

Knowledge and Incentive Problems in Socialism

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ABSTRACT: Mises (1922) divided his critique of socialism into three components. The first part explains how money is indispensable as an instrument of economic calculation, as opposed to labor value as a unit of calculation. The second part of the calculation critique derives from David Ricardo's principle of comparative advantage. This second part focuses the competitive process that uses money to calculate. This second part also points to a contrast between private and public organizations. Mises often stressed the first component in his early writings because this side of the calculation critique applied directly to Marxians like Otto Bauer. Hayek (1935, 1937, 1940) stressed the Ricardian component because market socialists conceded the 'margin of value' point, but not the Ricardian component. The third part of Mises' critique indicates that socialist politics is biased towards capital consumption.

KEY WORDS: Socialist Calculation, Marxism, Market Socialism, Comparative Advantage, The Knowledge Problem, Capital Accumulation

JEL CODES: B53, P11, P21

CREATED ON: December 11th 2007

LAST REVISED ON: June 12th 2009

UNDER REVIEW AT:

SUBMITTED ON:

FINAL VERSION ACCEPTED ON:

The content of this paper does not reflect official views of *The Coast Guard Academy*

An earlier this paper was presented at the *Eastern Economics Association* conference in Boston, March 7th 2008. This paper is scheduled for presentation at *The Southern Economics Association* November 21st 2008.

I thank Gene Callahan, Rich Gottschall, and Tyler Cowen for commenting on drafts of this paper. The comments from Drs Callahan and Cowen were particularly helpful.

The Three Problems

Competing views of the socialist calculation problem have produced two histories of the Socialist Calculation Debate. Salerno (1993) interprets the calculation critique to mean that without money as a common denominator it is impossible to make rational use of capital goods. Salerno claims that Hayek erred by emphasizing the problem of utilizing knowledge of local economic conditions over Mises' common denominator problem. Lavoie (1985) asserts that Hayek clarified and redirected Mises' arguments against the equation solving and trial and error proposals of market socialists. In this view Hayek was perceived to have lost the calculation debate only because his opponents viewed competition in static equilibrium terms. Mises and Hayek saw competition as a rivalrous process. In Lavoie's history of the debate there is no fundamental break between Mises and Hayek.

Mises (1922[1936]) identified three distinct problems in socialism. The first part of this paper examines the theoretical components of Mises' critique: a marginal utility/common denominator problem, and a coordination/organization problem based upon Ricardo's *Law of Comparative Advantage*. The second part examines the empirical/public choice component of Mises' critique of socialism. The public choice arguments of Mises played a critical role in his assessment of socialism. The final part reexamines the history of the calculation debate. Mises applied the common denominator component against Marxists, because in their view labor value could substitute for money. The common denominator problem did not apply to market socialism because it aimed at replicating marginal cost pricing. Hayek applied the Ricardian component of the calculation critique against Market Socialism because the common denominator issue had been settled. Most economists at that time misinterpreted the resolution of the common denominator problem as a socialist victory, and misconstrued the Ricardian coordination problem as a mere practical problem.

The Use of Money in Society

The Austrian critique of socialism is usually described along a single line of reasoning: socialism lacks markets for capital, without markets there can be no real prices, and rational allocation requires prices. Consequently, proponents of the Austrian critique stress it as *the* decisive objection to socialism. This is a misleading proposition. Mises explicitly identified *two* insurmountable obstacles to realizing economic progress within socialism.

“In a socialist community the possibility of economic calculations is lacking; it is therefore impossible to ascertain the cost and result of an economic operation or to make the result of the calculation the test of the operation. This in itself would be sufficient to make Socialism impracticable. But, quite apart from that, *another* insurmountable obstacle stands in its way. It is impossible to find a form of organization which makes the economic action of the individual independent of the co-operation of other citizens without leaving it open to all the risks of mere gambling. These are the *two* problems, and without *their* solution the realization of Socialism appears impracticable unless in a completely stationary state” Mises 1922[1936] emphasis added

The first of these problems focuses on money prices as an approximation future marginal utility in individual value scales. We can term this issue the ‘common denominator problem’.

The second of these problems is a critique of socialist bureaucracy as a type of economic organization, one that derives from the Ricardian Law of Comparative Advantage.

