# Chapter 1: The problem of 'freezing' an economy in a pandemic

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Draft excerpt from *Cryoeconomics: How to Unfreeze an Economy*

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## Introduction

The highly infectious novel coronavirus, COVID-19, which is easily transmitted through ordinary social contact, has been spreading through our planet's human population since late 2019. It is officially a pandemic. Until it is gone, or until we learn to live with it through treatments or vaccines or mass immunity, nothing can return to normal. So right now, for the first time ever perhaps, the earth is as one, at war with a virus.

In response, as a desperate defence against this ubiquitous invisible killer, governments around the world, starting with China, then Italy, and now almost everywhere, have listened to epidemiological and public health advice and enacted their recommendations for broad, sweeping and increasingly draconian public policies to enforce 'social distancing'. The theory is that if we give the virus nowhere to go, it will soon burn out. To do that, as much as possible – perhaps requiring more than 90 percent of each community's population – we need to avoid social contact or physical proximity. The economy must be shut down, and we are now in an economic crisis that could rival the Great Depression.

We face a historically unique crisis. The world economy in December 2019 was not obviously underperforming or teetering on the brink of recession. The cause of our current crisis is a deliberate decision to shut down, as far as possible, the social interactions that make our economy work.

Economies are social. Much of the economy works by organising humans in close contact with each other for production or trade, because that is the most efficient way to exchange and process information and move goods and services around, and to organize production. Economies make extensive use of social technologies. We shake each others' hands as a greeting or to signal an agreement, we embrace each other as a sign of friendship or intimacy. We hand each other cash and credit cards and receipts; we clink glasses together as symbols of appreciation. We queue for concerts. We are packed into nightclubs, restaurants and wine bars. We crowd into meeting rooms and factory floors and retail outlets. We shuffle onto peak-hour public transport. Almost all economic activity, by necessity or tradition or preference, is done in close proximity to each other.

The mandatory social distancing that has been imposed by almost every government in the world has shut down these practices, and with it has seen the large scale collapse of economic activity. Restaurants and bars have closed down or been forced to try to eke a living on takeaway or delivery.

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The event management industry has collapsed. The virtual cessation of international travel put many airlines on the brink of failure almost immediately.

Typically governments respond to recessions by trying to artificially pump-prime the economy: to stimulate demand with fiscal policy and incentivise capital investment with monetary policy. But this is a unique crisis. Rather, the approach that governments have taken is to use a combination of subsidies, bailouts, and social security changes to "freeze" the economy in place. The central plank of this approach is wage subsidies to firms to prevent them from firing employees who have been furloughed or underemployed. The idea is to keep workers in place and keep businesses afloat for as long as the public health lockdown lasts – reducing the very real toll on living standards and prosperity that social-distancing driven mass unemployment would cause. These policies are being adopted across the world. Canada, Germany, Ireland, Denmark, Germany, the United Kingdom, Spain, France, Singapore, Australia, and New Zealand all have policies of either a fixed sum or a percentage of annual salary paid to employers to keep workers in place. In addition, across the world governments have been bailing out firms particularly effected by the crisis – such as hotels and airlines – and boosting unemployment payments to those who have been already kicked out of the workforce. Leaders from in Australia and Spain have explicitly described what they call a described this as trying to "hibernate" the economy. Describing Denmark's 90 per cent wage subsidy, one Danish government minister told *The Atlantic* that:

> What we're trying to do is to freeze the economy. This is very different from 12 years ago when, as you might say in American terms, we bailed out Wall Street and forgot about Main Street. This time around, it's about preserving Main Street as much as we can
>
> After the lockdown, we knew that people would get fired in vast numbers. We wanted to avoid most firings, entirely. The best idea we came up with was for governments to pay businesses to keep employees.
>
> It's a radical plan. But radical times need radical responses.[2]

This book is about how to take the economy out of the freezer. We put the economy in the freezer under the clear expectation that we will at some stage take it back out again. The book is not about the relative merits of freezing, or of imposing heavy economic costs in order to suppress a public health crisis. Rightly or wrongly governments around the world are imposing a suite of extraordinary public policies – policies which will have dramatic impacts in the short term, but also which will have long term impacts across public expectations of the role of government, national debt and solvency, and even democratic responsiveness.

