

FREE VACCINES AND LOST PRIVILEGES

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Governments are resorting to incentives to put the COVID-19 pandemic behind them. Using Canada as a case study, this article discusses how governments have used positive and negative incentives to increase vaccination rates, which is key to minimizing the public health risks and restrictions related to the COVID-19 pandemic.ⁱ This analysis sheds light on salient issues regarding the power and limitations of behavioural incentives, especially in the context of broader social and political challenges.

The Canadian government's strategy to maximize vaccination rates is best construed as one to increase vaccine accessibility while creating barriers to daily life for those who choose not to get vaccinated. This combination of both positive and negative incentives has boosted vaccination rates for the majority of the population.ⁱⁱ However, its effectiveness appears to have stalled, and scientists agree that reaching the remaining segment of the population will be significantly harder.ⁱⁱⁱ The first two sections of this article discuss the twin aspects of Canada's strategy. The third section critically assesses the effectiveness of both positive and negative incentives in a social and political context defined by misinformation. It argues that government strategies to maximize vaccination rates are unlikely to be effective in reaching the significant segment of the population which holds honest yet incorrect beliefs regarding COVID-19 and vaccines.

Free Vaccines

In Canada, vaccines against COVID-19 have been free.^{iv} This is also true of many other developed countries.^v It is interesting that this strategy was adopted from the onset and for all

residents (including non-citizens).^{vi} Vaccination rates are crucial to lifting public health restrictions related to the pandemic, and these restrictions have a significant financial cost, both to the government and private actors.^{vii} Governments will therefore naturally want to remove as many barriers as possible to increasing vaccination rates, including cost, to nudge individuals to get vaccinated.^{viii}

However, as noted, vaccines have been free for all – not just to those who cannot afford them. The Canadian government likely determined that cost can act as a barrier even for those who could afford the vaccine. It therefore chose to fully fund the cost of the vaccine. More interestingly, free vaccines are also available to those with private health insurance. In other words, the government is electing to cover a cost that would otherwise be covered by private actors. This may seem to be a peculiar decision. The Canadian government likely projected that either the out-of-pocket remaining cost for those with insurance or the *other* barriers inherent to private health insurance would act as barriers to vaccination rates. Indeed, individual decision-making is subject to status quo bias.^{ix} Individuals maintain their current status even when doing so is suboptimal. Additional barriers (labelled sludge) further entrench status quo bias.^x Such barriers include all of the steps required for individuals to claim a refund from their insurance company, such as completing paperwork and finding and submitting receipts or other evidence.^{xi}

Lost Privileges

The other twin pillar of Canada's strategy to boost vaccination rates has been to create barriers to daily life for those who choose not to get vaccinated. Approaches to maximizing

vaccination rates were a key issue in the latest Canadian election campaign (preceding the election held on September 20, 2021). Neither of Canada's two major parties proposed a vaccination mandate. (A broad vaccination mandate would likely be unconstitutional in Canada; however, one designed with sufficient exceptions and responsiveness to individual circumstances could be constitutional.) In other words, the behavioural incentives described in this and the previous section were thought to be sufficient to boosting vaccination rates. Re-elected Prime Minister Justin Trudeau nonetheless proposed a vaccination requirement for employees of the public service and those wishing to travel by federally regulated transportation (notably air and rail transportation).^{xii} Opposition leader Erin O'Toole opposed these mandates, proposing instead that those who choose not to get vaccinated present a negative COVID-19 test result.^{xiii}

Trudeau's proposed vaccination mandates were implemented after the election.^{xiv} In the absence of a broader federal vaccination mandate, Canada's response to vaccination rates has been shaped by provincial governments. While both the provinces and the federal government are involved in matters related to health, the federal government's involvement is limited by section 91(11) of the *Constitution Act, 1867* to "quarantine and the establishment and maintenance of Marine hospitals." The federal government indirectly exercises its legislative power over healthcare through its criminal law and spending powers.^{xv} At the provincial level, health was historically seen as a merely local matter thus governed by section 92(16) of the *Constitution Act, 1867*, while section 92(7) of the *Act* vests legislative powers over hospitals in a province.^{xvi} Given the provinces' powers, many have chosen to enact "vaccination passports," essentially requiring proof of vaccination to access most private and public premises. The only exceptions are for access

to essential services – narrowly defined – such as grocery stores.^{xvii} These exceptions are likely necessary for the programs to withstand constitutional scrutiny.

