



Compulsory Medical Examinations and “Green Pass”

Clara Egger, Raül Magni-Berton

► To cite this version:

Clara Egger, Raül Magni-Berton. Compulsory Medical Examinations and “Green Pass”. Clara Egger, Raul Magni-Berton, Eugénie de Saint-Phalle. Covid-19 Containment Policies in Europe, Palgrave Macmillan, pp.265 - 278, 2024, 978-3-031-52095-2. 10.1007/978-3-031-52096-9_15 . halshs-04597206

HAL Id: halshs-04597206

<https://shs.hal.science/halshs-04597206v1>

Submitted on 8 Jun 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Compulsory Medical Examinations and “Green Pass”

Clara Egger and Raul Magni-Berton

INTRODUCTION

To manage the COVID-19 pandemic, European governments have combined restrictive measures with a close monitoring of the epidemiological situation. The most stringent measures—such as the imposition of lockdowns, curfews and the closure of national borders—have always been justified by epidemiological indicators, in particular the evolution of COVID-19 cases and deaths. At the same time, the relaxing of containment measures has often come with the requirement to undergo compulsory medical examinations. In the summer of 2020, bars and restaurants

C. Egger (✉)

Public Administration and Sociology,

Erasmus University Rotterdam, Rotterdam, The Netherlands

e-mail: egger@essb.eur.nl

R. Magni-Berton

European School of Political and Social Sciences, ESPOL-LAB Université

Catholique de Lille, Lille, France

e-mail: raul.magniberton@univ-catholille.fr

© The Author(s) 2024

C. Egger et al. (eds.), *Covid-19 Containment Policies in Europe*,

International Series on Public Policy,

https://doi.org/10.1007/978-3-031-52096-9_15

in Belgium, Italy and Cyprus reopened only to people able to show evidence of a negative COVID-19 test. Later in 2021, as COVID-19 vaccines became available to the public and vaccination the leading strategy to contain the pandemic, COVID-19 passes became widespread across Europe—with the notable exceptions of Luxembourg, Malta and Sweden. Under various names, such as the Green Pass in Italy, the 2 or 3 G Pass in Germany, the Immunity Pass in Hungary or the Freedom ID in Lithuania, these documents linked the restoration of daily freedoms to a negative COVID-19 test, proof of vaccination or full recovery from the disease. Much has been written about the role of vaccination policy in containing the COVID-19 pandemic (see Charrier et al., 2022 for a review).

Several datasets document the vaccination plans adopted, how different target groups were prioritised for access to vaccination, and whether vaccination policies were compulsory or not (Cameron-Blake et al., 2023; Cheng et al., 2020). However, most of these datasets begin their coverage in 2022 (Cameron-Blake et al., 2023), when controversies about the merits of vaccine mandates became heated in both the academic and public spheres (see, among others, Karaivanov et al., 2022; Kuznetsova et al., 2022). Moreover, we know little about the compulsory medical examinations that took place before then. The tracking of COVID-19 health surveillance measures before 2022 mostly concerns internal and external border restrictions and the availability of testing facilities (Cheng et al., 2020) but does not examine how compulsory medical procedures were used to relax restrictions on mass gatherings, allow access to public and private services, and various socio-cultural activities.

This chapter aims to fill this gap and focuses on two main medical procedures: the mandatory testing policy implemented before the mass roll-out of COVID-19 vaccines, and the implementation of COVID-19 passes. Our descriptive analysis is divided into three main sections. First, we map how different European countries relied on mandatory testing and green passes and show that, unlike other non-pharmaceutical policies, the implementation of such policies is quite homogeneous across (see the other chapters gathered in Part III of this volume). Main differences concern the territorial level of implementation of COVID-19 passes and their date of introduction. Second, we focus on the use of COVID-19 passes and examine whether their adoption is associated with a deterioration of the public health situation in a country or with the overall stringency of the crisis response. In other words, we ask whether COVID-19 passes are yet another policy instrument used by restrictive governments, or whether

they are part of a different approach to public health monitoring. Finally, we conclude our chapter with some insights into the effectiveness of COVID-19 passes in generating support for vaccination policies.