Our argument is straightforward. Governments cannot freeze an economy, thaw it out a few months later and expect it to come back to life. Economies do not hibernate for the winter like a sleepy but otherwise unharmed and intact bear. Unless some specific steps are taken – steps we will outline in this book – the most likely outcome is that the economy thaws into a pile of mush. We sincerely believe that many smart and well-informed people – economists, policy makers, politicians and journalists alike – are currently proceeding on the assumption that the economy will just turn back on, or start back up. Too many people are implicitly imagining the economy as a sort of machine – a machine that can be switched off, then turned back on, possibly with another massive injection of taxpayer funds in the form of fiscal stimulus.

[2] Thompson (2020)

A machine is the wrong way to think about how an economy works. In prosperous times this is a theoretical mistake that can lead to poor reasoning about how economies evolve. But in a time of crisis it is potentially catastrophic. A better metaphor for what governments are trying to do is closer to cryogenics. We're putting something that was complex and living in a freezer, and when we take it out of the freezer we need to reanimate it, bring it back to life. That's a much harder problem than flipping a switch or defrosting a pizza. But nevertheless, the economy is going in the freezer.

Governments around the world are spending extraordinary amounts of money to keep everyone in place – to keep people keep people simultaneously at home and employed. The challenge before us is how to do cryogenics on an economy. We have a matter of months to figure this out. What we need now, urgently, is *cryoeconomics*.

It is true that economists and policy makers have a lot of experience with collapsed economies. The twentieth century offers a history of crises, dramatically punctuated by the Great Depression of the 1930s to the Global Financial Crisis of 2007-2009, but with staggered recessions and downturns in all countries at all income levels. The economics profession grew up trying to understand the cause of these crises – why economies fluctuate on business cycles – and how policymakers ought to respond to prevent the downturns or mitigate the harms. As a result, economists tend to believe that they have detailed knowledge how to pull an economy out of recession, or even depression. To a large extent, macroeconomics and modern economic stabilization policy is the economic science and policy art of dealing with unstable, collapsed or 'sick' economies.

As much as economists might like to think that they have knowledge and experience in kick-starting economies, we are less sanguine. During the Global Financial Crisis the Nobel laureate in economics, Paul Krugman, published a book called *End This Depression Now!* outlining a sequence of policy interventions – most notably massive fiscal stimulus in the form of public spending – that would engineer a recovery.[3] At least in the developed world, there are few crises that are not met with a combination of monetary policy through central banks and fiscal policy (either in the form of tax cuts or spending packages). But even with the extraordinary spending – the G20 countries alone spent the equivalent of 1.4 per cent of world GDP on fiscal stimulus alone – the recovery of the global economy following the 2008 financial crisis had been sluggish.[4] Governments and policy makers retuned to business as usual when it came to spending once the immediate crisis had passed. As a consequence, much of the world enters the COVID-19 pandemic with already unsustainable government debt.

Yet let us put aside for now whether the received wisdom about policy responses to economic crises is correct or not. In all these previous cases of crisis and recovery, the economy *started* broken. They were caused by 'real' shocks (geopolitical events such as war or trade restrictions), reckonings caused by poor policy (central bank induced malinvestments or regulatory distortions), or the natural bursting of exuberance after a boom (what John Maynard Keynes once described as the mystical 'animal spirits' of the market economy). But the economy was not broken before the COVID-19 crisis. Governments have chosen to deliberately freeze their economies in order to deal with a non-economic problem (a global health crisis). But once that is done, we will need to revive

[3] Krugman (2012)
[4] International Labour Organization and International Institute for Labour Studies (2011)

the economy. We've never done that before. Previous policy guides to pulling an economy out of recession or restarting a shattered economy are not necessarily good guides to the task that we face.

## What are we trying to freeze?

Cryonics involves putting (recently dead) life in a freezer at cryogenic temperatures. The recently living body is placed below $-135^0$C, in a process called vitrification with the hope of reanimating after a period, preserving cell membranes, synapses and intracellular structure. This form of speculative cryopreservation is at the very frontiers of human knowledge (it is often described as a 'quack science') owing to the phenomenal technological challenges that accrue because of the enormous complexity and the staggering information richness of life at those deep intracellular levels.

