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COVID and structural cartelisation: market-state-society ties and the political economy of Pharma

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ABSTRACT

The big profits and influence of pharmaceutical firms that again rose to prominence during the COVID pandemic illustrate far more than just the global reach and market power of Big Pharma. Here we instead explain the power of these firms as a consequence of structural cartelisation that is networked and nested across hybrid state and market relations. Global inequalities in access to COVID vaccines exposed the inequity outcomes of the cartelisation of the pharmaceutical sector in dramatic new ways. To come to critical terms with this cartelisation, we describe how it is comprised of three kinds of nested and networked layers of structural collusion: namely, (i) *firm-firm* collusion, (ii) *firm-state* collusion; and (iii) *firm-state-philanthropy collusion*. By suggesting that these kinds of collusional relations are nested, overlapping and deeply networked, we explain how they have come to work together structurally. And, in doing so, we argue, they serve to capture value from biomedical innovation in ways that limit global access to medicines while simultaneously entrenching the dominance of high-income countries, lead firms and the interests of investors.

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At first glance, the inequities in global access to effective vaccines against SARS-CoV-2 might simply be attributed to the raw power of so-called Big Pharma. These dominant pharmaceutical firms, after all, have long exercised concentrated control across global markets which have been structured in such a way as to support highly stable and globally entrenched forms of monopoly power (Malerba and Orsenigo 2015). The firms dominate over a series of product and national markets and a world-wide industrial sector involving high levels of profit and relatively low levels of competition. And while the rapid rise of Moderna and BioNTech would seem to tell a different story with their break-through mRNA vaccines for COVID, the larger pandemic picture appears on initial impressions to present a familiar outline of the dominant corporations like Pfizer using their market influence to secure yet more concentrated power and super-profits (Kollewe 2021). Forecasting full-year sales figures for COVID vaccines and Paxlovid totalling $56bn in late 2022, Pfizer CEO Albert Bourla boasted to investors that: '[W]e believe our Covid-19 franchises will remain multibillion-dollar revenue generators for the foreseeable future' (Smyth 2022). Such hubris has so far proven merited. More widely, dominant pharmaceutical firms make vast profits year on year, even in

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'normal times', and exercise a huge degree of market power. But this focus on firms and their profits is only one part of the more complex picture of their power.

We start with some important definitional grounding work. First, for the purposes of clarity about the firms in question we define dominant pharmaceutical firms as global companies that structure national and global markets and the scientific orientation and business practices of dependent life sciences sectors. These firms also use their dominance and substantial market power to stymie market entry and erect substantial barriers to would-be entrants, beyond natural barriers to entry or first mover advantages, and not least via the patent system and other strategic resources and business practices. Mergers and Acquisitions (M&As) and other formal partnership arrangements are used to further build in market power and dominance, and to structure and control a wider innovation system. These firms are large and have market power (Banares 2016), but, just as importantly, they also possess intimate connections with regulatory, legal and research infrastructures they have co-produced with states.

Second, while there is a degree of distinction between traditional pharmaceutical firms and biopharmaceutical firms, we note that large pharmaceutical firms have adapted and integrated the potentially disruptive technologies, particularly in their M&A and joint venture strategies toward small biotech firms. They have done so not least to diversify sources of drug discovery away from chemical-led processes and secure wider micro-biological bases for product pipelines and to retain control over a wider innovations system. We also note that the market strategies of biopharmaceutical firms are doing much the same. This is observable in their dominant relations with a diverse pool of smaller firms and their structural control of networked innovations systems; including through their defensive, offensive and product-pipeline diversification uses of M&As and their strategic uses of patents and trade secrets. Both sets of dominant firms are closely involved in the overall bioeconomy and in the production of medicines, therapies and diagnostics from which they extract enormous profits. We therefore simply refer to each category together as dominant pharmaceutical firms, as is increasingly common in industry analysis which collapses the two sectors in terms of the reporting and ranking of such firms by profits, revenues and sales.

Third, we are not concerned here with deriving a comprehensive list of which firms are leaders and those that are not. Following Banares (2016), we acknowledge the preeminence of 15 or 20 pharmaceutical firms which are large and global in reach. These firms exercise market power across core high-income country pharmaceutical markets (which constitute the vast majority of the world market in terms of value) and more widely dominate the related sectors they sit at the apex of. These firms have technological, functional and managerial advantages over would-be rivals that provide the necessary assets and capabilities for their sustained market power and dominance (see especially Banares 2016, pp. 102–143).

However, these giant pharmaceutical firms not only have substantial market power but also possess very strong formal and informal relationships with core high income states, where many of them have deep historical links and deeply embedded institutional ties. We also view it as important that all dominant pharmaceutical firms are still predominantly headquartered in key High-Income Countries (HICs), and their histories and strong associations with their more than nominal host states constitute one of the key bureaucratic, infrastructural and political bases of their continued dominance, despite their status as global companies that operate transnationally.

Overall, it is precisely the confluence of hybrid market *and* political power associated with pharmaceutical oligopoly that is central to our understanding of enduring dominance by core firms, as well as the mix of strategic resources, power and agency that cement and reproduce it over time with little variation in the top 15 or 20 firms, other than routine consolidation between them.

Our first claim is that focusing simply on the big profits of dominant pharmaceutical firms, or recounting their market and innovation strategies, misses the still bigger picture of market-state relations and structural power involved in their stable market dominance and oligopolitical relations (Gleeson *et al.* 2023). At the centre of these powerful relations, we argue here, is a political economy

of what can be described as multi-layered, multi-levelled and nested *structural cartelisation*. Indeed, the kinds of explicit structural collusion revealed by the COVID crisis and state-backed defense of monopoly rights to new vaccines went far beyond the old image of conniving corporate executives fixing prices and plotting against competitors in smoke-filled board rooms. Typically, these traditional kinds of anti-competitive collusion have been understood to be organised outside of and in opposition to the capitalist state's vaunted interest in creating competitive markets. In the terms of Adam Smith's early critique of cartels, the resulting monopolies came to be seen as 'formidable to the government' (Smith, 1776). But in the oligopolistic global pharmaceutical sector, we instead see the cartelisation of market concentration being repeatedly co-constructed over time *by* governments in active and explicit collusion with dominant firms.

Cartelisation in the pharmaceutical sector today, we therefore submit, involves a permissive and enabling series of entanglements *between* corporations, states and prominent societal actors. These entanglements have effectively been institutionalised and interlinked with one another as a series of dense regulatory, legal, financial and institutional arrangements for enclosing life sciences innovation into intellectual property (IP) as assets. These relationships and practices are concerned with turning its health value into economic value, and, in the words of Victor Roy's important new critique, capitalising on cures (Roy 2023). Here, what can be described as the non-market environments and socio-legal infrastructures for pharmaceutical oligopoly are a major basis of durable market power and structural cartelisation.

Although there are corporate practices and strategies apparent that evidence more recognisable forms of cartel-like behaviour (such as price fixing, market rigging and tacit collusion), structural cartelisation both describes and seeks to capture how dominance is facilitated by a combination of market and socio-political, legal and regulatory arrangements which are explicit and institutionalised nationally in HICs, and internationally in the global trade regime of the World Trade Organization (WTO) and over a series of partnerships and initiatives in global health. We therefore use structural collusion here in distinction to traditional understandings of how cartels operate by means of illicit and tacit coordination between firms. The high-level strategic coordination, and the routine bureaucratic and everyday arrangements between firms, states and key societal actors in global health are structurally embedded and rarely need coordination or discussion, involving collective behaviours, practices, shared rhetoric and assumptions (as is the case with the shared language games around the need for patents for innovation), formal and informal linkages, conjoint agency and shared strategic visions of dominance, competition and the basis for state and firm comparative advantages. These agencies act together and intersect to repeatedly produce a whole series of cartel-like outcomes in global political economy.

Despite the endlessly-argued industry defense that the monopoly-pricing based on patenting creates an economic incentive for innovation, recent research shows there is in fact little relationship between profitability and drug discovery (Işık and Orhangazi 2022, Dosi *et al*. 2023). What we see instead is that structural cartelisation turns state investments, public goods and the public health value of pharmaceutical innovation into the captured economic value of private corporate profits. We also agree with legal historian Graham Dutfield's assessment that any explanation of monopoly pricing and associated limitations on access to pharmaceuticals needs to be extended far back and far beyond a narrow focus on present-day patents to take account of the historical development of interdependencies between pharma and governments (Dutfield 2020). That said, we are in new terrain today where the resulting cartel effects are supported by even wider sets of international agency. As Dutfield himself details (2020), the public-private partnerships comprising today's complex medical-industrial complex are new players in the structurally collusive system. As with other sectors, the pharmaceutical cartel now involves multiple types of strategic partnership in the expansion of monopoly power across global production networks (Sparke *et al*. 2023). What are described as 'partnerships' and 'foundations' in health and medicines are often part of this broadened agency involved in creating and cementing the collusive regimes of value capture from pharmaceuticals, while supplying it with an often thin semblance of legitimacy to the political economy

of medicines which continues to produce such patently inequitable outcomes for would-be consumers and those in need of access (Lexchin 2021, Rushton and Williams 2012).

