

COVID-19 vaccines, boosters and mandates: building a mission economy, not a rentier paradise

A few vaccine manufacturers now have enormous market power; how can we avoid profiteering?

The rapid development and deployment of effective vaccines against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection has rightly been hailed as a scientific and technological triumph.¹ At the end of March 2022, 95.1% of Australians aged over 16 years had received two vaccine doses, and 96.8% their first dose.² Across all ages, 82% of the entire Australian population had received at least two doses.³ While these vaccines are demonstrably reducing the toll of coronavirus disease 2019 (COVID-19) mortality and severe illness,^{4,5} the immunity provided by current vaccines (and/or prior infection) is high but not complete, and it is increasingly clear that this immunity wanes over time.^{6,7} As a consequence, booster immunisations are already being offered in many countries and may be required over several years.⁸

Much has been written on the continuing disparities in access to vaccines between high and low income nations. The COVID-19 Vaccines Global Access (COVAX) facility, designed to procure vaccines efficiently and equitably for all countries, is well behind on its goals, reducing by 25% its projected number of doses for allocation by the end of 2021,⁹ but had shipped over 1.4 billion doses to 145 countries by the end of March 2022.¹⁰ Calls by the World Health Organization for high income nations to refrain from embarking on large-scale booster programs until more first doses had been delivered in the Global South have been roundly ignored.¹¹ By March 2022, high income countries had already administered four times as many booster doses (546.6 million) as low income countries had administered total doses (136.8 million).¹²

This article explores another emerging concern: what are the economic consequences of limited, monopolistic or (strictly) oligopolistic supply of vaccines by only a few firms in a “captive market”, in which not only must vaccination be repeated periodically but individuals may also face mandatory vaccination requirements? It suggests that Australia and other high and middle-income nations are currently at grave risk of remaining hostage to a market captured by a small number of manufacturers.

Oligopolistic supply and rent extraction

Intellectual property rights confer monopoly power on their owners, on the basis that the promise of protected rewards will stimulate innovation and risk taking.¹³ Since 1995, member countries of the World Trade Organization have been bound by the Agreement on



Trade-Related Aspects of Intellectual Property Rights (TRIPS), providing for international enforcement of intellectual property. Intellectual property rights are assets; they give their owners access to a greater stream of income (“economic rent”) than they would have obtained in a situation of open competition. However, intellectual property rents can become unproductive when there are greater rewards for protecting and leveraging this additional income than for developing real innovations — often called “rent-seeking”.¹³ The long term trend for pharmaceutical firms to benefit from substantial government investment in product research and development, yet to fully privatise all the benefits of that investment to maximise profits through intellectual property rents, is now well understood.¹⁴ Debates over the exercise of monopoly of intellectual property rights and the refusal of key manufacturers to make the formulation of their COVID-19 vaccines available have been well covered,¹⁵ as have the problems of differential purchasing power and “vaccine nationalism” that have led to gross inequity in the distribution of vaccines between high and low income nations.¹⁶ Intellectual property rents can create incentives that may run counter to societal interests: at the limit, for example, private firms may not actually maximise profits by developing a fully sterilising universal vaccine that could eradicate COVID-19, suggesting that states and not-for-profit organisations should lead such efforts — part of the impetus behind the model for Corbevax, for instance.¹⁷

While a number of COVID-19 vaccines are now available internationally, most high income nations have access to only three or four: Pfizer, Moderna, AstraZeneca and Johnson and Johnson, joined very recently by Novavax. Notably, some of these firms also own the intellectual property of emerging antiviral treatments for COVID-19. Moderna is in dispute with

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the US National Institutes of Health (NIH) since the company filed a patent application for its COVID-19 vaccine which named only its own employees as inventors; the NIH counters that a number of government scientists made crucial contributions, not to mention large sums of public funding to develop and test the vaccine.¹⁸ Moderna has not shared its formulation in sufficient detail to allow it to be replicated, but has stated that it will not enforce its intellectual property during the pandemic. The WHO has therefore hired a South African biotechnology firm to reverse-engineer aspects of the Moderna vaccine to make it available for others to manufacture.¹⁹

