

Rethinking the nexus between science, politics and society in the age of the SARS-CoV-2 pandemic

Paolo Bory

Politecnico di Milano

Stefano Crabu

University of Padova

Barbara Morsello

University of Padova

Marta Tomasi

University of Trento

Simone Tosoni

University La Cattolica, Milano

Abstract: This crossing boundaries section addresses the substantial aspects at stake in reshaping the nexus between science, politics and society triggered by the Covid-19 pandemic. In this regard, three main dimensions are explored: first, the emerging forms of science-related populism and how political narratives challenge and dispute prevailing scientific knowledge; second, the platformization of science communication and the active role of users and communities in consuming and spreading online misinformation; third, the role of lay expertise in contesting the epistemic authority of science during the health emergency. The authors explore the related topics by mobilizing different theoretical frameworks from STS studies, media studies and legal science, also moving from empirical to theoretical level in order to challenge the “surface” of a multilayered phenomenon.

Keywords: science-related populism; lay expertise; online communities; pandemic; public controversies; digital platforms.

Corresponding author: Paolo Bory, Department of Design, Politecnico di Milano (Via Durando 10, Milan, Italy) Email: paolo.bory@polimi.it

On populism, infodemic and lay expertise. Linking the surface, the layer and the substrate in mistrusting scientific practice

Paolo Bory and Stefano Crabu

One of the most pervasive claims circulating in the public sphere following the spread of the SARS-CoV-2 virus is that the uncertainty arising from pandemic governance and related science-based decision-making

Pellizzoni, L. (2019) *Innocent, Guilty or Reluctant Midwife? On the Reciprocal Relevance of STS and Post-truth*, in "Tecnoscienza: Italian Journal of Science & Technology Studies", 10(1), pp. 115-130.

* * *

Populism, politics, and science in the midst of the pandemic

Marta Tomasi

Introduction – Trust and the pandemic

The CoViD-19 pandemic played a central role in bringing forgotten issues to light and raising the collective awareness of others. First, the spread of the virus has brought back into the spotlight public health issues that, at least in a certain part of the world, have been only marginally addressed by the political agendas. Consequently, the attention that has been paid in the last decades to affirming the value of individual self-determination in health has been supplemented with the awareness of the extent to which personal choices made in this area can affect common living. Second, the containment strategies implemented have highlighted how policy decisions increasingly need to be based on a sound scientific foundation. The events of the last months (since January 2020) – which are now turning into years – have demonstrated the importance of both society and regulatory institutions being in tune with science. As both these relationships are based on trust, it is interesting to reflect on how the rhetoric of populism – which makes the very idea of 'trust' one of its favourite targets – impacts on them.

Moving from a legal perspective, thus, this paper investigates the concept of science-related populism, relating it to political populism. The two phenomena not only share some basic foundations, such as distrust and conflict around sovereignty, but are dynamics that thrive on mutual connections. The recent pandemic, which called for a rediscovery of the value of relationships in the field of health, the centrality of public policies, and the importance of their close connection with scientific reality, serves as a case study to explore the dynamics of this relationship. The overall aim is to affirm the profoundly democratic root that must govern the 'political power-science-citizenship' circuits.

Trust and sovereignty as constitutive elements of populism

It can be said that the ability to control epidemics strongly relies on public compliance with government decisions and scientific advice and that the

chance to modify citizens' behaviours, even before coercion, depends upon trust. The clearest and most up-to-date example of this order of precedence is to be found in policies that – before imposing an obligation to vaccinate – proceed with information, education and persuasion of the population, only to move on to more coercive strategies when immunization rates are low.¹ The willingness of individuals to act to promote outcomes that benefit the greater societal good is intuitively strongly determined by their attitude towards (and level of confidence in) institutions and the *res publica*.

From this perspective, the populist discourse – which describes society as a fundamental struggle between an allegedly virtuous people (a popular majority having a common will)² and elites (conceived as a social minority having decisional power),³ who are portrayed negatively (Rooduijn 2019) – can clearly play a crucial role in the current situation. This statement requires some clarification.