Human brains and economic systems are of a similar order of magnitude as the most complex objects in the universe. An economy is no more a collection of resources than a human being is a bag of chemicals. The economic value in an economy is not just the set of factors of production – the land, labour and capital goods – but accrues to the complex and very specifically adapted way they are all connected together. The connections are everything, and in an economy, as in a body, they are mind-bogglingly complex.[5] They are relationships ordered in firms, markets and community groups, built out of expectations, agreements, contracts, prices and institutions, and held together with trust and other mechanisms of governance.

The economist Arnold Kling has a powerfully evocative way to describe this market order: *patterns of sustainable specialisation and trade*.[6] Building on Adam Smith's vision of the economy being expanded by innovation, specialisation and exchange, Kling offers an integrated macroeconomics (the economic subfield that studies national and global levels of economic production and employment) and microeconomics (the study of incentives and trades at the individual and firm level) that focuses on the extraordinary diversity and complexity of the economic system. Specialisation, as Smith taught generations of economists, involves first the division of labour into different tasks, and second the specialisation of workers (and firms, and even nations) in those tasks, resulting in both innovation and productivity improvements compared to a single worker doing all tasks. Smith's famous example was the pin factory – where the production of a pin was split into 18 separate steps. But Smith used that example to illustrate how specialisation could lead to exchanges between producers and consumers in a market, and to international trade between nations.

The complexity of our economy is the direct result of specialisation and the innovation that it encourages. Kling uses the example of a simple consumable product to illustrate that complexity. Breakfast cereal is available extremely cheaply, in a huge variety, almost everywhere. But behind each box of cereal is an awe inspiringly extensive and intricate network of production, trade and contract. The grains that make up the cereal are produced in farms that employ workers, that source and maintain production inputs (like seeds) and industrial equipment, that rely on financing from banks and investors, that employ accountants, human resource managers, and middle-management. Each of the firms that they rely on to produce have their own complex networks of

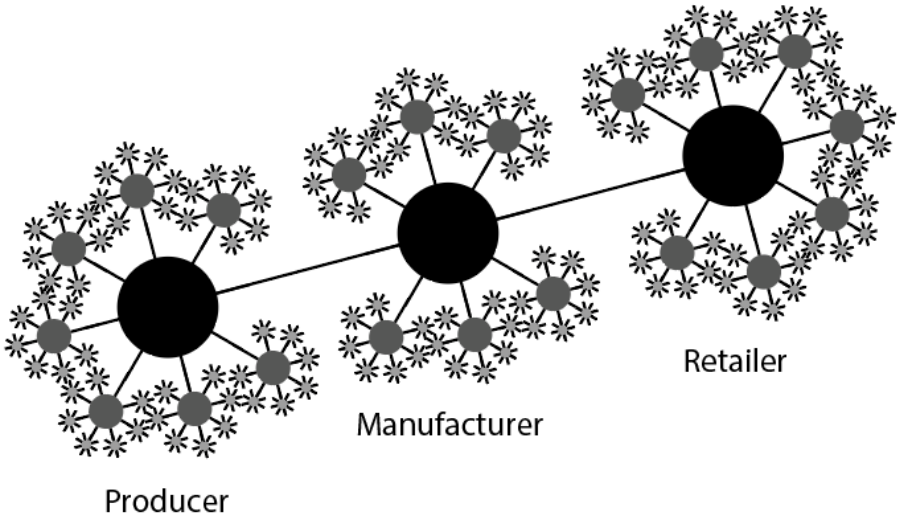
[5] Kauffman (1995), Potts (2000b)
[6] Kling (2011), Kling (2016)

inputs, dedicated equipment designed to work in their specific environment for their specific needs, expert staff who have trained and become experienced in their firm's way of doing thing. Each of those firms rely on other firms, other contractors, other workers, other producers … and on and on and on.

That network of relationships spreads out from every producer, but it is not evenly distributed throughout the economy. Nor is it random. The topology of these relationships is built around chains that stretch between primary producers and final consumers. Each firm on the chain has their own independent, but often interdependent, relationships with other firms, that themselves interact with different supply chains. This is illustrated in Figure 1, which shows an abstracted supply chain of three firms – a producer, intermediate manufacturer and a retailer – where each firm on the chain has itself part of a complex network of firms that it relies on for goods and services, who in turn have their own network of firms.

