

On Coase and COVID-19

Darcy Allen, Chris Berg, Sinclair Davidson, and Jason Potts^{1*}

This version 26 April 2020

Abstract: From the epidemiological perspective, the COVID-19 pandemic is a public health crisis. From the economic perspective, it is an externality and a social cost. Strikingly, almost all economic policy to address the infection externality has been formulated within a Pigovian analysis of implicit taxes and subsidies directed by a social planner drawing on social cost-benefit analysis. In this paper, we draw on Coase (1960) to examine an alternative economic methodology of the externality, seeking to understand how an exchange-focused analysis might give us a better understanding of how to minimise social cost. Our Coasean framework allows us to then further develop a comparative institutional analysis as well as a public choice theory analysis of the pandemic response.

Keywords: COVID-19, Coase theorem, externality

1 Introduction

The coronavirus disease 2019 (COVID-19) is a global pandemic that has resulted in large parts of the global economy being shut down due to a policy known as ‘social distancing’. COVID-19 is an infectious respiratory disease that first appeared in the Chinese city of Wuhan in late 2019 and was declared to be a pandemic by the World Health Organization in March of 2020. Governments around the world have tended to respond to the pandemic through a series of measures that involve degrees of quarantine for large sections of the population to prevent the virus from spreading.

In this paper we contrast what we see as this Pigovian response to COVID-19 - where a mandatory social distancing policy is the equivalent of a 100 per cent tax rate on that activity - with an alternative, Coasian approach. The Pigovian conception of social distancing is the modelling assumption widely used in economic analysis of optimal policy response to COVID-19 (e.g. Alvarez et al 2020, Eichenbaum et al 2020, Jones et al 2020). In contrast, we explore the implications of an alternative explicit policy orientation built around the Coase theorem (Coase 1959, 1960) that uses an exchange and contracting approach to internalising the externality.

A public health crisis involving an infectious disease is clearly a negative externality. Those infected individuals coming into contact with non-infected healthy individuals can pass on the disease to those individuals resulting in their subsequent illness, or even death. In the very first instance, this can be described as being a ‘health externality’. One of the challenges facing decision makers in relation to the COVID-19 pandemic is the lack of information associated with the virus itself. Initially there was no knowledge of the characteristics of the virus – how much time there was between infection and symptoms, how contagious it might be and under what circumstances, what the fatality rate was, and so on. The social cost associated with spreading COVID-19 was unknown or highly uncertain through February and March 2020 when policy choices were being made. For the most part, policymakers in most countries assumed the social cost would be very high, and the unprecedented global policy responses (relative to viruses such as the seasonal flu) reflect that assumption.

There is a second externality caused by COVID-19 that may be either negative or positive. The behavioural response to the pandemic resulted in individuals *voluntarily* self-isolating in order to prevent themselves from contracting COVID-19. This can be described as being a ‘behavioural externality’, and has similarities to a pecuniary externality in a market. To the extent that individuals withdraw from economic activity and reduce their consumption, this imposes costs on others and is a

^{1*} RMIT Blockchain Innovation Hub, RMIT University, Melbourne, Australia

negative externality. It could also be the case, however, that these individuals, by following their own self-interest, inhibit the spread of the virus. If this were the case, then their behavioural response can be classified as being a positive externality. On balance, the net externality could be positive or negative. For reasons that we explain below policy makers acted in a way that suggests the net effect of this behavioral externality to be negative.

In this paper we discuss the responses to the externalities generated by the COVID-19 pandemic. These quarantines have been typically accompanied by industry assistance packages, wage subsidies and selected deregulations, and fiscal and monetary stimulus that seek to mitigate the economic damage of quarantine. The subsequent economic consequences and responses are important and interesting, but are not the focus of this paper. Allen *et al.* (2020) discuss our views on the fall out and possible policy choices that should be made as a result of decisions made in the early days of the COVID-19 pandemic. This paper focuses on the theoretical insights economic theory can make in face of a pandemic and the initial responses to the COVID-19 pandemic in particular.

In section 2 we discuss the origin and various meanings of the Coase theorem. In section 3 we apply these to the COVID-19 pandemic using the framework of comparative institutional analysis. Section 4 considers pandemic management as a transaction cost problem. Section 5 examines some public choice theory considerations. Conclusions are offered in section 6.

2 The Coase theorem

One challenge for economists when approaching the Coase theorem is that there are many interpretations of what that theorem might be. Indeed some economists, like Paul Samuelson, suggested that the Coase theorem was not a theorem at all. Other economists, like George Stigler, conflated it with other insights. Unfortunately Ronald Coase himself gave some credence to the Stigler interpretation, while insisting that he had made more of a methodological contribution as opposed to a hard and fast insight.

