Public Choice (2024) 201:607–622
https://doi.org/10.1007/s11127-023-01104-6

Complex externalities, pandemics, and public choice

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Received: 1 December 2022 / Accepted: 16 August 2023 / Published online: 9 October 2023

Abstract
The conventional wisdom guiding pandemic policy is that the complexity of externalities justifies a centralized government response and suppression of economic freedom. We argue that public choice offers a compelling argument that the opposite is the case: complex global public health crises justify polycentric responses and protection of economic freedom. We show this by considering three distinct themes in the public choice analysis of pandemics. The first theme is that government failures are ubiquitous during pandemics. The second is that polycentric governance institutions are more appropriate than monocentric ones to address pandemic externalities. The third is that while economic freedom may make controlling pandemics more challenging in the short run, in the longer run, economic freedom is what ultimately contributes to a more robust response to pandemics through technological innovation and wealth creation. Together, public choice provides what we call a liberal political economy of pandemics in which polycentricity and economic freedom are appropriate institutions to deal with complex, novel externalities.

Keywords Externality · Polycentricity · Pandemics · Government failure · Economic freedom

JEL Classification H10 · P00 · I10 · D70 · N40

1 Introduction

Pandemic economics emerged as an arguably distinct subfield after the COVID-19 began to spread in 2020 (Galiani, 2022). Some of the major research questions considered the consequences of remote work (Kahn, 2022), the benefits and costs of economic lockdowns (Besley & Stern, 2020), and the impact of public health measures to combat the pandemic

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(mask mandates, social distancing measures, policies relates to vaccinations, etc.). Pandemic politics also emerged as a distinct line of inquiry into questions such as how pandemics influence trust in government (Devine et al., 2021), voting behavior (Schraff, 2021), and the links between partisanship or ideology and individual behavior with regard to the pandemic and pandemic policies, including compliance with mask mandates and lockdown orders (Gadarian et al., 2021).

Public choice scholars were, like the rest of economics, political science, and political economy, deeply invested in understanding pandemic policy. Instead of defining a new subfield, public choice scholars focus on applying public choice theory to understand the pandemic and pandemic policies. Since the task of public choice is to consistently apply economic principles to political decision-making (Buchanan, 1984), a new subfield is not necessary for analyzing pandemics: what is necessary is consistent application of public choice to novel areas of inquiry.

In this paper, we take stock of the insights of public choice for pandemics. Our point of departure is that much of the conventional policy wisdom, and even much of the economic analysis in the tradition of Pigou, is based on the idea that complex externalities justify more extreme policy responses and more centralized political institutions. Paniagua and Rayamajhee (2023) refer to externalities as complex when they involve exceptionally large numbers of individuals at multiple scales, identification of the causes of the externalities is challenging, and discerning appropriate regulations is difficult. Cowen and Schliesser (2023) explain that externalities of pandemics can also be described as novel externalities in that, while pandemics are not novel, challenges with a particular pandemic differ from previous cases.

We begin by assuming that pandemics present complex and novel externalities. We then argue that public choice offers three hypotheses for pandemics: government failures are ubiquitous, especially in complex crises; polycentric political institutions are more appropriate than monocentric ones to deal with complex global externalities; and economic freedom is what enables technological innovation and wealth creation that ultimately determines the robustness of a society's response to pandemics. Take together, this body of research offers an alternative to the conventional wisdom. In this alternative view, polycentricity and economic freedom ought to be preserved during pandemics.

Our paper proceeds as follows. Section 2 considers the implications of what might be called traditional public choice analysis of pandemics, as its emphasis is on precisely identifying government failures that arise during complex crises. Section 3 considers specific justifications for polycentric responses to pandemics. It also considers an important potential criticism of limited government, namely, that local governments can fail, too. We argue that these potential failures of limited government do not justify either centralized responses to pandemics or suppression of economic liberty. Together, Sects. 2 and 3 question government responses but recognize that to the extent government is necessary in a pandemic, the government should be organized in a polycentric manner to address pandemics.

Section 4 complements the analysis of government failures and polycentricity by considering the relationship between economic freedom and pandemics. In doing so, we consider the idea, originally explored by Troesken (2015) and subsequently considered in the context of the COVID-19 pandemic (Candela & Geloso, 2021; Geloso et al., 2022; Koyama, 2021), that economic freedom may undermine the ability to respond to pandemics. The reason is that economic freedom is the basis for commerce, and the movement of people and goods is what enables certain diseases to spread. Despite this, more recent research emphasizes that economic freedom is on balance good for public health and might

be the best institutional bundle for dealing with pandemics, despite the trade-offs involved (Geloso et al., 2022). We use this section to explain why economic freedom ought to be preserved in pandemics.

