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Can governments intervene in the market in a rational way?

The problems of knowledge and economic calculation

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1. Introduction

This paper aims to explore and discuss the reasons why government intervention in the economy is unlikely to produce the effects desired by policymakers. In particular, I wish to show how the contradictions of government economic planning and action are not simply to be found in the inefficiencies we often face when we deal with 'public' enterprises; more radically, and following the arguments developed in particular by Ludwig von Mises and Friedrich A. von Hayek, I will show how government economic planning is ontologically unsustainable.

In order to do so, this paper explores the subject matter of knowledge, the challenges that individuals face in making decisions as well as the institutions and incentive structures that affect the ability for both individuals and governments to achieve desired objectives.

The paper is divided into parts. Each part should be seen as sharing a common theme in the overall subject matter of the paper, but the parts are not in every case intended to necessarily build on the specific points of the previous part. Yet, as a whole, they contribute to an overall understanding of the framework that should be considered if we are to have a thriving economy and institutions that are conducive to human flourishing generally.

Part two introduces Friedrich August von Hayek's knowledge problem and explores (following Ludwig von Mises) how rational economic calculation can only be made possible through competition as a market process – requiring private ownership of the means of production, unhampered market prices, and a sound money. Once we have the right conditions in place, we are able to observe the economy working as a spontaneous order – coordinating the plans of billions of individuals without the need for intelligent design from experts. Part three applies Hayek's knowledge problem and Mises's economic calculation problem to KiwiBuild – a New Zealand government program, which seeks to reduce the price of housing in New Zealand by the government building (increasing the supply by) 100,000 new houses. Part four explores the importance of failure for learning and discovery and how allowing for these failures can actually contribute to the overall stability (or antifragility) of an economic system. The implications of this are left relatively subtle, but once understood, we are able to see wider utility in their application (e.g. the importance of not bailing out failing banks). Part five shows how the miracle of aggregation can – under the right conditions – allow for diverse groups consisting of many people (even non-experts) to produce smarter outcomes than any particular individual within the group.

2. Knowledge, prices, and economic calculation

One of the common arguments in favor of government intervention is that the market process (an outcome of decentralized actions) sometimes produces outcomes, which central planners consider sub-optimal in one way or another. The argument goes that governments must produce order, or equilibrium, or socially-desirable outcomes to correct such discrepancies. But is it possible for the state, or any centralized decision, to produce a better outcome than a decentralized process?

What I intend to show is that there can be order without design in economies, just as there is in biology. I would not be the first to point out that it is a bit ironic that many intellectuals in the academy – many of them atheists – reject outright the idea of intelligent design: the belief that since we find complexity yet still order in the natural world, that that order must have a designer. Following Darwin, they understand spontaneous order, which comes about by means of evolution through natural selection. Yet they embrace intelligent design of planned economies to varying degrees – arguing that without a Leviathan state there would be no order in the economic world[2].

In the essay *The Use of Knowledge in Society*, Friedrich August von Hayek identified two types of knowledge: scientific knowledge and knowledge that is dispersed, often inarticulate and tacit – specific to time and place and known only to the «man on the spot». We may also refer to scientific knowledge as technical knowledge or even centralized knowledge, or the knowledge of *how to do things*. On the other hand, we may also refer to dispersed knowledge as entrepreneurial knowledge, or the knowledge of *where and when to do what*. Central planning, in order to be effective, would require that a central authority be able to effectively receive the dispersed knowledge from millions of individuals simultaneously and make decisions for the whole of the economic system by effectively communicating commands back to the individuals in real time. In Hayek's view, the attempt by central planners to construct a rational economic order is based on a vain pretense of knowledge.