The common denominator problem with socialism derives from Carl Menger’s insight concerning that money prices approximate marginal utility. Economic calculation requires evaluation of future uses for heterogeneous capital goods. Given that capital goods are heterogeneous and each have a significant range of alternative uses, and are to some degree substitutable, there exists a need for a common denominator as an instrument of economic calculation. Salerno (1990 p56) describes how the lack of “a unitary expression for time preferences in monetary terms” makes it impossible to know if “investment of current resources... will generate an overall production structure whose parts fit together or whose intended length is adjusted to the amount of capital available”. The Application of marginal

utility theory to capital markets indicates that capitalists will equalize the expected marginal utility of future consumption made possible with additional capital. Errors prevent full equalization of marginal utilities for all capital projects. But the existence of money, as the common denominator for comparing alternative capital goods, makes some degree of accuracy in planning capital investment possible.

Perhaps the most fundamental problem of socialism is that it excludes capital goods from monetary exchange. Socialism allows exchange of capital goods in terms of a common denominator, either currency or a substitute like ration coupons. Common ownership of capital goods precludes their exchange using money. Money thus plays “an incomparably narrower” role in socialist society than it does in capitalism (Mises 1920[1935] p92).

The full significance of money as a common denominator became apparent only after marginal utility theory revealed the defective nature of labor value theory. Labor value theory provides an easy solution to the calculation problem- the use of labor as a metric for economic calculation. But Menger disproved labor value theory, so labor value cannot serve as an instrument of economic calculation.

“Too little attention has hitherto been given to these fundamental questions. The *first* has generally been almost ignored. The reason for this is that people have not been able to get rid of the idea that labour time can afford an efficient measure of value. But even many of those who recognize that the labour theory of value is untenable continue to believe that value can be measured. The frequent attempts which have been made to discover a standard of value prove this. To understand the problem of economic calculation it was necessary to recognize the true character of the exchange relations expressed in the prices of the market. *The existence of this important problem could be revealed only by the methods of the modern subjective theory of value*” Mises 1922[1936] emphasis added

Money is *the* common denominator that reflects the marginal utility across individual value scales, it is *the* only feasible instrument of economic calculation. As such, the common denominator component of the Austrian critique applies most directly to Marxian socialism.

Mises also stressed the importance of the common denominator problem in his 1920 article. Universal use of money makes it possible to calculate the value of capital goods “based on comparisons of subjective use-values of all participants in trade” (Mises 1920[1935] p97).

Proponents of the Austrian critique of socialism have stressed the absence of ‘the market’ as the crucial failing of this system. Salerno has explained the importance of money as an instrument of economic calculation. The use of money as a common denominator for consumer and capital goods *is* necessary for the functioning of the price system as a communications network. Meaningful comparison of capital goods is important because of the need for efficient plan coordination in the use of capital goods. Money attains its social significance as a means of communication only through exchange values that “arise out of interplay” on the market (Mises 1920[1935] p97). Furthermore the function of money common denominator or unit of account is necessary for markets and money to function as *inclusive* institutions. Markets are inclusive in the sense that market prices reflect the preferences of all consumers (see Ebeling 1993). The social significance of marginal cost pricing is that the satisfaction of the most urgent consumer demands comes at a financial expense that reflects forgone less urgent consumer demands. This anticipation of consumption takes place only in the markets for factors of production. The absence of markets for capital and labor in socialism eliminates the social process by which all consumers participate, albeit unequally, in the expression of their demands.

Our examination of the first problem that Mises saw with socialism does not generate any new theoretical conclusions or policy recommendations, but it does clarify some historical issues. However, our examination of the second problem that Mises saw with socialism changes how we should interpret economic calculation, as well as the historical development of this concept. There is more to the calculation critique of socialism than the

inclusiveness of free markets. The process of competition between is explicitly divisive. The idea that rivalry produces the *unintended consequence* of improving the welfare of consumers is accepted by Neoclassical economists, in their own terms. However, the concept of rivalry used by Austrians goes back to Adam Smith and other Classical Economists. Of course, Lavoie does stress the importance of rivalry in his history of this debate.

Rivalry and Organization

Some Austrians have stressed the importance of ‘the market’ in the calculation debate. Economic calculation cannot be done without ‘the market’. While any full discussion of economic calculation must include a careful examination of markets, our understanding of both the calculation issue and the interwar debate requires that we thoroughly examine alternatives forms of organization as well. Any theory of markets, or the lack thereof, implies a corresponding theory of organization. Furthermore, it is clear that while socialism does abolish ‘the market’ it cannot abolish organizational institutions, as this would leave socialist society without any institutional framework. Socialist authorities must substitute capitalist organizations for their socialist counterparts. A full critique of socialism must therefore assess the relative merits of capitalist and socialist economic organizations.

