SOCIALIST CALCULATION FAILS: BY HOW MUCH AND DUE TO WHAT?

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1. Introduction

The question within Austrian Economics of knowledge, calculation, and the comparative efficacy of capitalism and socialism is contentious not because of internal disagreement about capitalism and socialism, but because of questions of whether the differing statements about economic calculation by Hayek ([1935a] 1948; [1935b] 1948; [1940] 1948) and Mises ([1920] 2012; [1935] 1962) amount to a substantive difference. This disagreement continues up to today (Murphy 2018; Kolev 2018). I will not focus on settling the historical question of what was actually meant by Hayek and what was actually meant by Mises. What I hope to do in this short article is to offer a framework for interpreting the multiple layers of what is meant by "solving the calculation problem."

A description of one of these narratives, which I will associate most with Lavoie (1985), follows. Mises elaborated on the problem of socialist calculation in the German-language debate, and described the inability of central planners to match the economic performance of capitalism in the absence of property, rivalry, and the profit motive. Hayek entered the British-language debate years later and was responding to another group of intellectuals, who operated within the neoclassical economic framework. According to Lavoie, Hayek emphasized that market socialism would be unable to match the *dynamic* performance of capitalism, even if market socialists could develop a model which would slowly grope to the equilibrium solution in a static framework. This narrative was accepted and furthered by economists such as Kirzner (1996; c.f. 1988; 2017), Yeager (1994), and Boettke (1998).

Salerno (1993; c.f. 1990; 1994) rejected this historical perspective in the course of his project of de-homogenizing the intellectual enterprises of Mises and Hayek. According to Salerno, Mises's point of the essential importance of entrepreneurial appraisement and calculation, which rationalizes scarce inputs in accordance to the desires of consumers, is not found in Hayek. Furthermore, per Salerno, the framework of Hayek and even Kirzner is excessively tolerant of neoclassical equilibrium thinking, with Salerno pointing to Hayek's conceptualizing markets as operating within a "proximal equilibrium" (1993: 128), which is distant from the description of the operation of capitalistic economies by Mises. This has led to discourse on "the socialist calculation problem" to be overly concerned with *knowledge*, while Salerno sees the statement by Mises as being substantively different. This position can also be found in Rothbard (1991), Herbener (1991), and Klein (2008).

2. Between the Chaos of Socialism and the Capitalist Final State of Rest

Regardless of one's interpretation, there are numerous intermediate steps between the pure chaos of socialism, where nothing is known about relative economic scarcities, and capitalism in its final state of rest. Before proceeding further, I would like to articulate these intermediate steps more explicitly. Conceptually, these states are:

(A) What is known or could be accomplished with literally no information accessible to the central planners. (Socialism in chaos.)
(B) What is known or could be accomplished by central planners with access to information on the prices of different commodities in capitalist countries, as was the case with the Soviet Union.
(C) What is known or could be accomplished by central planners should they have perfect information of the quantities and locations of different inputs into production (capital, commodities, labor, etc.), as

well as perfect information on different recipes used to translate those inputs into intermediate and final goods.

(D) What is known or could be accomplished by central planners should they have a perfect *static* formal model of the economy at an initial time period. The model would have perfect data on all demand and supply curves, regardless of their functional form, of some year in the past. The model would not be updated.

(E) What is known or could be accomplished by central planners should they have a perfect *dynamic* formal model of the economy, updated in real time, continuously. The model would have perfect data on all demand and supply curves, regardless of their functional form, given the state of the world at any given moment.

(F) What capitalism actually accomplishes.

Per the Lavoie reading of the socialist calculation debates, what Hayek was claiming was that he would grant the hypothetical possibility of a market socialist scheme to accomplish (D),[1] but it would be unable to accomplish (E). What capitalism actually accomplished, (F), has some proximal relationship with (E). Per the Salerno reading, the knowledge problem only constitutes the ability to achieve (C), or more specifically, the first clause concerning the quantities and locations of different inputs into production. Per the Salerno reading, the price system rapidly communicates, as one example, the tacit knowledge that a certain input became scarcer because of inclement weather, but this kind of knowledge was not the essential point of Mises.

In comparison to Lavoie, it is less clear where Salerno would believe where (F) would fall. In this context, he emphasizes (1993: 121-124) the distinctions between the Misesian plain state of rest (i.e., markets clear), the final state of rest (i.e., no arbitrage), and the evenly rotating economy (the final state of rest with no subsequent changes in underlying economic data). If (D) is taken to mean a final state of rest, markets do not even achieve this, so (F) does not even achieve (D), let alone (E). However, I would not want to presume that Salerno would agree that if central planners achieve (E) through some manner of alchemy, socialism would be superior to capitalism.