Section 5 concludes by arguing that these public choice perspectives, when taken together, constitute a liberal political economy of pandemics. Motivated by the pandemic, Leeson and Thompson (2023) argue that public choice has three main hypotheses for public health: that public health regulations will reflect private interests rather than public ones, that the allocation of public health resources will reflect private rather than public interests, and that public health policies will often undermine health-consumer welfare. We complement their analysis by focusing on pandemics, rather than public health. In our stocktaking, there are three main public choice hypotheses for pandemics: government failures are ubiquitous in pandemics, polycentric institutions can address pandemics, and the response to pandemics ultimately benefits from economic freedom.

2 The ubiquity of government failures during pandemics

Public choice has done much to clarify the government failures arising during the pandemic. One perspective uses the ratchet effect to get at the problem of government failure in pandemics. As Higgs (1987) explained, "crises" and "emergencies" are often used by political decision-makers to expand the scope of the state even when such expansion is not economically justified. The response to the COVID-19 pandemic provided a textbook example of the ratchet effect (Makridis & McLaughlin, 2021). Goodman et al. (2021) analyze multiple historical and contemporary pandemic cases and argue that there is a historical pattern of declining individual freedom during and after infectious disease outbreaks. Pennington (2021a, 2021b) explores the threat of permanent erosion of economic liberties caused by economic lockdowns imposed to deal with the pandemic. This too is Furton's (2023) concern: once you expand the public health apparatus for control, there are costs; these challenges create a kind of path dependence, which is the idea that early choices influence subsequent ones, locking in processes of institutional change. Rent-seeking may reinforce such processes, which in the context of pandemics might involve previous groups securing political benefits. These ideas are reminiscent of Tullock's (1975) analysis of the transitional gains trap: a status quo policy, one that may even have been efficient, often lasts far beyond its economic justification.

Another theme is that governments and citizens are unable to accurately estimate the costs of large-scale government interventions. The problem of subjective calculation of costs was initially raised by Italian public choice economists writing in the early twentieth century (Mourão, 2007). Buchanan (1978) picked up on this theme in developing a subjective theory of costs. One of the implications is that the challenges addressing costs require constitutional constraints to limit government spending (Wagner, 1976). Along these lines, Hebert and Curry (2022) show that optimal lockdowns depend on deadliness of new variants, communicability, and vaccine availability and effectiveness. They argue that lockdowns are likely to be too strict because government avoids consideration of costs that are challenging to detect and quantify. It is an insight that reflects the earlier subjectivist cost calculations, as well as an explanation why public health policies diverge from what is socially optimal.

Public choice is also attentive to rent-seeking, one of the most significant explanations for government failure. Public choice analysis of public health policies in the tradition of Tullock offers many examples where public health policies are less a reflection of public health demands than rent-seeking by those in medical professions (Geloso & March, 2021). Governments across the globe promised to spend billions to deal with pandemics, creating a fertile ground for lobbying. For example, subsidies for vaccines likely reflect rent-seeking by Big Pharma companies. While mental health problems were caused by economic lockdowns (especially school closures), the extent of government spending to alleviate the mental health "crisis" is unlikely to reflect what is best for society. Rather, it is more likely to reflect what is best for the mental health providers, or the pharmaceutical companies that provide the medications used to treat mental health problems.

Rent-seeking is in a sense "legal corruption." Crises also lead to corruption in the legal sense of misuse of public funds for private purposes. One of the well-known findings in the public choice literature on natural disasters is that national funding for crises increases corruption (Sobel & Leeson, 2006). This finding has clear relevance for analyzing pandemics. Government spending to deal with the COVID-19 has been massive. The US Treasury Department managed over $1 trillion in programs and tax credits from the American Rescue Plan, provided several rounds of direct relief payments to individuals and businesses, and managed homeowner assistance and COVID-19 state and local fiscal recovery funds. That is spending from one federal program. When one considers spending by state and local governments, and ongoing programs to address the consequences of the pandemic (including the problems caused by closing schools for public education), there is a nearly unprecedented opportunity for corruption. In the United States, there is a seemingly endless stream of news reports about how people attempted to defraud the government's COVID-19 care packages, including small business loans, unemployment insurance, and so on. This is, as public choice scholars would argue, expected.

