

Chapter 3

Economic Calculation

The fundamental objection advanced against the practicability of socialism refers to the impossibility of economic calculation. It has been demonstrated in an irrefutable way that a socialist commonwealth would not be in a position to apply economic calculation ... A socialist management of production would simply not know whether or not what it plans and executes is the most appropriate means to attain the ends sought. It will operate in the dark, as it were. It will squander the scarce factors of production both material and human (labour). Chaos and poverty for all will unavoidably result.

—Ludwig von Mises (1922/1981), *Socialism*: 535.

Several years ago, Thomas Thwaites, an inventor, undertook the “Toaster Project” in which he attempted to build a simple electric toaster from scratch. To begin, he purchased the cheapest toaster available at a local store. He then deconstructed the toaster to understand the parts that he would need to build his own. Thwaites identified over 400 parts and realized that building the toaster required copper, iron, nickel, mica, and plastic, among other materials. He began by going to mines to obtain the necessary raw materials. After extensive travel and effort, he acquired the necessary resources to construct his toaster. He then shaped these materials into the various components for the toaster and created a plastic mold for the toaster body. Upon plugging the completed (and very ugly!) toaster into an electrical outlet, it shorted out in a matter of seconds. The Toaster Project illustrates the marvel of coordination that takes place to produce goods that most of us take for granted. How does this marvel operate? We will be exploring the answer to this question over the next several chapters. Here we begin with the concept of economic calculation.

In order to understand economic calculation, we need to start with some basics. We live in a world of scarcity because human desires are greater than the resources available to fulfill those desires. We all have a finite number of hours in the day and limited resources at our disposal to accomplish our desired ends. A key economic issue is how decisions are to be made about how scarce resources will be allocated among competing uses. Investing time and resources to build a toaster means that those same resources cannot be used for other purposes. This illustrates how scarcity necessitates choice and, in turn, trade-offs since a decision to use scarce resources in one way prevents them from being used in another way.

These basic, but crucial, insights yield several important questions when deciding about the use of scarce resources to produce goods and services. Should a good or service be provided at all? If the answer is “yes,” in what quantities and quality? Finally, what is the least-cost means of producing the good or service so that scarce resources are not wasted? These questions, which constitute the “economic problem,” were at the center of an important debate that took place in the economics profession in the 1920s and 1930s.

During what became known as the “socialist calculation debate,” Ludwig von Mises and F.A. Hayek engaged in an intellectual debate over the feasibility of socialism as a means of economic organization. Socialist thinkers argued that advanced material production could be achieved through central economic planning while avoiding the various ills of capitalism—market failure, economic downturns, unemployment. For the first wave of socialist thinkers, central planning involved the abolition of money and property rights in the means of production. In place of markets, comprehensive economic planning by a government agency would determine what was to be made, how it was to be produced, and how it was to be distributed.

Mises challenged this vision by arguing that rational economic calculation under socialism was impossible in an advanced industrial economy. Here is why. Economic calculation is the ability of economic actors to determine the expected value added of a potential use of a scarce resource. By comparing the expected value across potential alternatives, decision-makers are able to gauge which activities will have the highest value from the perspective of consumers. Judging the expected value across alternatives requires market-determined prices, which capture the relative scarcity of resources while allowing for a common unit for comparison. Mises argued that without property rights in the

means of production, which the socialists wanted to abolish, there could be no economic calculation because there would be no money prices. His argument proceeded in three steps.

First, without private ownership of the means of production, a market for the means of production would not exist. You cannot have voluntary trade without the ownership of resources that allows for the exchange of those resources by owners. Second, without this market, there would not be money prices for the means of production. Monetary prices, which arise through market trade, are exchange ratios that capture the opportunity cost of a resource. If a cup of coffee is \$1 and a bottle of soda is \$2, this means that the price of a soda is two cups of coffee. By providing a common unit for comparison across goods and services, money prices allow people throughout the economy to judge the opportunity cost, or trade-off, of engaging in one course of action over another. Finally, without money prices for the means of production rational economic calculation is not possible because there is no way for decision-makers to judge the expected value added of alternative courses of action.

Money prices, according to Mises, emerge as the unintended outcome of the voluntary interaction of a multitude of individuals pursuing their separate and often conflicting plans in a market setting characterized by private ownership allowing for exchange. The prices that emerge in the market convey general knowledge about the relative scarcities of particular goods, and thus serve as “aids to the human mind” for calculating how resources should be used. In the absence of a market for the means of production, Mises asked, how would the Central Planning Board know which projects were economically feasible and which were not?

To provide a specific example, how would planners know whether or not to use platinum to construct railroad tracks? Platinum, after all, is technologically feasible as an input to construct railways. In a market system, economic decision-makers responsible for constructing the railroad would look at the price of platinum, which captures its relative scarcity, and attempt to gauge whether they expected to make a profit given the cost of the inputs (platinum being one). Given the high price of platinum relative to alternatives such as steel, the decision-maker would determine that it does not make sense to construct the rails out of platinum. In this way, the market price for platinum and other inputs inform decision-makers about the best use of scarce inputs across a wide array of technologically feasible alternatives. Abolishing

prices—through the joint abolition of property rights and money—would mean that planners would be unable to determine whether platinum or some other good should be used to construct railroad tracks. The result would be economic chaos in contrast to the rational order promised by proponents of the socialist system.