Coase (1988: 157) reports that he first expressed his theorem in a 1959 paper that had appeared in the *Journal of Law and Economics*. There he had made use of the example of a newly discovered cave and the argument was that the initial ownership of the cave and the ultimate use of the cave were independent of each other. The cave would be put to its most valuable use. The more famous 1960 article was an elaboration of that principle. As Coase (1988) notes, in the absence of transaction costs there can be no deviation between private and social costs.

Deirdre McCloskey (1989: 368) argues that this version of the Coase theorem is really ‘Adam Smith’s theorem’ – that resources will gravitate into the hands of those who value them the most – if transaction costs are zero. The Coase theorem, according to McCloskey, tells us that transaction costs do matter. While this is correct, it does seem to abstract from Coase’s other important contributions in his 1960 paper. Rather than express a theorem, Coase was attempting to make a methodological point – that how economists thought about social cost suffered from basic defects.

In the first instance Coase recognised and emphasised that social costs problems – externalities – were reciprocal. In many of his examples the individuals were imposing harm upon each other. The question in Coase’s mind was who should harm whom? The answer that he kept returning to was that arrangement which maximised the value of production would be the correct economic solution to that question. By contrast, the Pigovian solution to externalities would be to determine who had injured whom, and then require the advantaged party to compensate the injured party or levy a tax on the advantaged party.

Coase (1960: 131) also suggested, unkindly but not incorrectly, that economists did not carefully think through the problems at hand:

When [economists] are prevented from sleeping at night by the roar of jet planes overhead (publicly authorized and perhaps publicly operated), are unable to think (or rest) in the day

because of the noise and vibration from passing trains (publicly authorized and perhaps publicly operated), find it difficult to breathe because of the dour from a local sewage farm (publicly authorized and perhaps publicly operated) and are unable to escape because their driveways are blocked by a road obstruction (without any doubt, publicly devised), their nerves frayed and mental balance disturbed, they proceed to declaim about the disadvantages of private enterprise and the need for Government regulation.

He also argued that economists did not explore the full set of possible solutions to any problem of social cost (1960: 115–118). When confronted by a social cost rather than immediately consider government regulation there are other solutions that should be carefully evaluated. An immediate and obvious solution to any problem is to do nothing. His argument (1960: 118) being that very often the costs of doing something would be greater than the benefits of that action. Then he suggests that markets could be deployed to resolve social costs. In a world of zero transaction costs the Adam Smith principle applies. Coase, however, recognised that transaction costs may not be zero, or even low, and that markets would not always be able to resolve negative externalities.

Once the costs of carrying out market transactions are taken into account it is clear that such a rearrangement of rights will only be undertaken when the increase in the value of production consequent upon the rearrangement is greater than the costs which would be involved in bringing it about (Coase 1960: 115).

It is important to dwell on that point. Very often Coasian solutions to externality suggest that all that need be done is for property rights to be allocated to a party and then leave the market to allocate use rights. This may be *a* Coasian solution to the problem of social cost, but it is not *the* Coasian solution. This ‘let winners compensate losers’ or ‘losers bribe winners’ approach to resolving problems of social costs can be described as ‘vulgar Coasianism’.

In the presence of market failure, given transaction costs, Coase (1960: 115) points to his 1937 paper on the nature of firm. There he had argued that hierarchical costs within the firm could be lower than transaction costs within the market and that firms existed when administrative decision making costs were lower than market transaction costs. It is possible that some social costs can be privatised through vertical integration.

Only after the relative costs and benefits of doing nothing, relying on market forces, and vertical integration were considered, should government intervention be considered.

The government is, in a sense, a super-firm (but of a very special kind) since it is able to influence the use of factors of production by administrative decision. ... Just as the government can conscript or seize property, so it can decree that factors of production should only be used in such-and-such a way. Such authoritarian methods save a lot of trouble (for those doing the organising). Furthermore, the government has at its disposal the police and the other law enforcement agencies to make sure that its regulations are carried out.

It is clear that the government has powers which might enable it to get some things done at a lower cost than could a private organisation (or at any rate one without special governmental powers). But the governmental administrative machine is not itself costless. It can, in fact, on occasion be extremely costly (Coase 1960: 117).

Coase anticipates many of the arguments of the public choice school that would emerge in the next decade. Importantly Coase suggests that government intervention – Pigovian solutions – have costs and benefits and may fail to resolve problems of social cost just as markets do.