Another perspective on government failures highlights the failure of experts (or the problems created by a tyranny of experts). The idea with pandemics is to trust the experts. While expertise is certainly valuable, it is also clear that experts can and do fail routinely, including with respect to pandemic policies (Koppl, 2023). Though much is known about the spread of disease—the germ theory of disease is well known—what is less known is how to deal with the germs. Part of the issue is that there are different ways that germs are transmitted. With the COVID-19, public health experts initially warned us that the disease could be spread through touch, resulting in a massive increase in demand for hand sanitizer. Public health experts then realized that the COVID-19 is an airborne respiratory disease, leading to a dramatic increase in the demand for masks. To be sure, there are hundreds, and probably thousands, of studies that offer some evidence in favor of the germ theory of disease (that mitigation measures such as masks work, at least to some extent, in controlling the pandemic). But the idea that there is a clear, single, and homogeneous policy about mask wearing is incorrect. There can be mask mandates, voluntary campaigns to use masks, and if masks are mandated or encouraged, choices must be made about the type of masks to recommend. Since there are also many ways to do lockdowns, if at all, it is unlikely that simply letting the experts decide will lead to socially optimal pandemic policies.

Several studies have located the government failures in the failure to appropriately consider individual incentives to internalize externalities. Leeson and Rouanet (2021) explain that negative externalities associated with pandemics, which are the primary justification for centralized responses to the pandemic such as economic lockdowns, are likely overstated because infectious diseases are self-limiting, that private businesses have incentives

to control externalities, and that the social costs of avoiding externalities are generally lower than assumed. Pandemics are self-limiting in the sense that people who do not take precautions are more likely to get sick and die. Businesses also lose from sick customers and have incentives to mitigate externalities as a result. Along similar lines, Mulligan (2023) shows that the extent of voluntary cooperation is relevant in understanding the impact of Pigouvian taxes on externalities. In practice, this means that Pigouvian taxes may be over-prescribed, including in preventing infectious disease. Albrecht and Rajagopalan (2023) recognize that much of government policy is based on the idea that individual self-interests and the common good are at odds. But if private individuals and business have incentives to internalize externalities, the justification for coercive measures, from economic lockdowns to mask mandates, is likely overstated. Indeed, studies of economic lockdowns have shown that private behavior changed significantly before economic lockdowns were enacted as individuals calculated their own risk of dying from the COVID-19, at least implicitly (Goolsbee & Syverson, 2021).

The lessons above are quite profound when we consider some of the most impressive mainstream macroeconomic models of the pandemic. Eichenbaum et al. (2021) argue that when people reduce risks from disease through economic lockdowns, epidemics are less severe but the associated economic recession is exacerbated. In their model, the competitive equilibrium without drastic measures is suboptimal because people do not fully internalize the effect of economic decisions on the spread of the virus and conclude that containment policies save lives but at the cost of increasing severity of recessions. But these types of macroeconomic models do not explicitly consider that private property institutions create at least some incentive to internalize externalities from pandemics: they overstate the benefits of economic lockdowns by disregarding the role that private institutions—such as private property—have in incentivizing the creation of mechanisms to internalize part of the externality. Thus, the perspectives above offer a clear individualistic explanation for a specific kind of government failure: macro policies such as lockdowns with macroeconomic consequences that might be imposed unnecessarily because the macro models leave out important aspects of individual incentives in a pandemic.

Together, these perspectives suggest a simple hypothesis: government failures will be ubiquitous during pandemics. These studies also offer evidence in support of this hypothesis by showing that governments indeed have demonstrated many of the behaviors predicted by public choice theory.

3 The case for polycentric pandemic responses

The public choice perspectives above suggest that we should be wary of government response to the pandemic, though they are not as explicit in justifying polycentric responses to pandemics. The Ostroms recognized the ubiquity of government failure, but their focus was on analysis of the capacity and limitations of polycentric systems. In this section, we take stock of the emergent public choice perspective on pandemics based explicitly on the insights of Elinor and Vincent Ostrom. Three themes are central: the importance of considering the complex and novel nature of pandemic externalities, the idea that pandemic responses are co-produced, and the role of cognitive biases in pandemic response.

3.1 The nature of externalities

The dominant economic analysis of externality is Pigouvian in that government intervention is justified in the presence of an externality. Coase (1960) extended Pigou's ideas by showing that governments do not need to micromanage the process of correcting externalities. Rather, if the government establishes property rights, markets can work under certain conditions and work out who should "internalize the externalities."