Hayek used tin as an example to explain the importance of prices in the market. Let us imagine for a moment that tin suddenly becomes a relatively scarcer resource in the market than it was the day before. It is of little concern to a buyer whether the price of tin has risen due to a new use for tin in some other place or whether one of the sources of tin has been eliminated from the market. Central planners do not have access to key information concerning time and place that individual decision-makers in the market have. All that the buyer in the market need to know is that the price has gone up. He then decides whether to pay the higher price, to conserve the tin that he has or to look for substitutes, and in doing so, the market adjusts itself accordingly. Substitutes of substitutes are discovered and produced, and «[t]he continuous flow of goods and services is maintained by constant deliberate adjustments, by new dispositions made every day in the light of circumstances not known the day before, by B stepping in at once when A fails to deliver» (Hayek, 1945, p. 524).

Building on Hayek's work, economist Steven Horwitz refers to prices as "knowledge surrogates" which make information "socially accessible". We need not know why prices are what they are, but we are «able to act *as if* we knew what others knew» (Horwitz, 2004, p. 314). As two Soviet economists (ironically) noted: «Everything is interconnected in the world of prices, so that the smallest change in one element is passed along the chain to millions of others» (Shmelev and Popov, 1989, p. 172).

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[1] *These points were also made by Haidt (2012, p. 356) and Ridley (2015, p. 6). Note that the key here is "to varying degrees". We do not imply here that most intellectuals necessarily favor Soviet Union-style central planning of all areas of the economy.*

We can see how prices work as knowledge surrogates through more modern examples. Think, for example of Uber's so-called "surge prices" (a form of price gouging). During time of relatively-low traffic, Uber's standard rates (prices) apply. But in time of heavy traffic on the roads, the rate may be set at sometimes 2.5X the normal price. Or, a few minutes before midnight in Manhattan when people are rushing to get to their destination before the celebration, rates may be up to 8X. On the face of this, it seems to many as merely ripping off customers. But let us consider a few things.

Firstly, under a competitive market system with no institutional protections for badly-behaving businesses, no business can stay alive by ripping off customers[2]. Uber not only competes against various ride sharing companies around the world, but it also competes against buses, trains, walking, getting a ride from a friend, and even unlicensed motorcycle taxis in countries like Vietnam. It also competes against customers staying at home and deciding to not go anywhere at all. Thus, in a roundabout way, Uber also competes against services such as Netflix. Such competition already causes Uber to keep its own prices in check if it wants to make money – not only to protect itself against competitors but also against *potential* competitors. Too greedy—too quick would put Uber out of business. No Leviathan state need keep Uber's prices in check. Uber's own loss-aversion does that through the dynamic market process.

Secondly – back to surge pricing – it is worth mentioning when exactly it is that Uber raises its prices. Why is it that increases in traffic has an upward push on prices? Increased scarcity! Holding the supply of available rides constant, an increase in demand of willing customers wanting to get rides means an important profit opportunity for Uber and its drivers.

When Uber raises the prices, two important things happen. The first is that customers decide whether they want to spend the extra money. Those that are willing to spend the extra money often have more urgent needs. In countries in which 8-9am on Monday to Friday is when most businesses begin work, this is peak traffic time, and thus, Uber uses surge pricing. When other customers decide that they are not willing to pay the higher price and can wait an hour or so until surge prices have passed, perhaps without realizing it, their willingness to delay gratification has a positive social benefit for everyone else on the road: one less person on the road means less traffic for everyone else. These trade-offs between using Uber at a particular time and place or not (engaging in an exchange or not) fits into what Israel Kirzner describes in *The Economic Point of View* as «[…] a system that relates apparently disconnected actions and organizes them to achieve social 'ends'», which he considers to be «an achievement of economic science» (Kirzner, 1976, p. 81).

The second important thing that happens when Uber raises prices is that it attracts would-be drivers who otherwise might not want to drive. More Uber drivers entering the roads has a downward pressure on prices as there is an increase in the supply of drivers relative to the demand.