From these considerations it follows that direct governmental regulation will not necessarily give better results than leaving the problem to be solved by the market or the firm. But equally there is no reason why, on occasion, such governmental administrative regulation should not lead to an improvement in economic efficiency. This would seem

particularly likely when, as is normally the case with the smoke nuisance, a large number of people are involved and in which therefore the costs of handling the problem through the market or the firm may be high (Coase 1960: 118).

Here Coase suggests that government intervention is likely to be more effective than market solutions (or private solutions via firms, or just doing nothing) when coordination costs are high. Government does not need to incur the same coordination costs as do private actors – it can simply deploy its police power to impose solutions (at some cost at another margin that Coase does not outline, but tells us can be ‘extremely costly’).

It is unfortunate that Coase, who spent many years at the London School of Economics and later the University of Chicago, did not integrate his insights with his colleague and fellow economics Nobel laureate Friedrich Hayek. In the context of the socialist calculation debate Hayek (1945: 519) spells out what government needs to know in order to plan (emphasis original):

If we possess all the relevant information, if we can start out from a given system of preferences, and if we command complete knowledge of available means, the problem which remains is purely one of logic.

Arriving at a solution to the problem of social cost is difficult – it is not enough to justify government involvement by showing that transaction costs exist, or even that they are high.

Coase’s (1960) contribution was not to demonstrate that transaction costs do or don’t matter, or that market solutions require property rights, or that government intervention can fail too. All these claims can be made by reference to his contribution. Rather his contribution was that economists should think carefully about potential solutions to the problem of social cost and evaluate real world alternatives.

All solutions have costs and there is no reason to suppose that government regulation is called for simply because the problem is not well handled by the market or the firm. Satisfactory views on policy can only come from a patient study of how, in practice, the market, firms and governments handle the problem of harmful effects. ... It is my belief that economists, and policy-makers generally, have tended to over-estimate the advantages which come from governmental regulation. But this belief, even if justified, does not do more than suggest that government regulation should be curtailed. It does not tell us where the boundary line should be drawn (Coase 1960: 118).

This goes to Coase’s aversion to what he labelled ‘blackboard economics’. Harold Demsetz (1969) described decision making based on blackboard economics as being ‘nirvana economics’. Coase advocates what Demsetz labels as being ‘comparative institutional’ analysis between real world alternatives. Nirvana economics, by contrast, advocates a comparison between an idealised alternative and a real-world alternative. Importantly for our purposes Demsetz (1969: 2) suggests that practitioners of nirvana economics are likely to make one, or a combination, of three errors:

The nirvana approach is much more susceptible than is the comparative institution approach to committing three logical fallacies – *the grass is always greener fallacy, the fallacy of the free lunch, and the people could be different fallacy.*

3 An institutional choice framework for the COVID-19 pandemic

To provide a theoretical framework for understanding the various responses to the externalities generated by the COVID-19 we make use of the institutional possibilities frontier framework first proposed by Djankov et.al (2003). Djankov et.al (2003) were interested in explaining the growth of regulation over the course of the twentieth century and in particular explain why regulation seemed more prevalent in high-income economies. The frontier itself traces the trade-off between (private) disorder costs and (public) dictatorship costs. Following the Coasian insight, the costs of using market-based regulatory mechanisms are traded-off against the costs of using government-based regulatory mechanisms. In this context, disorder is defined as being:

... the risk to individuals and their property of private expropriation in such forms as banditry, murder, theft, violation of agreements, torts, or monopoly pricing. Disorder is also reflected in the private subversion of public institutions, such as courts, through bribes and threats, which allows private violators to escape penalties (Djankov et.al 2003: 598).

Dictatorship is defined as being:

... the risk to individuals and their property of expropriation by the state and its agents in such forms as murder, taxation, or violation of property. Dictatorship is also reflected in expropriation through, rather than just by, the state, such as occurs when state regulators help firms to restrict competitive entry (Djankov et.al 2003: 598).

They then use this framework to examine four broad governance strategies that can be used to achieve some regulatory objective. These strategies are, 'market discipline', 'private litigation', 'public regulatory enforcement', and 'state ownership'. In the analysis that follows we define disorder costs as the negative externality imposed on other individuals due to infection and a voluntary behavioural response to the pandemic. Dictatorship costs are the costs imposed by the government in response to the pandemic such as enforcement of quarantine, loss of civil liberties, and the like. Dictatorship costs include loss of economic opportunity that results from quarantine policies. It does not, however, include the costs of 'hibernating' the economy and costs incurred in restarting the economy after the quarantine period ends.