These standard approaches do not consider complex and novel externalities as defined in the introduction of our paper. For example, Coase's (1960) examples were all cases of bargaining between two parties, such as a railroad operator emitting sparks and a farmer whose field might be burned down. While offering profound insight, when there are complex and novel externalities with costs and benefits unclear or to be discovered and coordinated, more justification of government intervention may be warranted. As Paniagua and Rayamajhee (2023) explain, externality is a contested concept. Much of the analysis focuses on market or state as solutions, including the Coasean perspective. They argue that externalities vary in the scale of the problem and enforceability of property rights. For larger-scale challenges and less enforceable property rights, the standard economic approaches to externalities may be limited. Such situations in economics are often described as involving greater transaction costs. Paniagua (2022) sees complex externalities as a qualitative category, as they have several differences: large numbers of individuals, challenges identifying the sources of the problem, large-scale collective action problems, nestedness, etc.

There is another factor that plays an important role here: many externality issues related to the COVID-19 or a new pandemic are novel and need to be solved during a discovery process, via trial and error. This is one of the reasons that Cowen and Schliesser (2023) introduced the concept of novel externalities: though many aspects of a pandemic like the COVID-19 were known given the lessons from previous pandemics, such as SARS (severe acute respiratory syndrome), and studies of other highly deadly airborne viruses, there were still many unknowns regarding the COVID-19 virus itself, regarding the knowledge about medical responses to the virus and regarding the possible policy interventions.

The complex and novel nature of pandemics means that businesses with property rights will confront challenges in responding to pandemics at larger scales. Business, like anyone else, did not know the cause of the pandemic early on. They suffer from the same problems of information and so pandemics may nevertheless spread. This makes the collective actions more challenging, even in a society which has clearly defined property rights. These unknowns need to be discovered and learned via a process, and we argue that the polycentric approach does the best job.

The problem of pandemics suggests a government response, but at what level? An omniscient planner could enact the most efficient policy if they had all knowledge and means. However, often the required knowledge needs to be discovered and created through a learning process, making a polycentric co-production mechanism necessary. As Albrecht et al. (2022) suggested, the policymakers learn from market competition and evolution by creating a policy environment that encourages experiments and adaption over time. The Ostroms' research on polycentricity suggested that this is exactly the rationale for federalism, which is to provide a political foundation for experimentation, learning, and policy adaptation. When we combine the earlier discussion of how there are many aspects of pandemic policy, each inviting opportunities to use expertise but

also a risk of expert failure, the implication of these perspectives is that polycentric institutions are appropriate to address complex and novel externalities. In this regard, the significant studies by Cowen and Schliesser (2023) and Albrecht et al. (2022) that articulate the knowledge problem arising in pandemics offer a clear justification for polycentricity to address the complex and novel nature of pandemic externalities.

3.2 Co-production of pandemic responses

A second theme in pandemic policy in the tradition of the Ostroms is that pandemic responses are co-produced. As with the discussion of the complexity and novelty of pandemic externalities, we argue that one of the implications of this line of reasoning is to defend polycentric institutions.

The theory of co-production recognizes that the solution to free rider problems emphasized by Olson (1965) is not centralized provision of public goods by government. Co-production involves citizens, private organizations, and public organizations jointly determining the supply of public goods and services (Parks et al., 1981). Co-production involves shared decision-making, with no single group determining the outcomes of collective action. One readily known example of co-production is policing services. Neighborhood policing is co-produced by government (the police) as well as by members of the community, including nonprofits and citizen organizations (Boettke et al., 2013; Ostrom et al., 1973).

These ideas have been explicitly applied to pandemics by Paniagua (2022) and Paniagua and Rayamajhee (2022). They explain that public health measures such as social distancing and mask mandates involve co-production in that such public goods are the joint product of governments, private and nonprofit organizations, and individuals. Social distancing requires cooperation among individuals. Rayamajhee et al. (2021) argue that social distancing is a co-production process: citizens must cooperate with government in order to address challenges posed by pandemics. Since externalities are costly to measure, monitor, and sanction, coercive measures alone are unlikely to succeed. An alternative is mutual monitoring through community processes. Thus, one can identify complex externalities, but there is no reason to directly jump to the assumption that the solution is government; the solution is always a joint product of government, individuals, and organizations, including the third sector of voluntary and nonprofit organizations.

An implication, as Li (2020) explains, is that it is necessary to consider information asymmetries in promoting successful co-production and public health outcomes. Information asymmetries between individuals and government adversely affect co-production: individuals may not understand the need for co-production or how to do it, and public organizations may not be able to motivate people. A consequence could be declining trust in public organizations. Li (2020) concludes that governments can use information intermediaries, such as experts and volunteers, to increase information credibility that could reduce the degree of information asymmetry and improve co-production.