Populism is difficult to capture in a single, uniform definition. Nonetheless, trust is commonly considered one of the critical targets of this phenomenon, and its opposite, distrust, is surely one of the elements common to all tendencies that can be framed under a general notion of populism.⁴ More precisely, a focus on the social practices to weaken and dismantle trust, as well as the notion of distrust, certainly characterise the best-known conception of populism – that of political populism – but also some of its more specific and less conceptualised declinations, such as science-related populism (often referred to also as scientific populism). While the former is a tendency that has spread widely, especially in the last decades, so much so that some authors have conceptualised an 'age of populism' (Smith 2018), the latter is a trend that has emerged more recently and consolidated its features during the pandemic.

Looking at these phenomena from the point of view of trust, it can be observed that political populism often aims at weakening trust in political institutions and tends to undermine citizens' confidence that their governments are competent and reliable. Generally indispensable to state legitimacy, trust is critical in promoting respect for the rule of law.

Likewise, the erosion of trust also belongs to scientific or science-related populism, which often opposes the people and scientific experts, seen as

¹ For a summary of positions on possible alternatives, with specific reference to the pandemic context: Pennings and Symons (2021) in response to Savulescu (2020).

² The term 'the people' does not usually denote a concrete physical group of individuals, but rather functions as an 'empty signifier' to refer to a group having a purported moral superiority, depicted as homogeneous and thus able to express the *volonté générale*. This will is considered to be the legitimate foundation for political and societal decisions (Mudde 2004).

³ 'The elite' is seen as the villainous antagonist of 'the people' and includes political, economic, legal, cultural and intellectual groups (Mudde 2017).

⁴ According to Jan-Werner Müller, these tendencies have a 'set of distinct claims and (...) an inner logic' (Müller 2016, 10).

representative of the societal establishment (Mede and Schäfer 2020), and addresses people's confidence in science and in scientific research processes, findings and evaluation mechanisms. Science, based on a method aimed at departing from the common sense, is the perfect target for all the theories that mythicise precisely the value of common experience.

The symmetries between the two phenomena are not limited to trust and the clash between the people and the elite. They also encompass the closely related notion of sovereignty,⁵ generally conceived as supreme authority in politics and collective decision-making (Philpott 2003).

According to political populism, politics should be an unmediated expression of the popular will, as the mechanism of democratic representation is an illegitimate claim to sovereignty (Mede and Schäfer 2020, 477).

Science-related populism sees scientific elites as illegitimately detaining sovereignty with regard to 'decisions about what is being, or should be, researched when, how, and by whom'⁶ and the definition of 'what constitutes "true" knowledge'.⁷ The criticism takes different forms: in some cases, it does not address science itself, but the dominant scientific authority, which is seen as corrupt, working 'behind closed doors' and therefore deserving of replacement with alternative authorities and counter-knowledge. In other cases, condemnation is directed at the scientific method, which is contrary to the 'participatory turn', defined as 'a general shift of preference from representative democracy to more direct forms of participation' in the context of science (Blühdorn 2014, 407). In more radical scenarios, critics strike at scientific epistemology as such, asserting that it should be replaced with people's common sense, personal experiences and emotional sentiments. The difference between sovereignty claims in political and scientific populism is that the former are related to making political decisions, while the latter deal with the epistemic authority of knowledge generation. In light of recent events, the pressing question becomes: What happens when the two realms merge and scientific considerations come to represent the primary basis for political decision-making and regulations? An intersection between the two phenomena looms on the horizon.

Scientific and political populism interrelated

Scientific populism and political populism not only share some basic

⁵ Described as one of populism's 'core principles' (Mede and Schäfer 2020, 476).

⁶ Defined as '*decision-making sovereignty*', 'the right to formulate science-related *power claims*.' (Mede and Schäfer 2020, 482).

⁷ Defined as '*Truth-speaking sovereignty*', 'the right to determine valid information about the world' (Mede and Schäfer 2020, 483).

foundations (such as distrust and conflict around sovereignty) but are dynamics that thrive on mutual relations.