In Section 1 we turn to the web-like arrangements of corporate monopoly power and the structures of *firm-firm* collusion made manifest by COVID. In Section 2 we next examine the networks of *firm-state* collusion that the pandemic has brought to the fore, including in undermining the proposed waiver from TRIPs rules at the WTO. And in Section 3 we explore the most novel and hybrid kind of collusion represented by the *firm-state-philanthropy collusion* that became apparent in the philathrocapitalist COVAX initiative. To begin with, though, we offer a short detailing of how our approach to structural cartelisation contributes as an original theorisation of contemporary political-economy.

Towards a theory of structural cartelisation

C*artels*, in their most basic economic form, consist of a group of firms or other sellers who collaborate to dominate a market with a view to limiting competition and increasing prices for their products. *Collusion* is in turn the name given to such collaboration, connoting either explicit or more tacit kinds of accord on market control, sometimes including inter-firm business practices such as M&As and their associated economic incentive structures and legal infrastructures (Lande and Marvel 2000, Levenstein and Suslow 2006). Traditionally, cartels have been understood as groups sharing a strategy to control entry and fix prices in a particular market, thereby coming to be treated under liberal competition law (starting in the US with the 1890 Sherman Act) as an illegal form of anti-competitive collusion in contrast to tacit and structural coordination between firms that occurs without a record of direct inter-firm communication about pricing or rigging markets (Fonseca and Normann 2012, Christophers 2016). However, it is clear from their history that many cartels were developed and supported by states, particularly in Europe.

Here, by contrast, we are using *structural cartelisation* to describe an additional suite of structured, anti-competitive and collusional relations that stretch from the strategic and explicit to the tacit, and to the governmental (arguably thereby recalling the etymological evolution of 'cartel' which was derived from the Latin *charta* for 'card' and historically developed at first as a way of describing extra-economic inter-governmental agreements). For the same reasons, we are also therefore conceptualising cartelisation as being at once both *hybrid* and *networked*.

Hybrid is how we describe the coming together of cartelisation's monopoly power across the traditional state-market binary, involving firms, states and other key institutions. And *networked* is how we seek to name the resulting state-market ties through which governments and firms network to capture value by securing advantages and excluding competition. For us, these terms are therefore neither simply models nor just heuristic metaphors – which have been the argument-through-analogy outcomes of importing the term cartelisation from the study of political-economy into the analysis of party cartels that limit voter choice by reducing competition in the so-called policy market of politics (*e.g.* Blyth and Katz 2005). Instead, they are a substantive way of describing the political-economy of structural cartelisation as a set of processes that extend, entrench and enforce monopoly power. What we offer as a result is therefore a systemic and processual approach to cartelisation that also goes beyond the economic metric of the Herfindahl-Hirschman Index (HHI – calculated as the sum of the squares of market share by the main firms in a particular market). Nevertheless, we make our argument here in the hopes that it can contribute to the wider reconceptualisation of anti-trust regulation in the aftermath of COVID, including efforts to address how hybrid and networked structural cartelisation in biotech operates alongside other high-tech platform monopolies to elude older anti-trust concerns with market power, entry, innovation and competition (Khan 2016).

Of pivotal importance to the enforcement and regulatory conditions that enable structural and global cartelisation is the intellectual property rights regime complex. First established in 1994 thanks in no small part to the successful lobbying of pharma firms such as Pfizer, the WTO's TRIPS

regime has turned out to be an effective vehicle for enclosing pharmaceutical IP and capturing its value on a global scale (Muzaka 2009). There have been some time-limited national exceptions such as those made for India's generics industry which endured into the new millennium, and these still animate hopes for alternative approaches to sharing life sciences innovation or for generic manufacturing in the presence of global IPRs (Horner 2014, Rajan 2017). Nonetheless, the global IPR regime was the outcome of close collaboration between HICs in the Uruguay Round, and since then in their international efforts to protect the IP interests of their leading firms while locking down their own comparative advantages (in knowledge-intensive goods and services) vis-à-vis other states. It is well documented that industry groups were also active with these states in the construction of TRIPS agenda and its ultimate instantiation (Sell 2003).

The pandemic has simply continued these structurally collusive patterns of hybrid support for IP protection. There are numerous examples of these collusive arrangements between these actors intersecting, enclosing the knowledge, data, technological platforms, and intangible exclusive rights embodied in patents and once more putting them behind well-guarded pay walls through the pandemic crisis (Gleeson *et al*. 2023). Ultimately, this has ended up preventing generic entry and wider access to the best vaccines and other biomedical advances in pandemic protection while also now slowing the development of more effective mucosal vaccines that promise sterilising forms of immunity that might actually stop the spread of infection (Mueller 2022). The overall cartelisation outcome therefore constitutes something far bigger and more global in scope than one-off examples of corporate conniving. Instead, we see structural cartelisation as a more comprehensive, explicit and encompassing regime of monopolistic market-state-societal power.

By reconceptualising cartels and collusion in terms of the structural cartelisation of market-state-societal power, we are therefore deliberately seeking to innovate theoretically from previous analyses. We note that we are not the only political economists to see the pivotal role of states in de-risking and investing in the basic and applied sciences that have been underwritten by advanced capitalist states (see Weiss 1997, Mazzucato 2013). We also draw insight and inspiration from a wide range of scholars concerned with the oligopolistic obstacles that have created uneven and impoverished access to pharmaceuticals globally. These include those who have focused on the forms of monopoly power seen at the level of pharmaceutical firms and their actions to exert such power politically, economically, legally and ideologically in particular states (*e.g.* Kapczynski 2023); those who have detailed the 'ghost management of value' through 'a political economy of influence' that monopolises clinical trials research and publication in order to drive demand for brand-named pharmaceuticals (*e.g*. Gagnon 2021); those who have focused on the contrasting conjunctural politics of firm-state relations in different national contexts, including on how they can sometimes take more collaborative or competitive forms that challenge monopolistic models (*e.g.* Mazzucato and Li 2021 , Rajan 2017); and those who have focused on the IP-extending and legitimising effects of such 'super' public-private partnerships as COVAX and the philanthropies that we now see supporting them at a global scale through sponsor agencies such as GAVI and CEPI (*e.g*. Storeng *et al*. 2021). But attuned to biomedical access problems created across all these kinds of collusion, we also seek to advance two theoretical innovations in how we understand the political economy of pharma in terms of cartelisation. These concern how cartelisation is at once *networked* and *nested* through hybrid state-market relations.

This new theoretical approach suggests that interests and agency in preserving market power are densely networked and hybridised and are not simply about the strategic actions of core firms as commonly occupies Industrial Organisation economics and management studies. We nonetheless build on theories of market and non-market strategy advanced in Industrial Organisation, often used as a normatively neutral means of describing how firms maximise profits and minimise competition (and generate more market power). Firms are correctly held to do so via both market strategies (involving various forms of firm conduct such as pricing or mergers and acquisitions) and as using non-market strategies in which they try to secure optimal regulatory conditions for their competitive advantage. In contrast to the one-way focus on firms and market strategies, we hold that states are

doing much the same and do so in close collusion with dominant firms: that is, states have market (economic and industrial) strategies toward maximising their advantages vis-a-vis other states and firms, most often achieved by supporting or financing corporate and capitalistic channels. It seems obvious to highlight that states also have non-market strategies to these ends, given any cursory examination of trade, industrial or scientific policies. Core states have been and are very active in securing national and international regulatory and policy arrangements that benefit identifiable fractions of capital or sectors, or even 'their firms'. These core states have secured advantageous transnational regulatory capture in the trade regime in order to maximise their national, sectoral and firm-based comparative advantages in knowledge-based good and services. This 'kicks the ladder away' for would be competitors or those that would otherwise share the benefits from much-vaunted global capitalist productivity and technological advances.

The role of the state in protecting monopolisation tendencies also emerges as an alienated offshoot of state practices that comes back to block alternative state strategies that might seek to secure, share and democratise the health value of biomedical innovation (Sparke *et al.* 2023). Whether by enforcing regulatory, bureaucratic and policy arrangements that benefit the pharma sector, or by tightening the reins of transnational regulatory capture to maximise benefits for national and sectoral champions, the state agencies and bureaucracies protecting monopolisation interests enact state authority in order to privilege economic value capture by owners and investors over political efforts by public health advocates to secure health value instead. To see how this firm-state relationship works with the other sets of collusional relationships, we now need to review all major networked relations (the nested layers of structural collusion) in turn – dealing first with *firm-firm collusions,* second with *firm-state collusions,* and third with *firm-state-philanthropy* collusions – all the while paying close attention to the net effects of their structural cartelisation.