We are now able to observe what Adam Ferguson described as «[…]the result of human action, but not the execution of any human design». Millions of individuals in cities all around the world with very different ends are able to coordinate their plans with one another in a well-run ecosystem – or "organism". In Hayek's words:

[2] *We refer here to a dynamic concept of competition as developed by Israel Kirzner – not to the limited neoclassical concept of perfect competition.*

> *[…]the spontaneous interplay of the actions of individuals may produce […] an organism in which every part performs a necessary function for the continuance of the whole, without any human mind having devised it […] The recognition of the existence of this organism is the recognition that there is a subject matter for economics (Hayek, 1973 – in Kirzner, 1976, p. 84).*

The coordination of all players involved comes about due to exchange, property rights, and (what Milton Friedman referred to in the 1980 PBS series *Free to Choose* as) the «impersonal operation of prices». But importantly for the topic at hand, prices help us allocate resources in a more rational way.

Murray Rothbard used a clever example of this in *Man, Economy, and State*: a platinum-lined transcontinental subway. Platinum may be, technologically-speaking, a superior metal than steel or some other alternative. But how can we know that despite platinum's technological superiority to steel that we should probably build our transcontinental subway from steel instead? Through *financial* considerations, of course, which are made possible through the price system (Rothbard, 1962, p. 647)[3].

In this regard, government action suffers a major flaw when compared to the outcome of the decentralized decisions happening and evolving in the market process: central planners can possess technical knowledge (how to do things) but not the dispersed (or entrepreneurial) knowledge (where and when to do what) mentioned previously (Ferlito, 2019, pp. 17-18).

Moreover, government entrepreneurship cannot generate prices, because prices arise in the market as the objective synthesis of the interactions between billions of subjective valuations. Therefore, any purely centralized economic enterprise will be unable to account for profit or loss because of the lack of market prices as knowledge surrogates. This moves us from the knowledge problem described by Hayek to the calculation problem brought forward by Ludwig von Mises. According to Mises, in order for prices to be effective indicators of relative scarcity, there must be private ownership of the means to production, markets with prices for those means, and from those prices, we finally have the indicators of relative scarcity that we need to conduct rational economic calculation.

In 1920, Ludwig von Mises published his influential article that instigated the socialist economic calculation debate called *Economic Calculation in the Socialist Commonwealth*. In it, Mises replied to the socialists of his day by arguing that socialism was not only a problem of incentives. In fact, at its core, socialism had a much more fundamental problem. That was, that if the means of production were to remain the property "of the community"[4] that it would be impossible to make rational economic calculations, and planners would be left "groping in the dark"[5]. This is due to socialism's non-market for the means of production (lacking competition, private property and market prices). As there is no market, planners would have no way of knowing which method of production should be pursued versus another (remember Rothbard's platinum-lined subway).

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[3] *Mises (2012, pp. 21-22) made a similar argument using a railroad as an example.*

[4] *Mises (2012, p. 1). Mises uses the vernacular of socialists themselves ("the community"), but elsewhere he calls it what is: "State controlled" (p. 4). Elsewhere in the article, Mises critiques Lenin specifically, which further emphasizes that "the community" refers to political leaders as central planners (p. 44) and not some community-wide voluntary market arrangement.*

[5] *Mises (2012, p. 23). Note again (following Ferlito (2019)), we are not arguing that central planners would not have the technical knowledge of* ***how to do things****. Indeed, nation states can and do employ legions of scientists of various fields – including economists as "maximization technicians" (Huerta de Soto, 2010, p. 130). What we argue here, and what Mises argued, is that central planners would not have the necessary entrepreneurial (dispersed) knowledge of* ***where and when to do what*** *because government activities necessarily exist outside of the market.*

Further, if entrepreneurs would not be allowed to act using their own private property or to compete for resources in a free market with unhampered money prices and a sound money (another factor of the Misesian debate), they would not be able to discover more (not necessarily the most) efficient ways of allocating resources through the market process: by moving resources in the direction of higher-valued uses. Such a system without these conditions would make rational economic calculation impossible.