STRENGTHENING CONTROL MEASURES TO EASE RESTRICTIONS: COMPARING MANDATORY TESTING AND COVID-19 PASSES

The EXCEPTIUS data allow to trace how compulsory medical examinations have been used together with other types of restrictive measures. A typical and well-documented example concerns the use of compulsory medical examinations at international and internal borders. In the summer of 2020, all European countries reopened their external borders (and internal borders in the case of federal states) to people who can prove their immunity, either through vaccination, recovery status or negative COVID-19 tests. What is less well documented, however, is how compulsory medical procedures have been used at the domestic level, not to control the free movement of individuals, but to guarantee other types of fundamental or everyday freedoms—such as the freedom of association or the use of public and private facilities. In this section, we focus on two of the most commonly used medical procedures: compulsory testing and the COVID-19 passes.

Prior to the release of COVID-19 vaccines to the public, EXCEPTIUS data show that very few countries relied on compulsory testing to grant access to mass gatherings or closed public and private spaces. Compulsory testing procedures condition access to some spaces and participation to mass events to evidence of a negative COVID-19 test. In most cases, large gatherings were banned, shops and restaurants were closed, or strict social distancing was enforced. Figure 15.1 shows the countries that implemented compulsory testing policies during the three COVID-19 waves covered by EXCEPTIUS data (from January 2020 to April 2021). Note that coverage ends shortly after the start of mass vaccination campaigns in Europe and before the introduction of the EU COVID-19 digital certificate in July 2021.

Three groups of countries can be distinguished. The first—consisting of Denmark and the Czech Republic—includes countries that started implementing mandatory testing in the first wave and continued to do so throughout the three waves. Mandatory testing for access to closed spaces

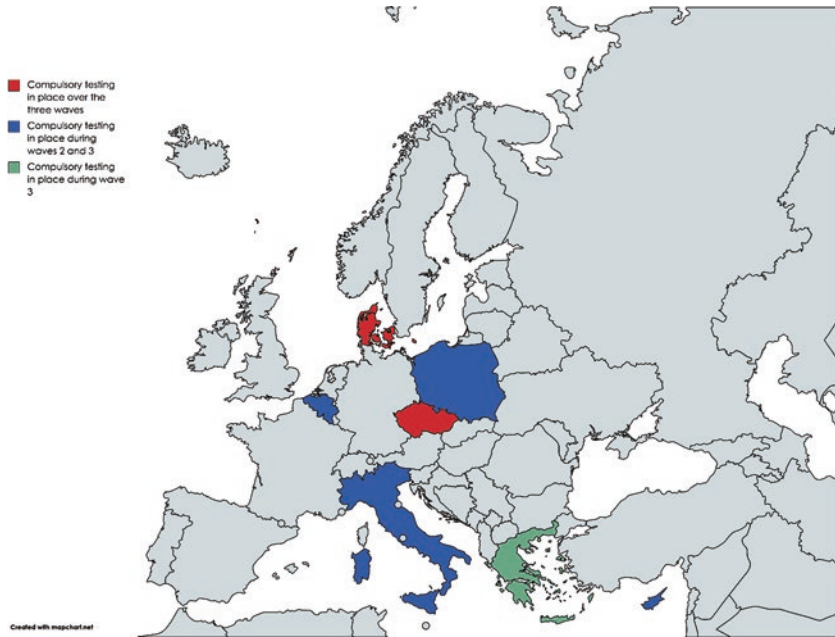


Fig. 15.1 Compulsory testing to access mass events and public and private facilities. *Source:* EXCEPTIUS, own rendering

and mass gatherings was introduced in Denmark as early as on 17 March 2023. Czechia followed a month later, on 23 April 2020. Initially, mandatory testing was only required to access closed spaces but was extended to mass gatherings on 17 May 2021. Belgium, Cyprus, Italy and Poland started enforcing mandatory testing in the second wave, but with a very different timing. While Cyprus adopted regulations on 14 July 2020, the other countries did so only in the autumn (30 November for Italy, 30 October for Poland) or winter of 2020 (Christmas Eve for Belgium). In these countries, a negative test was required to access every closed space. Only one country in our dataset, Greece, required a mandatory test to access closed spaces only during wave 3 and implemented as of 10 April 2021.

In contrast, the introduction of a COVID-19 pass concerned a much larger number of countries in Europe. This pass required individuals to show proof of some form of immunity to COVID-19 before entering

public or private spaces and attending mass events. Most of the countries in our sample accepted different types of evidence, such as a negative COVID-19 test less than 48 h old, a complete vaccination scheme or a recovery status. In some cases—described below—the COVID-19 pass was restricted to vaccinated persons only. This widespread use can be explained by two factors: the mass availability of vaccines, but also the decision of the European Union to enforce an EU-wide COVID-19 digital certificate, which facilitated its adoption by many countries. Table 15.1 shows the timing of the introduction of the COVID-19 pass in Europe and does not suggest any specific patterns of diffusion of the pass, for example, in relation to neighbouring countries. Instead, each country seems to have followed its own strategy, although some explicitly mentioned that the EU digital certificate provided strong incentives for them to develop their own pass.

