goods. Market prices are data that permit producers to determine whether or not they have produced their product most economically, and profits are the signals that tell them if they have performed as well as other producers in the economy. Without prices, there is no possibility of calculating costs or revenues or profits, and therefore, no way of knowing if the products most highly valued by consumers have been produced. Here, Mises was arguing that the same economic logic must be applied to any system that aspires to satisfying consumer wants efficiently. This argument was not new; it had been made in an article published in 1902 by a Dutch economist, N. G. Pierson (translated as "The Problem of Value in a Socialist Society" in *Collectivist Economic Planning,* cited above) whose work was at the time not very well known and also, by Enrico Barone who in a 1908 article ("The Minister of Production of a Socialist State" also later published in *Collectivist Economic Planning*) that followed up some suggestions originally made by Vifredo Pareto, showing that the same economic logic which led to a rational allocation of resources in a capitalist economy would also apply to a socialist one. What distinguished Mises' arguments from those of Pierson and Barone was his vehement assertion that the information necessary for economic calculation could be obtained only through market-determined prices.

Partly because of the certainty with which he stated his argument, and partly because his argument was repeated independently by Max Weber in his book, *Wirtschaft und Gesellschaft* in 1921, reaction to Mises' article produced a quick response in the German literature. Much of the initial reaction consisted of attempts to deny that under socialism there would be any necessity of calculating in the same way as under capitalism; some of the alternatives to economic calculation presented by the socialists in answer to Mises were non-monetary exchange, valuing according to labor input, and distribution from public store houses at no cost to consumers. With a few notable exceptions, the thrust of the early German responses to Mises were aimed at eliminating "bourgeois" economics and replacing it with some sort of ill-conceived utopia. (Accounts of some early socialist programs can be found in Hoff, Chapters 4, 5, and *Collectivist Economic Planning,* Chapter I.)

More promising answers to Mises' criticisms began to appear in the late twenties and early thirties when the discussion of socialism was taken up by English-speaking economists. What distinguished the English contributions to the discussion from most of the earlier German ones was the admission of one of Mises' basic points that prices were as important for rational calculation in a socialist economy as they were in a capitalist economy. With few exceptions, all the English contributors were neoclassical economists who agreed that the equilibrium position described by the model of perfect competition represented maximization of human welfare. Their programs for socialism were aimed at reproducing this beneficial result of perfect competition without the defects they believed to be inherent in capitalism: monopolies, externalities and inequalities of wealth. They attempted, therefore, to find methods by which central planners could arrive at a set of economically rational product and factor prices that did not rely on free markets and the private ownership of the means of production.

Interestingly, one of the first of the schemes to overcome the deficiencies of capitalism through market planning was presented by H. D. Dickinson, the reviewer of the Norwegian edition of Hoff's work. In an article entitled "Price Formation in a Socialist Community" (*Economic Journal,* 43 [June 1933]; 237–251), Dickinson described an economic theory of socialism which set the outline for the many socialist models to follow. In direct response to Mises' challenge, Dickinson constructed a model of a socialist economy with the following characteristics: personal goods were private property, there was common (that is, state) ownership of natural resources and the means of production, and most importantly, there was a large sector of individualized consumption for which cost calculation would have to be carried out using prices. To obtain these prices, Dickinson proposed that the central planners estimate statistical demand curves and production functions and solve for equilibrium prices through a series of successive approximations. Essentially, Dickinson proposed the construction of a mathematical model of the economy much like some modern computer simulation models. Since in 1933, computers of the sophistication required to do the formidable job of simulation certainly did not exist (and still do not exist), Dickinson actually supposed that the mathematical system could be solved manually.

While Dickinson's solution for obtaining prices in an economy without markets was crude and unconvincing to the profession (he, himself, abandoned the technique in his 1939 book, *The Economics of Socialism* [Oxford, Oxford University Press, 1939]), his description of the general aim of a socialist economy was widely accepted: to provide for maximum satisfaction of private consumer demand. For many supporters of socialism such as Oskar Lange, Abba Lerner and E. F. M. Durbin, this was the raison d'être for planning in a world where capitalism fell short of the goal. These so-called "market socialists" proposed solutions to the pricing problem in a socialist economy that were designed to duplicate the relevant characteristics of a competitive capitalist economy operating under ideal conditions. In fact, the only prominent English economist to enter the debate who explicitly disagreed with the "market socialists" was Maurice Dobb.