Firm-firm collusion

To begin with we must acknowledge the patterns of firm-firm collusion that preceded the pandemic. Indeed, cartels of the narrower, traditional, prosecutable kind do have a long history in biomedicine. They go back at least as far the first quinine cartel of the eighteenth century. And they track forward to recent examples such as the 2021 case of Accord-UK and its former parent company Allergan (now owned by AbbVie) being fined by the UK Competition and Markets Authority in 2021 for paying would-be competitors Advanz and Waymade to not enter the market for steroid treatments for adrenal insufficiency (Beioley 2021).

Structural cartelisation does not therefore obviate the persistence of illicit forms of collusive behaviour. In the USA, for example, in the last few years 49 states have conducted the largest ever case against generic firms for colluding to fix prices over a number of therapeutic categories (Yoo 2019). A significant upshot was that during the pandemic the US Department of Justice announced that it had successfully prosecuted a generics firm for collusion on prices, imposing a record $195 million dollar fine on Sandoz (now part of Novartis), the biggest penalty in US anti-trust history (DOJ 2020, Carrier 2017).

Beyond price fixing, similarly collusive behaviours are also found in cases of 'pay to delay' by pharma firms (FTC 2022). This practice refers to agreements whereby lead firms offer payment to would-be competitors to delay either the introduction of a generic or biosimilar version of an existing drug to the market or the entry of an entirely new therapy to the market. In the former cases, the generic or biosimilar would act to dilute monopoly in an existing therapeutic market. Pay to delay also illustrates how collusive behaviours distort biomedical and scientific progress; as has been part, for example, of the charges in lawsuits against Gilead for pay-to-delay deals designed to slow market entry of generic alternatives to its anti-virals used in the treatment of HIV (Sagonowsky 2022).

Very much the same anti-competitive outcomes are found in cases of mergers and acquisition (M&A) by pharmaceutical firms (Rikap 2019). Again, one function is to deter entry of new products,

or to soak up new therapies into existing portfolios, both often involving an element of delay. These actions are defensive with regard to conserving market power or offensive in terms of strategies to expand it. Perhaps the most damaging outcome of these mergers and acquisitions (other than further concentrating the sector) occurs with the practice of so-called 'killer M&As', whereby takeover is used as a deliberate tool to squash innovation and the entrance of a rival with improved therapies (Cunnningham *et al*. 2021, Newham and Vokinger 2022). While these practices are not collusive in a narrow sense of rigging the market, they still have cartelisation effects in inhibiting innovation, minimising competition, and erecting barriers to entry by consolidation. Mergers and acquisitions allow larger firms to incorporate would-be competitors and innovators, and it has become one of the major logics in the pharmaceutical and life sciences innovation system, with small to medium-size innovators effectively serving as an R&D pipeline, often waiting for their unicorn (the term used in venture capital for small start-ups based often on university spin-offs) to be bought into the club of the dominant players. The dominant firms rely on these relations for new products, and R&D is thus increasingly outsourced – commonly called 'R&D through M&A' – with Big Pharma operating more like private equity funds that extract value out of the so-called intangible assets of monopolised knowledge (Birch 2017). While these motivations for M&A activity appear apparent, it seems that they are also directed by each dominant firm to secure position within the pool of dominant firms, a form of collective action by these firms that acts to stabilise the pool of competitors who dominate.

There are also firm-firm collaborative agreements in which barriers to entry are built up between dominant firms and with dependent firms. Firms engage in joint ventures, joint licensing and patent pooling, all in ways that regulate and reduce the pool of competitors through a form of horizontal sectoral control (Lundquist 2021). Relatedly, we see firms monopolising specific technological platforms such as Moderna using its mRNA technology to pursue 'an integrated set of proprietary capabilities for an end-to-end solution' (Moderna statement, cited in Bayer 2022). Indeed, with the case of the mRNA COVID vaccines we can clearly see how the dominant players have joined forces to keep data and technological platforms within the club and operating together to lock in advantages of technological lead time in vaccine development. Despite promises to share data and recipes associated with the mRNA platform with firms from the global south, Moderna has resolutely failed to do so. Indeed, when so-called 'fill and finish' capacities were needed to ramp up COVID vaccine production and distribution (literally putting vaccines in appropriate vials in an approved facility and fashion) the core vaccine players initially did so with other dominant pharmaceutical firms, conspicuously not using equivalent capacities in countries such as India and South Africa, or even South Korea. Collusive co-production is again another legally liminal form of anti-competitive conduct that is enabled by a permissive regulatory environment, yet acts to stabilise the pool of dominant firms and lock in technological advantages, thereby locking out competition by means of firewalling the knowledge and technology that provides the material basis for entry.

Collusion is also very apparent in the industry-wide, collective abuses of the patent system toward preserving monopolies and preventing entry (IMAK 2018). Many others have noted the prevalence of product life cycle management extension strategies by means of 'me-too' inventions and 'evergreening', the former substituting tinkering for genuine innovation and the latter commonly involving the mixing of multiple drugs together or making changes in the method of drug delivery so as to legitimate the filing of new patents or the extension of the monopoly duration of a therapy around an 'evergreened patent' (Kapcynski *et al*. 2012). We note that such firm practices require, in turn, the permissive and collusive regulatory environment that allows such practices. So-called 'patent-cliffs' that are reached when brand-name drugs go off patent are thereby turned into patent plateaux, ensuring ongoing monopoly prices far into the future. Such practices are routinely challenged by other firms seeking entry, and pharmaceutical firms do litigate each other. But all the dominant firms still engage in these patent abuses as a coherent ensemble and as common strategies, and this is precisely why we would claim that firm abuses of the overall patent and market environment are structurally and strategically collusive despite tactical litigation between corporate rivals.

These strategies have been used by all the dominant firms producing COVID vaccines and the technological platforms that support their development (Alshrari *et al.* 2022). Before making billions from its COVID vaccine and treatment products, for example, Pfizer achieved huge profits from its pain medicine Lyrica by hiking its price on the back of an evergreening scheme that extended its patents for 20 years with a controlled-release re-formulation of the product, Lyrica CR. Patients could take a single daily pill instead of two or three pills (IMAK 2018). Similarly, Moderna held 10 US patents surrounding mRNA in 2022. BioNtech holds 13 US patents with complex and overlapping ties to its partner Pfizer. As a result, the knowledge embodied in the successful COVID vaccines is firmly tied up, as too is the data from the associated clinical trials (Gavirvia and Kilic 2021, Peacock 2022). And while government-funded research into new mucosal vaccines for COVID (which might finally deliver on the promise of stopping new infections) is jeopardised by this monopolisation of data, states are not challenging these extreme forms of corporate knowledge control.

At the level of corporate governance, and in keeping with financialisation in other sectors of the global economy, we see increasing amounts of common ownership across firms in the pharmaceutical and life sciences sectors that creates yet more opportunities for cartel-like collusion (Birch 2017, Banal-Estañol *et al.* 2021). Common shareholder ownership refers to the situation wherein investors, usually institutional investors such as private equity and hedge funds, own shares in a number of firms active in the same market or industry. It has been described as the major new anti-trust issue of our time, with two of the biggest equity managers, BlackRock and Vanguard becoming the top two shareholders in Johnson & Johnson, Pfizer, Abbott Laboratories, Perrigo [a key generic firm in the US market] and Allergan in 2015. These positions across firms in the same industry can have anti-competitive effects. 'Investors say competition needs to be put aside for the greater good', was an illustrative headline in the *Financial Times* early in the pandemic, introducing an article that explained the calls made from BlackRock and Fidelity to big pharma lobbying them to collaborate in the pursuit of the first COVID vaccines (Mooney and Mancini 2020). Subsequently, it appears that BlackRock was especially active in exercising investor control over Pfizer and Moderna, while also holding talks with other pharmaceutical companies to discuss ways to develop and deploy treatments by 'working with industry competitors' (quoted in Banal-Estañol *et al*. 2021). Common ownership means that the large investors would therefore win if either of their holdings produced the vaccine and suggests close relationships and channels of communication between the would-be rivals.

In all these relationships we have to rethink the role of dominant firms in the market structure and the overall knowledge and innovation ecology of the life sciences and pharmaceuticals – including in the mix of both traded and untraded interdependencies that lead to national and regionalised life-sciences sector clusters (Cooke 2010). In effect, financialisation and the move to 'R&D through M&A' have lifted the importance of IP claims as assets (Tulum *et al.* 2023). These are relayed up to the dominant firms who sit on top of a pyramid of knowledge producers, including universities, biotech firms and smaller contract R&D pharmaceutical firms (Fernandez and Klinge 2020). This assetisation structure requires, amongst other things, regulatory stability and a benign investment legal and policy architecture that is, as we shall next review, actively enabled and accommodated by states.