As with the compulsory testing policy, Denmark—together with Hungary—pioneered the movement. However, the enforcement of the

Table 15.1 Month of enforcement of the COVID-19 pass per country

<i>Month of enforcement</i>	<i>Country</i>
Mar/21	Hungary
Apr/21	Denmark
May/21	Austria
May/21	Cyprus
May/21	Lithuania
May/21	Czech Republic
Jun/21	Italy
Jun/21	Latvia
Jul/21	France
Jul/21	Ireland
Aug/21	Estonia
Sep/21	Slovenia
Sep/21	Malta
Sep/21	Switzerland
Oct/21	Belgium
Oct/21	Bulgaria
Oct/21	Finland
Nov/21	Netherlands
Nov/21	Portugal
Nov/21	Croatia

Source: EXCEPTIUS, own rendering

COVID-19 pass in Denmark was suspended 6 months after its introduction, in September 2021, while the Hungarian immunity pass was converted to a vaccine-only pass in February 2022. Both countries were closely followed by Austria, Cyprus, Lithuania—called Freedom ID—and the Czech Republic in May 2021. In Cyprus, a recovery status was not sufficient to issue a “safe pass”. Austria made the headlines with the adoption of a general COVID-19 vaccination mandate in the country on 5 February 2022. This COVID-19 Mandatory Vaccination Ordinance stipulated that anyone who did not comply with the vaccination mandate after 15 March 2022 could be fined up to 3600 euros, depending on their income level. The fine could be waived if a person was vaccinated within 2 weeks of being reminded, and a person could only be fined four times in a calendar year for non-compliance. Latvia and Italy introduced the pass in June 2021, but in Italy only one dose of vaccine was required. France, Ireland and Estonia followed suit in July and August, immediately introducing the EU COVID-19 digital pass. In Ireland, the pass was only required to access indoor spaces where social distancing could not be maintained.

The other countries in our sample adopted the COVID-19 pass in the autumn, with some national specificities. In Portugal, high-risk municipalities were offered the possibility to request a COVID-19 pass in July 2021, except on Friday evenings, weekends and national holidays. Its use was extended nationally in November 2021. However, vaccinated persons could only obtain a pass if they could provide evidence of a recent negative COVID-19 test. In Croatia, the use of the pass was restricted to public buildings. Although not shown in Table 15.1, Greece introduced a pass as well, but we were unable to collect data on the date of its introduction.

Other countries were characterised by a more decentralised approach (see Magni-Berton in this volume for a more detailed analysis). In Spain, despite high infection rates, only the tourist regions of Galicia and the Canary Islands adopted it. In Germany, the rules for mandatory testing varied from place to place and state to state. Bade-Württemberg accepted the usual three types of proof (3G for “geimpft, getestet, genesen”). In Rhineland-Palatinate and Saarland, 2G rules restricted the issue of the pass to vaccinated or recovered people, while in the latter region a negative test was required on top of either document to access nightclubs and Christmas markets. However, on 7 April 2022, the German Bundestag rejected a national vaccination mandate (Gehrke, 2022). In the UK, only England

and Scotland required a pass to attend mass gatherings from September 2021, while enforcement was left to venues in Sweden and cities in Norway.

PUBLIC HEALTH CONCERNS VERSUS OVERALL STRINGENCY OF CRISIS RESPONSE: WHAT DRIVES THE ADOPTION OF THE COVID-19 PASS?