As an example, Ontario’s vaccination passport is formally named the Ontario enhanced vaccine certificate.^{xviii} Ontario residents who have received valid doses of an authorized vaccine are eligible to download their enhanced vaccine certificate. The certificate includes a Quick Response (QR) code, which can be scanned through the Verify Ontario App to confirm vaccination status; however, vaccine certificates without a QR code remain valid.^{xix} When presenting proof of vaccination, patrons must also provide an identification document that includes their name and date of birth.^{xx} With an applicable mandate in effect, Ontario residents are required to show proof of vaccination before entering the indoor areas of restaurants and bars, meeting and event spaces (with limited exceptions), gyms and recreation fitness halls, casinos and other gaming venues, bathhouses, sex clubs, and strip clubs.^{xxi} As for outdoor establishments, proof of vaccination is required to access meeting and event spaces, recreational fitness facilities, horse racing and motorsport tracks, and food and drink establishments with dance facilities.^{xxii} Nearly every Canadian province has implemented some form of vaccine passport and has signed on to a national standard of vaccine passport.^{xxiii}

Beyond formal state enactments, other institutions, such as universities, have mandated vaccination to access their facilities.^{xxiv} These institutions sought to protect the health of their community members in particularly high-risk settings, such as classrooms. Their mandates are more restrictive than the vaccination passports adopted by Canadian provinces, and they likely contributed to the effectiveness of the government’s strategy to boost vaccination rates.

Requiring proof of vaccination to engage in fundamental activities of Canadians' daily life will undoubtedly act as a powerful incentive to vaccination. As noted above, Canadian governments may have been able to enact a general vaccination mandate, requiring all individuals to get vaccinated. To the extent that the mandate provides sufficient exemptions to accommodate the health and religious rights of individuals, it would likely have been constitutional.^{xxv} Nonetheless, for political or other reasons, governments instead chose to incentivize individuals to get vaccinated. Given the significant limitations of individual mobility, provincial vaccination passports can be construed as providing a coercive incentive whose impact will likely be almost equivalent to a vaccination mandate. This more coercive incentive complements the positive incentive of state funding of vaccines described above, which on its own would likely have been insufficient for vaccination rates to reach the levels necessary to lift public health restrictions.^{xxvi}

Misinformation and the Limits of Incentives

The incentives described in the previous sections assume rational or predictably irrational behaviour. In other words, they assume that individuals will respond to incentives, whether positive or negative, and to the removal of sludge. While these assumptions are generally correct, the particular social and political context of the COVID-19 pandemic unsettles them. Certain segments of the population hold incorrect, but sincere, beliefs regarding COVID-19 vaccines that prevent them from responding to these incentives. Conspiracy theories gained support from the onset of the pandemic and have persisted.^{xxvii} Their emergence is tied to the behavioural biases similar to those which make nudges and the removal of sludge effective. We are indeed likely to

seek to explain significant events with proportionately important causes, especially in times of crisis.^{xxviii} Unvaccinated individuals may believe that COVID-19 is a biological weapon developed in a Chinese lab.^{xxix} They may believe that it is a hoax designed to control the world's population.^{xxx} Or they may believe that microchips are added to COVID-19 vaccines by individuals related to Bill Gates.^{xxxi} They may also hold broader incorrect beliefs about vaccines, such as a belief that vaccines cause autism.^{xxxii}

Individuals who hold these deep but incorrect beliefs are unlikely to respond to incentives. Even a severe limitation of the “privileges” of daily life is unlikely to affect the behaviour of an individual who believes that getting vaccinated will unnecessarily affect their health or allow obscure forces to gain control over their life. Adherence to these conspiracy theories is a significant limit to behavioural incentives.^{xxxiii} And the social and political context of a global health crisis is particularly fertile ground for these conspiracy theories. Adherence to conspiracy theories is also closely tied to identity formation. For instance, right-leaning individuals are more likely to adhere to COVID-19 conspiracy theories,^{xxxiv} as are individuals who hold certain ideological beliefs they ascribe to the Christian religion.^{xxxv} Recent data suggests some 30 percent of Canadians believe COVID-19 was intentionally created in a lab as a biological weapon.^{xxxvi}