In 1928, Dobb published his *Russian Economic Development* (London, George Routledge and Sons, Ltd) in which he agreed with Dickinson that ". . . the categories of economic theory are equally valid in a socialist as in an individualist order" ("Economic Theory and the Problems of a Socialist Economy" in *Economic Journal,* 43, [Dec. 1933]; pp. 588–598.), but by 1933 when he wrote the above cited article he had decided that his former position was invalid. There he claimed that those who touted the importance of having prices with which to calculate costs and profits were really making an implicit value judgment; they were assuming that consumer preferences were somehow "sacred" and that the sole aim of socialist economic planning should be to satisfy these preferences. Dobb then attacked both the intelligence of consumers and the morality of permitting them to have free choice about the commodities they consume. He claimed that consumers are manipulated by advertising, do not always know what is best for themselves and are essentially short-sighted in their saving and investment decisions. Hence, it would be more in keeping with socialist ideals to have the planning board make at least some of the consumers' consumption decisions for them. While Dobb's attitude was both paternalistic and authoritarian, he did notice something the market socialists overlooked in their enthusiasm for the model of perfect competition. As Dobb put it sometime later, "Either planning means overriding the autonomy of private decisions or it apparently means nothing at all" (*Political Economy and Capitalism,* [London, George Routledge and Sons, Ltd, 1937] p. 279.) For Dobb, socialism was not just tinkering with the system to remove the imperfections of the market, it meant replacing the system completely with a new set of values to guide production and distribution in which the satisfaction of the consumer was no longer a primary element.

Dobb's position was extreme and unpalatable to his more liberal colleagues, among them Abba Lerner who was provoked into writing a scathing criticism of Dobb in which he pointed out the major flaw in the argument ("Economic Theory and Socialist Economy," *Review of Economic Studies,* 2 [Feb. 1935], pp. 51–61). Lerner, a former student of Friedrich Hayek at the London School of Economics was also favorably disposed toward socialism, yet perhaps because of Hayek's influence he recognized the analytic importance of Mises' claim that without prices, economic calculation is impossible. He therefore argued that Dobb's criticism that consumer preferences should not necessarily guide the planning board's decisions was beside the point. Regardless of whose preferences were going to be satisfied, those of the consumer or the central planners, prices are still needed to determine whether resources are being used most efficiently to achieve the goals the planners set for themselves and society.

During the early thirties, the debate about socialist planning was being carried out almost exclusively by those favorable to socialism. The major exception was Lionel Robbins who showed that market prices were needed in order to calculate efficiently and who criticised schemes that relied on systems of equations or fictitious markets to arrive at proxies for actual market prices. (See his *The Great Depression* [London, Macmillan and Company, 1933], pp. 145–155.) While Robbins' arguments were well taken, they did not represent a substantial advance over Mises' original work. It was not until 1935 when Hayek published *Collectivist Economic Planning* that the pro-capitalist writers presented substantially new arguments against socialist planning. Hayek included in this volume an English translation of Mises', Pierson's, and Barone's original articles that had touched off the debate in the first place, an original essay by George Halm reviewing the German literature, and, in addition, Hayek included two essays of his own that constituted the most important novel contributions to the volume. The first was a review of the controversy until 1935, and the second was a critical article entitled, "The State of the Debate," in which he expanded upon Mises' original contention that economic calculation is impossible without market prices to provide relevant information. In many respects, the publication of *Collectivist Economic Planning* should have been a turning point in the debate. That it was not, reflected the inability of the socialists to deal with Hayek's arguments.