With that background, it is possible to set out a series of responses and policy approaches to the COVID-19 pandemic. For the sake of completeness we include a 'Do-nothing' response. In this response, nobody does anything in response to the pandemic. Individuals do not modify their behaviour in any way, nor do governments respond in any way. Under this response individuals go about their lives and infect other individuals. Currently the medical understanding of COVID-19 is that some infected individuals will not develop any symptoms of the disease and will not feel unwell at all. Asymptomatic individuals may still be infectious. Other infected individuals will become ill but will recover. Yet others will become very ill, and some will die.² In this response the disorder costs are very high. The virus simply transmits through the population and the costs associated with the health externality are maximised. An epidemiological model of this process can be calibrated with the standard SIR (Susceptible- Infectious- Recovered) model.

This no-response scenario is extremely unlikely and did not occur. Individuals respond to medical crises. For example, individuals who become ill may take sick-leave from work. Those individuals who are vulnerable to infection may choose to self-isolate. Others may withdraw their children from school or stop visiting crowded places such as cinemas, clubs, gyms, and the like. This scenario we label as 'voluntary individual self-isolation'. In this response we see some reduction in the costs due to a health externality, but the introduction of a behavioural net negative externality. Some service providers may experience financial loss due to consumers reducing their purchases and changes to consumer behaviour.

The next response level we describe as being 'voluntary corporate self-isolation'. At this point employers may voluntarily reduce the scale of their operations or even cease operations in order to protect their staff. This could entail reduced working hours, or fewer staff working during each shift. Schools could adopt distance learning models and some employees could work from home.

So far we have described responses that are entirely voluntary. The social costs that are being imposed as disorder costs only. Government may have provided public information and/or made recommendations in the scenarios and responses that we have described but as yet there are no dictatorship costs in the composition of social costs being incurred. What is important to note is that as each scenario has emerged that the social costs due to the health externality are likely to be falling, while the social costs due to the behavioural externality are likely to be rising. The behavioural

² <https://www.who.int/news-room/q-a-detail/q-a-coronaviruses>

externality will result in disorder costs such as reduced amounts of economic activity resulting in job losses. It could (and did) result in panic buying and hoarding. Many countries experienced toilet paper shortages for example - prior to the imposition of formal and mandatory quarantines. Very few governments appear to have relied on a voluntary response to the pandemic – Sweden and some Swiss cantons appear to have adopted this approach, while the United Kingdom initially indicated that it would adopt a voluntary approach to the pandemic it quickly changed tack.

Government responses to the COVID-19 pandemic have focussed on the health externality. Individual responses that were based on voluntary self-isolation were transformed by government fiat into involuntary quarantine policies. For the purposes of illustration three versions of involuntary quarantine policy can be described. Mild quarantine consists of the government requiring that most people stay at home with only essential workers going to work. Essential workers here can be broadly defined. In Australia, for example, hairdressers have been allowed to remain open while massage parlours and tattoo parlours have not. Under mild quarantine individuals might be allowed out of their homes for shopping and exercise at their own discretion. The police, however, do enforce the quarantine and do issue fines for quarantine violation.

Strict quarantine consists of more restrictive definitions of essential workers and fewer exemptions to home quarantine. For example, individuals may be restricted on what they may buy when shopping (some countries, for example, have prohibited the purchase of alcohol and tobacco products) or when they may leave their homes (for example, only one adult may leave the home every three days). Absolute quarantine – also included for completeness – is a situation where no-one is permitted to leave their homes for any reason. This form of quarantine is viable for very short periods of time only.

In all of these scenarios the behavioural externality that previously existed is now replaced with a dictatorship cost. Those individuals who would have self-isolated anyway under the same conditions as the government imposes are no better or worse off than they were before. Those individuals who would have self-isolated to a lesser extent or not at all are worse off than they were.

The important question, however, is which response or scenario results in social costs (from both disorder and dictatorship) being minimised.

The first point to make is that the existence of a negative externality is not itself a necessary and sufficient condition for a response. As Coase pointed out, doing nothing is an option. As we know, however, people do not do nothing in the face of a medical emergency. There is a response – people both self-isolate and change their consumption and productive behaviour. In order for there to be a justification for policy intervention an externality must persist in equilibrium (Buchanan and Stubblebine 1962). In disequilibrium social costs and private costs may diverge from each other. As externalities are internalised due to behavioural responses the divergence between social and private costs will fall. If that differential falls to zero before equilibrium, then there is no market failure. In the Buchanan and Stubblebine terminology the externality is not Pareto relevant. It may be the case, however, the externality persists in equilibrium – that is, it is Pareto relevant. At that point market failure has occurred.