Firm-State collusion

The second feature or nested level of pharmaceutical cartelisation is even more significant and highlights the hybridised structure of monopoly power. This, it should be underlined at the outset, is a highly hierarchical structure in which powerful HICs have an especially hegemonic controlling interest. Together and in concert, these states consistently act to lock in collective and national comparative advantages in global political economy, and lock out would be entrants in the shape of firms, regions and rival states. They work closely with dominant firms to do so. Such Firm-State cartelisation effects are particularly apparent in the historical structuring of the intellectual property rights and trade regime that governs the central elements and conditions of production, consumption and

accumulation around knowledge-intensive sectors, and specifically here regarding securing stable oligopoly and barriers to entry in the pharmaceuticals industries (Dutfield 2020).

Over a long period, but accelerating since the GATT Uruguay Round onwards, they have nevertheless become extended through political, legal and intellectual structures governing biomedical knowledge production (Dutfield 2020). National patent regimes allowing for the legal extension of market exclusivity to particular bio-pharma products are obviously key in this regard. Early in the COVID pandemic, for example, patents were used in the USA by a patent holder Labrador Diagnostics to challenge BioFire Diagnostics from providing diagnostic testing for COVID-19 which it initially claimed infringed its patents. In another example, the US drug company Gilead gave the country an object lesson in the complex country-specific politics of patent regimes by first winning and then withdrawing enhanced patent exclusivity for its anti-viral drug *Remdesivir* under the US Orphan Drug Act of 1983 (McMahon 2021). This Act was originally designed to incentivise drug development to tackle rare conditions, but has since been repeatedly used to enhance company patent powers and the reach of associated marketing rights. In the context of COVID, seeking such enhancements seemed especially egregious, and after being decried in the US Senate by Bernie Sanders as 'profiteering in the pharmaceutical industry', Gilead was obliged to ask the FDA to remove the 'orphan' tag for *Remdesivir* (Blankenship 2020a). The company nevertheless relinquished the orphan tag privileges secure in the knowledge that its monopoly over the drug was still protected by national patent laws that would, in turn, be protected internationally by the transnational regulatory regime of the WTO's TRIPS rules – and, having been tested by challenges coming out of both the US government and out of China, this security has indeed proved enduring (Bonadio and Baldini 2020, GAO 2021). The reason why is that the combination of national patent protections and international IPR rules provide especially hegemonic and durable means of extending and enforcing IP monopoly power globally, including through the pandemic.

The net effect of these Firm-State ties is not simply one of states being captured to internalise and *transnationalise* the interests of capital both at home and abroad. Rather it is a deliberate act of state structuring of the conditions of production, trade and development, in which state apparatuses and elites have interests, albeit hybrid or often subject to corporate capture, and clear agency with respect to other states and capital formations (Weiss 1997, Cerny 2006). Among high income states and political elites there is a durable and shared neoliberal consensus around the role of states with respect to the economy and market, and the gearing of domestic and international economic management in its relations with mobile international capital and dominant firms (Hameiri and Jones 2016).

The enabling bureaucratic structures and regulatory bodies of core states are openly porous to corporations and industry groups, creating what Abraham has described as a 'neoliberal corporate bias' (Abraham 2008). Pharmaceutical firms have multi-nodal points to dock with the state and co-produce policy and regulation, a form of access by design which delivers hybrid governance in areas such as drug approvals (by means of revolving door personnel, oversight panel membership, or the fee for application model which has come to bankroll the US Food and Drug Administration). Life sciences sectoral interests assist in shaping national R&D policy and industrial policy, including the orientation of national and European funding programmes. Dominant firms, especially, have yet more points to dock with regulatory states with places at the table for pharma in drug approval bodies, trade negotiating teams, specialised biosecurity agencies, and public funding agencies such as NIH and the university systems they support. States incentivise the commercialisation of publicly-funded research outputs while providing stimulus to sub-sectors in which they see 'their firms' as locking in competitive advantages internationally (*e.g.* with laws like Bayh-Dole Act of 1980 which incentivises commercialisation for recipients of federal grants in the US, or the UK government's recent promotion of nanopore diagnostics tools for genomic sequencing). In turn, even given systemic tax avoidance by corporations, the high-value jobs taxes paid from big pharma and life sciences to states ensure that policy-makers remain dependent upon and deeply committed to the ongoing reproduction of all the associated firm-state networks. Life sciences research in

universities is likewise locked into the same interdependencies, with researchers who might otherwise pursue innovation for the public good being diverted repeatedly into work that feeds into the commercialisation process that cartelisation commands (Fabbri *et al.* 2018).

Core states along with their regional and city governments and the EU also provide ready and legitimate channels for corporate access to politicians, ministries and regulatory bodies, and all of them share with pharma and life sciences firms and regional state boosters of the bio-pharma industry, a common dependence on a shared list of management consultancies. More than this, they also all share an interest in big pharma's big profits in the form of big tax receipts. For example, during the height of COVID, the German municipality of Mainz alone made over a billion in corporate taxes in 2021 from BioNTech (Olterman 2021).

These arrangements were further amplified by the response to the pandemic to provide the institutional and financial foundation from which the US government developed Operation Warp Speed in 2020. From 15 May 2020, the Departments of Defense and Health and Human Services coordinated clinical trials, manufacturing scale up, and facilitated emergency use authorisation for new vaccines with the FDA. It linked contractors with vaccine firms, ensuring supplies of equipment needed to manufacture and distribute vaccines. This extraordinary coordinating effort received US $18 billion in funding, with advance purchase commitments to the firms with most promising candidates. Similar supportive infrastructures and investments were present in the UK and Germany (Cornish 2020), with large amounts of state investment flowing to leading vaccine firms.

As urgent and permissive as the de-risking, stimulus and coordination roles appeared in the pandemic, these networks and practices were already structurally embedded in the knowledge economy generally, and in the life sciences and pharmaceutical industries particularly. Here the legal and regulatory systems surrounding these sectors play a number of key functions with regard to the market structure, concentration, and the assetisation and profitability of the sector (Birch and Muniesa 2020). Collusive arrangements and hybridity are of central importance in providing a commercial and investor friendly environment in which the commodification and appropriation of knowledge by oligopolists can be undertaken (Roy 2020, 2023). This dynamic involves further sets of structural collusion. There is a permissive legal environment where challenge to firm conduct and performance has led to concentration and high barriers to entry; a strong patent regime to build in monopoly market power and to make knowledge assets durable and fungible; and a conducive regulatory and policy regime for tax evasion, wherein price setting, rent seeking and super-profits are normalized.

Whatever the assumptions and legal and economic doctrine, the upshot is that antitrust law has been substantially diluted, just as the more assiduous examination of dominant firm merger conduct has been abandoned by states. A commensurate dilution of rigour has occurred in the examination of patent claims, with greater tolerance of broad patents, multiple patent claims, and weak patent standards embodied in 'me too' patenting, patent thickets and evergreening. What transpired in antitrust in the US from the late 1970s onwards has flowed out to other HICs as well as to other jurisdictions where antitrust is limited or the resources and expertise are not present to enforce anti-competition actions. Pharmaceutical corporations have clearly transnationalised these forms of market-state power with states enabling them to play a privileged and determining role in trade negotiations. This found its early expression in the Uruguay Round, by means of the submissions to the Round by industry groups and various chambers of commerce, with the submission of the International Intellectual Property Committee, for example, being sucked up into the final TRIPS settlement (Sell and Prakash 2004). This integration has intensified over time with corporations actually participating in conditions of enclaved secrecy in various trade negotiations, most recently in the WTO's step-by-step weakening of the TRIPs waiver. In this process, multiple corporate partners in the COVAX initiative (Janssen, Pfizer, BioNTech, Sanofi and Astra Zeneca) opposed the TRIPS waiver, as did the European Federation of Pharmaceutical Industries and the Pharmaceutical Research and Manufacturers of America (Kohler *et al.* 2022). But beyond TRIPs and the WTO, we also see some of the same market-state powers being extended through trade secrecy law. This has been rendered

so comprehensive and quasi-constitutional in recent years that firms can argue that almost any valuable data should remain secret unless there is some sort of compensation from government (Kapczynski).