Mises developed his theory of socialist organization in his discussion of the ‘second problem’ of socialism.

“It is quite otherwise with the second problem. The more communal enterprise extends, the more attention is drawn to the bad business results of nationalized and municipalized undertakings. It is impossible to miss the cause of the difficulty: a child could see where something was lacking. So that it cannot be said that this problem has not been tackled. But the way in which it has been tackled has been deplorably inadequate. Its organic connection with the essential nature of socialist *enterprise* has been regarded as merely a question of better selection of persons. It has not been realized that even exceptionally gifted men of high character cannot solve the problems created by socialist control of industry” Mises 1922[1936] emphasis added

The preceding passage suggests that socialist organizations, or enterprises, suffer from some inherent defect, one that even the best and brightest cannot solve. The problem of socialist organization goes beyond the lack of money as a meaningful common denominator in calculating the opportunity costs of capital goods.

The second problem of socialism concerns the coordination of production among many separate enterprises in the structure of production.

The problem of economic management with which we are here concerned lies much less in the work of individual industries than in *harmonizing the work of individual concerns in the whole economic system*. It deals with such questions as dissolving, extending, transforming and limiting existing undertakings and establishing new undertakings—matters which can never be decided by the workers of one industry. The problems of conducting an industry stretch far beyond the individual concern” Mises 1922[1936] emphasis added

The above passage points to the “Hayekian” coordination problem. Hayek (1937) defined final equilibrium as a situation where each individual form plans containing relevant data from the plans of others. The coordination problem does involve prices, but not in the same way as the common denominator problem. We need money not only because capital goods are heterogeneous, but also because plans for using capital are heterogeneous or conflicting. We need a common denominator to make comparisons of value across capital goods, but money prices are also an indispensable means of coordinating the plans of those who direct enterprises that compete to acquire the largest share of revenue from consumers.

High marginal profits push capitalists to expand production, but losses force them to curtail production. Profit and loss therefore serves as a coordinating mechanism for moving the boundaries between separate enterprises and industries. It is critical to note that Mises defines ownership in terms of responsibility for economic losses. Private ownership implies *alienable* possession, because one can lose possession either through trade for gain or through misuse of property that destroys its value. The mechanism of bankruptcy transfers possession from one individual who reaps financial losses to another.

Since losses from errors in capital investment accrue to the community as a whole the bureaucrats who operate socialist enterprises will ignore economic losses. Conscientious bureaucrats in socialist enterprises will therefore expand production to increase *gross* social welfare Mises 1922[1936] p). Without the calculation of monetary losses, bureaucrats will not know when they have overextended particular lines of production. That is, socialist bureaucrats will not know when the marginal utility of additional investment in one line of production has fallen below the marginal cost of forgone investment in alternative lines. This is the problem of “harmonizing the work of individual concerns” referred to by Mises. Mises saw two solutions to the chaos of decentralized socialism. First, privatization establishes a basis for rational planning of investment. Second, the removal of discretion from managers of individual socialist enterprises eliminates the problem of mutual plan coordination among independent socialist organizations. The primary object of his criticism was not decentralized socialism, as this system will give way to central planning. The primary object of his criticism was a centralized communally owned organization, where high authorities plan investment. The organization-coordination part of the Mises-Hayek critique therefore focuses on the contrast between centralized socialism and *laissez faire* capitalism.

It is not hard to see the classical origins of the coordination-organization problem. Broadly speaking, the coordinating role played by private profit and loss is a Smithian invisible hand mechanism. The spontaneous order produced by the pursuit of private profit does lead self-serving capitalists to promote the welfare of the general consuming public. Any socialist organization lacks this mechanism for the invisible hand.