In the case of COVID-19 market failure occurs when individuals, despite their voluntary behavioural responses, are still imposing costs upon each other. Given that there are two externalities at work, this is very likely to be the case. The health externality and the behavioural externality work in opposite directions to each other. As more people choose to voluntarily self-isolate in order to avoid contracting the virus, they impose greater behavioural costs on others.

4 Pandemic management as a transaction cost problem

Setting out the institutional choices in such a way requires us to ask a number of uncomfortable and unavoidable questions. What is the optimal rate of infection from a public policy perspective? How does that compare to a private perspective? Arrow's impossibility theorem indicates that the policy choice made by the government is not going to be some aggregate of private preferences.

Most developed world governments have sought to slow the rate of infections in order to target medical capacity to deal with the pandemic. This is the “flatten the curve” model, most influential in the period of March 2020 when many governments were making their institutional choices, in which the total number of individuals who are eventually infected is fixed (see Allen et al 2020). The goal of flattening the curve is spacing infections through time to prevent a sudden influx of COVID-19 cases from overburdening health care systems.

The choice of this objective function introduces another consideration into the debate: Individuals are not just imposing costs upon each other, they are imposing a cost on the health system. This healthcare system may or may not be public, or have complex public/private entanglements (Smith et al 2011, Wagner 2016). It may well be the case that no externality exists in equilibrium from a health perspective *but for the health system*. This insight is a public choice problem and we defer discussion to a later section.

Irrespective of why governments chose a particular objective function the net effect of intervention was to assume that a health externality persisted in equilibrium, and to substitute private disorder costs due to the behavioural response to the pandemic with dictatorship costs. This cannot be an equilibrium solution. Government intervention in response to externality is to restore an equilibrium situation that would exist but for the shock to the equilibrium.

Market failure is usually due to one of four factors – monopoly problems, missing markets, asymmetric information, or transaction costs. The COVID-19 pandemic is not obviously a monopoly problem. It would be too easy and glib to suggest that the COVID-19 market failure was due to missing markets. To suggest that individuals vulnerable to the virus be given property rights to their continued health and be paid to self-isolate would be a vulgar Coasian solution. So too the notion that vulnerable individuals pay everyone else to remain in quarantine.

It is useful, however, to think about ‘rights’ that individuals may have in the face of a pandemic. Vulnerable people can suggest that they have a right to life that in this instance includes the right to not become infected. Others may argue that they have a right to a livelihood or a right to choose. Reconciling competing rights, especially in the absence of cash payments, is difficult at the best of times. It does, however, go the question of who should be quarantined – just the vulnerable, or everyone? Almost uniformly governments have chosen to quarantine everyone (although in many jurisdictions vulnerable people have been subject to stricter rules, such as restrictions on access to aged care).

What many governments have also chosen to do is make payments to those individuals who have either lost their jobs (beyond the usual unemployment benefit that might normally be paid under such situations) or have been temporarily stood down or furloughed. Details vary from country to country but the principle is broadly similar. Employers who have been impacted by the quarantine policy can apply for a wage subsidy to be paid to their employees. This may strike some readers as being a Coasian payment for lost wages. But this money is not being transferred from winners to losers. Instead, it is being transferred through time, from future generations to current generations. The money is being borrowed (or printed – the macroeconomic consequences of the quarantine policy will be debated for decades and is beyond the scope of this article) and will be repaid from future tax revenues or budget cuts or inflation.

It is likely that a market failure exists due to transaction cost problems and information cost problems. A lack of information problem is distinct from an asymmetric information problem. (Asymmetric information is possible but not likely to be significant for this analysis. For example, it may be possible for an individual to be knowingly infected, or to believe they are likely to be infected, but externally asymptomatic and infect others.)

Before we proceed to discuss transaction cost and information cost problems, it is useful to point out that the market failure is not due to individuals simply being selfish. It is easy to argue that markets could simply fail to clear because individuals are selfish – the welfare of others simply does not enter

into their utility function and they are simply indifferent to other individuals' premature or preventable death. This argument has been made by the authorities when justifying authoritarian regulation or enforcement of quarantine. The health externality is reciprocal – individuals may either infect others or become infected themselves. While the virus does tend to be more fatal to older and immunocompromised individuals it is infectious and has a non-zero fatality rate for all humans. To the extent that individuals have no voluntary behavioural response to the COVID-19 pandemic this is very likely due to information asymmetry or direct economic incentive. Responding to direct economic incentives may be anti-social but it is not a market failure.