As a benchmark, Mises argued that socialism could be considered successful only if socialism were to be able to produce a higher level of productivity than capitalism (Mises, 1922, p. 349). It is important to note here that Mises conceded that he believed socialism to be perfectly possible *under static, equilibrium analysis*[6]. However, in the real world in which creative individuals (entrepreneurs) act, knowledge is created, discovered and transmitted by those individuals to other market actors. The knowledge is first created when the entrepreneurs imagine a different world in the future which their actions could influence in some way. And in acting to realize such goals, they transmit that subjective knowledge to other actors in the market (which includes but is not limited to what essentially becomes *objective* market prices that result from competing *subjective* valuations). These other actors discover this new knowledge (including the objective market prices), evaluate it subjectively and discover and create new knowledge, and so on. The knowledge is dispersed, inarticulate and tacit (to use Hayek's terminology) and cannot possibly be known to any central authority because it only exists in its entirety throughout the minds of billions of individuals.

At the beginning of this section, I began by saying that under the right conditions, there can be order in the economic world without an intelligent designer just as there is in biology. This spontaneous order is able to coordinate the plans of billions of (mostly) self-interested individuals towards socially-desirable ends (Kirzner, 1976, p. 81). But the spontaneous order requires that individuals are able to make rational economic calculations to know which plans might be worth pursuing and which might not. As first argued by Mises in 1920 and then built upon by Hayek and later by Rothbard and others, the conditions necessary for rational economic calculation are: (1) a market economy with competition for resources; (2) private ownership not only of consumer goods but also of all aspects of production (producer goods, raw materials extracted from the earth, etc. – the "commanding heights" of the economy); (3) unhampered market prices, which serve as important signals of relative scarcity so that individuals can arrange their plans accordingly, and (4) a sound money.

[6] *Mises argued elsewhere in Human Action that «[T]he mathematical economist eliminates the entrepreneur from his thought. He has no need for this mover and shaker whose never ceasing intervention prevents the imaginary system from reaching the state of perfect equilibrium and static conditions. He hates the entrepreneur as a disturbing element. The prices of the factors of production, as the mathematical economist sees it, are determined by the intersection of two curves, not by human action» (Mises, 1949, p. 698).*

3. The knowledge and economic calculation problems applied to KiwiBuild: New Zealand's real estate development program

Now that we have built the framework, we will apply what we have learned from the knowledge and calculation problems to the case of a government-planned building project in New Zealand.

New Zealand as a country has been listed as "severely unaffordable" consistently for sixteen years straight by the Demographia International Housing Affordability Survey. The survey attributes the severe unaffordability primarily to urban containment policies, which began about a quarter century ago, and the unaffordability is particularly problematic in the three most populous cities: Auckland, Christchurch and Wellington (Demographia, 2020, pp. 20-22).

In 2018, a New Zealand Labour Party initiative began to address housing prices, which had been devised some six years previous. It was eventually passed into law and named KiwiBuild. The plan was for the construction of 100,000 state-built homes over the next ten years (to be completed in 2028). The reasoning provided was that homes in New Zealand were unaffordable for many families that needed them. The Labour Party saw the high demand for houses as well as families unable to afford those houses, so it sought to decrease housing prices by seeing to it that the government itself would increase the supply of houses. The fact that private sector builders had already been arguing for years that they wanted to build more houses and were unable to in many cases due to strict zoning and land use laws, difficulty in obtaining government-issued building permits and the like were merely hand-waved away by planners.

Much has changed with KiwiBuild since was launched in 2018. It fell far behind its own schedule even long before COVID-19. In May 2020 (in the wake of COVID-19), the NZ government announced plans to build an additional 8,000 houses «by increasing its borrowing over the next 4-5 years, anticipated to be approximately $5 billion» (Woods, 2020). But we need not even critique the government for failing to achieve its own targets on schedule or the size of the addition budget allocation. What we wish to critique here is the notion that the government is in a position to rationally allocate resources in the first place! We can even ignore the opportunity cost: what taxpayers could do with their money, had the government not expropriated taxes from the economy in order to pay for KiwiBuild houses and its bureaucracy – whether immediately or through debt over time. We can also ignore the detrimental inflation that the government presently very openly pursues in the COVID climate. We can also ignore the lacking logic that the government uses: that a country with people that are unable to afford houses is the same country and people that are expected to pay for these new, government-built houses.