Ricardo raised the issue of coordination in his famous example where England and Portugal produce wine and cloth. It is well known that comparative advantage indicates that opportunity cost matters in production. Comparative advantage points to the coordination-

organization problem through the adjustments that follow the opening of free trade. In the hypothetical situation where Portugal specializes in wine production and England specializes in cloth production the Portuguese and English entrepreneurs each form plans that contain some relevant data from the plans of each other. Portuguese winemakers expand their production, while their English counterparts curtail their operations. The opening of trade between Portugal and England has the affect of “harmonizing the work of individual concerns” in the Portuguese and English wine and cloth industries, according to marginal opportunity costs. Portuguese winemakers form investment plans by following prices formed on the international markets. In terms of what Hayek (1935 p204) wrote, in the absence of free trade (as in socialism) we should expect “excessive development of some lines of industry (i.e. Portuguese textiles and English winemaking) at the expense of others (i.e. Portuguese winemaking and English textiles) ... at a cost that is not justified by the importance of the increased output (of Portuguese cloth and English wine)”. This is exactly what Mises meant by “harmonizing the work of individual concerns”, as well as what Hayek meant in his 1937 paper on plan reconciliation and the knowledge problem.

There is a common thread between comparative advantage and the coordination critique of socialism concerning opportunity cost. Since the socialist coordination problem concerns opportunity cost, it should not be too surprising to find a connection between it and comparative advantage. After all, comparative advantage is about opportunity cost.

The common denominator problem of socialism could not be seen through labor value theory. Mises had to apply marginal utility theory to money in order demonstrate the importance of money prices as a common denominator. But the coordination-organization problem can be demonstrated without understanding the margin of value. Ricardo arrived at

the correct conclusions regarding trade while under the sway of labor value theory. Mises stressed the importance in understanding comparative advantage in monetary terms.

“If we do not want to deal with the law of comparative cost under the simplified assumptions applied by Ricardo, we must openly employ money calculation. We must not fall prey to the illusion that a comparison between the expenditure of factors of production of various kinds and of the output of products of various kinds can be achieved without the aid of money calculation.” Mises 1949 p

However, the coordination-organization problem is so obvious that “a *child* could see where something was lacking with communal enterprises”.

The law of comparative cost, or as Mises termed it *the Ricardian law of association*, is central to the socialist coordination-organization problem. Mises insisted that production based on Ricardian division of labor is incompatible with socialism. If production based on division of labor is necessary for raising living standards, then socialism cannot match the performance of capitalism. Proof of the superiority of production based on division of labor comes from the Ricardian law of association. It is not merely the case that monetary profit happens to make division of labor possible. Entrepreneurs realign trade according to comparative advantage because they are impelled by the profit motive, and the calculation of their profits equalizes the *expected* marginal utility of the last dollar spent on investment in each line of production. Entrepreneurial errors will prevent the actual equalization of marginal utility across investment projects, but competition limits the extent of entrepreneurial error.

Carl Menger developed the theoretical basis for the first of the two aforementioned defects of socialism. Mises applied Menger’s theory of marginal utility to money to show that without money as a common denominator rational investment is impossible. David Ricardo developed the theoretical basis for the second defect of socialism. Mises and Hayek applied Ricardo’s Law of Comparative Advantage to the problem of socialist organization. Ricardo’s insight later revealed that profit informed rivalry is the only feasible basis for deciding which

lines of production should be extended or curtailed. The organization-coordination and marginal utility-market problems both imply the impossibility of socialist calculation. Yet the problems of socialism do not end with the impossibility of calculating the marginal value of investment in alternative lines of production.

Public Choice and Capital Consumption

Buchanan (1955), Tullock (1955), Downs (1957), and Black (1955) are usually seen as pioneers in the application of economic principles to politics. However, Mises (1919, 1922 [1936]) examined politicized capital accumulation in democratic socialism. The Socialist Accumulation Problem is distinct from the Socialist Calculation Problem for several reasons. First, the issue of economic calculation concerned the composition of investment, while accumulation concerns the overall rate of investment. Second, the effects of the Socialist Accumulation Problem differ from the Socialist Calculation Problem. Third, the most serious consequences of the Socialist Accumulation Problem stem from specific empirical assumptions, while the Socialist Calculation Problem applies generally.

The following quote makes it evident that Mises saw the calculation and accumulation issues as separate issues.