The direct cause of the market failure (assuming the market has failed) is the existence of radical uncertainty. Mainstream economics tends to make strong information assumptions to drive its results. When those assumptions are relaxed they are that information is costly – i.e. it exists but must be acquired at a price – or is asymmetrically distributed. One of the features of the COVID-19 pandemic is that information either did not exist, or was highly uncertain, or contested. Behaviour must be conditioned by expectations which in turn is conditioned upon information. Bounded rationality first proposed by Herbert Simon and popularised by Oliver Williamson (1985) results in individuals making and using heuristics, rules of thumb, and various mental short-cuts when decision-making.

In the months that the COVID-19 disease emerged and spread globally, there was a high degree of this sort of radical uncertainty, around almost all epidemiologically relevant aspects of the disease. It is possible that individuals under-estimated the COVID-19 infection rate or severity and subsequently self-isolated too little resulting in a health social cost in equilibrium. It is also possible that the government over-estimated the COVID-19 infection rate and imposed high dictatorship costs on the economy when there was no social cost in equilibrium. Given the breadth of these uncertainties and the sensitivity of comparative institutional analysis to those uncertain factors, it is implausible to suggest that the policy choices made between February and March 2020 were anywhere approaching optimal.

Yet radical uncertainty does not explain why different governments imposed various degrees of strictness on quarantine conditions. While information about COVID-19 was uncertain and the medical science preliminary, it was also highly accessible - given the extraordinary effort made by public authorities and researchers around the world to investigate the characteristics of the disease. It is also the case that international coordinating organisations such as the World Health Organisation sought to provide governments with consistent responses. The question is then: why is it that some governments choose to hold their entire population in quasi-house arrest allowing a single adult out once every three days, while others are allowed individuals to play golf or go to the hairdresser?

Djankov et. al. (2003) include a 'civic capital' in their explanation of regulation. Those economies with higher levels of civic capital have better institutions and higher economic activity. Applying that insight there are two points that can be made: first governments of countries with lower civic capital are likely going to have to impose stricter quarantine and enforce it more strictly as their populations cannot be trusted to voluntarily comply with government directives. Second, it may be the case that those societies with higher levels of civic capital are more democratic and their populations will simply not tolerate high dictatorship costs being imposed upon them.

5 Public Choice aspects of the COVID-19 pandemic

Pigouvian approaches to policy are made more fraught by the fact that the government is not a disinterested actor. Public choice theory is the study of how government (and the politicians and bureaucrats that comprise it) is a distinct actor within an economic system with its own economic incentives (Mueller 1976). One theoretical foundation is Arrow's (1950, 1951) critique of social choice functions, which showed how it was impossible to aggregate private utility into a social utility function without violating some desirable conditions, one being the no dictatorship rule (i.e. that one agent's preferences dominate all other agent's preferences). Yet in the context of public policy to address

COVID-19, exactly this situation has arisen in which the ‘dictator’s’³ preferences for resource allocation may depart from the preferences of individual citizens, however aggregated. Note this does not depend on citizens having different preferences, and this wedge between the incentives of the state and the sum of incentives of citizens will hold even with identical preferences across all citizens.

As we introduced in Section 3 above, when individuals move from susceptible to infectious they are not just imposing costs upon each other as a contagion externality on other private individuals, they are also imposing a cost on the health system, as an externality on the state. For instance, individual citizens will have private preferences not to become infected and to die from COVID-19, and these preferences will extend to social preferences⁴ for this fate to not befall others too. Governments, on the other hand, have preferences focused on the public health system, which they seek to protect, not on individual citizens. This is not a cynical point: the UK government, for instance, has directly explained this point in public communication, namely that the strategy was to protect their National Health System (NHS). The ‘flatten the curve’ diagrams were expressly designed, and communicated, as a strategy to protect the capacity of the public hospital systems. To put this succinctly, from the government’s perspective, they obviously do not want their citizens to die; but should they die, it is better that they should do so without harming treatment capacity in public hospitals. This is not a heartless statement, but an expression of the margin of concern for the government supplying public healthcare during a pandemic.

Another way of seeing this same point is to look at it from a dynamic planning perspective, recognising that it is extremely costly to ramp up or quickly substitute one type of health services for another due to asset specificity in medical equipment, hospitals and skilled labour. Medical equipment cannot be quickly repurposed. At time $t=0$, governments allocate funding X to public health on the assumption that it will need to provide services Y at $t = 1$. Any demand above Y at $t = 1$ (or a different configuration of demand) creates rationing, which is a cost borne by citizens. This is politically costly as those rationed citizens will punish the incumbent government because the excess demand signals that $t=0$ government failed to properly plan for $t = 1$ scenarios.