One point I would initially emphasize is that, substantively, what both the Salerno line and the Lavoie line seem to think is important *primarily* is the dynamic properties of capitalism (E) and that socialism is entirely unable to do anything at all akin to this. Secondarily, if it is the case that Hayek granted the socialists the possibility of achieving (D) for the rhetoric reasons, an alternative reading of Salerno's arguments is that Hayek was granting the market socialists far too much.

However, I wish to bring some more substantive analysis of the (A)-(F) breakdown above, but before that I wish to note a few points on measurement and the empirics of well-being. First, for the discussion that follows, it is *unnecessary* for data on, for instance, GDP per capita, to be meaningfully calculable in socialist societies that lack market prices.[2] Figure 1, I hope, is uncontroversial. On the y-axis is any measure you wish of social well-being; as long as capitalism outperforms socialism, which you choose is immaterial to my analysis. My intuition in this context is GDP per capita, but the inability to measure it in the pure socialist society does not have any bearing on the relative placement of the five notches appearing on the y-axis: first zero, followed by chaos socialism, then what the Soviet Union achieved in 1960, then by what the United States achieved in 1960, and then by the production frontier. Thinking of the axis in terms of GDP per capita is only to require that economic output is a reality independent of our ability to measure it, with "gross domestic product" a particular way of conceptualizing economic output. Similarly, if we did not possess the practical ability to measure nighttime imagery of lights (which, for example, famously makes the level of economic development between North Korea and South Korea especially stark), as in Sutton and Costanza (2002) and Henderson et al. (2012), it would not mean that those lights do not exist.

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[1] An implication of Murphy (2006) is that even this is impossible.
[2] Historically speaking especially, economists' estimates of GDP per capita in the Soviet Union have been unreliable, to put it charitably. See Nutter (1962); c.f. Skousen (1997).

The common weal

Production Frontier, 1960

United States, 1960

Soviet Union, 1960
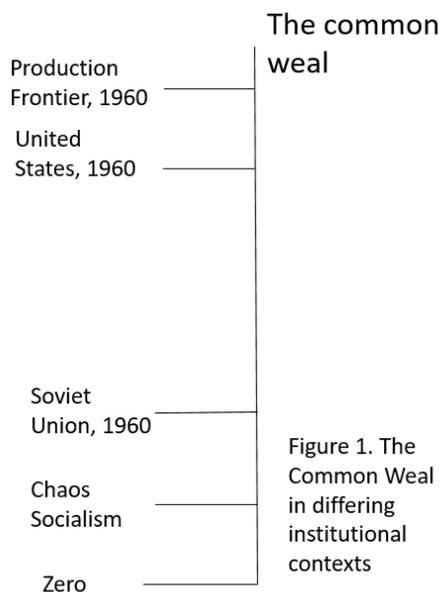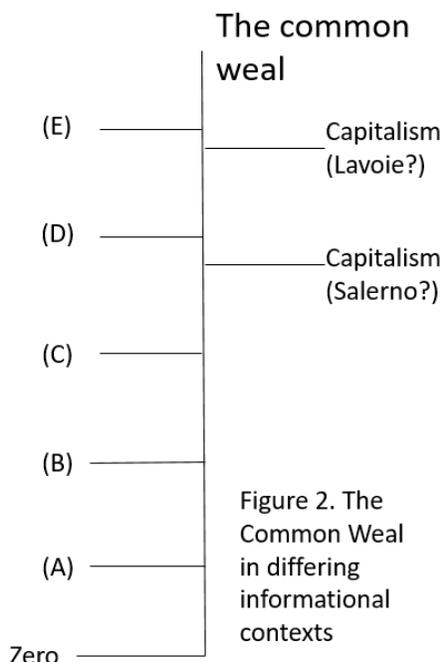
Chaos Socialism

Zero

Figure 1. The Common Weal in differing institutional contexts

   In order to emphasize that what I will say is not contingent on GDP per capita, I have labeled the y-axis intentionally vaguely as the "common weal;" Mises himself used this phrase similarly to refer to the general social welfare.[3] Other positive social outcomes could also be fitted to the axis in place of GDP per capita, if another is preferred instead. Some of these, like subjective well-being, infant mortality rates, or life expectancy, could hypothetically be collected in the absence of a functioning price system (with standard caveats applying to such measures[4]). Ultimately, my analysis will hold regardless of your chosen common weal.

   Figure 2 re-frames Figure 1 by including each of (A)-(F) as a point on the y-axis. Sequentially more rationality yields more to the common weal as you move from (A) to (B) to (C) to (D) to (E). I have drawn Lavoie's capitalism as falling just short of what could be achieved with the perfect dynamic model in the economy, reflecting that the "equilibrium" achieved by capitalism is only "proximal." I have chosen to draw Salerno's capitalism as just falling short of (D), but where it should be drawn is more open to interpretation. Additionally, were a time element to be introduced, in the period immediately after the snapshot of the demand and supply curves is taken to produce (D), it would be relatively close to (E), but (D) would diverge from (E) and converge towards (C) over time.