“apart from [the common denominator and coordination problems] rational economic policy in a socialist community would encounter other difficulties. To maintain and accumulate capital involves costs. It involves sacrificing present satisfactions in order that greater satisfactions may be obtained in the future. Under Capitalism the sacrifice that has to be made by the possessors of the means of production, and those who, by limiting consumption, are on the way to being possessors of the means of production.” Mises 1922 [1936] p178

The socialization of capital ownership and investment introduces bias in capital accumulation. In capitalism “thrifty and well to do” determine saving, but saving in a socialist society concerns everyone equally- including “the idler and the spendthrift” (Mises 1922 [1936] p179). Mises claimed that politicians maintain power with lavish spending on

final goods, and that demagogues would encourage consumption over public saving for accumulation (ibid)¹. Socialism thus results in capital depletion, declining living standards, and even starvation². Voter time preferences range from one tail of a distribution, who favor high present consumption, to the other tail, who favor high deferred consumption. In capitalism, the minority who discount present consumption heavily, save and accumulate capital. In democratic socialism the median voter sets the rate of capital accumulation; and the median voter prefers more current consumption than would be capitalists.

The problem of socialist accumulation predates the calculation problems. Mises (1919 p157) argues that the socialist society will always favor consumption over investment. Socialism will therefore bring stagnation if not starvation.

While Mises saw the accumulation problem as an incentive issue, it should be seen as a calculation issue. The marginal utility-market and organization-coordination problems concern the calculation of marginal rates of substitution between future consumer goods, at any given time period. The socialist accumulation issue concerns the calculation of marginal rates of substitution between time periods, given the relative demand for goods at the time periods in question. The political process yields a definite result, or calculation, of the marginal rate of substitution *for the median voter*. However, median voter preferences are not expressed in terms of a *monetary* calculation. Furthermore, the market rate of time preference remains unknown when investment is determined through political competition. It is not too

¹ Robbins (1937 p216) also mentions “under communism individual savers would be of “quite subordinate importance”, “the main function of deciding upon capital accumulation would be discharged by the central planning authority”.

² To Mises (1927) a return to mercantilism would result in starvation- “it is impossible for us to return to the forms of social and economic organization characteristic of the middle ages... the medieval system was able to support only a fraction of the number of people who dwell in [Europe]... A return to the middle ages is out of the question if one is not prepared to reduce the population to a tenth or a twentieth part of its present number” (1927 p85-86). Mises likely saw starvation as a consequence of adopting socialism as well. In contrast Hayek (1935 p204) claimed that “there is no reason to expect that production would be permanently lower than before planning started. What we should anticipate is that output determined by a central authority would be lower than if the price mechanism of a market operated freely”

difficult then to conclude that political competition over investment does not result in the calculation of marginal rates of substitution between time periods. The problem of socialist accumulation is therefore not merely an incentive issue, but a calculation issue of the marginal utility-market variety.

While Mises saw the calculation problem as *the* decisive economic objection to any form of socialism, he saw the accumulation issue as *the* decisive political objection to democratic socialism. Mises is rightly seen as a founder of public choice theory. While Mises did not establish a school of public choice scholars, he did advance a public choice critique of socialist democracy. Mises was also read by Gordon Tullock and James Buchanan.

Synthesis in the History of the Socialist Calculation Debate

Mises posed his first challenge to socialists in 1919 with his Socialist Accumulation Problem. This first challenge went unnoticed probably because of the forceful nature of the theoretical challenge that Mises advanced in 1920. The issue of socialist accumulation faded into the background after Mises declared economic rationality impossible in socialism. While the relative lack of attention on accumulation was unfortunate, Mises had good reason stress his impossibility theorems over his improbability hypothesis. The Interwar Debate over Socialism began in the context of post World War One Europe. Russia had already adopted socialism and other nations were close to following this example. Had Mises argued mainly that socialism was unlikely to succeed his opponents could have countered him with the argument that socialism was worth trying despite certain risks. Mises almost certainly felt great urgency in presenting decisive arguments against socialism.

According to Lavoie (1985) Mises focused on Marxian Socialism in his earliest writings on this socialist calculation. This is consistent with both what Mises wrote³, and the arguments of this paper. Not only did Mises face Marxists as intellectual opponents (i.e. Bauer and Neurath), Marxian Socialists were vying for power in Interwar Central Europe. Bolshevism obviated median voter problems with accumulation so the common denominator issue was of primary importance at that time.

Hayek (1935) claimed that the second phase of the debate opened up with the proposal for simulating markets by Taylor (1929), Roper (1929), and Dickinson (1933). At this point the leading academic socialists conceded the common denominator problem. Calculation of marginal opportunity costs for a vast array of heterogeneous capital goods and types of labor requires a unit of account. The Market Socialists did not only retreat from the Marxist position that rejected the results of rivalry, as indicated by Lavoie. The original proposal of Market Socialism constituted total capitulation to Mises the first of his two theoretical challenges. At this point the mainstream of professional opinion accepted the idea that capital must be reckoned in some kind of unit of account.