Given the widespread adherence to these conspiracy theories, and its close relationship to political polarization, government strategies that rely solely on incentives are unlikely to sufficiently maximize vaccination rates. This is likely one of the reasons why the data suggests that their effectiveness has stalled.^{xxxvii} Of course, the simplest alternative solution would be to adopt a constitutionally compliant vaccination mandate. However, mandating vaccination is likely

to further alienate those who hold sincere but incorrect beliefs regarding COVID-19 and vaccines, and fuel conspiracy theories. Given the widespread adherence to these conspiracy theories, vaccination mandates may even undermine the legitimacy of the public institutions we routinely take for granted, but which are essential to our way of life. Government might be better advised to try to tackle the more fundamental question of why so many believe in conspiracy theories and deeply distrust power. They may well find that change will happen, as it often does, not in the corridors of power, but in the tough conversations that take place between neighbours, family members, and friends at work, and around the kitchen table.

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ⁱ See “Adjusting Public Health Measures in the Context of COVID-19 Vaccination” (last visited 5 November 2021), online: *Government of Canada* <www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/guidance-documents/adjusting-public-health-measures-vaccination.html>.

ⁱⁱ See “COVID-19 Vaccination in Canada” (last visited 29 October 2021), online: *Government of Canada* <www.health-infobase.canada.ca/covid-19/vaccination-coverage/>.

ⁱⁱⁱ See Wency Leung & Chen Wang, “First-Dose COVID-19 Vaccinations Plateau Across Canada, Threatening Path to Variant Resilience”, *The Globe and Mail* (7 July 2021), online: <www.theglobeandmail.com/canada/article-its-the-hesitant-group-that-we-need-to-be-able-to-convert-first-dose/>; Leslie Young, “‘Like Running a Marathon’: How to Reach Canadians Still not Vaccinated Against COVID-19”, *Global News* (11 July 2021), online: <www.globalnews.ca/news/8015868/canada-covid-vaccine-push-hesitancy/>.

^{iv} See “Vaccines for COVID-19: How to Get Vaccinated” (last visited 29 October 2021), online: *Government of Canada* <www.canada.ca/en/public-health/services/diseases/coronavirus-disease-covid-19/vaccines/how-vaccinated.html> [*How to Get Vaccinated*].

^v See “Covid-19 Vaccines Are Free to the Public” (last visited 24 May 2021), online: *Centers for Disease Control and Prevention* <www.cdc.gov/coronavirus/2019-ncov/vaccines/no-cost.html>; Isabel Reynolds, “Japan Parliament Passes Bill to Provide Free Covid Vaccinations”, *BNN Bloomberg* (1 December 2020), online: <www.bnnbloomberg.ca/japan-parliament-passes-bill-to-provide-free-covid-vaccinations-1.1530425>; “China to Provide COVID-19 Vaccines Free of Charge – Official”, *Reuters* (8 January 2021), online: <www.reuters.com/world/china/china-provide-covid-19-vaccines-free-charge-official-2021-01-09/>; Dominique Vidalon, “France Says COVID-19 Vaccine Will Be Free for All”, *Reuters* (3 December 2020), online: <www.reuters.com/article/us-health-coronavirus-vaccination-idUSKBN28D2PS>; Chris Brown, “Russia Has Plenty of COVID-19 Vaccine Doses. What’s Missing Is Trust.”, *CBC News* (27 May 2021), online: <www.cbc.ca/news/world/russia-covid-vaccine-rollout-sputnik-1.6041050>.

^{vi} *How to Get Vaccinated*, *supra* note iv.

^{vii} See Phil Lord, “Incentivising Employment During the COVID-19 Pandemic” (2020) 8:3 *The Theory and Practice of Legislation* 355; Phil Lord & Lydia Saad, “Tackling the COVID-19 Pandemic” (2020) 43:2 *Man LJ* 355.

^{viii} See Richard H Thaler & Cass R Sunstein, *Nudge: The Final Edition* (London, UK: Penguin Random House, 2021).

^{ix} See William Samuelson & Richard Zeckhauser, “Status Quo Bias in Decision Making” (1988) 1:1 *J Risk & Uncertainty* 7.

^x See Cass R Sunstein, *Sludge: What Stops Us from Getting Things Done and What to Do About It* (Cambridge, Massachusetts: MIT Press, 2021); Cass R Sunstein, “Sludge Audits” (2020) 32 *Behavioural Public Policy* 1.