Some earlier findings have already indicated that positions against institutional science can be associated with political populism. For example, in one study, a strong relationship was discovered between populist sentiment and mistrust towards intellectuals and experts, a tendency of populist party supporters to have lower trust in universities was observed, and the fact that many voters of populist US candidates would rather 'trust in the wisdom of ordinary people than the opinions of experts and intellectuals' was highlighted (Mede and Schäfer 2020, 474).

One of the fields in which this interrelationship has become particularly evident is vaccinations, which are often at the crossroads of science, individual choice, and political decisions. The phenomenon of vaccination opposition or hesitancy is as old as vaccines themselves and has manifested itself throughout history, with greater or lesser evidence depending on the time and circumstances.⁸ More recent analyses, however, show that it is possible to identify a link between this manifestation of distrust toward science and political preferences. In particular, according to a study published in the *European Journal of Public Health* (Kennedy 2019), there is a substantial correlation between the increase in European populism and levels of mistrust in science and vaccine resistance. A highly significant positive association was found between the percentage of people who voted for a populist party and the percentage who believed that vaccines were not important or effective. Although the author of the study argues that further empirical investigations are needed, 'it seems likely that scientific populism is driven by similar feelings to political populism, for example, a profound distrust of elites and experts by disenfranchised and marginalised parts of the population' (see Kennedy, 2019, 513).

Under this perspective, the current pandemic may serve as a case study for exploring the dynamics of this relationship. Since the protection of public health in a pandemic relies on citizens' trust in government decisions and on political leaders' trust in the findings of the scientific community, the consolidation of the logic of populism can produce significant consequences. This point is all the more salient because, at the juncture we are experiencing, this erosion of trust – and where and when it occurs – can immediately put many lives at risk.

The pandemic between political and scientific populism

The CoViD-19 health emergency and the need to develop effective

⁸ Europe, for instance – even before the pandemic crisis – was affected by a relatively widespread anti-vaccine sentiment. According to a 2018 study, 59% of Western Europeans – and just 40% of Eastern Europeans – thought vaccines were safe, compared with the global average of 79% (Bickerton 2021).

strategies to contain it have consolidated a very close link between science and politics. Scientific data and the consideration of the epidemiological situation, which changes every day, have been positioned as the basis for the limitation of people's rights (Crabu et al. 2021). Similarly, scientific evaluations represented the guiding light in the development and distribution of vaccines against CoViD-19.

In reality, the regulatory approaches varied substantially, and while some countries strongly relied on science and scientific expertise as integral components of their decision-making processes, others leaned towards more politicized models (Heims and Slobodan 2021). In this regard, some crucial questions read: What was the impact of the health emergency on populist trends? Did it reinforce trust in the scientific realm, or did distrust take over? What was the role of politics?

The pandemic, in its first phase (since its onset and until the approval of the first vaccines in December 2020), dealt some significant blows to populist logics and some of their underlying principles. First, discourses and approaches aimed at disparaging scientific recommendations and supporting forms of pseudoscience have proved to be unsuccessful. Recent memory recalls Donald Trump's propaganda regarding controversial treatments against CoViD-19, such as hydroxychloroquine; Boris Johnson's initial recourse to herd immunity mechanisms in March 2020; Andrés Manuel López Obrador's refusal to wear a mask in the name of freedom; and Jair Bolsonaro's scepticism in calling CoViD-19 a 'small flu' and his dismissal of the whole pandemic as 'hysteria' (Eisenhammer and Spring 2020). The virus often served as a reality check; in fact, according to a report by the Associated Press, the countries that top the rankings of CoViD-19 deaths globally are not necessarily the poorest, the richest or even the most densely populated, but those led by populist leaders (Daniszewski 2020). Second, the need for shared public emergency management has also challenged nationalist approaches – typical of populism – and rehabilitated multilateralism and global cooperation (Apuzzo and Kirkpatrick 2020), reinforcing a vision of health as a global public good.