In Kling's breakfast cereal example, the grain producer appears to be at the start of a supply chain that brings packaged cereal to supermarkets, but it is also reliant on parallel supply chains that deliver the producer seeds, equipment, accounting software, and so forth. Intermediate manufacturers rely not just on a primary producer for grains but on supply chains for boxes, for plastic inserts, for processing equipment. Supermarkets rely on a similarly complex network of suppliers to bring the cereal to consumers. And in turn each segments of the supply chain are relied upon by landlords and banks, workers and shareholders. This network of relationships is of course more complex again than the diagram shows – distinct firms can share suppliers up and down supply chains, and share ancillary supply chains. They influence markets distinct from their own, influencing prices and entrepreneurial decision-making in and across different industries.

*Figure 1: Patterns of specialisation and trade on a supply chain*




This way of thinking about an economy as an enormously complex pattern is very different from the way many economists think. It is not a collection of independent industries producing services into the economy – taking responsible for a certain share of national production. Nor is it a mass of undifferentiated exchanges as producers make goods for consumers. Where Figure 1 shows the complexity of a single supply chain, the global economy is a virtually infinite number of these complex networks interfacing and interacting with each other. Stepping back from the abstraction

of Figure 1, those networks layer on each other, spanning across industries, across business types and sizes, and across regional and national jurisdictions.

These patterns of the economy are shaped not only by the desire for producers satisfying the demands of consumers (whether those consumers are final consumers shopping at a supermarket or farms buying threshing machines), but external factors. Regulations prevent certain types of market structures from evolving. Taxes might mean that firms use the services of external accounting bodies and auditors rather than doing accounting themselves. Public spending means that industries can be clustered around government-built infrastructure. Regional and national borders – and the different institutional frameworks that prevail on either side – mean that some market structures stop at the water's edge, where others are international. The patterns are further shaped by institutional technologies (legal and security systems, systems of trust and responsibility) which mean that some types of exchanges are more viable than others. The overall pattern of the global economy has weaved around a myriad of institutional, technological, regulatory and cultural limitations.

And critically, this pattern is constantly evolving. Economies are complex adaptive systems.[7] Some of that evolution comes from changing preferences. Over time workers may wish to trade off more work for leisure as they get wealthier, or adopt new hobbies, or age (in and out of parenthood, in and out of retirement). But the changes also come from discoveries made by entrepreneurs about new ways to do things, new products to bring to market. Small iterative innovations and further specialisation mean that firms and individuals are always making changes to the way they do things, driving more efficient production or shifting to new business models or product and service offerings. This continual movement means that firms have to find new suppliers, or adapt their practices to changes driven by their suppliers or the intermediate and end-users of their products. The static impression given by Figure 1 is misleading – the connections between firms are being continually rearranged – broken, rebuilt and restructured.

Let us return to the breakfast cereal industry again. Here it is clear how changing preferences feed into innovation, which in turn inspire further changed preferences. In recent decades consumers have increasingly focused on the health and ethical properties of food, and the breakfast cereal industry has responded to this by offering new products that are low carb or gluten free, which are vegan or have significantly reduced sugar, or have protein-rich ingredients. To supply these demands involve breakfast cereal producers sourcing new expertise in the form of specialised nutritionists, new ingredients (coconut pieces, nuts and seeds, even carrots and ginger), and new specialised equipment to cook, grind, shred, and bake the new product. The supply chains that end at each step of the production process shift accordingly, either being able to adapt to the new requirements, providing new ideas for innovation, or having their relationship severed. In turn, consumers discover that they like to have carrot in their cereal, or begin to view their breakfast as a part of their health regime. In this way the pattern keeps shifting, mostly iteratively, but sometimes punctuated by big innovations or ideas.

This is an economy: a constantly, inevitably evolving, shifting pattern of relationships. We each know our part of it – our consumer desires, our business and employment relationships – but cannot, as Fredrich Hayek most powerfully said, truly know much more than that. We cannot understand all the diverse inputs that make up our cereal and our pencils and our pins, let alone

[7] Kauffman (1995), Potts (2000b), Arthur (2014).

how our local florist relies on its bank (and our florists bank relies on it). Even if we could know that impossibly large amount of information, that knowledge would not remain up to date for long. Ultimately every part of the economy is reliant, in some small and impossible to determine way, on every other part – networked through relationships of sustainable specialisation and trade, creating an complex overlapping pattern of economic activity. And now we are trying to freeze that pattern in place.