Lavoie (1985) emphasizes that Market Socialists abandoned the aims and ideals of their Marxian predecessors: Marxists rejected the results of rivalry, but Market Socialists accepted the results of market competition with their proposal to simulate markets. It should be noted that Market Socialists sought only to approximate the theoretical results of a limited number of markets. Taylor claimed that “socialism would come closer to theory than”. Lange () flatly rejected what he saw as the results of real world market rivalry. As Lange put it “”. Dickinson also rejected what he perceived as the results of competition in real world markets: “”.

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The Interwar Market Socialists clearly distinguished between the theoretical propositions of welfare economics in hypothetical markets and the obviously dismal circumstances in actual market of the interwar period. The Market Socialists erred by interpreting the circumstances of interwar markets as a failure of that originated within the private sector.

Those who claim that Market Socialists failed to understand the nature of the challenge they faced must answer several questions. First, why did Abba Lerner fail to understand arguments advanced by his professor FA Hayek? Surely Hayek and Lerner discussed these matters in person. How could a man of Lerner's intellect fail to understand lessons taught to him by Hayek himself? Second, How could Joseph Schumpeter (1942[1950]) both explain competition in terms of creative destruction and assert that "**Lerner settled the issue**"? Third, how could Lange (1940) have credited Hayek with "**the dynamics of anticipation**"? Of course, this quote from Lange indicates that he did not sufficiently understand the dynamic nature of the coordination problem in the Mises-Hayek critique. In this respect Lavoie is correct in his assessment of Lange's 1938 book. But we must still ask why Lange maintained his favorable attitude towards socialism even after he began to appreciate the dynamic nature of Hayek's arguments. The reader should note Lange (1940) was responding to Hayek's 1940 article in *Economica*. Hayek clarified his position further in his 1945 essay on *The Use of Knowledge in Society*. The idea that Lange (and the rest of the profession) simply failed to understand Hayek is hardly plausible. Numerous quotes indicate that economists saw the example of the Great Depression as definitive proof that Laissez Faire Capitalism was prone to disastrous failure.

The proposition that the profession erred in its understanding of events rather than in its understanding of theory is consistent with the emphasis that Mises placed on methodology in his **post** writings. Hayek also wrote in *Capitalism and The Historians*. While it is true that

some of the more subtle points from Hayek are hard to see {The Lavoie answer to this is only part of the story}. If Mises and Hayek thought that the profession had simply failed to understand their theory, why did they shift the emphasis of their work towards methodology, psychology, and political economy? Why did they leave the task of clarifying the importance of rivalry and alertness to Lavoie and Kirzner? It is indeed difficult for Lavoie to claim both that the profession lacked [Mises and Hayek went into even greater subtlety!!!]

It is impossible to accurately measure the degree to which experience with the Great Depression and lack of theoretical understanding shaped postwar professional opinion on Socialist Calculation. We can, however, infer much from post-Soviet changes in professional opinion. Professional opinion turned only as experience

Lavoie (1981, 1985) rejects the ‘standard account’ of the calculation debate, as developed by Bergson (1948). According to the standard account Lange (1936) settled the issue as to whether socialism can work in theory. The trial and error solution advanced initially by Taylor (1929) proved that socialist calculation is theoretically possible. Socialism therefore could match the performance of capitalism. Lange (1937) then used static market failure arguments to argue that socialism could outperform capitalism. Hayek (1940, 1945) fell back to a second line of defense by conceding the theoretical possibility of socialism, while also insisting that practical problems render the operation of socialism too difficult. Specifically, Hayek argued that practical problems with centralizing economic information impair the performance of socialism.

Lavoie (1985) argues that the Lange-Taylor proposal to imitate markets was itself a retreat from the Marxian position to abolish market relations. Hayek (1935) refuted the equations solving proposal by Dickinson (1933). Lange and Dickinson then retreated to their

final line of defense: the trial and error ‘solution’. The Lange-Taylor trial and error solution fails because it does not explain dynamic price adjustment. Hayek’s work on the knowledge problem refined and clarified the original arguments of Mises. The contributions of Mises and Hayek are “two sides of the same coin”.