On both fronts, however, the months following the first approval of Covid vaccines showed a significant change of course. After joint efforts to develop the first doses, the saga of their procurement and distribution saw, on the one hand, the re-emergence of nationalist-oriented visions and, on the other hand, the surfacing of a science with little cohesion or consensus. The initial shortage of vaccines led to the resurgence of vaccine nationalism,⁹ aimed at capturing the largest number of doses available through the instruments of advance negotiation and purchase agreements and the blocking of exports to favour domestic demand, in the view that each country should be solely responsible for its own population (Katz et al. 2021). Examples include the deals struck by wealthy countries to buy more than two billion doses of coronavirus vaccines as early as the summer of

9 Similar attitudes already created problems during the H1N1 pandemic (Fidler 2010).

2020¹⁰ or the numerous attempts – successful or failed – at bilateral negotiations between member states and non-European pharmaceutical companies or exporters¹¹ outside the common EU negotiation and purchasing mechanism. Nationalist attitudes were fuelled by the fact that the European Union's effort at joint procurement and distribution of the vaccines proved to be, particularly in its first months, 'a very European disaster' (Krugman 2021) or 'a breathtakingly reckless gamble that didn't come off' (Bickerton 2021) – an excessively slow action, tainted by technocracy. The EU's mishandling of vaccine procurement and rollouts risked undermining the appetite for further political integration, opening the way for new pockets of populism.¹²

These developments have affected not only national states but also the European Union institutions, which, while committed to solidarity in the COVAX project, have intervened with significant restrictions on vaccine exports,¹³ somehow manifesting the kind of economic nationalism that the European project is meant to curb.

In the vaccine distribution phase, an uncertain and incohesive approach – also due to the urgency of the situation – affected the image of science (fuelling doubts over the incidence of the market logics that permeate the field of health) and, consequently, the level of trust placed in it.

In this sense, there has been little mutual recognition of and support for vaccine approvals by regulators. For instance, EU lawmakers warned against the 'hasty' approval of the Covid vaccines after the UK authorised the Pfizer vaccine for general use; yet, after only 3 weeks, the European Medicines Agency (EMA) came to the exact same conclusion. The events surrounding the AstraZeneca vaccine, however, are even more significant. The vaccine, which was approved for use in adults by the EMA in January 2021, subsequently became subject to a number of restrictions in member states, which varied significantly over time.¹⁴ These variations symbolize

¹⁰ Callaway, E. (2020), *The unequal scramble for coronavirus vaccines — by the numbers*, in "Nature", 24 August 2020.

¹¹ For example, Hungary licensed Russia's Sputnik-V coronavirus vaccine, ignoring calls to stick to a common European vaccine policy. About the risks of developing a "gray market" see Stevis-Gridneff (2021).

¹² Le Pen took the chance to say that 'The European Union has failed totally', and that 'They still tell us that as 27 countries we are stronger, but that is false — the solution must come at the national level, for this issue as in many others'. Meanwhile Orbán, Salvini and Morawiecki discussed the possibility of creating a new populist alliance for the EU Parliament based on the values of 'Atlanticism, freedom, family, Christianity, sovereignty and opposing anti-Semitism' (Hopkins et al 2021).

¹³ See the Commission Implementing Regulation (EU) 2021/442 and 521, both of 11, March 2021, making the exportation of certain products subject to the production of an export authorisation, introducing the criteria of proportionality and reciprocity.

¹⁴ The AstraZeneca (lately named Vaxzevria) vaccine's efficacy was questioned by some countries in people over 65, on the basis of unclear and unofficial information; its

the possible short-circuits between politics and science, being only partly explainable on the basis of two arguments: first, in the moment of constructing scientific certainty, recourse to a precautionary principle plays a crucial role; second, it is necessary to recognise how the risk-benefit assessment of a single vaccine can vary as certain external factors change, such as the availability of other vaccines and the concrete current epidemiological situation.

Beyond this, in the present case, decisions seem to have been sometimes made on the basis of weak and unverified elements (which were quickly refuted) or relying on mainly 'political' motives. In this sense, it is significant to consider the position of the director general of the Italian Medicine Agency (AIFA) who explicitly declared that the vaccine was deemed 'safe', but in need of further data collection, and that the suspension implemented in March had a 'political' nature and was determined by the attitude of other states (Germany and France *in primis*). In this case, with the aim of maintaining a 'common European front' (even at the cost of misalignment with the indications provided by the EU central regulatory authority as well as the WHO), national regulatory authorities took responsibility for seeking further advice from the scientific community, thus reserving for themselves - in the final instance - the decision-making agency in the field of public health. Although it is clear that every decision, even in these areas, has an intrinsic political dimension, in a time of vaccine scepticism, frictions and hesitations in the relationship between political leaders and supranational and international regulatory agencies inevitably risk undermining trust in science.