^{xi} Vaccination programs could have been better designed. There are further sludge barriers to vaccination, such as making an appointment to get vaccinated and remembering the scheduling of one’s appointment. Governments could have created systems to remind individuals of the time and date of their appointment or vaccinated individuals in the workplace to minimize the time and effort necessary to get vaccinated.

^{xii} See Graeme Frisque, “Trudeau Promises Mandatory Vaccinations for Air and Train Travel During Mississauga Election Campaign Stop”, *The Toronto Star* (3 September 2021), online: <www.thestar.com/local-brampton/news/federal-election/2021/09/03/trudeau-promises-mandatory-vaccinations-for-air-and-train-travel-during-mississauga-election-campaign-stop.html?rf&itm_source=parsely-api>; Rachel Aiello, “Vaccine Mandates: Where the Parties Stand on the Campaign Wedge Issue”, *CTV News* (16 August 2021), online: <www.ctvnews.ca/politics/federal-election-2021/vaccine-mandates-where-the-parties-stand-on-the-campaign-wedge-issue-1.5549511>.

^{xiii} Aiello, *supra* note xii. See John Paul Tasker, “Erin O’Toole Opposes Mandatory Vaccination for Federal Public Servants, Travellers”, *CBC News* (16 August 2021), online: <www.cbc.ca/news/politics/otoole-opposes-mandatory-vaccination-1.6142113>; Aaron Wherry, “O’Toole Takes a Position On Mandatory Vaccines – and Clarifies the Debate”, *CBC News* (19 August 2021), online: <www.cbc.ca/news/politics/erin-otoole-vaccine-trudeau-singh-1.6146385>.

^{xiv} See Prime Minister of Canada, News Release, “Prime Minister Announces Mandatory Vaccination for the Federal Workforce and Federally Regulated Transportation Sectors” (6 October 2021), online: <www.pm.gc.ca/en/news/news-releases/2021/10/06/prime-minister-announces-mandatory-vaccination-federal-workforce-and>. In the United States, an executive order was issued mandating COVID-19 vaccines for all federal employees, with only limited exemptions (US, Requiring Coronavirus Disease 2019 Vaccination for Federal Employees, Executive Order No 14043, 86 FR 50989, 2021). At the state and local level, in response to the Omicron variant, cities such as New York implemented vaccination mandates for private employers, in addition to the mandates already in place for city workers and customers at indoor dining, entertainment, and recreational facilities (Emma G Fitzsimmons, “New York City Sets a Sweeping Vaccine Mandate for All Private Employers”, *New York Times* (6 December 2021), online: <www.nytimes.com/live/2021/12/06/world/omicron-variant-covid/nyc-vaccine-mandate-deblasio>). Despite these actions, the federal government is either unable or unwilling to create a vaccination passport system similar to those implemented in Canada (Hugo Martin, “COVID Vaccine ‘Passports’ in the U.S.: Here’s What We’re Getting and Why”, *LA Times* (14 June 2021), online: <www.latimes.com/business/story/2021-06-14/covid-vaccine-passport-united-states>).

^{xv} See Martha Jackman, “Constitutional Jurisdiction Over Health in Canada” (2000) 8 Health LJ 95.

^{xvi} See Commission on the Future of Health Care in Canada, *Health and the Distribution of Powers in Canada* (Discussion Paper No 2) (Saskatoon: Commission on the Future of Health Care in Canada, 2002).

^{xvii} See Ontario, Office of the Premier, “Ontario Releases Plan to Safely Reopen Ontario and Manage COVID-19 for the Long-Term” (News Release) (22 October 2021), online: <<https://news.ontario.ca/en/release/1001027/ontario-releases-plan-to-safely-reopen-ontario-and-manage-covid-19-for-the-long-term>>.

^{xviii} See “Proof of COVID-19 Vaccination” (last visited 22 July 2022), online: *Government of Ontario* <www.covid-19.ontario.ca/proof-covid-19-vaccination> [Proof of Vaccination].

^{xix} See “Information for Businesses and Organizations About Vaccine Certificates” (last visited 22 July 2022), online: *Government of Ontario* <www.covid-19.ontario.ca/proof-vaccination-information-businesses-and-organizations>.

^{xx} *Ibid.*

^{xxi} Proof of Vaccination, *supra* note xviii.