The government can certainly hire contractors that know *how to build* houses. Such centralized (technical) knowledge is easily available to central planners who can spend taxpayer money in exchange for services. But governments do not have the necessary entrepreneurial (dispersed) knowledge of *where and when to do what* because government activities necessarily exist outside of the market.

A vital component of the market is an ever-looming "weeding out" process – what we will refer to as a *systemic disconfirmation of inferior plans*[7]. Entrepreneurs that build houses in areas not desired by willing consumers, to the wrong specifications or who try to sell them for prices unacceptable to such consumers,

[7] *By "inferior" here we mean economically inferior. Remember that a platinum-lined subway is technologically superior but economically inferior to a steel-lined subway.*

are unable to remain businesses for the long-term if they are not able to adapt to the sovereignty of consumers. It is only through the process of genuine market competition between entrepreneurs that successful plans are discovered over time. KiwiBuild, as a government program, exists outside of the market, where *systemic disconfirmation of inferior plans* does not exist.

To be fair, when KiwiBuild buys land for homes, it is not entirely left "groping in the dark" as Mises stated. This is because KiwiBuild can indeed look to the existing market for indicators of which neighborhoods are already experiencing a genuine interest by would-be homebuyers. It can also hire contractors and pay for building materials that presumably charge KiwiBuild ballpark market rates (ignoring the possibility of the private builders charging much higher rates to KiwiBuild for their services than they do elsewhere in the market). KiwiBuild can also contract private builders to produce houses in qualities, sizes, and styles similar to the houses in each neighborhood that the market has already produced. It is only thanks to the existing market that such indicators exist for KiwiBuild to begin thinking of such projects in the first place. But besides these general indicators provided by the market alongside of the government's own plans (and ignoring the important fact that KiwiBuild's existence crowds out private initiative of home building and greatly distorts the existing market!), the fact that KiwiBuild, as a government program, cannot just go out of business if it suffers major losses as a result of having chosen inferior plans necessarily means that it does not exist in the same environment of *systemic disconfirmation* that the private market does. As such, KiwiBuild has no quick feedback from the market.

Further, KiwiBuild looking to existing market trends and existing prices for data points of how and where to build homes can only look to *historical* trends. It cannot know if the areas in which it chooses to build homes are how or where the market would have put those homes *in the present or in the future.*

Besides the crowding out of private initiative of entrepreneurs, as KiwiBuild does not exist as a genuine market competitor, competing for the means of production, using and generating genuine market prices, it flips the idea of *consumer sovereignty* on its head and generates what might be called *producer sovereignty.* It can know *how* to build houses (technical knowledge), but it cannot know if the houses that it builds should be built in one way versus another, where exactly the homes must be built, in which quantities and to which specifications (entrepreneurial knowledge). Such details and plans can only be discovered in a market process of freely-acting individuals, using their own property, generating objective market prices in a process of competition between individuals with diverse ends and subjective valuations.

4. Learning from failure: from restaurants to mixed martial arts

Consider for a moment the concept of antifragility, developed by Nassim Taleb. Taleb describes antifragility as something that actually «thrive[s] and grow[s] when exposed to volatility, randomness, disorder […] risk, and uncertainty» (to a point). Taleb distinguishes resilience and robustness from antifragility: «The resilient resists shocks and stays the same; the antifragile gets better» (Taleb, 2012, p. 3). The restaurant industry is one such example. As there is no central organization telling restaurants exactly how to manage most of their affairs (in the same way that The Fed does for the banking industry in the United States, for example), there is no central point of failure, and thus, we experience no such thing as a "great restaurant recession". Successes and failures are decentralized and dispersed. The failure of a given restaurant or even a major chain of restaurants does not bring the whole restaurant system down. As a consequence of the competition through trial and error, a process of discovering what consumers really want and how much they are willing to pay, the restaurant business as a whole is antifragile, while individual restaurants remain between fragile and antifragile – depending on their respective abilities to adapt to changes in the marketplace (as they won't be bailed out as banks and car manufacturers have been in the United States in recent decades). Just ask any restaurant owner in Manhattan (Taleb, 2010, pp. 115-117)[8].