The complex and sometimes controversial intertwining of science and politics, at times spectacularised in the public media arena, has generated a climate of general mistrust, fuelled populist impulses and anti-vaccination positions. The agency YouGov said it had already found in late February that Europeans were more hesitant about the AstraZeneca vaccine than they were about the Pfizer and Moderna vaccines and that the clot concerns had further damaged public perceptions.¹⁵ More in general, according to a report released by Eurofound on 13 May 2021, over a quarter (27%) of adults in the European Union were unlikely to get vaccinated against CoViD-19.¹⁶

The literature has demonstrated that trust in science serves as a key

administration was later suspended (temporarily or definitively) over fears that it could cause blood-clotting problems in isolated cases and was finally recommended in some countries (Italy is an example) only for people over the age of 60.

¹⁵ See the report at: <https://yougov.co.uk/topics/international/articles-reports/2021/03/07/extent-damage-astrazeneca-vaccines-perceived-safet>.

¹⁶ Eurofound, *Living, working and COVID-19 (Update April 2021): Mental health and trust decline across EU as pandemic enters another year*, see the report at: <https://www.eurofound.europa.eu/publications/report/2021/living-working-and-covid-19-update-april-2021-mental-health-and-trust-decline-across-eu-as-pandemic>.

psychological factor underpinning vaccine acceptance (Larson et al. 2018), but less attention has been paid to societal-level scientific trust, which, in turn, can be positively associated with vaccination uptake. Moving from the assumption that trust is facilitated in trusting environments, some studies have demonstrated how individuals acquire informal impressions of how science is valued or contested through cultural and political debate and media representation (Sturgis et al. 2021). Institutional behaviour is therefore a crucial element in shaping individual assessments of the trustworthiness of science.

These last examples may in part be caused by mixed messages from scientists, which are more frequent in crisis periods when the pressure to produce results quickly is particularly intense; they do not concern governments that can be directly qualified as populist (at least for the most part). At the same time, public scientific controversies over vaccines can solicit mechanisms of distrust towards science that risk producing fertile ground for the affirmation of logics that can be traced back to the rhetoric typical of the populist phenomenon.

This can happen because, above all, populism is built as much on impatience with the rules and norms of common life – and similarly, with the rigorous times and methods of science¹⁷ – as on the need for authoritarian approaches supposed to dominate chaos and overcome moments of uncertainty.^{18,19}

Conclusions – A democratic toolkit to counter populist drifts

By bringing science and politics closer together, the pandemic has shown some of the distortions that emerge from the spread of distrust promoted by populist rhetoric.

On the one hand, populist-oriented governments can disparage scientific recommendations, and on the other hand, segments of the public may believe that the advice of scientific experts is being manipulated to advance political gains. Perhaps more surprisingly, there is also a third response that is relevant in this context. It can be observed that, far from being at odds with one another, populism and technocracy may be considered two sides of the same coin. The two phenomena, in fact, share a deeply anti-democratic strain. As political scientist Jan-Werner Müller has pointed out, ‘populism holds that there is only one authentic will of the people’, whereas

¹⁷ In this respect, a relevant example is Florida Governor Ron DeSantis’ call to not trust the elites (DeSantis 2021).

¹⁸ Here, the most suitable example is Viktor Orban’s use of the virus to increase his political manoeuvring room (Rohac 2020).

¹⁹ On the different faces of populism during the pandemic, see: Ganesh (2021), and, on the different responses to the COVID-19 crisis given by different populist parties, see Bobba and Hubé (2021).