Modern economics, and correspondingly modern economic policy, has something of a blind spot with respect to the existence of information, contracts, connections and economic complexity, as well as of the contribution this connective structure makes to economic value. Broadly speaking, this is missing from modern neoclassical microeconomics and from most strains of modern macroeconomics. However, it is not missing everywhere. The different parts of economic theory we assemble into *cryroeconomics* are distinguished by their implicit focus on open systems of information, connections, contracts and organisational and institutional structure and governance in the economy.

A lot of the current economic policy advice being offered to governments about the cost of shutting down and then restarting the economy is almost entirely focused on the direct economic cost of the freeze as the opportunity cost of the time offline. This is invariably estimated as the quantum of GDP lost, or some factorisation of that such as jobs lost, businesses closed, capital liquidated, or public subsidy required. There is no cost attributed to the restart that is not identical with the stimulus model of replacing missing spending, whether in consumption, investment or net exports. This is mainstream economic thinking and it largely ignores the entrepreneurial costs of economic discovery and adaptation to changed circumstances. It is our view that this is actually the more critical consideration, even if it does not loom as large as a direct money cost measured in terms of spending.

So, what types of economic models and frameworks do we need to assemble in order to construct the analytic foundations for a new policy-focused economic theory of cryoeconomics? In the 1960s, economists sought to develop "microfoundations" for macroeconomics. One of the key directions was to model problems of recession and unemployment as the consequence of disequilibrium trading in markets.[8] Traditionally, economics is taught as if the economy always moves towards equilibrium – where supply and demand match each other – even after disruptions and crises. The main insight of the disequilibrium approach to macroeconomics is that when markets trade at non-equilibrium prices, the 'wrong' signals start to propagate though the market.[9] The focus of the two leading economists in this line of thought, Robert W. Clower and Axel Leijonhufvud was figuring out how an economy could drive itself into this disordered state, and by doing so they proposed a new theory of business cycles.

In the COVID-19 crisis of course the economy has not driven itself into disorder: government public health policy has. The longer workers are frozen in place and stuck at home, the further the

[8] This produced the *general disequilibrium* model of Barro and Grossman (1971), and the *non-Walrasian* models of Clower (1965), Leijonhufvud (1967), and Shackle (1972), among others. Barro and Grossman opened up into Real Business Cycles theory, while Clower-Leijonhufvud-Shackle became the foundation of Post-Keynesian monetary macroeconomics. Interestingly, both of these lines trace back to Hayek (1945) in critique of Keynes (1936).

[9] Minksy's model of financial fragility and debt-deflation, and Shackle's model of 'kaleidic' expectational dynamics are both instances of how a market mechanism can get stuck in a chaotic state of disorder, and feedback mechanisms can amplify that instability (see Potts 1999, 2000a).

economy will drift from equilibrium. Where Clower and Leijonhufvud analysis is valuable is understanding how, despite being out of equilibrium, the economy could easily get stuck there.

How we think about the economy is based on the insights of complexity economics, Austrian economics and evolutionary economics. Economies are complex adaptive systems. The complexity resides in the connections – the relationships - that form the structures of trades, agreements, knowledge and organisation in an economy. Complex systems like the economy have complex dynamics caused by feedback effects working through these connections. In such a system, disturbances spread in ways that are impossible to predict.

Economies need institutions to effectively stabilise them, and why distributed systems that can cope with complexity as scale work so well.[10] Our cryoeconomic approach to policy is based on a rich and detailed appreciation of the institutional complexity of a modern economy. The new institutional economic of Ronald Coase and Oliver Williamson provides a framework for the economic analysis of governance mechanisms and comparative institutions for coordinating economic activity.[11] New institutional economics also extends to the study of private orders, and the ways in which groups of people can collectively create their own rules for governance that take account of local information and conditions.[12]

## Why is an economy so hard to freeze?

In this book we will develop a detailed explanation for why the economy – that is, why these patterns - are hard to freeze and unfreeze, and the types of policies and institutions that we need to introduce to minimise the damage. But our argument rests on three key pillars:

1. **Economic patterns are resistant to freezing.** An economy is an extremely complex pattern, and most of that complexity lies in its connective structure. Small changes in inputs or contractual linkages, as disruptions to parts of a complex system, can ramify through an interconnected network causing significant unpredictable changes in outputs. The globalised world brings us remarkable prosperity through specialisation and trade but those patterns, being so highly refined, are easy to break. Modern economies, and especially global supply chains, are therefore more fragile, and less robust, than is often appreciated. It is not possible to fix these patterns in place. A simple example is that the contracts which govern and coordinate supply chains are still subject to the passage of time: contractual relationships expire periodically and are renegotiated. The connective tissue of the economy erodes. In normal economic periods that erosion is no great problem – innovation and entrepreneurship outpaces the degradation of relationships. Entrepreneurs are constantly restructuring the economy in response to changes in information and innovation.

[10] The work of Mises (1949) and Hayek (1945) sought to understand decentralised coordination mechanisms, a field subsequently developed in modern microeconomics as mechanism design (Hurwicz 1972). And Austrian economists have sought to understand the process of price discovery and the role of entrepreneurial action in economic coordination as they introduce new ideas into markets (Schumpeter 1911) or discover opportunities in markets (Kirzner 1973). Evolutionary economists have explored the dynamics of economic systems with particular attention to the role of institutional and technological coevolution and through market-based selection mechanisms in shaping economic dynamics through a process that Schumpeter (1942) called ‘creative destruction’. (See also Alchian 1950, Nelson and Winter 1982, Metcalfe 1998, Dopfer and Potts 2008).

[11] Coase (1937), Williamson (1985), Hart (1995). Shleifer et al, Boettke et al., Ostrom 2005).

[12] See the work of Vincent Ostrom on polycentricity, and of Elinor Ostrom (1990) on governing the commons.

But a frozen economy – where entire teams are furloughed with little to do until the crisis passes – will suffer the erosion of connections and relationships brought by time.

2. **Our economic relationships and preferences will change during the freeze.** A frozen economy will thaw into a changed world. In the interim period, even as little as three to six months, a significant number of parametric and environmental conditions will have changed. Most obviously, people will come back wanting different things (maybe fewer holidays on cruise ships), having new priorities (increased appreciation for health), possessing new skills (such as cooking, or with new digital competences), revaluing assets (perhaps wanting a larger house, or a bolthole in the country), and perhaps rethinking their jobs or family situation (e.g. divorces are predicted to spike). So the demand side of the economy will be different. But so too will the supply side, as many firms will close down, and many capital goods and assets will be liquidated. And also new business plans will be developed, and old plans abandoned, and all of these intermeshed plans will need to be re-coordinated. Also the regulatory and legislative environment will change, and perhaps even the physical environment, owing to the reduced levels of production and natural resource use. And tragically, there will be a shifted demographic profile. A frozen economy will thaw into a changed world, and will need to adapt to that. Because of these changes there will also be new opportunities to discover entrepreneurial opportunities that were not present when the economy was frozen.

3. **Both the freezing and thawing will invariably be uneven.** Going into the freezer, there is a presumption that unessential parts will be frozen while essential parts of the economy remain unfrozen. But in most cases those have been political not market decisions about what constitutes essential. For instance it is notable that most of the public parts of the economy have been deemed essential while the private parts are disproportionately judged non-essential. Some of that is surely true, but not all of it. Different jurisdictions – that is, different countries, states, provinces and regions – will unfreeze at different rates and to different degrees. These differences will impart further uncertainty into the global trading order. Furthermore, upon unfreezing some parts will already be dead, whether staying frozen to collect welfare, or because the component factors have reassembled into new forms.

Taking all of these problems together, an unfrozen economy will emerge in a massively disequilibrium state. There will be disequilibrium trading, where some prices are wrong yet it will be unclear which ones. This will produce chaos across all markets. It will occur in commodity markets, asset markets, financial markets, labour markets. All of them. And at a higher level there will also therefore be disequilibrium entrepreneurship, as entrepreneurs and businesses try to see opportunities and make decisions to enter or exit markets, but all based on disequilibrium prices.

The problem of unfreezing the economy is a classic instance of what Hayek called a knowledge problem. The knowledge problem pushes back on the idea that effective centralised planning is possible, preferring more decentralised entrepreneurial plans in markets that respond more effectively to local knowledge. And the significance of seeing the unfreezing problem as a knowledge problem is that it complicates the presumption that the unfreezing problem can be seen as a planning problem. And this is indeed the problem right now: governments the world over, who have sensibly long since abandoned the presumption that they can plan the economy, seem to think this time is different. It is not.