The arguments of this paper largely support Lavoie’s account of the calculation debate. Lavoie is clearly correct in his assertion that Mises initially addressed Marxists. The marginal utility-market problem with socialist calculation was most relevant during the initial round of the debate. Since Marxists favor labor value theory over of marginal value theory, it was highly appropriate for Mises to emphasize the absence of ‘the market’ in his 1920 article. Mises developed the second problem explicitly in his 1922 book, as this book was intended as a comprehensive discussion of the problems of socialism.

Market Socialism did constitute a retreat from Marxian Socialism. Taylor and Lange admitted to the relevance of marginal principles and the need to generate market results. The admission that margins matter made the marginal utility-market problem less relevant. Lange and his allies were confused regarding the specifics of what constitutes ‘the market’, but they did accept its necessity. Since Lange had effectively conceded the first argument that the market matters, Hayek (1935, 1937, 1940) applied the second organization-coordination problem against him. Lange’s trial and error solution fails not simply because it constitutes an illegitimate simulation of markets. Lange’s trial and error solution is simply irrelevant to the organization-coordination problem. The challenge that Hayek posed was not merely that simulated markets do not match the performance of real markets. Hayek (and Mises 1944) challenged Lange to prove that socialist enterprises, run by bureaucrats, could substitute for capitalist enterprises run by entrepreneurs. Mises and Hayek argued that private *organizations* bring about a degree of coordination of plans for production that public *organizations* can

never replicate. This is the real meaning of Hayek's 1937 paper on equilibrium. Of course, equilibrium refers to 'the market'. But Hayek saw complete equilibrium as a mere thought experiment, and the central argument of his 1937 paper concerns plan formation by those who run separate branches of industry as independent organizations.

Once Taylor and Lange admitted to the relevance of markets and the margin of value, the focus of the debate shifted to how organizations would work through markets, either real or simulated, to achieve coordination of production plans. This led to subsequent emphasis on rivalry and 'the meaning of competition' by Hayek (1948, 1977) and Lavoie, and also competition and entrepreneurial alertness by Kirzner (1973, 1985, 1989).

Hayek's real error was in not maintaining pressure on Lange regarding the absence of 'the market'. While Lange admitted to the need for simulating spot markets, he also rejected any simulation of forward and other financial markets (MacKenzie 2008). Financial markets are, in fact, critical to the determination of capital investment. Not only does market socialism fail to prove the efficacy of socialist types of organization, it also fails to replicate the markets that matter most in pricing capital goods. Lange proposed only to monitor inventories of existing final and capital goods. The costs of capital and labor that *were* used to produce goods that are 'on the shelf' are sunk. True opportunity costs of capital can only be minimized when deciding to invest financial capital in the formation of physical capital. Lange did not address the issue of deciding investment, so his proposal actually failed to address even the marginal utility-market aspect of the calculation problem. Lange's proposal must therefore be seen as a total failure.

Salerno (1993) asserts that Hayek's knowledge problem is distinct from the argument advanced by Mises (1920). Hayek was supposedly influenced by Friedrich Weiser in developing his knowledge problem. Salerno is correct on one point. The marginal utility-

market and organization-coordination *are* separate problems. Salerno also asserts that Hayek's knowledge problem is original to Hayek. The aforementioned passages from Mises prove definitely that the knowledge-coordination problem concerning organization was developed by Mises out of the Ricardian Law of Association. All efforts to distinguish between the work of Mises and Hayek in the Socialist Calculation Debate are therefore erroneous and misleading⁴.

Lavoie is correct in his assertion that Hayek refined and clarified *an* argument originally advanced by Mises, though he is mistaken in asserting that Hayek refined and clarified *the* argument advanced by Mises. The contributions of Hayek and Mises on socialist calculation are not two sides of the same coin. There are two separate theoretical arguments at hand in the socialist calculation debate.

Boettke (1990, 2001) argues that Hayek's response to Lange is rooted in the idea that markets are needed for calculation. While Boettke is correct in his assertion that Hayek's work is rooted in that of Mises, he does not pay sufficient attention to the issue of organization. Boettke stresses the issues of coordination and dispersed knowledge, but says little on how these issues pertain to organization. The coordination issue concerns the contrast that Mises and Hayek drew between private and public organization, not the absence of markets in socialism.

The Austrian Critique of Socialism

The Mises-Hayek critique consists of three distinct arguments. Each one of these arguments constitutes a decisive objection to socialism. The socialist calculation debate should be understood in terms of these three components, as the full Mises-Hayek critique

⁴ Salerno is the primary proponent of the De-Homogenization argument, which asserts that Hayek's work on the knowledge problem has Walrasian roots through Wieser. Salerno claims that the true Austrian line of thought supposedly runs from Menger through Böhm Bawerk to Mises, but this claim is false.

offers deep insights into the nature of both communal and privatized economic systems.