‘technocracy holds that there is only one correct policy solution’ (Müller 2016); both represent a form of critique of party democracy itself (Bickerton and Invernizzi Accetti 2015). Brought to its logical conclusion, technocracy breeds with populist logics, giving birth to what has been referred to as techno-populism (Bickerton and Invernizzi Accetti 2021). Some of the shortcomings that occurred during the pandemic and that have been described above exemplify a crisis in decision-making that is both technocratic and populist.

Thus, looking closer, populism – both in its political and scientific forms – does not necessarily disregard science itself, but populist discourses often end up eroding the methods of its production and the roots of its legitimation and authority. Bridging the gap between governments, scientists and citizens and rebuilding trust – one of the hardest values to be generated – require a method that not only ensures and relies on independency and accuracy, but also promotes transparency, open communication and debate. Politicians and experts should work together to identify sources of bias and set them to rest, stimulate trustworthy information flows and establish effective accountability mechanisms. Needless to say, the fulfilment of these objectives is highly dependent on responsible support and cooperation by the media and journalism (not only scientific). Furthermore, not all critiques of science can be qualified as scientific populism, and some degree of scepticism is healthy because it encourages debate and contributes to change and improvements. Science – which is depicted as monistic, unitary and absolute in the populist narrative more than anywhere else – does not equal scientism or the idolatry of science, and its methods are actually diverse and multiple. As Naomi Oreskes puts it, ‘in diversity there is epistemic strength’, and ‘objectivity is likely to be maximized when there are recognized and robust avenues for criticism, such as peer review, when the community is open, non-defensive, and responsive to criticism, and when the community is sufficiently diverse that a broad range of views can be developed, heard, appropriately considered’ (Oreskes 2019, 53).

To act as an antidote to the ever-present risk of radicalization of the contrasts and oppositions promoted by the populist rhetoric (Collins and Evans 2019), politics and science, rather than providing superior truths, should both draw on the toolbox of democratic values, preserving and celebrating freedom, equality, pluralism and solidarity – all of which entail respect for the other (Collins 2019).

References

- Apuzzo, M. and Kirkpatrick D.D. (2020) *Covid-19 Changed How the World Does Science, Together*, in “The New York Times”, 1 April 2020
- Bickerton, C. and Invernizzi-Accetti C. (2015) *Populism and Technocracy: Opposites or Complements*, in “Critical Review of International Social and Political Philosophy”, 20(2), pp. 186-206

- Bickerton, C. J., and Ivernizzi-Acchetti, C. (2021) *Technopopulism. The New Logic of Democratic Politics*, Oxford, Oxford University Press
- Bickerton, C.J., (2021) *Europe failed miserably with vaccines. Of course it did*, in "The New York Times", 17 May 2021
- Blühdorn, I. (2014) The participatory revolution, in K. Larres (ed.) *A Companion to Europe Since 1945*, Chichester, Wiley-Blackwell, pp. 407-431
- Bobba, G. and Hubé, N. (eds.) (2021) *Populism and the Politicization of the COVID-19 Crisis in Europe*, Palgrave Macmillan
- Collins, H. (ed.) (2019) *Experts and the Will of the People, Society, Populism and Science*, Cham, Springer International Publishing
- Collins, H. and Evans, R. (2019) *Populism and science*, in "Epistemology and Philosophy of Science", 56(4), pp. 200-218
- Crabu, S. and Giardullo, P., Sciandra, A., Neresini F. (2021) *Politics overwhelms science in the Covid-19 pandemic: Evidence from the whole coverage of the Italian quality newspapers*, in "PLoS ONE", 16, e0252034
- Daniszewski, J. (2020) *In struggle against pandemic, populist leaders fare poorly*, available at <https://apnews.com/article/ap-top-news-understanding-the-outbreak-middle-east-latin-america-africa-2a4b5159e9c8b1510973801297243c3d>
- DeSantis, R. (2021) *Ron DeSantis on the Pandemic Year: Don't Trust the Elites*, in "The Wall Street Journal", 18 March 2021
- Eisenhammer, S. and Spring, J. (2020) *Bolsonaro urges Brazilians back to work, dismisses coronavirus 'hysteria'*, in "Reuters.com", 24 March 2020, available at <https://www.reuters.com/article/us-health-coronavirus-brazil-idUSKBN21B2H2>
- Fidler D.P. (2010) *Negotiating Equitable Access to Influenza Vaccines: Global Health Diplomacy and the Controversies Surrounding Avian Influenza H5N1 and Pandemic Influenza H1N1*, in "Plos medicine", VII, 5, e1000247
- Ganesh, J. (2021) *Vaccination race reveals two distinct populisms*, in "Financial Times", 27 July 2021
- Heims, E. and Slobodan, T. (2021) *Covid-19 vaccines and the competition between independent and politicised models of regulation*, in "London School of Economics Blog", 11 March 2021, available at <https://blogs.lse.ac.uk/europpblog/2021/03/11/covid-19-vaccines-and-the-competition-between-independent-and-politicised-models-of-regulation/>
- Hopkins, V., Shotter, J., and Ghiglione, D. (2021) *Orban plots new populist alliance for European parliament in Rome*, in "Financial Times", 1 April 2021
- Katz, I.T. and Weintraub, R., Bekker, L-G., Brandt A.M. (2021) *From Vaccine Nationalism to Vaccine Equity — Finding a Path Forward*, in "The New England Journal of Medicine", 384, pp. 1281-1283
- Kennedy, J. (2019) *Populist politics and vaccine hesitancy in Western Europe: An Analysis of National-Level Data*, in "European Journal of Public Health", 29(3), pp. 512-516
- Larson, H. J. and Clarke, R.M., Jarrett, C., Eckersberger, E., Levine, Z., Schulz, W.S., Paterson, P. (2018) *Measuring trust in vaccination: a systematic review*, in "Human Vaccine Immunotherapy", 14, pp. 1599-1609

