In *The Use of Knowledge in Society*, Hayek argues that the central issue facing contemporary economics does not simply consist in figuring out how to optimally allocate a 'given' set of resources. Such problems are relatively tractable from a mathematical point of view, and the marginalists more or less demonstrated the bliss point to be where the "marginal rates of substitution between any two commodities" are the same for all consumers. While Hayek acknowledges the significance of this insight, he also believes answering the question of effective allocation is functionally useless without concrete knowledge of the scarcity which constrains economic welfare in the first place. The truly important function of economics then involves determining what resources actually are 'given' to society. The difficulty in making such a determination stems from the distributed and contradictory nature of relevant economic data amongst millions of agents. Thus, for Hayek, the question of how to best aggregate this decentralized patchwork of information lies at the heart of 'the dismal science.'

Hayek proceeds to identify three primary modes of information aggregation: 1) Central planning, 2) Competition, and 3) Monopoly. Central planning involves "direction of the whole economic system according to one unified plan," competition consists of "decentralized planning by many persons," and monopoly aims at the "delegation of planning to organized industries." Importantly, for Hayek, all economic activity consists of planning. But who ought to be doing the planning? The answer, says Hayek, depends on the kind of knowledge necessary to carry out the planning in question. Far too often, people assume that "scientific knowledge...is the sum of all knowledge." This erroneously suggests that the direction of all economic activity ought to be left to a small group of technical experts versed in operations research who make decisions via a central committee. To the contrary, scientific knowledge of 'general rules' cannot account for "knowledge of the particular circumstances of time and place." This latter form of knowledge belongs to virtually every economic agent, and in particular, the businessman whose occupation demands rapid adaptation to local changes in his environment. However, the businessman cannot rely exclusively on local signals to make optimal decisions and requires "further information...of the larger economic system." Crucially, since the businessman does not require knowledge of why a particular resource is more or less difficult to acquire, and only to what extent a particular resource is more or less difficult to acquire, it is sufficient to summarize all the data which comprise the totality of macroeconomic trends into prices which the businessman can use to gauge in what manner he must alter his firm's activities. In other words, Hayek paints a picture of the market as, first and foremost, a mechanism to *compress* information into prices.

But exactly what form should this price system take? As noted earlier, Hayek clearly sees both perfect competition and monopoly as moving in the direction of decentralization. But he actually never explicitly prefers one to the other. We might suspect that since the market's purpose is to compress information, and monopoly markets have a tendency to distort prices so as to conceal the true marginal cost of producing a good to a firm, Hayek would be opposed to a monopolistic mode of information aggregation since compression ought to be as lossless as possible. But on the other hand, Hayek also

¹ Friedrich Hayek, "The Use of Knowledge in Society," (The American Economic Review, 1945), 519.

² Friedrich Hayek, "The Use of Knowledge in Society," (The American Economic Review, 1945), 521.

³ Ibid.

⁴ Ibid.

⁵ Ibid.

⁶ Ibid.

⁷ Friedrich Hayek, "The Use of Knowledge in Society," (The American Economic Review, 1945), 525.

seems to think the businessman/entrepreneur's occupation endows him with a unique hyper-sensitivity to economic trends, and so perhaps monopoly is actually preferable to perfect competition. Moreover, Hayek argues attempts to convey perfect information through prices are doomed in any case since "[price] adjustments are probably 'never' perfect in the sense the economist conceives of them in his equilibrium analysis." Perhaps the best possible world then would be a monopoly-driven economic system since lossy compression is a sunk cost. Additionally, businessmen could potentially use the Lerner index to easily reverse engineer the true marginal cost of producing a particular good. This however, would require statistical computation of demand elasticity, risking further distortion since "[statistics] have to be arrived at precisely by abstracting from minor differences between...particulars, in a way which may be very significant for the specific decision." Ultimately, while Hayek successfully demonstrates the necessity of the market algorithm in resource allocation, the question of what *kind* of market would minimize information loss still stands unresolved in the 21st century.

Works Cited

Friedrich Hayek. 1945. "The Use of Knowledge in Society." *The American Economic Review*, Vol. 35, No. 4, 1945, pp. 519–530.

⁸ Friedrich Hayek, "The Use of Knowledge in Society," (The American Economic Review, 1945), 527.

⁹ Friedrich Hayek, "The Use of Knowledge in Society," (The American Economic Review, 1945), 524.