The socialists took Mises’s critique seriously and revised their vision. The result was a model of “market socialism,” offered by Oskar Lange and Abba Lerner, which sought to maintain the desirable features of the socialist system while addressing the critiques raised by Mises. The market socialist model included the use of money and allowed for a free market in final consumer goods and in labour markets. The means of production would still be nationalized. A Central Planning Board would be responsible for providing provisional (“shadow”) prices for inputs to firms. Based on these provisional prices, firms would be instructed to select the combination of inputs that minimized the cost of producing the level of outputs that maximized profits. But how were firms to know this level of output?

The Central Planning Board would instruct firms to follow the dictates of the perfectly competitive model by setting their prices equal to the marginal costs of production and to produce those levels of output that minimize average costs. Following this rule would, in principle, lead to efficient outcomes just as in the model of perfect competition. Efficiency here refers to both allocative efficiency—where all resources are allocated to their highest-valued uses across society—and productive efficiency—where goods and services are produced at the lowest possible costs.

The market socialists were aware that the Central Planning Board might select the incorrect provisional prices—that is, prices that did not reflect the true underlying scarcity. They argued, however, that this would not pose a problem because adjustments could be made on a trial-and-error basis based on inventories that would be observable to the planning board. Just as markets tended to correct for surpluses by putting downward pressure on prices, so too could the Central Planning Board by adjusting prices in the face of excess inventories. Similarly, just as markets respond to shortages with increases in prices, so too would planners who would dictate higher prices in the face of a lack of inventory. According to the market socialists, this process would mimic, if not exceed, the efficiency of markets while maintaining the economic, social, and political goals of socialism.

It is here that F.A. Hayek entered the debate. The market socialists, Hayek argued, were preoccupied with a static notion of equilibrium where all relevant economic knowledge was given, known, and frozen. Only in a state of final equilibrium, where prices are known and fixed, could firms set a price equal to marginal cost and minimize average costs as dictated by the market socialist model. Hayek argued that, instead of assuming that this information existed, focus must be on the process through which this knowledge emerges. This process involves experimentation and contestation in an open-ended system. There can be no static, fixed equilibrium for two reasons. The first is human error, which leads to opportunities for reallocating resources through the discovery of mistakes. The second is that market conditions are constantly evolving, which makes prior equilibrium conditions irrelevant. Even if some stable equilibrium were obtained, it would be fleeting as conditions changed. It is only by allowing decentralized people to participate in an ongoing process of discovery that the knowledge necessary to make rational economic decisions emerges. These numerous discoveries lead to the emergence of knowledge regarding not only what goods and services are desired by consumers, but also the most effective techniques to produce these outputs in a cost-minimizing manner.

The problems inherent with market socialism, according to Hayek, were not a matter of placing smarter people in charge or in developing new computational techniques to gather more information. Instead, the issue was that the economic knowledge necessary for coordination is dispersed, tacit, and emergent. This means that the knowledge used by people to coordinate their economic affairs cannot exist outside the context within which they are embedded. The market socialism model left no space for the very activity that generated the knowledge that was necessary for planners to accomplish their stated ends of advanced material production. As such, Hayek concluded, the model failed to address the dynamic problem that planning would have to confront in practice once the market socialism system was implemented.

Together, Mises's and Hayek's arguments against the variants of socialist planning emphasized the importance of private property as a prerequisite for economic calculation. Economic calculation serves as a central guide to coordinating economic activity in an advanced material economy. Intervention into the market system, therefore, serves to attenuate economic knowledge and the ability of people to rely on economic calculation as a guide in deciding how to use scarce resources.

As the socialist calculation debate entered the 1930s, most economists viewed Mises and Hayek as having lost the debate to Lange and Lerner regarding the feasibility of socialism. There was a widespread belief among economists that the revised model of market socialism could outperform the capitalist alternative. Mises and Hayek held a different view of the outcome of the debate. They believed that in re-introducing money and markets in their revised model, the market socialists had conceded the fundamental point of the debate about the centrality of the price system for economic coordination. In addition, they believed that the market socialists had fundamentally confused equilibrium end states with the process of exchange and competition that produces a tendency toward coordination.

Over time, the professional assessment of the Mises-Hayek critique of socialism shifted. This was the result of additional scholarship clarifying the theoretical issues associated with the socialist calculation debate (Lavoie, *Rivalry and Central Planning*), as well as the practical issues that real-world socialist economies faced in the 1980s. The practical struggles of socialist economies led to a reconsideration of the issues first raised by Mises and Hayek about the fundamental difficulties with economic planning and vindicated the relevance of their arguments against attempts to use central planning to direct economic activity.