While by that time there was no longer any doubt that prices were necessary ingredients in any system of rational economic calculation, the contention of Dickinson, Dobb (in 1928) and Lerner was that these prices could be determined in the absence of free markets and private ownership of the means of production. Hayek, however, argued from Mises' position that non-market prices were simply not substitutes for market prices, and attempts to use non-market prices to duplicate the results of the market were doomed to failure. In the course of his essay, Hayek stressed several aspects of the market that he believed had not been taken into account by the socialist planners. He argued that while the models used by the socialists to arrive at solutions to the pricing problem were not logically contradictory, they bore no relationship to the manner in which prices were formed in the real world. In constructing their models, the socialists left out important relationships that if included would surely alter the conclusions they sought. Thus the market socialists had constructed models that were in a practical sense irrelevant to the problems they wished to solve. Incredibly, Hayek's sophisticated insight was misinterpreted to mean that, unlike Mises, Hayek conceded that socialism is possible, but that he was just raising practical objections to its implementation. Oskar Lange later called this position the "second line of defense" implying that the critics of socialism were in retreat. ("On The Economic Theory of Socialism" in *Review of Economic Studies,* 4 [Oct. 1936, Feb. 1937], pp. 53–71; 123–142). For some reason, this improper characterization of Hayek's attitude was accepted by the profession as correct with the unhappy result that the substance of Hayek's criticisms was lost.

In both this essay and in his later one, "The Competitive Solution" (Economica N.S.7 [May, 1940], pp. 125–149. Reprinted in *Individualism And Economic Order* [Chicago, University of Chicago Press, 1948], pp. 181–208), Hayek engaged in a point by point refutation of the socialist programs for duplicating the efficiency of the market. There were several themes that characterized both critiques, but the two principal ones were the role of information in a market economy and the inapplicability of static equilibrium models for setting policies for a dynamic world. For example, the major reason he objected to the Dickinson-style mathematical solution was not primarily because of the practical difficulties involved in solving the equations (although that was part of it), but that it would be physically impossible for a planning board to acquire the information necessary to specify those equations.

As Hayek saw it, the information that individuals use to guide their economic activity is vast, detailed and necessarily incomplete. It is not neatly summarized in objective demand and cost functions which need only be revealed to the central planners in order for them to take over the task of economic decision making. Economic activity is the process of discovering alternatives which improve profitability and hence, resource efficiency. It is part of entrepreneurship to identify superior resources and to combine them in more imaginative ways to produce a product, and it is this activity which adds to the information available in the market place. Furthermore, even if the information available to economic actors were objectively determinable apart from their actions it is also decentralized. It is through the process of buying and selling in markets that all the decentralized bits of knowledge can coalesce into a coordinated whole. Hence, market prices result from the interaction of individuals with unique and fragmental knowledge and are not simply data available to passive "price takers" as Lange believed.

Hayek attributed much of the error in the arguments of the proponents of socialism to their "excessive pre-occupation with the conditions of a hypothetical state of stationary equilibrium," (*Collectivist Economic Planning*, p. 226). Both Mises and Hayek believed that while equilibrium states are an aid to the understanding of how an economy functions, they are not the subject of economic inquiry. The real world never reaches a position of static equilibrium because the data constantly change. Hence, any administrative solution to obtaining relative prices whether it be statistical techniques or a process of trial-and-error, cannot be effective because the prices arrived at will be obsolete before they can be announced.

In addition to discussing the existing published work on socialism, Hayek also anticipated some of the programs which would be offered by the socialists after the appearance of his volume. These programs he called "competitive socialism" because of the attempt to restore some kind of competition in a basically centrally planned economy. That is, managers of socialist enterprises would be instructed to act as if they were perfect competitors in their production decisions. There were two objections to this in Hayek's opinion. The first was that it did not take into consideration "whether decisions and responsibility can be successfully left to competing individuals who are not owners or are otherwise directly interested in the means of production under their charge" (p. 219). That is, will managers who are not owners or whose income does not directly depend upon the efficient operation of their businesses behave in as aggressively competitive a manner as those whose livelihood is at stake? Thirty years later this same issue would be explored in the growing literature on property rights economics, the economics of how different allocations and specifications of property rights affect economic incentives and therefore economic behavior. (For a survey of the growing literature on property rights economics, see Furubotn and Pejovich "Property Right and Economic Theory: A Survey of Recent Literature" *Journal of Economic Literature,* 10 [Dec. 1972], pp. 1162–1337).