Recent investigative reporting has given striking insights into the extraordinary levels of control Pfizer has successfully written into its contracts with a number of nations and the unprecedented market power and secrecy the firm now wields.²⁰⁻²² These include controls over public announcements, prohibitions on nations redistributing supply between each other without Pfizer's permission, transfer of legal risks from Pfizer to governments in the event of intellectual property infringements by Pfizer, and the use of private arbitration panels rather than public courts to settle disputes. Meanwhile, Moderna announced in November 2021 that European nations may now donate excess vaccines directly to COVAX, signalling that this was previously not permitted.²³ Pfizer and Moderna, in particular, hold enormous power in the global market for COVID-19 vaccines.

Future vaccine demand

Less attention has been paid to the economic implications of an oligopolistic market for COVID-19 vaccines in scenarios in which the COVID-19 pandemic stretches on for some years, and in which booster programs and/or vaccine mandates remain a feature for some time. Vaccine mandates (ie, mandatory vaccination requirements to allow participation in employment or other social and economic activities) introduce a level of compulsion to the demand for vaccines which is rarely encountered in other medical interventions. Vaccine mandates raise a range of profound legal and human rights questions, but these controversial debates will not be pursued here.²⁴ From an economic perspective, however, we find ourselves in a situation of potentially open-ended clinical need for vaccine boosters, which might become amplified by state-enforced, mandatory requirements for repeated vaccination for large populations in some jurisdictions, while low income countries still struggle to make meaningful progress towards initial vaccination. This particular combination of circumstances sets up something of a worst-case scenario for rent extraction.

Shaping the market for the common good

The economist Mariana Mazzucato has called for a new approach to “market shaping”,¹⁴ to transform current models of how public and private sectors work together to direct investment towards health for all, rather than in pursuit of ever-greater financialisation.²⁵ Mazzucato's work has highlighted how deeply

dependent on prior public investments much private sector pharmaceutical research and development has been, calling into question the received wisdom that innovation will cease if profits are threatened. Reshaping the market for COVID-19 vaccines is an essential test case for this new agenda.

In the short term, the Australian Government must “squeeze every drop” of vaccine value from existing contracts and insist on executing mechanisms to redistribute unused or unneeded capacity to lower income nations. Follow-on procurement contracts with existing manufacturers need to drive both lower prices and less restrictive terms. National and international decision-making processes need to strenuously eliminate conflicts of interest to restore confidence in integrity and impartiality.²⁶ Australia should lead a coalition of high and lower income governments to create an environment in which manufacturers must increasingly choose between working as partners in jointly owned public and private missions or as monopolistic adversaries bearing consequential risks. Australia should vigorously drive a TRIPS waiver to open up all vaccine intellectual property as the most desirable outcome in the short term, notwithstanding a waiver's requirement for unanimous agreement.¹⁵ In its absence, nations, groups of nations, and agencies, such as the WHO, must push harder to design new vaccines and reverse-engineer existing technologies to be made freely available to all.

Proactive efforts must be made to maximise the number of safe and effective COVID-19 vaccines on the Australian and global markets and to develop vaccines with ever higher effectiveness in preventing transmission. This entails urgent government financing and infrastructure support for new vaccine development by not-for-profit operations, and the establishment or expansion of more publicly owned, not-for-profit manufacturers, such as mRNA Victoria.²⁷ It also suggests that the Australian Government should proactively evaluate, approve and procure as many global vaccine brands for domestic use as possible (subject, of course, to normal evaluation procedures), to maximise competition within our national market and reduce the market power of individual suppliers, and promote competing not-for-profit initiatives. The Australian Government should exercise its powers for Crown use and compulsory licensing under the *Intellectual Property Laws Amendment (Productivity Commission Response Part 2 and Other Measures) Act 2020* imaginatively and to their fullest extent for the national and international public good.²⁸

In a period of growing international instability, groups of nations need to come together to plan and execute urgent actions to break through the unfortunate obstacles to sharing essential intellectual property embodied in current international trade and intellectual property agreements at multilateral, regional and bilateral levels, moving well beyond currently stalled attempts to secure a TRIPS waiver. Simply declaring the intention to exit these agreements is not sufficient, as most stipulate that their terms remain in force for up to 20 years after a country exits. Instead, a sufficient mass of countries need to identify

options for collective action to change, bypass or neutralise these frameworks in the short run, while a wholesale institutional redesign for international handling of intellectual property and trade in health care and other essential sectors is undertaken for the longer term.