With all these legal measures we see the establishment and extension of firm-state cartel effects that both entrench and enforce the exclusivity rights of pharmaceutical patent holders. Following the US model, these rights now increasingly extend from the patented invention to all sorts of additional exclusivities related to data and marketing. At the same time, we see courts in the US being used with particular success to curtail public-interest counter-measures, including for example, by privileging industry's putative right to free speech about its products over the FDA's authority to regulate misleading marketing campaigns about medicines (Kapczynski 2023). Then, when public interest advocacy does succeed in making rights claims to access medicines, the firm-state cartel can still coopt such rights by blocking price controls even as government programmes are obliged to expand drug coverage through measures such as the Medicare Part D component of the US Affordable Care Act (Kapczynski 2023). This hybrid firm-state architecture has enjoyed relatively easy access to Presidential and Congressional funding through time, particularly at moments of biological and pandemic threats, such as the H1N1 outbreak. And under COVID it was again mobilised, building on technological platforms and revenue streams new and old in newly networked and hybridised ways. The global inequalities in access to vaccines can be explained in large part as a consequence of these firm-state collusions intersecting with geopolitical constraints on vaccine sharing (Sparke and Levy 2022). But to come to terms with the inadequacy of the main global response, we must turn now to how state-firm-philanthropy networks also came to curtail efforts to universalise vaccination through an unbudging insistence on saving IP universally at the same time as trying to save lives selectively.

Firm-state-philanthropy collusion

Founded in 2020 at the start of the COVID pandemic, the Geneva-based public-private-philanthropic partnership known as COVAX was supposed 'to accelerate the development, production, and equitable access to Covid-19 … vaccines' globally (GAVI 2020). Over the course of the pandemic, however, it repeatedly failed to honour its promises and deliver even a reliable, let alone equitable, supply (Furneaux *et al.* 2021, Taylor 2022). This exacerbated huge inequalities in vaccine access even as it repeatedly involved philanthro-capitalist ideas about investing in health and vaccines as a way of fighting global inequality more generally. Key to understanding both COVAX and the wider trends in philanthro-capitalism is the influence of the Gates Foundation, the world's largest philanthropy based in Seattle, in Washington state, and a foundation that has set the pattern for new approaches to global health governance and development that privilege private sector modes of management and partnership-led development along with tendencies to privatise and commodify the public goods of global health (Al Dahdah 2022, Kumar and Brook 2021, Rushton and Williams 2011, Mitchell and Sparke 2016). As an institutional apotheosis of this pattern, the resulting multidimensional, multistakeholder, multilateral design of COVAX has been well-described as a 'super public-private partnership' (Storeng *et al*. 2021). But its less than super outcomes also reveal a great deal about the ways cartelisation has been organised globally on the basis of hybrid firm-state-philanthropic networking in the context of COVID (MSF 2022, Stein 2021).

What gave the business practices of COVAX a broader cartel effect is the way its managers sought to monopolise the overall humanitarian policy space of responding to unequal COVID vaccine access globally. They did this by claiming that their approach was the *only* alternative to letting vaccine nationalists and market forces dictate who was vaccinated and who was not (Sparke and Levy, 2022). Seth Berkley, the leader of GAVI who helped first develop the COVAX plan in the Hard Rock Hotel bar at Davos in 2020, has argued thus that: 'For lower-income funded nations, who would otherwise be unable to afford these vaccines, COVAX is quite literally a lifeline and the only viable way in which their citizens will get access to COVID-19 vaccines' (GAVI 2020). Pushing

back against his critics, he has also continued to counterpose a counterfactual question in this same way by asking: 'If COVAX had never been created, who would have taken responsibility for helping countries and people with relatively few resources get their fair share of essential vaccines?' (Berkley 2022). GAVI's website explainer similarly insisted that 'the world recognises that our best hope of ending the acute phase of this pandemic and the only truly global solution is COVAX' (GAVI 2020). Such claims have thereby sought to both define and dominate the space of alternatives to vaccine access inequalities, suggesting that there have been no other back-up plans or proposals available for consideration. 'The truth is the world should have had a plan in place well before the pandemic;' argues Berkley. 'I was among the people vociferously calling for one. But it didn't, and so we got to work. It's easy to be critical of these efforts but less easy to come up with another solution that works' (Berkley 2022).

COVAX still helped immunise millions of people. Indeed, its deliveries undeniably led to real shots in the arms of over a billion people. It also thereby created a functioning humanitarian stop-gap to compensate for access inequalities that emerged in a global context where other forms of international cooperation were foreclosed by increasing ultra-nationalism and intensifying geopolitical competition. It is equally true that it brought together a remarkable assemblage of public, private and philanthropic players in Geneva to do so. For all these reasons, we do not want to suggest it represents an elaborate hoax simply designed as a PR smokescreen by an old-fashioned cartel. Instead, the problem is that by organising its multilateral effort with a commitment to saving IP rights at the same time as saving lives, it created a terribly limited and limiting vaccine supply system for underserved and excluded populations (Sparke and Levy 2022). Some critics such as Felix Stein and Harris Gleckman have suggested that a big part of the problem was the highly financialised and leveraged way that COVAX worked to broker deals like a major transnational bank (Gleckman 2021, Stein 2021). 'COVAX', explained Gleckman, 'can decide which medical industrial sectors and which firms in these sectors will get large contracts and which of these firms will be invited onto COVAX board and advisory committees' (Gleckman 2021). Relatedly, other arguments about the limitations of COVAX have attributed its weaknesses to its extraordinarily complex public-private intermediation system for arranging donations. This is what Storeng, Stein and their colleague Antoine de Bengy Puyvallée have usefully critiqued as the 'extraordinarily complex Russian Matryoshka doll-like structure' that enables COVAX to shield industry and the organising agencies alike from transparency and accountability (Storeng *et al.* 2021, p. 1). It is this same Russian doll reference that has partly inspired our theorisation of structural cartelisation. But by further suggesting that this cartelisation extends from the level of the firm-firm structural collusion to the firm-state hybridity to the firm-state-philanthropy structure of COVAX, we also want to argue that it is not possible to comprehend the overall structural cartelisation effect without also attending to the ways the firm-state-philanthropy nexus accommodated the priorities and interests of Big Pharma inside its arrangements with donors.

Given the disproportionate public support of government treasuries as the main donors to COVAX, more public sector approaches might have been anticipated in managing the funds. They might even in another world have been used to create a People's Vaccine and other global public goods as antidotes to vaccine access inequalities. But here we come back to the central problem with COVAX insofar as its Russian doll structure has also accommodated firm-firm and firm-state cartelisation arrangements, leading to an investor outlook and approach to managing the donated monies and vaccines with a view to saving lives *and* saving IP simultaneously. As a result, its immunisation success stories in some places have also come with an enduring understory of failure and inaccess for the world's poorest people.

Conclusion

We do not want our arguments about cartelisation in the age of COVID to be confused with anti-vaccine conspiracy theories. Social science critique can certainly be assimilated into such

conspiratorial theorising, and, as Didier Fassin has warned, it can also thereby be dismissed in ways that simultaneously trivialise serious lessons from and about social life that conspiracy theory misconstrues (Fassin 2021). Paranoid stories about Bill Gates promoting COVID vaccinations in order to orchestrate the mass implantation of microchips were completely untrue and widely mocked, for instance. But we still need to take seriously the question of why people shared fears about the intentions of a billionaire philanthropist committed to public-private partnerships protecting pharmaceutical property rights at a moment when the associated monopolies were being questioned due to the pandemic. As Joel Lexchin (2021) has argued, it is precisely such pandemic-prompted questions that researchers of pharmaceutical research, development and distribution dynamics need to address, and this is what we have sought to do ourselves in this article. Our hope in this regard is that our arguments about structural cartelisation will contribute to the reconceptualisation of anti-trust regulation as it relates to building back better access to pharmaceuticals post-pandemic in post-neoliberal ways. However, following Colin Crouch and others, we also do not want to be naïve about the ways in which neoliberalism keeps coming back, including both in and against efforts to 'build back better' (Crouch 2011, Gleeson *et al.* 2023, Sparke and Williams 2023).

Our account of the cartelisation that characterises global pharmaceuticals has showed that the underlying market-state-society relations are densely networked, hybrid and complex, but also deeply material and widely consequential in their effects. We have highlighted a series of key examples of the practices and arrangements that are involved across three distinct levels of firm-firm, firm-state and firm-state-philanthropic relations. In arguing that all these elements are important to cartelisation today, there is a risk of downplaying the ongoing domination of big pharma firms themselves, including the threats of disinvestment they make both individually and collectively to discipline states and policy-makers that do anything to threaten their monopoly power (Furlong 2022). Likewise, in outlining the overwhelming political-economic scope of pharma's hegemony and, *inter alia*, the limits this has placed on 'Build Back Better' responses to the pandemic, yet another risk we arguably run is of obscuring real alternatives and options for states and societies to take back control. Following the Gramscian framing of political-economic pathology presented by Colin Hay (2011), there is a real danger in this sense that the 'morbid symptoms' of crisis – including the all too morbid anti-vaxxer conspiracy theories and the forms of reactionary anti-globalism to which they were commonly tied during the pandemic (Sparke 2022, Sparke and Williams 2022, Montgomerie 2023) – will undermine the prescription of curative policy responses. In conclusion, however, we want to suggest that each of these risks – connecting with conspiracy thinking, downplaying big pharma, and obscuring alternatives – offers at least a partial antidote to the others.