All this information and organisation goes in the freezer too. And when the economy is thawed out, this is what we are worried will turn to mush. The physical things will all likely still be there, but the risk is that some (much? all?) of the locally specific and economically contextual information attached to them will be degraded or lost.

## The unfreezing problem is a rapid adaptation problem

When we take the economy out of the freezer and thaw it out, it will need to rapidly take on a new form. When the economy is unfrozen and seeks to reanimate, it will need to quickly recover its connections, or make new ones. For this to happen quickly and efficiently, institutional barriers and constraints will need to be as loose and relaxed as possible. It will need to adapt quickly. This will require a period of both disequilibrium trading and re-contracting. Entrepreneurs will need to rediscover the patterns of prices, contracts and other relationships to better coordinate resources in the post-COVID-19 world.

But we do not know what that new form is, and moreover we cannot know before the fact. We therefore need a *mechanism* to deal with rapid adaptation. Why? Because economies are incredibly complex objects, utterly unknowable by any one person, sensitively tuned to millions of parameters, and the world will have changed radically in the interim. So when the economy is unfrozen the nexus of prices, contracts, organisational forms and patterns of trade and comparative advantage will be in *disequilibrium* with its environment. The problem is how it gets back to equilibrium when not just a few markets but all markets are likely to be massively out-of-equilibrium.

The solution then to this unique problem of rapid adaptation is, we believe, that it is crucial that institutional constraints be maximally loosened. When it thaws, the economy will need to reanimate in a very loose institutional container to enable rapid adaptation to whatever new shape it needs. No one can know what this will look like in advance, which is why what we will characterise as ‘extreme deregulation’ of many currently over-regulated markets is necessary to enable successful reanimation. To unfreeze the economy successfully, in order for it to rapidly adapt and take on whatever new form it needs in order to reanimate in all its coordinated complexity, and to do so without plunging into a catastrophic period of massive disequilibrium or a depression.

Much ‘emergency deregulation’ is already under way to deal with the immediate health crisis. This includes rapid loosening of regulations regarding the manufacture of medical devices such as masks and ventilators, or eliminating barriers to employment that prohibit recognition of medical licenses obtained in one jurisdiction to practice in another. Both of these deregulations are adaptive responses to allow rapid entry of new producers or skilled labour to meet urgent demand. These changes are extremely welcome. But they demonstrate how the regulations were unnecessary in the first place.

The economy is full of these sorts of barriers to entry that inhibit fast, flexible adaptation. We need these loosened, if not eliminated in order to unfreeze the economy. We will explain in detail why in subsequent chapters, but for now the basic reason these barriers exist is to protect insiders from competition. They exist, in other words, for political, not economic, reasons. Such rent-seeking is costly enough in normal times but is exorbitantly costly and reckless to leave in place during a critical and sensitive period of economic unfreezing and reanimation.

There are several macroeconomic policy responses simultaneously in play, and while there are many familiar and well-rehearsed components to the policy response – such as massive public increases in public welfare spending and in public debt (fiscal policy), loose monetary policy and public underwriting of debt contracts (monetary policy), as well as ad hoc nationalisation of industries and private assets, as is common during periods of war or national emergency, there are also entirely unique aspects to this shock. We have never deliberately frozen and unfrozen an entire economy before. The only precedent are partial freezes on particular markets (e.g. suspension of financial markets, such as shutting the stock exchange or bank holidays). But the lessons of macroeconomic theory of business cycle recovery do not carry over to the policy challenges of unfreezing an economy.

We will detail these challenges in this book, but they can be outlined as such:

- Rapid adaptation to changed local and structural circumstance in the context of deep economic complexity is the problem
- The economy is not evenly frozen – more private (market-based) than public is frozen. So the more complex, sensitive parts are being frozen.
- Two distinct economic mechanisms are frozen – market coordination and economic selection

Rapid adaptation requires maximum degrees of freedom in supply sourcing, business models, technology application, pricing, partnerships, and so on. We need to minimize the institutional constraints on these entrepreneurial actions in order to successfully unfreeze an economy.

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