The expansion in manufacturing capacity required to meet a protracted COVID-19 threat offers an extraordinary opportunity to establish stronger essential vaccine and pharmaceutical capabilities throughout the world, under public, not-for-profit ownership, for all major diseases, not just COVID-19. A distributed, locally owned manufacturing system will build not only stronger local technical capability but also much greater resilience in a world of climate-disrupted supply chains.²⁹ Indeed, Australia could and should set itself the mission of being able to supply our region's vaccine and essential drug needs for the future.¹⁴ It would be an enduring and positive legacy of COVID-19, and one that appropriately honours the scientific achievements the pandemic has brought forth.

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- 1 Commissioners of and Collaborators with the International AIDS Society–Lancet Commission on Health and Human Rights. Human rights and fair access to COVID-19 vaccines: the International AIDS Society–Lancet Commission on Health and Human Rights. *Lancet* 2021; 397: 1524–1527.
- 2 Department of Health. COVID-19 vaccination — vaccination data — 29 March 2022. Canberra. <https://www.health.gov.au/resources/publications/covid-19-vaccination-data-29-march-2022> (viewed April 2022).
- 3 Australian Bureau of Statistics. National, state and territory population [17 March 2022]. <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/sep-2021> (viewed April 2022).
- 4 Lopez Bernal J, Andrews N, Gower C, et al. Effectiveness of the Pfizer-BioNTech and Oxford-AstraZeneca vaccines on covid-19 related symptoms, hospital admissions, and mortality in older adults in England: test negative case-control study. *BMJ* 2021; 373: n1088.
- 5 McNamara LA, Wiegand RE, Burke RM, et al. Estimating the early impact of the US COVID-19 vaccination programme on COVID-19 cases, emergency department visits, hospital admissions, and deaths among adults aged 65 years and older: an ecological analysis of national surveillance data. *Lancet* 2022; 399: 152–160.
- 6 Centers for Disease Control and Prevention. Science brief: SARS-CoV-2 infection-induced and vaccine-induced immunity [29 Oct 2021]. <https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/vaccine-induced-immunity.html> (viewed Dec 2021).
- 7 Townsend JP, Hassler HB, Wang Z, et al. The durability of immunity against reinfection by SARS-CoV-2: a comparative evolutionary study. *Lancet Microbe* 2021; 2: e666–e675.
- 8 Monto AS. The future of SARS-CoV-2 vaccination — lessons from influenza. *New Engl J Med* 2021; 385: 1825–1827.
- 9 Usher AD. Vaccine shortages prompt changes to COVAX strategy. *Lancet* 2021; 398: 1474.