To further explain the rationale behind the different strategies adopted by European governments, this section examines the relationship between the adoption of the COVID-19 pass, the evolution of the severity of the COVID-19 pandemic on the national territory and the overall stringency of the crisis response. Our reasoning is as follows. On the one hand, COVID-19 passes can be seen as a way of preserving some daily freedoms while limiting their impact on public health indicators in a high-risk epidemiological context characterised, for example, by an increase in cases and deaths. The timeline of COVID-19 adoption in Europe—see Table 15.1—provides some evidence to support this interpretation. More than half of the countries in our sample introduced the pass before the winter season—when people’s promiscuity is high—or at the peak of the tourist season (France, Portugal, Spain). On the other hand, we can expect the introduction of the COVID-19 passes to be associated with the overall stringency of the crisis response in a country. As documented in previous studies (Egger et al., 2021; Engler et al., 2021, Vulcano in this volume), some governments were caught in a vicious circle of distrust when designing their COVID-19 management policies. Public trust is key to ensuring compliance with COVID-19 measures. The higher the level of public trust, the less the need for authorities to rely on very stringent measures to ensure compliance. Conversely, governments facing low levels of public trust are forced to rely on very stringent policies to enforce containment measures. In doing so, however, governments further erode their (limited) trust capital and must always go the extra mile to ensure a minimum level of compliance with sanitary measures. According to this interpretation, we should see that COVID-19 passes are adopted by countries that do not necessarily face higher epidemiological risks but are characterised by very stringent policies. To explore the validity of both explanations, we rely only on descriptive data, due to the limited size of our sample. We used the data of Mathieu et al. (2021) and calculated the monthly evolution (in percentage) of the number of COVID-19 cases and deaths 1

month before the implementation of the COVID-19 laws in each country. We had to rely on monthly indicators because for more than half of the countries in our sample the exact date of enforcement of the COVID-19 pass was not available. Nevertheless, we believe that these indicators provide a first indication of some of the drivers of such a government decision. The results of this descriptive analysis are presented in Table 15.2.

Four groups of countries can be distinguished. The first group—in bold—includes countries that adopted the COVID-19 pass in a context of marked deterioration in epidemiological indicators. The second group—in bold italics—includes countries that experienced an increase in the number of cases and deaths before adopting the pass, but to a lesser extent. Estonia could be included in the first group for the increase in the number

Table 15.2 Evolution of the COVID-19 epidemiological indicators 1 month before the enforcement of the COVID-19 pass

<i>Country</i>	<i>Month of enforcement of COVID-19 pass</i>	<i>Monthly evolution of COVID-19 cases (m-1)</i>	<i>Monthly evolution of COVID-19 deaths (m-1)</i>
Slovenia	Sep/21	82%	52%
Switzerland	Sep/21	75%	79%
Netherlands	Nov/21	60%	55%
Croatia	Nov/21	53%	48%
Cyprus	May/21	44%	56%
Bulgaria	Oct/21	33%	71%
<i>Lithuania</i>	<i>May/21</i>	<i>46%</i>	<i>10%</i>
<i>Latvia</i>	<i>Jun/21</i>	<i>20%</i>	<i>16%</i>
<i>Belgium</i>	<i>Oct/21</i>	<i>5%</i>	<i>36%</i>
<i>Estonia</i>	<i>Aug/21</i>	<i>7%</i>	<i>88%</i>
Denmark	Apr/21	42%	-327%
Ireland	Jul/21	30%	-96%
Portugal	Nov/21	26%	-8%
Hungary	Mar/21	26%	-22%
Finland	Oct/21	-43%	27%
Austria	May/21	14%	5%
<i>Italy</i>	<i>Jun/21</i>	<i>-120%</i>	<i>-112%</i>
<i>Czech Republic</i>	<i>May/21</i>	<i>-200%</i>	<i>-128%</i>
<i>France</i>	<i>Jul/21</i>	<i>-379%</i>	<i>-336%</i>

Source: EXCEPTIUS data; Mathieu et al. (2021)

of deaths, but not for the number of cases. A third group of countries showed a more mixed pattern. In some cases (e.g. Denmark, Hungary, Ireland and Portugal) the number of cases increased but this was not yet associated with an increase of the lethality of the disease. In this case, the adoption of the COVID-19 pass can be seen as a precautionary measure to anticipate a possible increase in the number of deaths, for example, due to overcrowding in hospitals. In Finland, the pass was introduced when the number of cases was falling sharply, but after an increase in the number of deaths. In Austria, the number of cases and deaths increased, but the increase was close to zero. The last group of three countries (in italics) is characterised by a reverse and less expected trend. In these countries, the pass was introduced at a time when there was no evidence of a deterioration in public health.

According to the index presented by Chazel in this volume, the last group of countries scores highly in terms of non-pharmaceutical policy stringency. In particular, France, which has implemented the COVID-19 pass in a situation where infections and deaths are decreasing, has been classified as the most stringent country in Europe. Italy was the second. The case of the Czech Republic is less clear, although it was ranked quite high (seventh) in each wave. Only Austria and Spain are identified as more stringent than the Czech Republic in the first two waves. As we have seen, Austria implemented the COVID-19 pass without any risk of infection or death. Unfortunately, no vaccination data are available for Spain.