After all, part of the power of the science denialism in vaccine conspiracies is that it taps into frustrations with the political-economic processes that have undermined confidence in biomedical innovation and left so many people feeling hesitant about what government agencies approve as useful biomedical protections or treatments. The cooptation of drug approvals processes and the use of state agencies by pharma patent holders to stymie competition surely contributes to such hesitancy. At the same time, some of the vaccine scepticism seen in the pandemic has been tied to genuine scepticism about corporate profit-motives, and such scepticism has informed real efforts to rein-in big pharma's monopoly power.

In 2023, new efforts by the US FTC to take anti-trust action against Amgen's attempt to buy-up of Horizon Therapeutics have drawn all the usual ire of the industry and, with it, predictable threats that the commission's charges of monopoly will destroy innovation by undermining incentives for M&A activity across the sector (Smyth 2023). But the anti-monopoly actions of the Biden administration (including an allied Executive Order for a 'Sustainable, Safe and Secure American Bioeconomy') are now also closely linked to legislative victories and initiatives that offer an alternative. Most notably the 2022 Inflation Reduction Act (IRA), and the new federal rules it created to cap Medicare beneficiary cost-sharing to US$2000 per year, also advanced efforts by government agencies to negotiate with manufacturers over prices for a short list of branded drugs. Most of the rules do not start until 2026 and the list of drugs included is very short, but the IRA still represented an

important anti-monopolisation shift in law. For the same reasons, it was also angrily denounced by big pharma. But it endures as an example that alternative futures are possible in which the structural interdependencies and interests of structural cartelisation might be subordinated to the interests of public health interdependency instead.

COVID and vaccine apartheid were just one signal moment in the history of how structural cartelisation is governed and opposed. Despite efforts co-led by India and South Africa over the course of the pandemic, it has become increasingly clear how hard it is to overcome pharmaceutical and life sciences cartelisation within transnational regulatory regimes, including from what have been described in this journal as the 'behind the border' pharma interests that support it (Kržić 2021). Thus, while the demands India made with South Africa and other global south countries for a TRIPS waiver were widely-supported amongst WTO members, the counter-vailing commitment of pharma and its European supporters at the WTO to weakening the waiver's effectiveness never wavered. Even when the incoming administration of President Biden – under pressure from progressive Democrats – replaced the traditional pro-patent US position with explicit support for the waiver at the WTO, pharma's lobbyists and their European government allies held firm through all the ensuing negotiations (Ravelo 2021, Furlong *et al.* 2022). The ultimate outcome of these negotiations, therefore, has been an utterly ineffectual waiver that, rather than actually waiving TRIPS protections for pharma, instead pre-empts any systematic or sustainable workarounds to global IP-based cartelisation (Furlong *et al*. 2022, Love 2022, MSF 2022, Pratnaik 2022). More of a time-limited and extremely narrow exception to export restrictions, it became such a gravely weakened waiver that, in the words of former UN secretary general Ban Ki-Moon, it was 'barely a waiver at all … , a compromise that will do little to improve access to vaccines and treatments' (Ban 2022). Instead, as a damning *Politico* report on all the associated pharma lobbying and HIC complicity made clear, the practical upshot was a deal that would not even work unless a low-income country was prepared to go through the lengthy process of issuing a compulsory license, securing approval for a vaccine, producing it, then exporting it (Furlong *et al*. 2022). Monopoly power remained entirely intact, therefore, and, as MSF complained, the goal of sharing life-saving knowledge as a global public good remained as out of reach as ever, thereby setting 'a negative precedent for future global health crises and pandemics' (MSF 2022).

The radically weakened waiver is just one example of how the TRIPS regime continues to enable hybrid and networked cartelisation at a global scale. This was not just a case of big pharma colluding in their conjoint lobbying of governments (although *Politico*'s reporters provide plenty of evidence of them doing this as well as threatening policy-makers with disinvestment). Nor was it just about the world's wealthier countries collaborating to maintain status-quo protections for the IP and contributions to GDP from their flagship pharma brands through the WTO (although this was certainly a feature of the process). The cartelisation indexed and enabled by the weakening of the waiver was much broader and more structural than this because it provided protection for the overall global IPR regime. The final agreement was not to fix prices (like a traditional cartel), but rather to fix this IPR regime in global trade law by fixing the intergovernmental and public relations problems produced by accusations of failure and unfairness made in the context of COVID vaccine apartheid. The weakened waiver thereby secured the basic conditions for ongoing cartelisation on a world scale by protecting industry and its diverse state and non-state allies beneath a diplomatic fig-leaf of global compromise and a message of accommodation *vis-à-vis* the concerns expressed by countries excluded from affordable access to COVID vaccines.

By focusing on what the pandemic has taught us about the monopolistic, market concentration effects created by networked structural collusion, we have sought to come to critical terms with contemporary pharmaceutical cartelisation and the market-state-society ties that make it possible. Our article echoes many other scholars in asking what COVID has revealed about the pathologies of global capitalism in the twenty-first century (*e.g.* Sell 2020). Given the extraordinary profits of big pharma firms in the pandemic, we also concur with the many critics of intellectual property monopolies who have challenged both the ethics and effectiveness of ceding so much power over life

and death globally to pharmaceutical corporations and their shareholders (Gonsalves and Yamey 2021, Hassan *et al*. 2021, Shaxson 2022). But, observing the counter-movement of activists, scholars and policy-makers who continue to advocate for universal vaccination and access to other biomedical tools, it has become clear that simply blaming the profit-making imperatives of big pharma masks the enabling infrastructure of support provided by states, non-state partners, and the legal codes and norms governing their relations. Indeed, pro-access responses to the COVID crisis, ranging from the failed campaign for a real TRIPs waiver at the WTO, to the inadequate COVAX initiative to compensate for inequality with donated vaccines, to the limited plans to Build Back Better, have instead repeatedly run into intricately tangled and intractable market-state-society ties. It is this knotty network of collusional ties which we have named and detailed in this article by describing what structural cartelisation looks like in the time of COVID.

We want to end, therefore, by submitting that coming to terms with contemporary structural cartelisation is crucial to the work of challenging market-state arrangements surrounding life-saving health technologies. Global frustrations at the inadequacies in COVID responses are contributing to rising resistance to a global system that puts essential medicines out of reach. While such resistance can still be diverted by the opportunistic efforts of conspiracy theorists to turn fears about pharma-state-philanthropy networks into anti-vaxxer and libertarian paranoia, and while this feeds ongoing attacks on public health more generally, attention to structural cartelisation can lead in far different directions. Freeing the vaccine, and freeing states to truly deliver on the promise of health protection, can instead become rallying calls for public health that is both publicly owned and healthy for all. An alternative approach to creating global public goods for global public health is possible, then, but only after we have come to terms with the monopoly power of structural cartelisation that stands in the way.

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References

Abraham, J., 2008. Sociology of pharmaceuticals development and regulation: a realist empirical research programme. *Sociology of health & illness*, 30 (6), 869–85. doi:10.1111/j.1467-9566.2008.01101.x.

Al Dahdah, M., 2022. Between philanthropy and big business: the rise of mHealth in the global health market. *Development and change*, 53 (2), 376–95. doi:10.1111/dech.12497.

Alshrari, A.S., *et al*., 2022. Innovations and development of COVID-19 vaccines: a patent review. *Journal of infection and public health*, 15 (1), 123–31. doi:10.1016/j.jiph.2021.10.021.

Ban, K.-M., 2022. India, South Africa must not accept half-measures by the West when lives are on line during COVID-19 pandemic. *The Times of India*.

Banal-Estañol, A., Newham, M., and Seldeslachts, J., 2021. Common ownership in the US pharmaceutical industry: a network analysis. *The antitrust bulletin*, 66 (1), 68–99. doi:10.1177/0003603X20985796.

Baranes, I.A. 2016. *An original institutionalist approach to the structure, conduct and performance of the pharmaceutical industry: the importance of intangible assets.* PhD Dissertation. University of Missouri-Kansas City.

Bayer, M., 2022. Moderna co-founder helps finance Belgian mRNA shop. *Fierce biotech*, https://www.fiercebiotech.com/biotech/moderna-co-founder-helps-finance-latest-series-b-belgian-mrna-shops.

Beioley, K. 2021. Pharma companies fined after 10,000% price rise for life-saving drug. *Financial Times*, July 14.

Berkley, 2022. Covax stepped up when no one else did. *Washington post*, March 28. https://www.washingtonpost.com/opinions/2022/03/28/covax-stepped-up-when-no-one-else-did/.