This line of analysis has significant implications for the level at which policies can be implemented. It suggests that lower levels of government can experiment with provision, and that if scaling up occurs, it should be the result of a local process of experimentation, which better addresses the knowledge problem. Starting these experiments at lower-level governments enables these governments to have a close sense of the local knowledge needed, and experimenting at lower levels thus having many different approaches for the whole society can help take advantage of the rule of large number. On the other hand, it

cautions against imposing policies from the center, although it recognizes that there is a role for the central government to inform and communicate guidelines to reduce information asymmetries. For example, rather than mandate mask wearing at the national level, proponents of polycentric systems to respond to pandemics suggest that local governments could experiment with mask mandates, or programs to encourage masks voluntarily, as well as provide people with information about the benefits of mask wearing for transmission. Making a case for polycentric responses to pandemics does not deny any centralized government imposition of mask mandates. Rather, it counsels that mask mandates could be scaled up, gradually, while recognizing that the effectiveness of mask mandates, including enforcement, benefits from leveraging learning about past efforts to establish such mandates.

Recognition of the co-produced nature of effective pandemic response also counsels government to cultivate collaborations more carefully with citizens and citizen groups to deal with complex and novel global externalities. The importance of considering community solutions is apparent with the example of policing during the pandemic on the Northern Cheyenne reservation in Montana. American Indian nations faced some of the most significant threats from the COVID-19, in part because they have on average the lowest average income of any region in the United States. One of the consequences is that people living on Indian reservations have higher comorbidities, such as preexisting heart disease and diabetes, that make letting the COVID-19 "run its course" (as in the so-called Sweden model for dealing with pandemics) especially challenging (Rodriguez-Lonebear et al., 2022). Federal policies have in general limited the autonomy of American Indian nations to provide a framework for economic development (Anderson & Leonard, 2016). One of the challenges is that the federal government has imposed tight control over policing on reservations. This was a problem because it reduces tribal sovereignty, but it was also an issue for policing services, as the federal government is known to shirk on its policing responsibilities.

Jump forward to the pandemic. One option to provide policing on the reservation was to rely on the federal government. The Northern Cheyenne is formally under the authority of the Bureau of Indian Affairs to police the reservations. Hence, they would have to rely on federal police to enforce border checkpoints and to enforce law. One problem was that even before the pandemic, the federal government shirked on policing, providing only six officers, when federal rules required 19. Hence, it was under-policed. The Northern Cheyenne tribal government called on their military societies—the traditional system of criminal justice in Indian country, which provided for enforcement of tribal rules from before the time of European contact—to enforce its laws (Crepelle et al., 2022). To the extent border security is a public good, it was co-produced: not by the federal government, but by tribal governments and by a voluntary, traditional military association.

Co-production as a concept differs from some of the public choice literature on private provision of public goods. A consistent theme in this literature is that public goods can be privately provided (Benson, 1989; Candela & Geloso, 2018; Cowen, 1992; Friedman, 1984; Geloso & Leeson, 2020; Leeson, 2014). The literature just mentioned includes analysis of situations of anarchy, by which we mean absence of much, if any, role for government. The Ostroms, in contrast, emphasized self-governance arising in modern political systems, as well as how modern governments can enable self-governing communities to prosper by providing them with autonomy. In this regard, the theory of co-production presumes that the government has perhaps more to offer than in much of the public choice literature on co-production. Despite some differences, a shared concern with these studies is that governments cannot and do not provide public goods by themselves. The Ostroms'

perspective differs in its emphasis on polycentricity to encourage provision of public goods through co-production.

3.3 Crafting cognitive institutions

Public choice analysis of the pandemic has also been attentive to beliefs, ideologies, and ideas in the pandemic. Beliefs, including ideology, have a significant impact on what people do, including how institutions change (Leeson, 2020). Following Buchanan's (1978) insight into the subjectivity of cost calculations by citizens and political decision-makers, Denzau and North (1994) acknowledged the cognitive nature of institutions in arguing that shared mental models or beliefs shape how individuals perceive and interpret the world around them. As Denzau and North (1994, p.3) put it, "people act in part upon the basis of myths, dogmas, ideologies and 'half-baked' theories."

While it may be the case that some false beliefs can serve beneficial purposes (Leeson & Coyne, 2012; Leeson & Suarez, 2015), with pandemics, they distort collective actions, such as mask wearing and vaccinations. The framework of cognitive institutions has been adopted in the analysis of the COVID-19 pandemic, especially by Frolov (2022) and Paniagua and Rayamajhee (2022). The key idea is that many aspects of pandemic response—mask wearing, social distancing, self-isolation, and vaccinations—require citizen compliance, and that such compliance is more likely when these policies emanate from polycentric systems.