^{xxii} *Ibid.*

^{xxiii} See “Does My Province Have COVID-19 Vaccine Passports, Mandates or Public Restrictions? The Rules Across Canada”, *The Globe and Mail* (last visited 10 March 2022), online: <www.theglobeandmail.com/canada/article-covid-19-vaccine-passports-mandates-restrictions-explainer/>; Global News, “Trudeau Unveils Canada’s International COVID-19 Vaccine Passport | Full” (21 October 2021), online (video): *YouTube* <www.youtube.com/watch?v=uYew7v8PyhA&t=306s>.

^{xxiv} See Denise Paglinawan, “More Ontario Universities Make COVID-19 Vaccination Mandatory on Campus”, *CTV News* (12 August 2021), online: <www.toronto.ctvnews.ca/more-ontario-universities-make-covid-19-vaccination-mandatory-on-campus-1.5545092>; Ontario, Ministry of Health, *Instructions Issued by the Office of the Chief Medical Officer of Health* (Toronto: Ontario Ministry of Health, 3 September 2021); “Mandatory Vaccine Policy” (3 September 2021), online: *Lakehead University* <www.lakeheadu.ca/about/coronavirus/mandatory-vaccine-policy>; “COVID-19 Vaccinations”, online: *University of Toronto* <www.utoronto.ca/utogether/vaccines>.

^{xxv} See *Canadian Charter of Rights and Freedoms*, Part I of the *Constitution Act, 1982*, being Schedule B to the *Canada Act 1982* (UK), 1982, c 11. Subsection 2(a) of the *Canadian Charter of Rights and Freedoms* protects freedom of religion, while section 7 protects the right to life, liberty and security of the person. These rights are subject to reasonable limitations pursuant to section 1 of the *Charter*, which essentially provides for a means-end assessment of a government’s rights-infringing policy. As the public health and other consequences of the pandemic are significant (Lord, *supra* note vii; Lord & Saad, *supra* note vii), governments would have significant leeway to limit constitutional rights.

^{xxvi} Although governments have referred to individuals losing “privileges” (See e.g. Paola Loriggio, “Federal Vaccine Passport to be Unveiled ‘in the Coming Months, or a Year’: Trudeau”, *Global News* (3 September 2021), online: <www.globalnews.ca/news/8165931/trudeau-vaccine-passports-travel-interim-measure/>; Christopher Nardi, “Trudeau Considers Mandatory Vaccination for All Public Servants, While Quebec Plans for Vaccine Passports”, *National Post* (5 August 2021), online: <www.nationalpost.com/news/feds-considering-making-vaccination-mandatory-for-public-servants-federally-regulated-industries>; Ontario, Legislative Assembly, *Official Report of Debates (Hansard)*, 42-2, No 27A (1 December 2021) at 1392 (Paul Miller); Ontario, Legislative Assembly of Ontario, *Official Report of Debates (Hansard)*, 42-2, No 21 (22 November 2021) at 1044 (Gilles Bisson)), vaccination passports are best construed as a punishment. They significantly limit fundamental aspects of daily life that individuals routinely take for granted. Punishments influence behaviour like positive incentives (or rewards), but often differently (See Linda D Molm, “The Structure and Use of Power: A Comparison of Reward and Punishment Power” (1988) 51:2 Soc Psychology Q 108; Tali Sharot, “What Motivates Employees More: Rewards or Punishments?” (26 September 2017), online: *Harvard Business Review* <www.hbr.org/2017/09/what-motivates-employees-more-rewards-or-punishments>; Uri Gneezy & Aldo Rustichini, “Incentives, Punishment, and Behavior” in Colin F Camerer, George Loewenstein & Matthew Rabin, eds, *Advances in Behavioral Economics* (Princeton: Princeton University Press, 2004) 572). It is therefore wise to combine both types of incentive. Certain provinces have also adopted more traditional rewards. For instance, Quebec created a lottery allocating some two million dollars to vaccinated individuals (See Quebec, Ministère de la Santé et des Services sociaux & Loto-Québec, *The “Being Vaccinated, It’s a Win!” Vaccination Contest Rules*, online (pdf): <www.cdn-contenu.quebec.ca/cdn-contenu/sante/documents/Problemes_de_sante/covid-19/reglement_concours_vaccination_anglais.pdf?1630417274>).

^{xxvii} See Karen M Douglas, “COVID-19 Conspiracy Theories” (2021) 24:2 *Group Processes & Intergroup Relations* 270; Jay J Van Bavel et al, “Using Social and Behavioural Science to Support COVID-19 Pandemic Response” (2020) 4 *Nature Human Behaviour* 460 at 464.