Globally, therefore, we can conclude that the motivation to introduce the COVID-19 pass was generally due to a deterioration of epidemiological indicators, except in countries where non-pharmaceutical restrictions were already particularly high.

DOES COVID-19 PASS BOOST VACCINATION?

A key argument used by policymakers to justify the introduction of the COVID-19 pass is the need to create incentives for people to be vaccinated in a context where mass vaccination was considered as the safest and most effective strategy to contain the pandemic. Although most countries accepted different types of evidence of immunity status, vaccination was the simplest and least demanding way to obtain an indefinite COVID-19 pass. In contrast, relying on COVID-19 testing meant that people had to be tested almost every time they wanted to enter a public or private space, as the validity of the tests often expired after 48 h. A key question is

whether the introduction of the COVID-19 pass convinced more people to be vaccinated for the first time. Previous studies have provided mixed evidence on this question. While COVID-19 mandates have not been shown to be particularly effective in reducing vaccine hesitancy among the adult population in Europe (Kuznetsova et al., 2022) and the USA (Mello et al., 2022), proof of COVID-19 vaccination requirements for access to public places and non-essential businesses contributed to an increase in vaccine uptake in Canada, France, Germany and Italy (Karaivanov et al., 2022). To contribute to such debates, Fig. 15.2 compares the proportion of the population primo-vaccinated one month before and after the introduction of COVID-19 passes, using vaccination data from Mathieu et al. (2021). Note that we do not take into account differences in the type of passes used, as the variation between European countries is rather limited, as explained in section “Strengthening Control Measures to Ease Restrictions: Comparing Mandatory Testing and COVID-19 Passes”. Looking at the figure, two findings emerge. First, passes do not appear to be particularly effective in countries that are already characterised by a high uptake of COVID-19 vaccines, such as Belgium, the Netherlands, Finland and the European record holder, Portugal.

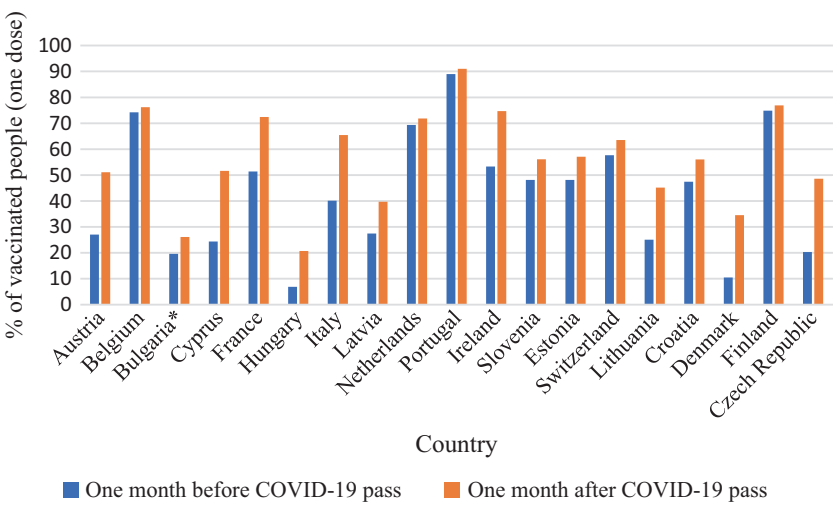


Fig. 15.2 Vaccination rate before and after the implementation of the COVID-19 pass. *Source:* EXCEPTIUS and Mathieu et al. (2021)

Second, in Austria, Cyprus, France, Hungary, Italy, Latvia, Ireland, Lithuania, Denmark and the Czech Republic, the introduction of COVID-19 passes was followed by a notable increase in vaccination coverage, despite large differences in the proportion of vaccinated persons before the measure was introduced. Third, in Bulgaria, Estonia, Slovenia and Switzerland, the enforcement of passes did not lead to a massive decrease in vaccine hesitancy in a context of low to moderate vaccine uptake. Taken together, this descriptive evidence suggests that COVID-19 passes alone are not sufficient to increase vaccination coverage. Their impact is more likely to depend on the initial level of vaccination and people’s attitudes towards vaccination.