The Socialist Calculation debate began with the successful use of marginal utility theory against adherents of classical (Marxist) economics, and ended with the failure of most economists to see implications of the classical (Ricardian) law of association for socialism.

Ironically the profession went too far in rejecting classical economics. Mises and Hayek understood the full implications of both the classical concept of competition and the Ricardian Law of Association. As is often the case history is not a story of continuous progress. We often make the mistake of discarding wheat with chaff.

Several characteristics of capitalism make the spontaneous order of markets possible. First, the existence of a generally accepted medium of exchange makes it possible for markets to work as a communications system. Money is the means of communication, but market exchange given money utilitarian significance. Second, competition between private organizations run by profit seeking entrepreneurs and capitalists leads to partial harmonization of production plans. The harmonization of production plans has utilitarian significance because it aligns production according to the Ricardian Law of Association. Competition results in plan reconciliation only as an unintended consequence of the pursuit of private profit. The central elements of this central key characteristic of capitalism were known to the Classical Economists, but were refined and applied against socialists mainly by Mises and Hayek. Mises demonstrated the importance of capitalist competition in financial markets in reconciling the plans of industry. Hayek emphasized entrepreneurial competition in spot markets as a means of aligning plans. The first and second characteristics of capitalism are each indispensable to the calculation of the opportunity costs of investment in different final goods, or the calculation of marginal rates of substitution between different future goods. Third, rivalry in credit markets leads to the unintended consequence of capital

accumulation at a rate that is consistent with consumer time preference. Credit markets produce market interest rates that represent calculation of marginal rates of substitution between time periods. The three aforementioned characteristics of capitalism constitute a set of institutional and procedural mechanisms that enable the citizenry of a society with private ownership of the means of production to realize economic or utilitarian progress.

Socialism lacks the characteristics that make capitalism a workable system. The three objections to socialism explored in this paper render the case for this system indefensible. While experience with the Soviet Union did much to discredit socialism, the case that Mises and Hayek developed against this system should serve to discourage those who think that the Soviet example can be improved upon.

We can now summarize the contributions of this paper. Participants on both sides of the ‘de-homogenization debate’ of the 1990’s overlooked important passages in *Nation, State, and Economy*, and *Socialism, an Economic and Sociological Analysis*. Direct quotes from Mises make it clear that there were three components to his critique of socialism. Salerno correctly identified the marginal utility-common denominator problem of socialism. Salerno erred in attributing the knowledge-coordination problem to Hayek. The Mises was explicit, albeit brief, in regards to the knowledge-coordination problem. Lavoie was correct about there being two sides to the Austrian critique of socialism. This paper has clarified the nature of these two sides. The common denominator side is rooted in Menger’s theory of marginal utility, and emphasizes the importance of money as an instrument of economic calculation. The knowledge-coordination aspect focuses on the competitive process that makes use of money as an instrument of economic calculation.

Historically, the knowledge-coordination problem can be traced back to David Ricardo and the Law of Comparative Advantage. Many scholars have pointed out a similarity

between Austrian and Classical conception of competition. But this paper reveals a tighter and more specific connection between the second component of the calculation critique and Ricardo's theory of competition based on comparative advantage. The competitive process has typically been thought of in terms of the Austrian theory of markets. However, the knowledge-coordination side of the coin points to an Austrian theory of private and public organizations. The issue of comparative organization deserves further attention.

Mises advanced a Public Choice argument concerning marginal time preference in capitalism and democratic socialism. Given that this Public Choice argument depended upon a normal distribution of time preferences and particular institutions (i.e. democratic socialism) he saw this as an empirical claim. This may have been an understatement. The calculation of rates of time preference should be seen as a distinct and vital issue, along with the calculation of rates of return on individual projects. Of course, individual rates of return must factor in approximations of time preference. But the rate of time preference is distinct in its relation to the overall rate of capital accumulation. Austrians typically shun analysis of aggregates, but Mises explicitly examined the issues of capital accumulation and general living standards. Finally, the de-homogenization should come to a close. Both sides in this debate pointed to important contributions by Mises and Hayek. But both sides also overlooked short but important passages in the writings of Mises and Hayek.

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