Frolov (2022) points out that the products co-produced during the pandemics are mostly preventive measures. He stresses that the Ostromian "crafting institutions" should also be paid attention to when analyzing pandemic governance co-production and proposes "crafting cognitive institutions." The concept of cognitive institutions further extends the analysis of mental models. Petracca and Gallagher (2020) define cognitive institutions "as institutions that not just allow agents to perform certain cognitive processes in the social domain but, more importantly, without which some of the agents' cognitive processes would not exist or even be possible" (747; see also Gallagher, 2013). In the context of pandemics, the idea is that pandemic policy ought to consider ways to shape these cognitive institutions in order to maximize the chances that measures to mitigate pandemics, such as mask wearing, are successful.

Paniagua and Rayamajhee (2022) respond to Frolov (2022) and delve deeper on this topic and discuss the co-production of shared mental models. They argue that cognitive institutions are a significant aspect of pandemic policy. Research on co-production considers the possibility that policies depend on beliefs. Beliefs also influence collective action. Ostrom (2000) linked this to collective action in noting that collective action depends on a group's boundaries, which may be "marked by symbolic boundaries and involve complex rituals and beliefs that help solidify individual beliefs about the trustworthiness of others" (149).

This research highlights co-production of cognitive institutions, including the significance of crafting cognitive institutions. An implication is that there must be more attention to shaping the beliefs of actors in pandemics, since they could have significant effects on how people act toward co-producing measures that can mitigate the externality. Given the complex challenge of figuring out what people think, as well as the diversity of ways that people think about pandemics, this perspective suggests another reason for polycentricity: to enable and encourage experimentation in ways to craft cognitive institutions more successfully. In addition, since crafting cognitive institutions is not without risks, attempting

such reforms at the local and subnational levels may be more desirable than attempts by a centralized government to do so.

3.4 No panaceas: the problem of quasi-market failure

There are, of course, challenges to polycentric systems. Research in the Ostroms' tradition is not a solution in search of a problem. Rather, the theory of polycentricity is a conceptual framework and language to address complex challenges (McGinnis, 2011). Its goal is to apply a polycentric lens—to see polycentrically—in order to understand social systems (Blomquist & Schröder, 2019). Here, we acknowledge that local governments can fail in the same way as national governments can. Local governments can also fail despite doing everything correctly (they can have vulnerable populations, bad neighbors, different geographical conditions, exogenous factors, etc.).

This issue is addressed in the literature on quasi-market failure. Quasi-markets are often proposed as a solution to government failures, but they too can fail. Boettke et al. (2011) argue that what is most significant is to consider why quasi-markets fail, if they do fail. Such analysis applies Demsetz' (1969) nirvana fallacy to the debate over consolidation. It is relevant to pandemics, as one aspect of polycentrism could involve more opportunities to use quasi-markets to address challenges with pandemic disease. There is also the more general recognition that local governments may fail too since they are above all a government and not beyond the realm of government failure.

These perspectives suggest the importance of considering government failure at multiple scales, comparing them, and then considering, where quasi-markets are developed to address pandemics, comparing those solutions to government solutions (again, at multiple scales). In the context of responses to the COVID-19, the following method of analysis would be useful. As a first pass, one may consider the extent to which there has been variation in the response of local governments across the dimensions above: social distancing, economic lockdowns, vaccine mandates, mask mandates, etc. For those areas that appear to have worked well, the question becomes why they worked well. Were the decision rules inclusive, in that they encouraged the participation of citizens? To what extent did local governments have the capacity to implement policies? Capacity in this context involves the resources of the state to impose its will on citizens. Local governments could fail because they had poor processes or a lack of resources. There are many other possibilities to consider. In this way, public choice provides a useful framework for comparative institutional analysis of government responses to pandemics.

3.5 The relationship between theories of government failure and theories of polycentricity

The analysis of government failure and the justification for polycentricity are two sides of the same coin: government failure can occur at any level, but there remains the need to explicitly consider which level of government ought to have the main role in responding to pandemics. There are also shared lineages in the government failure literature and what we have referred to as pandemic economics in the Ostromian tradition. Koppl (2018) emphasizes how alternative institutional arrangements and market structures (such as monopoly in the market for expert opinion, disciplinary siloing.) influence the likelihood of expert failure. Koppl (2023) and Murphy et al. (2021) each highlight the important role of the

institutional context in which experts form their judgments, as well as the structure of the market for expert opinion.