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[3] von Mises (1998: 153, 175, 419, 428, 725, 845).
[4] Including, for instance, cautions from Berdine et al. (2018); if a social planner manipulates policy to achieve certain outcomes, like a low infant mortality rates, because the world is watching, the correspondence between my diagrammatic narrative and hypothetical data is not as direct. I do not believe that this applied issue is in any way damaging to my fundamental point.

The common weal

(E) ——— Capitalism (Lavoie?)

(D) ——— Capitalism (Salerno?)

(C) ———

(B) ———

Figure 2. The Common Weal in differing informational contexts

(A) ———

Zero ———

What is of interest to me is where (A)-(F) are relative to one another, in terms of distance. Think of wherever you believe the common weal of the Soviet Union was in 1960, relative to the common weal of the United States. Was it 10% of the United States? 25%? Whatever number this is should also correspond to somewhere between (B) and (C), depending on the quality of technical knowledge the government of Soviet Union possessed at the time. The earlier era of War Socialism in the Soviet Union, if it is to be interpreted as its central planners ignoring world market prices, may fall between (A) and (B). One historical exercise could be to track an empirical counterpart of the common weal and compare it over time to the institutional environment of the Soviet Union of various periods.

But (A)-(E)[5] could also be interpreted as *shares* of a common weal. We can achieve *some* amount of intuition of where (B) is given where the Soviet Union stood in 1960, and (A) could be understood as a lower bound of $500 in terms of GDP per capita. Let me reiterate that the exact values here are unimportant for the argument I am making; rather, that these can be thought of as shares and it is conceivable to map them to history is what is important. Suppose, for example, that a socialist society has achieved (D), the perfect static model of an economy, but the model is ten years old. As a result, its productivity weakens relative to the benchmark of the free society. If the Soviet Union achieved ten percent of the productivity of the United States, how many additional percentage points does the ten-year-old model of the economy buy them?

3. Implications and Conclusions

This is not a trivial exercise, and has certain implications for the socialist calculation debate. Soviet Russia could evidently exist as a society. What level of well-being could have it achieved if acquired in the perfect static model of the economy? If (B) is confers several percentage points of the common weal, do (C) and (D) confer *nothing*? And if you begin to grant that (C) and (D) would hypothetically confer a fair amount of additional units of common weal, then that reduces how much that the dynamic properties of capitalism by itself could confers, because there are only so many percentage points to go around.

Moreover, the existence of the incentive problem as another issue for socialism puts a further "squeeze" on how many percentage points between the common weal of the United States and the common

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[5] For ease of exposition, I will be treating (E) as what capitalism "proximally" accomplishes, another presentation with little important changing should (F) belong somewhere else.

weal of the Soviet Union could be explained via the dynamic properties of the market system.[6] If the common weal of the United Stated is *A,* Soviet Russia is αA, and the incentive issue causes a share of β of the loss to the common weal, then technical knowledge, the static model of the economy, and the dynamic model of the economy are only left with $(1 - \alpha - \beta)$ percentage points of the common weal. Whichever historical narrative we think describes the failures of the Soviet Union should be consistent with some internally consistent vector of shares. If a historical narrative *cannot* be made consistent with some vector of values, it is a significant issue with the historical narrative.

Suppose we were to use a higher figure, and assume that the Soviet Union achieved 25% of the U.S. common weal. Suppose that, were they able to achieve (C) and (D), i.e., the rhetorical assumption of Hayek, the Soviet Union could move up another twenty percentage points. If the incentive problem explains thirty percentage points of the gap in the common weal, then only twenty-five percentage points remain for (E). Arguably, this is an uncomfortably small number given the importance placed on (E). I am not claiming that these numbers are correct; I am claiming that these are very important questions to ask. Furthermore, while some of my exposition of the issue may be a bit awkward, such a framing is a *normal* social scientific way of addressing such a question.

To conclude, in exploring the different expositions of economic calculation and knowledge for Hayek and Mises according to Lavoie (1985) and Salerno (1993) and their respective followers, I have explicated several different intermediate steps between the chaos of pure socialism and what capitalism is able to achieve. I was able to derive different implications and interpretations of the respective positions of Lavoie (1985) and Salerno (1993), and I hope I remain faithful to their positions. I do not take a position as to which of their descriptions of the history of the debate is more accurate. However, using my diagrammatic model, I was able to raise certain questions about the modern question of the importance of calculation in a socialist commonwealth, which I hope a charitable reader will find useful to consider.

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[6] C.f. Caplan (2004). Additionally, there are certain areas of overlap between the incentive problem and economic calculation, but consider my framing of "the incentive problem" to narrowly mean what can be distinguished from economic calculation.

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