Birch, K., 2017. Rethinking value in the bio-economy: finance, assetization, and the management of value. *Science, technology, & human values*, 42 (3), 460–90. doi:10.1177/0162243916661633.

Birch, K., and Muniesa, F., 2020. *Assetization: turning things into assets in technoscientific capitalism*. Cambridge, MA: MIT Press.

Blankenship, K. 2020a. "Gilead asks FDA to rescind remdesivir orphan drug tag after public backlash," March 25, Available from: https://www.fiercepharma.com/pharma/gilead-asks-fda-to-rescind-remdesivir-orphan-drug-tag-after-public-backlash.

Blyth, M., and Katz, R., 2005. From catch-all politics to cartelisation: the political economy of the cartel party. *West European politics*, 28 (1), 33–60. doi:10.1080/0140238042000297080.
Bonadio, E., and Baldini, A., 2020. COVID-19, patents and the never-ending tension between proprietary rights and the protection of public health. *European journal of risk regulation*, 11 (2), 390–5. doi:10.1017/err.2020.24.
Carrier, M.A., 2017. Drug patent settlements around the world. *The antitrust bulletin*, 62 (4), 770–85. doi:10.1177/0003603X17733357.
Cerny, P., 2006. Restructuring the state in a globalizing world: capital accumulation, tangled hierarchies and the search for a new spatio-temporal fix. *Review of international political economy*, 13 (4), 679–95. doi:10.1080/09692290600839931.
Christophers, B., 2016. *The great leveler: capitalism and competition in the court of law*. Cambridge, MA: Harvard University Press.
Cooke, P., 2010. Global bioregions: knowledge domains, capabilities and innovation system networks. In: R. Viale and H. Etzkowitz, eds. *The capitalization of knowledge: a triple helix of university-industry-government*. Cheltenham: Edward Elgar Publishing, 143–66.
Cornish, L. 2020. Funding COVID-19 vaccines: a timeline. *Devex*, 21 August 2020. https://www.devex.com/news/funding-covid-19-vaccines-a-timeline-97950.
Crouch, C., 2011. *The strange non-death of neo-liberalism*. Cambridge: Polity.
Cunningham, C., *et al*., 2021. Killer acquisitions. *Journal of political economy*, 129 (3), 649–702. doi:10.1086/712506.
DOJ. 2020. Major generic pharmaceutical company admits to antitrust crimes, United States department of justice. March 2. Available from: https://www.justice.gov/opa/pr/major-generic-pharmaceutical-company-admits-antitrust-crimes.
Dosi, G., *et al*., 2023. Big pharma and monopoly capitalism: a long-term view. *Structural change and economic dynamics*, 65, 15–35. doi:10.1016/j.strueco.2023.01.004.
Dutfield, G., 2020. *That high design of purest gold: a critical history of the pharmaceutical industry, 1880–2020*. Singapore: World Scientific Publishing.
Fabbri, A., *et al*., 2018. The influence of industry sponsorship on the research agenda: a scoping review. *American journal of public health*, 108 (11), e9–e16. doi:10.2105/AJPH.2018.304677.
Fassin, D., 2021. Of plots and men: the heuristics of conspiracy theories. *Current anthropology*, 62 (2), 128–37. doi:10.1086/713829.
Fernandez, R., and Klinge, T., 2020. *The financialisation of big pharma*. Amsterdam: SOMO. Available from: https://www.somo.nl/nl/wp-content/uploads/sites/2/2020/04/Rapport-The-financialisation-of-Big-Pharma-def.pdf.
Fonseca, M.A., and Normann, H.T., 2012. Explicit vs. tacit collusion—the impact of communication in oligopoly experiments. *European economic review*, 56 (8), 1759–72. doi:10.1016/j.euroecorev.2012.09.002.
FTC. 2022. *Pay to delay*. https://www.ftc.gov/news-events/topics/competition-enforcement/pay-delay.
Furlong, A. 2022. Who killed the COVID vaccine waiver? *Politico*, 11/10/2022.
Furneaux, R., Goldhill, O., and Davies, M., 2021. How COVAX failed on its promise to vaccinate the world, October 8. https://www.thebureauinvestigates.com/stories/2021-10-08/how-covax-failed- on-its-promise-to-vaccinate-the-world. Accessed 25 February 2022.
Gagnon, M.A., 2021. Ghost management as a central feature of accumulation in corporate capitalism: the case of the global pharmaceutical sector. In: M. Benquet and T. Bourgeron, eds. *Accumulating capital today: contemporary strategies of profit and dispossessive policies*. New York: Routledge, 163–77.
GAO. 2021. *Information on federal contributions to Remdesivir*. United States Government Accountability Office, Available from: https://www.gao.gov/assets/gao-21-272.pdf.
GAVI, 2020. COVAX explained. https://www.gavi.org/vaccineswork/covax-explained.
Gaviria, M., and Kilic, B., 2021. A network analysis of COVID-19 mRNA vaccine patents. *Nature biotechnology*, 39 (5), 546–8. doi:10.1038/s41587-021-00912-9.
Gleckman, H., 2021. COVAX, a global multistakeholder group that poses political and health risks to developing countries and multilateralism. *TNI LongReads*, April 1. https://longreads.tni.org/ covax.
Gleeson, D., *et al*., 2023. Global inequities in access to COVID-19 health products and technologies: a political economy analysis. *Health &place*, doi:10.1016/j.healthplace.2023.103051.
Gonsalves, G., and Yamey, G., 2021. The covid-19 vaccine patent waiver: a crucial step towards a 'people's vaccine'. *BMJ*, 373, 1249. doi:10.1136/bmj.n1249.
Hameiri, S., and Jones, L., 2016. Global governance as state transformation. *Political studies*, 64 (4), 793–810. doi:10.1111/1467-9248.12225.
Hassan, F., Yamey, G., and Abbasi, K., 2021. Profiteering from vaccine inequity: a crime against humanity? *BMJ*, 374, n2027. doi:10.1136/bmj.n2027.
Hay, C., 2011. Pathology without crisis? The strange demise of the anglo-liberal growth model. *Government and opposition*, 46 (1), 1–31. doi:10.1111/j.1477-7053.2010.01327.x.
Horner, R., 2014. The impact of patents on innovation, technology transfer and health: a pre- and post-TRIPs analysis of India's pharmaceutical industry. *New political economy*, 19 (3), 384–406. doi:10.1080/13563467.2013.796446.