But this sort of bureaucratic forward planning and budget allocations is destined to fail because of poor information and incentives by the bureaucratic agents (Mises 1944), or worse, will be fully captured to pursue the agents own ends (Niskanen 1971). Nevertheless, the legitimacy of the modern welfare system relies very heavily on the state delivering public goods to the population. Having the public health system collapse under the weight of a pandemic would be a major embarrassment to the perceptions of competence and legitimacy of a government.

Once a health budget has been allocated at $t = 0$ (including a spending level and an allocation across services) a government experiences what Williamson (1985) calls a fundamental transformation where they no longer have a wide set of options going forward, but a narrow set of capabilities that can only deal with a predetermined range of events. Any events falling outside that planning window will overwhelm the health system, which means to blow out the budget. So governments will be incentivised to order events so that they fall within the health sector capability, even when that means imposing an externality back on citizens by for instance shutting down all elective surgery or banning any activity that could place demand on the health system such as driving, sports. Similar incentives extend to preferences over subsidising employment (in Australia, called the JobKeeper program) in order to avoid overwhelming the unemployment provisions and budgets allocated to welfare.

The COVID-19 pandemic and the government response also raises further questions that can be analysed through the lens of public choice theory that we simply flag here as topics for subsequent inquiry.

³ We use the term ‘dictator’ in the technical sense to refer to a government’s largely suspending normal democratic or parliamentary processes in order to impose choices made by a select insider expert group on a civilian population, which is then strictly enforced.

⁴ Social preferences are defined as other people’s utility functions appearing as arguments in an individual’s utility function (Feyr and Fischbacher 2002).

First, following Downs's (1957) theory of log-rolling and the economics of political parties, we predict that the urgency to enact legislation to address the pandemic will significantly lower bargaining costs associated with vote trading (Buchanan and Tullock 1962), leading to an increased number of back-room deals being made in order for the party in power to be able to present a single coronavirus emergency response omnibus bill before parliament or congress for expedited approval during some manner or restricted debate or sitting period.

A further prediction is that the lowered bargaining costs, due to the higher opportunity cost of a failure to reach consensus and to deliver effective emergency measures legislation, is that the efficiency of a multi-party system is reduced, as there only effectively needs to be one party, with all special interests able to deal behind the scenes. In times of crisis there is a common tendency to rally-around-the-flag (Mueller 1985) and to support incumbent leaders and their party. Knowing this, rational opposition parties will put effort into political bargaining (vote-trading or log-rolling) toward a consensus bill rather than seeking to present an alternative legislative agenda.

This collapse in multi-party competition driven by falling political bargaining costs (because of the emergency response) and resultant omnibus legislative bundle rushed through the political process (to economise on political costs), which will therefore be complex and far less scrutinized than in normal times, is then predicted to have a further behavioural effect that the legislative act will be difficult to understand by individual voters, who indeed will have no incentive to understand the details (they will be rationally ignorant, Caplan 2007), but will also give rise to expressive voting (Buchanan and Brennan 1984), or conspicuous signalling of support for the consensus bill, and using social mechanisms to enforce compliance (shaming in public or on media, rallies of support, expressions of anger and even violence). In the COVID-19 pandemic, this process of aggressive public consent soon targeted any counter-narrative of the value of opening the economy back up.

A further application of public choice theory to the COVID-19 pandemic considers the long run effect examined by Olson (1982) on the economies of Germany and Japan after the Second World War, in which one of the benefits of losing the war was the institutional destruction of rent seeking regulations and legislation and clearing away of thickets of special deals between Pre-War elites that had accumulated over long periods of peaceful prosperity, but were a significant drag to efficient competition and resource allocation. The urgent deregulation of unnecessary regulations and licencing regimes, particularly in relation to urgently needed production and innovation in health and other essential industries, provides the opportunity for a constitutional or institutional reset, following defeat. From this perspective, a pandemic may have similar effects on long run economic growth as losing a war due to the opportunities for institutional creative destruction.

6 Conclusion

Negative externalities arising from an economic activity impose a social cost. This can be dealt with through government intervention targeting that activity, directly through regulation or indirectly through market interventions, for instance through taxation or subsidy to internalise the externality and minimise the social cost of an economic activity. This is called the Pigovian approach, after A.C. Pigou who developed the foundations of modern welfare economics. But Ronald Coase recognised that this was not the only solution to the problem of social cost because it failed to recognise the symmetry in any situation of externalities, and therefore fails to focus on the problem of maximizing economic efficiency. Provided transaction costs are low and property rights are clear, Coase explained, parties can bargain their way to an efficient solution to externality problems.

We expect the coming months and years to feature heated retrospective debate about what policies were most effective in limiting the spread of COVID-19, and the relative trade-offs of those policies vis-a-vis their effect on economic activity. Much of that work will be empirical. But this paper has argued that there is a higher-level debate to be had about the policy framework that was adopted.