- Mede, N.G. and Schäfer, M.S. (2020) *Science-related populism: Conceptualizing populist demands toward science*, in "Public Understanding of Science", 29(5), pp. 473-491
- Mudde, C. (2004) *The populist zeitgeist*, in "Government and Opposition", 39(4), pp. 542-563
- Mudde, C. (2017) *Populism: An ideational approach*, in C. Rovira Kaltwasser, P.A. Taggart, P. Ochoa Espejo and P. Ostiguy (eds.), *The Oxford Handbook of Populism*, Oxford, Oxford University Press, pp. 27-47
- Müller, J-W. (2016) *What is Populism?*, Philadelphia, University of Pennsylvania Press
- Müller, J-W. (2016) *Genuine political choice serves as the best antidote to populism*, in "Financial Times", 4 October 2016
- Oreskes, N. (2019) *Why trust science?*, Princeton, Princeton University Press
- P. Krugman (2021) *Vaccines: A Very European Disaster*, in "The New York Times", 18 March 2021
- Pennings, S. and Symons, X. (2021) *Persuasion, not coercion or incentivisation, is the best means of promoting COVID-19 vaccination*, in "Journal of Medical Ethics", 27 January 2021
- Philpott, D. (2003) *Sovereignty*, in E.N. Zalta (eds.), *The Stanford Encyclopedia of Philosophy*, available at <https://plato.stanford.edu/archives/fall2020/entries/sovereignty/>
- Rohac, D. (2020) *Hungary's prime minister is using the virus to make an authoritarian power grab*, in "The Washington post", 25 March 2020
- Rooduijn, M. (2019) *State of the field: How to study populism and adjacent topics?*, in "European Journal of Political Research", 58(1), pp. 362-372
- Savulescu, J. (2020) *Good reasons to vaccinate: mandatory or payment for risk*, in "Journal of Medical Ethics", 47(2), pp. 78-85
- Smith, A. (2018) *Divided nations: Democracy in an age of populism*, in "The Sociological Quarterly", 59(1), pp. 3-4
- Stevis-Gridneff, M. (2021) *Amid slow vaccine deliveries, desperate E.U. nations hunt for more*, in "The New York Times", 26 February 2021
- Sturgis, P., Brunton-Smith, I. and Jackson, J. (2021) *Trust in science, social consensus and vaccine confidence*, in "Nature Human Behaviour", 17 May 2021