These perspectives on expert failure are complementary perspectives to the arguments for polycentricity. Both Koppl (2023) and Murphy et al. (2021) focused on the nature of expert failure rather than on providing a specific justification for polycentrism. Polycentric systems are justified in part because of the risk of catastrophic policy failures with uniform, centralized policies. An implication, informed by both the expert failure literature and the polycentricity perspective on pandemics, is that it is better to have more experts, at subnational and local scales, with opportunities to contribute to policy conversations. In this regard, the Ostroms' institutionalism and their defense of polycentrism reinforce Austrian epistemic institutionalism, which argues that institutions structure incentives of actors in their decision-making but also generate context-specific knowledge and expectations that guide decision-makers, as Mises and Hayek suggest. This perspective is also the basis for Vincent Ostrom's (1994) case for federalism, which is the political institution most likely to generate context-specific knowledge in politics. Additionally, Congleton (2023) contends that decentralized solutions are more appropriate for addressing pandemics.

We also see a difference in a critique of coercive interventions and a positive case for polycentricity. Public choice scholars have shown that the case for coercive interventions is likely overstated (Albrecht & Rajagopalan, 2023), as well as that they also have costs beyond the obvious economic ones (job loss), including interference with supply chains, mental health disorders, inability to calculate the costs of lockdowns accurately, and eroding economic freedom and hence risking prospects for prosperity (Miozzi & Powell, 2022).

Public choice does not deny government intervention. Hebert and Curry (2022) develop a model of optimal lockdowns that recognizes government intervention as justified in some degree. The Ostroms' institutionalism, applied to public health, offers insight into the level at which these decisions about the optimal level of lockdowns should be made. A central government could impose economic lockdowns, including efforts to impose surgically precise lockdowns, such as deciding which states, cities, or even schools should be locked down. The Ostroms' institutionalism suggests that a polycentric framework, with decisions made locally and autonomously, would be more likely to result in improvements in collective well-being.

4 Economic freedom and pandemics

Public choice has also considered how economic institutions influence the ability of government to choose optimal public health policies. Though there is some evidence that economic freedom, by promoting commerce, makes it more challenging to deal with pandemics, from a dynamic, long-run perspective, economic freedom likely contributes to greater ability to fight pandemics.

The overwhelming political response to pandemics was that uncontrolled externalities require centralized, coercive solutions. This might seem like an obvious example of Pigouvian externalities and justifiable intervention from an economic perspective. The usual economic solution is for the government to correct externalities with pandemics, usually by coercive solutions. A standard Pigouvian analysis suggests that it may be efficient to restrict individual liberties to reduce the extent to which they are able to impose externalities on others. In the case of viral respiratory diseases, these

may involve mandating masks in public or restricting the movement of people, such as through economic lockdowns that close businesses, schools, and places of work.

The analysis of trade-offs with economic freedom returns us to the nature of public goods. As discussed above and in the public choice literature more generally, it is understood that public goods can be privately provided (Candela & Geloso, 2018, 2019). Despite this, public health is often considered a classic public good. The virtue of economic freedom is that it is associated with prosperity (McCloskey, 2019). But with public health, might economic freedom undermine the ability to deal with complex public health crises?

The general idea here is that the very freedoms that make us rich may make it challenging to address pandemics (Geloso & Murtazashvili, 2021). As Troesken (2015) contends, liberal economic institutions constrained the ability to constrain different diseases historically in the United States, such as how protection of private property rights made government intervention to address diseases such as malaria and typhoid fever, each of which involves large-scale investments in infrastructure (draining swamps and municipal treatment, respectively, for malaria and typhoid), challenging. The rationale is that preventing diseases such as malaria depends on infrastructure to provide for water treatment. Typhoid fever is similar in this regard, which depends largely on municipal sewage treatment plants (Troesken, 2001, 2004). Troesken's hypothesis was that private property rights made providing these large-scale public goods somewhat more challenging—hence, his hypothesis was that there is a pox of liberty. Though public goods can be privately provided (Candela & Geloso, 2018, 2019), public health is often considered a classic public good. But economic freedoms may constrain their provision. Troesken calls these constraints a pox of liberty: property rights contribute to wealth but limit the ability of government to deal with some diseases.