Similarly, martial artists used to live and train in a relatively-secluded world until the mid-1990s before the Ultimate Fighting Championship came around. In a post-UFC world, Kung Fu and Taekwondo black belts who take themselves too seriously are laughed at by serious martial artists. Before UFC, it was a big deal to have reached the black belt rank in a single art. What the UFC showed the world was that, while Brazilian jiu-jitsu (BJJ) certainly appeared to have an advantage over the others (as they say, "most fights end up on the ground", and BJJ was well-suited for this), no single art by itself was sufficient. By the time that Howard Rosenberg used the term "mixed-martial arts" in the LA Times in 1993 (and possibly coined it – although there is some debate around this), the cat was out of the bag (Rosenberg, 1993). The UFC had shown the world that you can't expect to win fights by punching from the chamber position at the hip (as Karate and Taekwondo teach its practitioners to do); you have to keep your guard up, or you will get kicked in the face. And if you only do BJJ and never strike your opponent with feet, knees, palms, fists and elbows, you are missing strategic opportunities. The UFC put the best and worst of the various martial arts – many going back centuries – on television for the world to see for the first time. Learning came quickly as fighters that applied practically-inferior techniques in real fights were quickly weeded out. The best of each art was maintained, and the useless was disregarded. What evolved via trial and error for the world to see was the systemically-antifragile system now known as Mixed Martial Arts.

But an antifragile system need not depend on each member being individually perfectly rational. Businesses that pursue endeavors that prove to be unprofitable serve as a signal to others of what might be avoided and pursued instead (Mises, 2012, p. 10).

[8] *Restaurants don't usually get special help from government* ***under normal circumstances****. In response to COVID-19, governments around the world did indeed subsidize businesses in industries of all sorts — including the restaurant industry. Note that Taleb used the opening of restaurants in Manhattan as an example of risk-seeking behavior but not under the context of learning or antifragility.*

[…] rational behaviour is not a premise of economic theory, though it is often presented as such. The basic contention of theory is rather that competition will make it necessary for people to act rationally in order to maintain themselves. It is based not on the assumption that most or all the participants in the market process are rational, but, on the contrary, on the assumption that it will in general be through competition that a few relatively more rational individuals will make it necessary for the rest to emulate them in order to prevail. In a society in which rational behaviour confers an advantage on the individual, rational methods will progressively be developed and be spread by imitation. It is no use being more rational than the rest if one is not allowed to derive benefits from being so. And it is therefore in general not rationality which is required to make competition work, but competition, or traditions which allow competition, which will produce rational behaviour (Hayek, 1973, pp. 413-414).

For both the restaurant business and MMA, we find that these systems – through constant competition and being allowed to fail – actually get stronger through failure. In the case of the restaurant business, it is true that humans do not always learn from the failures of others and still overestimate their probability of success. But when entrepreneurs take risks with their own money or with that of overconfident investors, they still often produce positive outcomes for the rest of us. Thus, it must be stressed here that what is often individually irrational is often good for the society as a whole. The reverse is also true: What is often individually rational is often bad for society as a whole (political ignorance in voting, for example)[9].

5. Spontaneous order through aggregation

James Surowiecki's book *The Wisdom of Crowds* describes how under the right conditions, groups can show themselves to be smarter than even the smartest individual members within them. The British scientist Francis Galton discovered in 1906 that a diverse range of around 800 people who individually guessed the weight of an ox after it had been slaughtered and dressed were able to produce a mean average weight between them that was less than one percent off from the actual weight: 1,197 pounds versus 1,198 pounds actual weight. Galton stated of the group: «Many non-experts competed […] like those clerks and others who have no expert knowledge of horses, but who bet on races, guided by newspapers, friends, and their own fancies […] The average competitor was probably as well fitted for making a just estimate of the dressed weight of the ox, as an average voter is of judging the merits of most political issues on which he votes».