- 10 UNICEF. COVID-19 vaccine market dashboard [1 Apr 2022]. <https://www.unicef.org/supply/covid-19-vaccine-market-dashboard> (viewed Apr 2022).
- 11 Ghebreyesus TA. WHO Director-General's opening remarks at the media briefing on COVID-19, 8 September 2021. Geneva: WHO, 2021. <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19--8-september-2021> (viewed Dec 2021).
- 12 Our World in Data. Coronavirus (COVID-19) vaccinations. <https://ourworldindata.org/covid-vaccinations> (viewed Apr 2022).
- 13 Christophers B. Rentier capitalism: who owns the economy and who pays for it? London: Verso Press, 2020.
- 14 Mazzucato M. Mission economy: a moonshot guide to changing capitalism. London: Allen Lane, 2021.
- 15 Okereke M. Towards vaccine equity: Should big pharma waive intellectual property rights for COVID-19 vaccines? *Public Health Pract (Oxf)* 2021; 2: 100165.
- 16 Rutschman AS. The COVID-19 vaccine race: intellectual property, collaboration(s), nationalism and misinformation. *Washington University Journal of Law and Policy* 2021; 64: 167–202.
- 17 Oaten J. Could a patent-free vaccine offer a COVID solution that stands up against Alpha, Delta, Omicron, and future variants? *ABC News* 2022; 24 Feb. <https://www.abc.net.au/news/2022-02-24/covid-patent-free-vaccine-corbex-could-be-game-changer/100848820> (viewed Apr 2022).
- 18 Stolberg SG, Robbins R. Moderna and US at odds over vaccine patent rights. *The New York Times* 2021; 9 Nov. <https://www.nytimes.com/2021/11/09/us/moderna-vaccine-patent.html> (viewed Dec 2021).
- 19 Aizenman N. Moderna won't share its vaccine recipe. WHO has hired an African startup to crack it. *NPR* 2021; 19 Oct. <https://www.npr.org/sections/goatsandsoda/2021/10/19/1047411856/the-great-vaccine-bake-off-has-begun> (viewed Dec 2021).
- 20 Rizvi Z. Pfizer's power. *Public Citizen* (Washington, DC) 2021; 19 Oct. <https://www.citizen.org/article/pfizers-power/?eType=EmailBlastContent&eld=9b708ddb-d34d-4dfa-95e4-d4d672a82a1b> (viewed Dec 2021).
- 21 Kuchler H, Mancini DP, Pilling D. The inside story of the Pfizer vaccine: "a once in an epoch windfall". *Financial Times* 2021; 30 Nov. <https://www.ft.com/content/0cea5e3f-d4c4-4ee2-961a-3aa150f388ec> (viewed Dec 2021).
- 22 Ungoed-Thomas J. "Wall of secrecy" in Pfizer contracts as company accused of profiteering. *The Guardian* 2021; 5 Dec. <https://www.theguardian.com/uk-news/2021/dec/05/wall-of-secrecy-in-pfizer-contracts-as-company-accused-of-profiteering> (viewed Dec 2021).
- 23 Moderna announces European Union and European Economic area countries to donate more than 70 million doses of Moderna COVID-19 vaccine to COVAX in 2021 to help end COVID-19 pandemic in low income countries [press release]. *Business Wire* 2021; 16 Nov. <https://www.businesswire.com/news/home/2021116005778/en/> (viewed Dec 2021).
- 24 Leask J, Seale H, Williams JH, et al. Policy considerations for mandatory COVID-19 vaccination from the Collaboration on Social Science and Immunisation. *Med J Aust* 2021; 215: 499–503. <https://www.mja.com.au/journal/2021/215/11/policy-considerations-mandatory-covid-19-vaccination-collaboration-social>
- 25 World Health Organization. Financing health for all: increase, transform and redirect —WHO Council on the Economics of Health for all [Brief No. 2]. <https://www.who.int/publications/m/item/council-brief-no-2> (viewed Dec 2021).
- 26 Thacker PD. COVID-19: how independent were the US and British vaccine advisory committees? *BMJ* 2021; 373: n1283.
- 27 Government Department of Jobs, Precincts and Regions; Victoria State. mRNA Victoria [press release]. <https://djpr.vic.gov.au/medical-research/initiatives/mrna-victoria> (viewed Dec 2021).
- 28 Australian Government, Federal Register of Legislation. *Intellectual Property Laws Amendment (Productivity Commission Response Part 2 and Other Measures) Act 2020*. <https://legislation.gov.au/Details/C2020A00009> (viewed Apr 2022).
- 29 Hensher M. Anthropocene health economics: preparing for the journey or the destination? In: Zywert K, Quilley S, editors. *Health in the Anthropocene: living well on a finite planet*. Toronto: University of Toronto Press, 2020; pp 107–139. ■