The issue of property rights was only hinted at in the early literature on socialist economics. Mises, both in his 1920 article and in his more ambitious book, *Die Gemeinwirtschaft* ([1922]. Translated as *Socialism* [London, J. Cape, 1936]) argued that one could not play at being an entrepreneur, that one had to risk one's own income on the outcome of the decisions one makes if the market is going to yield the most efficient outcome. Hayek further contended that under socialism, a manager's decisions would not be subject to the objective test of profit or loss to determine their correctness, and his livelihood would therefore depend upon convincing the planning board that the decisions he made were the best ones at the time. As a result, managers would be less likely to make risky decisions regardless of their potential profitability because their major task would not be to achieve success *ex post,* but to convince someone else that they had made reasonable choices *ex ante*. While the actual distribution of risk taking depends upon the constraints facing individual managers (an argument can be made that they will be either more or less prone to risk taking than private entrepreneurs), the problem of the effects of property rights on individual economic behavior was an important issue neglected by the socialist during the debate.

Perhaps an even more fundamental criticism of the socialist programs was Hayek's suggestion that they erroneously believed costs to be objective entities that exist independent of the decision-maker. In fact, the costs incurred in the production of anything equal the value of the foregone alternatives. But at the time a production decision is made, the values of the foregone alternatives depend upon the decision-maker's expectations about future prices, which are necessarily largely subjective. Planners would have to engage in detailed audits of public firms not only to ascertain that current outlays were being covered by revenues—a relatively simple matter, but also to determine whether or not managers had made the "best" choices in the past without competition in markets to reveal *ex post* what constituted the "best." [James Buchanan has argued perhaps too sweepingly that the entire controversy hinged on the question of the subjective nature of costs. See his *L.S.E. Essays on Cost* (London: London School of Economics and Political Science, 1973) pp. 3–10, and *Cost and Choice* (Chicago, Markham Publishing Co., 1969), pp. 20–23.]

One year after the publication of *Collectivist Economic Planning,* Oskar Lange published his two-part article "On The Economic Theory of Socialism" (cited above, p. 9) which was the most complete elaboration of socialist economic theory until that time. It was intended to be a final refutation of Mises' claim that socialism was impossible because of the absence of market prices, yet it showed remarkably little appreciation of Mises' early arguments, and it benefited not at all from Hayek's important insights. Lange began his essay by facetiously thanking Mises for pointing out the problem of economic calculation under socialism and forcing socialists to devise a solution. The solution, he claimed, had been hinted at by Wicksteed in

1910 when he described the dual nature of prices. Prices are both exchange ratios determined in the market and, in a more general sense, they are the terms on which alternatives are offered. Thus, socialist planners could set prices which would represent the terms on which alternatives are offered to the industry managers and could assure that these were equilibrium prices by appropriately adjusting them in response to any observed surplus or shortage of goods. This "trial and error" method of discovering market clearing prices had actually been proposed eight years before by Fred Taylor in his Presidential Address to the American Economic Association. Taylor, in a somewhat simplistic and dogmatic manner, claimed that socialism was not only possible, but actually preferable to free markets as long as the price controllers followed two simple rules: when goods are in short supply, raise price, and when there are surplus goods, lower price. This would assure that all prices are in equilibrium and would obviate the need for a system of mathematical equations to arrive at equilibrium prices. Lange likened the process to a Walrasian tâtonnement, with the central planning board acting the part of the auctioneer. To complete the analogue to Walrasian general equilibrium, producers would be instructed to produce at minimum average cost and at a point where price equals marginal cost assuring thereby the allocative efficiency of perfect competition. The system would work, Lange explained, because managers would be told to act "as if prices were independent of decisions taken" [p. 81] and prices would thereby be treated as parameters rather than independent variables.

It is instructive that Lange decided to quote Wicksteed's formulation of the meaning of price in the beginning of his