COVID-19 is a viral pandemic, causing a global public health crisis, but from the economic perspective it can be understood as a negative externality, thus presenting two policy pathways forward. To date,

and globally, almost all public economic policy response has gone down the Pigovian path - an institutional choice readily understood using the tools of public choice. However, from an economic theory perspective, there are arguments as to why a Coasean perspective could on some margins be a superior basis for public policy. We have sought to set those arguments out here. As governments prepare for economies to unfreeze (Allen et al 2020) or prepare for future pandemics (or even a possible second wave of COVID-19) this analysis urges policymakers to better understand the scope and limitations of policy responses available to them.

Bibliography

- Allen, D., Berg, C., Davidson, S., Lane, A., Potts, J. (2020) *Unfreeze: How to Create a High Growth Economy after the Pandemic*. American Institute for Economic Research.
- Alvarez, F., Argente, D., Lippi, F., (2020) *A simple planning problem for covid-19 lockdown* (No. w26981). National Bureau of Economic Research.
- Arrow, K. (1950) 'A difficulty in the concept of social welfare' *Journal of Political Economy*, 58(4): 328-46.
- Arrow, K. (1951) *Social Choice and Individual Values*. Wiley: New York.
- Buchanan, J., Stubblebine, C. (1962) 'Externality.' *Economica*. 29: 371 – 384.
- Black, D. (1958) *The Theory of Committees and Elections*. Springer: Heidelberg.
- Brennan, G., Buchanan, J. (1984) 'Voter choice: Evaluating political alternatives.' *American Behavioral Scientist* 28: 185–201.
- Buchanan, J., Tullock, G. (1962) *The Calculus of Consent*. University of Michigan Press: Ann Arbor.
- Caplan, B. (2007) *The Myth of the Rational Voter*. Princeton University Press: Princeton.
- Coase, R. (1937) The nature of the firm. *Economica*. 4: 386 – 405.
- Coase, R. (1959) The Federal Communications Commission. *Journal of Law and Economics*. 2: 1 – 40.
- Coase, R. (1960) The problem of social cost. *Journal of Law and Economics*. 3: 1 – 44. Reproduced in R. Coase. 1988. *The Firm, the Market and the Law*. University of Chicago Press: Chicago.
- Coase, R. (1988) Notes on the problem of social cost. In R. Coase. 1988. *The Firm, the Market and the Law*. University of Chicago Press: Chicago.
- Demsetz, H. (1969) Information and efficiency: Another viewpoint. *Journal of Law and Economics*. 12: 1 – 22.
- Downs, A. (1957) *An Economic Theory of Democracy*. Harper Row: New York.
- Djankov, S., Glaeser, E., La Porta, R., Lopez-de-Silanes, F., Shleifer, A. (2003) The New Comparative Economics. *Journal of Comparative Economics*. 31: 595 – 619.
- Eichenbaum, M., Rebelo, S., Trabandt, M. (2020) The macroeconomics of epidemics. No. w26882. National Bureau of Economic Research.
- Fehr, E., Fischbacher, U. (2002) 'Why social preferences matter: The impact of non-selfish motives on competition, cooperation and incentives.' *Economic Journal*, 112(478), 1-33.
- Hayek, F. (1945) The use of knowledge in society. *The American Economic Review*. 35: 519 – 530.
- Jones, C., Philippon, T., Venkateswaran, V. (2020) 'Optimal mitigation strategies in a pandemic: social distancing and work from home' working paper
- McCloskey, D. (1988) The so-called Coase theorem. *Eastern Economic Journal*. 24: 367–371.
- Mises, L. (1944) *Bureaucracy*. Republished by Mises Institute <https://mises.org/library/bureaucracy>
- Mueller, D. (1976) 'Public choice: A survey.' *Journal of Economic Literature*, 14(2): 395-433.
- Mueller, J. (1985) *War, presidents, and public opinion*. Lanham, MD: University Press of America.
- Niskanen, W. (1971) *Bureaucracy and Representative Government*. Transaction Publishers: New Brunswick.
- Oslon, M. (1982) *Decline and Rise of Nations*. Yale University Press: New Haven.

- Smith, A., Wagner, R.E., Yandle, B. 2011. A theory of entangled political economy, with application to TARP and NRA, *Public Choice*, 148, pp. 45–66
- Wagner, R.E. (2016) *Politics as a peculiar business: Insights from a theory of entangled political economy*, Edward Elgar: Cheltenham.
- Williamson, O. (1985) *The economics institutions of capitalism*. The Free Press: New York.