IMAK. 2018. Overpatented, overpriced. Available from: https://makemedicinesaffordable.org/overpatented-overpriced-how-excessive-pharmaceutical-patenting-is-extending-monopolies-and-driving-up-drug-prices/.
Işık, E., and Orhangazi, Ö, 2022. Profitability and drug discovery. *Industrial and corporate change*, 31 (4), 891–904. doi:10.1093/icc/dtac011.
Kapczynski, A., 2023, September. The political economy of market power in pharmaceuticals. *Journal of health politics, policy and Law*, 48 (2), 215–239. doi:10.1215/03616878-10234184.
Kapczynski, A., Park, S., and Sampat, B., 2012. Polymorphs and prodrugs and salts (oh my!): an empirical analysis of "secondary" pharmaceutical patents. *PLoS One*, 7 (12), e49470. doi:10.1371/journal.pone.0049470.
Khan, L.M., 2016. Amazon's antitrust paradox. *Yale Law journal*, 126, 710–805.
Kohler, J., Wong, A., and Tailor, L., 2022. Improving access to COVID-19 vaccines: an analysis of TRIPS waiver discourse among WTO members, civil society organizations, and pharmaceutical industry stakeholders. *Health and human rights journal*, 24 (2), 159–175.
Kollewe, J. 2021. From Pfizer to Moderna: who's making billions from Covid-19 vaccines? *The Guardian* (6 March 2021).
Križić, I., 2021. The international regulation of competition policy and government procurement: exploring the boundaries of the trade regime. *New political economy*, 26 (5), 717–34. doi:10.1080/13563467.2020.1823357.
Kumar, A., and Brooks, S., 2021. Bridges, platforms and satellites: theorizing the power of global philanthropy in international development. *Economy and society*, 50 (2), 322–345. doi:10.1080/03085147.2021.1842654.
Lande, R. H., and Marvel, H. P. 2000. The three types of collusion: fixing prices, rivals, and rules. *Wisconsin law review*, 941. Accessed online at https://heinonline.org/HOL/LandingPage?handle=hein.journals/wlr2000&div=46&id=&page=.
Levenstein, M. C., and Suslow, V. Y. 2006. What determines cartel success? *Journal of Economic Literature*, 44(1), 43–95.
Lexchin, J., 2021. Are academia–pharma partnerships essential for novel drug discovery in the time of the COVID-19 pandemic? *Expert opinion on drug discovery*, 16 (5), 475–9. doi:10.1080/17460441.2021.1858794.
Love, J. 2022. The June 17, 2022 WTO Ministerial Decision on the TRIPS Agreement. *Knowledge ecology international* (blog). June 17. https://www.keionline.org/37830.
Lundqvist, B. 2021. Killer acquisitions and other forms of anticompetitive collaborations (part II): a proposal for a New notification system. *Eur. competition & Reg. L.*186.
Malerba, F., and Orsenigo, L., 2015. The evolution of the pharmaceutical industry. *Business history*, 57 (5), 664–87. doi:10.1080/00076791.2014.975119.
Mazzucato, M. 2013. *The entrepreneurial state: debunking public vs. private sector myths*. London: Penguin.
Mazzucato, M., and Li, H.L., 2021. A market shaping approach for the biopharmaceutical industry: governing innovation towards the public interest. *Journal of law, medicine & ethics*, 49 (1), 39–49. doi:10.1017/jme.2021.8.
McMahon, A., 2021. Global equitable access to vaccines, medicines and diagnostics for COVID-19: the role of patents as private governance. *Journal of medical ethics*, 47 (3), 142–8. doi:10.1136/medethics-2020-106795.
Mitchell, K., and Sparke, M., 2016. The new Washington consensus: millennial philanthropy and the making of global market subjects. *Antipode*, 48 (3), 724–49. doi:10.1111/anti.12203.
Montgomerie, J., 2023. COVID Keynesianism: locating inequality in the Anglo-American crisis response. *Cambridge journal of regions, economy and society*, 16 (1), 211–23. doi:10.1093/cjres/rsad003.
Mooney, A., and Mancini, D.P. 2020. Drugmakers urged to collaborate on coronavirus vaccine. Investors say competition needs to be put aside for the greater good. *Financial Times*. Available from: https://www.ft.com/content/b452ceb9-765a-4c25-9876-fb73d736f92a.
MSF. 2022. Inability to agree a real pandemic intellectual property Waiver at WTO is a devastating global failure for people the world over. Available from: https://msfaccess.org/inability-agree-real-pandemic-intellectual-property-waiver-wto-devastating-global-failure-people.
Mueller, B. 2022. The End of vaccines at 'warp speed', *New York times*, November 18. Available from: https://www.nytimes.com/2022/11/18/health/covid-nasal-vaccines-warp-speed.html.
Muzaka, V., 2009. Developing countries and the struggle on the access to medicines front: victories won and lost. *Third world quarterly*, 30 (7), 1343–1361.
Newham, M., and Vokinger, K.N., 2022. Adverse effects of acquisitions in the pharmaceutical industry. *Nature medicine*, 28 (7), 1342–4. doi:10.1038/s41591-022-01784-5.
Olterman, P. 2021. Pfizer/BioNTech tax windfall brings Mainz an early Christmas present. *The Guardian*. Available from: https://www.theguardian.com/world/2021/dec/27/pfizer-biontech-tax-windfall-brings-mainz-an-early-christmas-present.
Patnaik, P. 2022. "Trade won, health did not. A sliver of a waiver at the WTO." Substack newsletter. *Geneva health files* (blog). June 18. Available from: https://genevahealthfiles.substack.com/p/trade-won-health-did-not-a-sliver.
Peacock, S., 2022. Vaccine nationalism will persist: global public goods need effective engagement of global citizens. *Globalization and health*, 18, 14. doi:10.1186/s12992-022-00802-y.
Rajan, K., 2017. *Pharmocracy: value, politics and knowledge and in global biomedicine*. Durham: Duke University Press.
Ravelo, J. 2021. Germany to donate 30M doses but won't budge on COVID-19 vaccine IP, 15 July. Available from: https://www.devex.com/news/germany-to-donate-30m-doses-but-won-t-budge-on-covid-19-vaccine-ip-100393.

Rikap, C., 2019. Asymmetric power of the core: technological cooperation and technological competition in the transnational innovation networks of big pharma. *Review of international political economy*, 26 (5), 987–1021. doi:10.1080/09692290.2019.1620309.

Roy, V., 2020. A crisis for cures? Tracing assetization and value in biomedical innovation. In: K. Birch and F. Muniesa, eds. *Assetization: turning things into assets in technoscientific capitalism*. (pp. 103–35). MIT Press.

Roy, V., 2023. *Capitalizing a cure: how finance controls the price and value of medicines*. Oakland: University of California Press.

Rushton, S., and Williams, O., 2011. *Partnerships and foundations in global health governance*. Springer.

Rushton, S., and Williams, O.D., 2012. Frames, paradigms and power: global health policy-making under neoliberalism. *Global society*, 26 (2), 147–167.

Sagonowsky, E. 2022. Gilead can't escape antitrust suit centered on pay-for-delay deal with Cipla, judge says, Aug 23. Available from: https://www.fiercepharma.com/pharma/gilead-cant-escape-antitrust-suit-centered-pay-delay-deal-cipla-judge-says.

Sell, S., 2003. *Private power, public law: the globalization of intellectual property rights*. Cambridge: Cambridge University Press.

Sell, S.K., 2020. What COVID-19 reveals about twenty-first century capitalism: adversity and opportunity. *Development*, 63, 150–6. doi:10.1057/s41301-020-00263-z.

Sell, S.K., and Prakash, A., 2004. Using ideas strategically: the contest between business and NGO networks in intellectual property rights. *International studies quarterly*, 48 (1), 143–175. doi:10.1111/isqu.2004.48.issue-1.

Shaxson, N. 2022. The quadruple tax system of patent monopolies. Available from: https://www.globaljustice.org.uk/blog/2022/07/the-quadruple-tax-system-of-patent-monopolies/.

Smith, A. 1776. *An inquiry into the nature and causes of the wealth of nations*. London: Methuen. Accessed online at https://oll.libertyfund.org/title/smith-an-inquiry-into-the-nature-and-causes-of-the-wealth-of-nations-cannan-ed-vol-1.

Smyth, J. 2022. Pfizer lifts revenue outlook as COVID jab price rise boosts sales. *Financial Times*, November 1. Available from: https://www.ft.com/content/4f4c1de2-6e82-4305-8fd3-c3344a32f4ab.

Smyth, J. 2023. Big Pharma dealmaking recovers with $85bn M&A splurge. *Financial Times*, June 12. Available from: https://www.ft.com/content/e03d746c-e74c-4e95-8d12-d1edef2880d7.

Sparke, M., 2022. Reactionary anti-globalism: the crisis of globalisation. In: R. Ballard and C. Barnett, eds. *The routledge handbook of social change*. New York: Routledge. pp. 19–33.

Sparke, M., and Levy, O., 2022. Competing responses to global inequalities in access to COVID vaccines: vaccine diplomacy and vaccine charity versus vaccine liberty. *Clinical infectious diseases*, 75 (1), S86–92. doi:10.1093/cid/ciac361.

Sparke, M., Malmberg, E., and Malpass, T., 2023. Bio-pharma hub development in global production networks: contrasting state policies and conjunctural value strategies. *Area development and policy*. doi: 10.1080/23792949.2023.2216258.

Sparke, M., and Williams, O.D., 2022. Neoliberal disease: COVID-19, co-pathogenesis and global health insecurities. *Environment and planning A: economy and space*, 54 (1), 15–32. doi:10.1177/0308518X211048905.

Sparke, M., and Williams, O.D., 2023. Pandemic co-pathogenesis: from the vectors to the variants of neoliberal disease. In: L. Talani and A. Cafruny, eds. *The political economy of global responses to COVID-19*. Champagne: Palgrave Macmillan. doi:10.1007/978-3-031-23914-4_13.

Stein, F., 2021. Risky business: COVAX and the financialization of global vaccine equity. *Globalization and health*, 17 (1), 112. doi:10.1186/s12992-021-00763-8.

Storeng, K.T., de Bengy Puyvallée, A., and Stein, F., 2021. COVAX and the rise of the 'super public private partnership' for global health. *Global public health*, 1–17. doi:10.1080/17441692.2021.1987502.

Taylor, A, 2022. Why covax, the best hope for vaccinating the world, was doomed to fall short. *The Washington post*, March 22. https://www.washingtonpost.com/world/2022/03/22/covax-problems-coronavirus-vaccines-next-pandemic/.

Tulum, Ö, Andreoni, A., and Lazonick, W., 2023. *From financialisation to innovation in UK Big pharma: AstraZeneca and GlaxoSmithKline*. Cambridge: Cambridge University Press.

Weiss, L. 1997. Globalization and the Myth of the Powerless State. *New left review*. 3–27.

Yoo, K., 2019. Pharmacy benefit managers and generic pharmaceuticals pricing conspiracy: unveiling lock-In mechanisms, structural shortcomings and antitrust evidence. *South Dakota Law Review*, 64, 43.