^{xxviii} Bavel et al, *supra* note xxvii. See Patrick Leman & Marco Cinnirella, “A Major Event Has a Major Cause: Evidence for the Role of Heuristics in Reasoning About Conspiracy Theories” (2007) 9 *Soc Psychological Rev* 18.

^{xxix} Douglas, *supra* note xxvii at 270; Bavel et al, *supra* note xxvii at 464.

^{xxx} Douglas, *supra* note xxvii. See Roland Imhoff & Pia Lamberty, “A Bioweapon or a Hoax? The Link Between Distinct Conspiracy Beliefs About the Coronavirus Disease (COVID-19) Outbreak and Pandemic Behavior” (2020) 11:8 *Soc Psychological & Personality Science* 1110.

^{xxxi} See Jack Goodman & Flora Carmichael, “Coronavirus: Bill Gates ‘Microchip’ Conspiracy Theory and Other Vaccine Claims Fact-Checked”, *BBC News* (30 May 2020), online: <www.bbc.com/news/52847648>; James Heathers, “Putting Microchips in Vaccines Is a Terrible Idea, When You Think About It”, *The Atlantic* (3 June 2021), online: <www.theatlantic.com/technology/archive/2021/06/microchipped-vaccines-15-minute-investigation/619081/>.

^{xxxii} This belief finds its genesis in a study published in *The Lancet*, a preeminent medical journal, which was later retracted (Clare Dyer, “Lancet Retracts Wakefield’s MMR Paper” (2010) 340:7741 *British Medical J* 281; The Editors of the *Lancet*, “Retraction—Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children” (2010) 375:9713 *Lancet* 445).

^{xxxiii} As I noted above, conspiracy theories generally involve a distrust of authority and government institutions. They are particularly hard to dispel when related to science and public health because assessing the credibility of a source of information often involves appeals to authority.

^{xxxiv} Goodman & Carmichael, *supra* note xxxi. See Andrea Bellemare, “Far-Right Groups May Try to Take Advantage of Pandemic, Watchdogs Warn”, *CBC News* (9 April 2020), online: <www.cbc.ca/news/science/far-right-opportunistic-covid-pandemic-1.5526423>; Maija Kappler, “Right-Leaning Men Make Up Large Percentage of Canada’s Unvaccinated”, *Ottawa Citizen* (3 November 2021), online: <www.ottawacitizen.com/diseases-and-conditions/coronavirus/vaccine-for-coronavirus/angus-reid-canada-unvaccinated/wcm/2b6044a9-7b2f-4208-a84e-43afe20d0d1e>. This is likely related to the broader distrust of government and public institutions by these individuals.

^{xxxv} See Vice News, “QAnon Conspiracies Are Tearing Through Evangelical America” (19 October 2021), online (video): *YouTube* <www.youtube.com/watch?v=rYMIozCKxGE>; Tyler Dawson & Sharon Kirkey, “Who Are the Anti-Vaxxers? Here’s What We Know—And How They Got There in the First Place”, *National Post* (27 March 2019), online: <www.nationalpost.com/news/canada/who-are-the-anti-vaxxers>; Steve Mossop, “Significant Minority of Canadians Believe COVID-19 Misinformation, Rivalling Long-Established Conspiracy Theories” (30 April 2021), online: *PR.com* <www.pr.com/press-release/835721>. (Political polarization is in part caused by the politicization of journalism and the rise of social media. Social media algorithms help lead individuals with particular political or religious views to conspiracy theories. See Cass R Sunstein, *Liars: Falsehoods and Free Speech in an Age of Deception* (Oxford: Oxford University Press, 2021); Markus Prior, “Media and Political Polarization” (2013) 16 *Annual Rev Political Science* 101; Brandy Zadrozny, “‘Carol’s Journey’: What Facebook Knew About How It Radicalized Users”, *NBC News* (22 October 2021), online: <www.nbcnews.com/tech/tech-news/facebook-knew-radicalized-users-rcna3581>; Kris Van Cleave, “Internal Facebook Documents Detail How Misinformation Spreads

to Users”, *CBS News* (5 October 2021), online: <www.cbsnews.com/news/facebook-whistleblower-frances-haugen-documents-misinformation-spread/>.)

^{xxxvi} Mossop, *supra* note xxxv.

^{xxxvii} Leung & Wang, *supra* note iii; Young, *supra* note iii.