Under similar conditions to the weight-of-an-ox example, many other experiments have been done with diverse crowds, some of which Surowiecki covers in the book – from guessing the number of jelly beans in a jar, to finding the location of the sunken US *Scorpion* submarine, to the audience of the *Who Wants to Be a Millionaire?* TV show guessing the answers correctly 91 percent of the time (Surowiecki, 2005, pp. XI-XXI, 3-4). Surowiecki tells in the afterward of the Anchor Books edition that after the book was first published, he was often asked during radio, television or live audiences to demonstrate the wisdom of crowds in action by using the very audience following him at that moment. Each time he experienced a bit of uncertainty that it would work on that particular occasion. But he reports "Things never did go wrong. Each time, the crowd did just as expected: its collective guess was very accurate, and was better than the vast majority of individual guesses."

9. I refer here to the phenomenon of rational irrationality – a term coined by Bryan Caplan (2006) and built upon by Ilya Somin (2016). Under rational irrationality, people cling to their deeply-held beliefs – even when strong evidence is presented to them suggesting those beliefs are wrong – because they find comfort in continuing to hold those beliefs. But beyond the utility of having one's preexisting biases confirmed, there is perhaps a stronger reason why one might rationally prefer to remain ignorant about politics: the disutility of losing friends or having to find new friends with (often) new sets of values.

Among these on-the-spot demonstrations, by the way, was a case in which listeners of a radio show guessed the number of books in his personal study room. He described the room to the listeners on the air, but none had ever seen it, and the number of books were not (yet) even known to him (Surowiecki, 2005, pp. 273-274).

But how can a crowd of diverse, often irrational individuals – many of them non-experts on relevant subject matters – produce highly intelligent outcomes under complex circumstances?[10] Surowiecki explains the four necessary conditions for this to be the case: *diversity of opinion, independence, decentralization, and aggregation*. Diversity here refers to a cognitive diversity, which can sometimes become intensified in environments of more sociological diversity, but fundamentally, the cognitive aspect is the key. Independence means that participants act on their own opinions rather than on the opinions of others. Decentralization refers to specialization and "draw[ing] on local knowledge". And aggregation means that "some mechanism exists for turning private judgments into a collective decision" (Surowiecki, 2005, p. 10).

But the wisdom of crowds need not have a disproportionate representation of experts with expert knowledge to produce highly intelligent outcomes. New members – even less intelligent and inexperienced members – can increase the overall intelligence of the group. As James March put it, «[t]he development of knowledge may depend on maintaining an influx of the naïve and the ignorant, and… competitive victory does not reliably go to the properly educated […][The] effect does not come from the superior knowledge of the average new recruit. Recruits are, on average, less knowledgeable than the individuals they replace. The gains come from their diversity» (Surowiecki, 2005, pp. 30-31).

Surowiecki identifies three types of problems that we all must find solutions for everyday: *cognition, coordination, and cooperation*. Cognition problems are the types of problems that the behavioral economists and (as we would expect by the name) cognitive psychologists concentrate on most in their analysis of human behavior. As an example, we can consider the so-called framing effect – e.g. food products advertised as "90% fat free" versus "10% fat" (Kahneman, 2011, p. 88). This is a cognition problem. Now think of how cars, bicycles and pedestrians are able to pass through the same streets millions of times per day with relatively few incidents. This is a coordination problem. And think of how buyers and sellers in markets around the world who have competing interests (sellers wanting to sell high, buyers wanting to buy low) can find agreement on prices and terms. This is a cooperation problem (Surowiecki, 2005, pp. XVII-XX).

[10] Following Herbert Simon, Surowiecki refers to humans as "boundedly rational", which (in this author's view) fits the flesh-and-blood human beings that I know better than the expectation of individually, perfectly rational beings that behavioral economists and the like seem to expect us all to be (Surowiecki, 2005, p. XIV). By "perfectly rational", I do not mean that behavioral economists expect omniscience or that (by their definition of rationality) humans cannot err. Thaler and Sunstein's criteria for rationality is that errors cannot be "systematically wrong in a predictable direction" (Sunstein and Thaler, 2009, p. 7).