Troesken's focus was primarily on water-borne diseases, which are associated with lower-income countries that do not have the wealth to provide public goods. Subsequent research considers pandemics explicitly. Highly transmissible diseases are found to be more likely to spread in contexts of higher economic freedom (Geloso & Murtazashvili, 2021; Geloso et al., 2022; Koyama, 2021). The reason is that rich countries tend to have higher levels of economic freedom. Geloso et al. (2022) argue that Troesken's view is more nuanced in that it recognizes that there are differences in diseases of commerce and diseases of poverty. Diseases of commerce are those which are highly contagious, such as COVID-19. Diseases of poverty are those which rich countries can eradicate through investments in large-scale public goods, such as malaria or typhoid fever, each of which depends in part on the presence of quality sanitation systems (including municipal sewage treatment plants, in the case of typhoid). Since water-borne diseases depend on public infrastructure, they are likely to depend on economic freedom: freer societies may be more immune from diseases of poverty, because they are richer. The pox of liberty thus occurs at lower levels of development as a constraint on government intervention, but liberty is ultimately what enables water-borne disease to be overcome. This is significant for pandemic diseases like the COVID-19: the institutional bundle that produces economic freedom contributes to wealth, which contributes to fewer diseases of poverty, but increases the burden of diseases of commerce, such as highly communicable diseases.

Economic freedoms such as private enterprise may mitigate pandemic externalities. They also suggest that even though economic freedom creates some constraints on policy interventions to reduce the movement of people, the longer-run consequences of pandemics will be less vulnerability to pandemic disease, especially since countries will be richer and more able to provide public goods.

5 The liberal political economy of pandemics

Boettke and Powell (2021) called for a political economy of pandemics in their special issue of the *Southern Economic Journal*. The *Public Choice* special issue on pandemics is titled "The political economy of public health" (Furton et al. 2023). Our emphasis has been on what might be called a liberal political economy of pandemics. By "liberal," we follow Cowen and Schliesser (2023) in conceptualizing liberalism as a heterogeneous tradition that presupposes moral equality and formal equality under the law with a wide range of political institutions of accountability as well as an important role of markets in allocating goods. Hence, liberal refers to its meaning in the classical liberal tradition. A liberal political economy of pandemics alerts us to the problems of unbridled government power and recognizes the role of economic freedom in reducing negative externalities with transmissible disease. It emphasizes the role of citizens and business in addressing complex and novel global externalities and their private and collective incentives to do so, as well as appreciates the importance of local and subnational experimentation with pandemic mitigation policies.

The policy responses—and policy mistakes—with the pandemic offer insight into the demonstration of the need for a liberal political economy of pandemics. When the COVID-19 pandemic erupted, there were many calls for coercive, centralized government responses. Economic lockdowns and mask mandates followed. Vaccines enabled much to get back to the new normal, with the COVID-19 becoming an endemic disease. But there remain questions. Were the lockdowns necessary? Did they do more harm than good? Did the apparatuses established in efforts to control the pandemic end after there were vaccines? The frameworks discussed in this paper suggest that many of the policies may have been unnecessarily harsh, as well as offer general reasons why.

Beyond offering specific insight into pandemics, our stock-taking demonstrates the value of consistent application of a theoretical framework to new situations. Public choice has always been concerned with government and its relative costs and benefits (Leeson, 2006). It also informs public administration, with its questioning of centralized solutions to policy challenges (Aligica et al., 2019). One of the foundations of this perspective is that the tools of economics do not change, nor do the implications of economic thinking, because we are dealing with a pandemic. If anything, clear-eyed public choice analysis is even more important with pandemics and other complex externalities, as that is exactly the realm where we may be more willing to accept more large-scale government intervention despite its evident costs and stickiness.

The liberal political economy of pandemics also serves as a reminder that the standard Pigouvian analysis, with its emphasis on market failures rather than government failures, can be a misleading framework for policy. There is some virtue to seeing a Pigouvian response as "liberal." It is based on efficiency, after all. But a liberal political economy of pandemics is not based solely on the Pigouvian perspective. As Furton (2023) argues, pandemic responses will have a host of collateral costs in several unexpected realms: corruption and loss of liberties are a few of the most significant threats. Hence, recognizing the complementary insights of the three perspectives above is especially critical. Public choice offers a framework to see government failures with pandemics, the virtues of polycentric pandemic responses, and the complex ways in which economic freedom can serve to increase society's ability to deal with pandemics.

A liberal political economy of pandemics is timely considering that the most invoked example of the virtues of a monocentric response to the COVID-19 pandemic, China, has

proven unable to control the pandemic. The ideas from public choice scholars cannot by themselves change what governments do. Still, to paraphrase Leeson (2020), ideas matter. Our stock-taking demonstrates that ideas from public choice provide a clear rationale for limited government and economic freedom even in the presence of complex global externalities.

Acknowledgements Many thanks to Veeshan Rayamajhee and Pablo Paniagua, the referees, and participants at the annual meetings of the Public Choice Society, Southern Economic Association, and Politics, Philosophy, and Economics Society for extremely useful comments and suggestions. Veeshan and Pablo deserve special thanks for reading many previous versions of our paper.

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