6. Implications and conclusion

In part two, we explained how the impersonal operation of prices, which emerges as a spontaneous order, enables us to allocate resources in a rational way in light of ever-changing relative scarcity and subjective valuations between buyers and sellers. We discussed F.A. Hayek's knowledge problem and applied it to Ludwig von Mises's socialist economic calculation debate – arguing that centralized (technical) knowledge can indeed aid central planners ("maximization technicians") in knowing *how to do things*, but given that they lack dispersed (entrepreneurial) knowledge, they will never be in a position to know *where and when to do what* as they operate outside the market process (Ferlito, 2019, pp. 17-18). Following Mises's 1920 work, without competition for resources at all levels of production (including the "commanding heights") – which requires private ownership, unhampered market prices and a sound money – planners are left "groping in the dark," meaning they cannot possibly know which production plan should be pursued over another.

In part three, we applied Hayek's knowledge problem and Mises's economic calculation problem to New Zealand's program KiwiBuild – a program of the Labour Party, which set out in 2018 to build 100,000 houses by 2028 in order to increase the supply of housing, in hopes of reducing the overall price of housing in the country. But besides the problems of KiwiBuild being far behind its own schedule, besides ignoring opportunity costs, and besides the fact that tackling New Zealand's unaffordable housing problem could be better achieved by the government instead relaxing its urban containment policies and more easily approving building permits so that private sector entrepreneurs could provide housing themselves, KiwiBuild's very existence demonstrates a lack of understanding of the aforementioned knowledge and economic calculation problems. Or, if these problems are understood by legislators to some extent, perhaps they are purposefully disregarded altogether as KiwiBuild's existence is politically profitable for said legislators.

In part four, we explained the benefits of learning through failure. Building on Nicholas Taleb's concept of antifragility, we showed how some systems that are on constant attack are positioned with a better opportunity to learn, adapt, and indeed improve. The points here are left purposefully relatively subtle but have far-reaching implications: that allowing businesses to fail in the market rather than bailing them out – as has been done in times of national "emergency" in recent decades in response to both financial and health crises – may mean for a more antifragile, resilient system for the long-term.

In part five, we observed that time and time again, the miracle of aggregation ("wisdom of crowds") was able to produce smarter outcomes than the intelligence of any single member of those groups – even when the groups consisted of almost exclusively non-experts. We then discussed the four conditions necessary for this to occur: *diversity of opinion, independence, decentralization, and aggregation*.

Merging what we have learned, we see that firstly, there can be order without design. But, to emphasize the most important point, if the economic arena is planned by the government, then entrepreneurial knowledge cannot be acquired and produced (knowledge problem), but it also cannot be communicated because of the non-existence of the price mechanism, making thus impossible any rational economic calculation (calculation problem). Thus, a rational economic order is one that allows for entrepreneurial initiative from the market rather than the "intelligent design" of central planners.

Humans remain humans, with all the flaws that may be inferred from belonging to such a species, whether they operate at a centralized or decentralized position. As such,

> *[…] the most fundamental question is not what decision to make but who is to make it—through what processes and under what incentives and constraints, and with what feedback mechanisms to correct the decision if it proves to be wrong (Sowell, 1996, p. xxii).*

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Notes

Notes

Center for Market Education

The Center for Market Education (CME) is an academic and educational initiative supported by the Institute for Democracy and Economic Affairs (IDEAS). CME mission is to promote the importance of pluralism in economics education and a better understanding of the driving forces of the market process.

The market is often looked at as a state of affair, to be judged by its outcomes, and somehow potentially subject to central direction. Such a perspective fails to appreciate the complex dynamics that generates those outcomes: consequences are the result of human actions and interactions. Moreover, the consequences are often unintended and the market outcome can be defined as the result of human action but not of human design (spontaneous order).

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