We conclude this chapter by examining these attitudes. Attitudes to the COVID-19 vaccine may vary according to general attitudes to vaccination and the specific context of the pandemic, which was characterised by emergency and restrictive policies. The Vaccine Confidence Project, funded by the European Commission, provides bi-annual surveys of public attitudes to vaccines across the EU. Their most recent report (de Figueiredo et al., 2022) introduced the question of confidence in the COVID-19 vaccine in almost all EU countries except the Czech Republic.

To capture the specificity of the COVID-19 vaccine, we compare the level of confidence in it to the confidence in the flu vaccine. Confidence is measured in terms of potential side effects (% of people who think the vaccine is safe). Overall, while the flu vaccine is considered safe by 81.4% of Europeans, the COVID 19 vaccine is considered safe by 73.5% of respondents. In each country, confidence in the COVID-19 vaccine is lower than in the flu vaccine. The difference is particularly small in Denmark and Portugal, where confidence is particularly high. On the contrary, in Eastern countries, where vaccine confidence is generally the lowest, the difference between flu and COVID-19 vaccines is particularly large. This is particularly the case in Bulgaria, Croatia, Lithuania, Romania, Slovakia and Slovenia. In Latvia, the difference is smallest because confidence in flu vaccine is already particularly low. These differences in confidence are not associated with the month in which the COVID-19 passes are administered. However, we find an association between the relative lack of confidence and the epidemiological context: the more the latter worsened when the pass was introduced, the lower the confidence, both in absolute terms and relative to the confidence in flu vaccines. This correlation could be interpreted as follows: governments in countries with low confidence in vaccines have to wait for an emergency to implement the pass in a

consensual way. This is not the case for governments in countries with high confidence in vaccines. However, there are some exceptions. Governments in Austria, France and Hungary implement passes without facing a particular public health emergency, despite relatively low levels of confidence in vaccines. On the other hand, Cyprus implemented the COVID-19 pass in a worsened epidemiological context, despite a high level of confidence in vaccines.

CONCLUSION

In contrast to the variants of compulsory testing, the COVID-19 pass has been widely implemented in Europe with similar modalities. Our data cover 23 EU countries plus Norway, Switzerland and the United Kingdom. Data are not available for Romania, Poland and Slovakia. Only three countries do not use it: Luxembourg, Malta and Sweden. Some countries have implemented it at sub-national level, including Germany, Norway, Spain and the United Kingdom. The date of implementation varies from March 2021 (Hungary) to November 2021 (Croatia, the Netherlands and Portugal). The impact on the vaccination rate also varies between countries: in Austria, Cyprus, the Czech Republic, Denmark and Italy, the vaccination rate increased by more than 20% after the introduction of the pass. In Belgium, the Netherlands, Finland and Portugal, on the other hand, the vaccination rate remained almost the same.

The implementation of COVID-19 passes also varied according to the epidemiological context. In most countries, the pass was introduced after an increase in infections or deaths due to COVID-19. Three countries (Czech Republic, France and Italy) introduced their passes when the number of infections and deaths was falling sharply. In France and Italy, this could be explained by the calendar, just before the tourist season. Another complementary explanation could be the fact that they were among the countries that implemented the most stringent non-pharmaceutical measures. Austria could be included in this group, as it introduced the pass in a stable epidemiological context. This suggests that these governments are following their own preferences rather than adapting their policies. Finally, we also observe that the countries that waited for the epidemiological indicators to deteriorate are usually those where confidence in vaccines is lower. In high-confidence contexts, the introduction of the pass was not clearly associated with such a deterioration. However, in the case of Austria, France, Hungary and possibly the Czech Republic,

the pass was introduced in non-emergency situations despite relatively low confidence in vaccines.

In the light of these findings, we conclude with some suggestions. Vaccination in the context of a pandemic can help to create personal benefits for people who help to reduce the spread of the virus. However, it can also create huge disadvantages for those who refuse to be vaccinated, leading to protests, polarisation or economic stagnation. To avoid these side effects, vaccination should be used in countries with high levels of trust (including trust in vaccines) but low vaccination rates. Denmark is a typical case. Given the moderate impact of the vaccination rate, the opposite case—a country with relatively low confidence in vaccines and the political system and high vaccination rates should find alternative ways to encourage people to vaccinate themselves. The Netherlands is a typical case. In the intermediate context, it is debatable and probably right for many countries to introduce a vaccination pass if the spread of the virus is worrying. On the other hand, a vaccination pass should be avoided when the vaccination rate is above 60%.

REFERENCES

- Cameron-Blake, E., Tatlow, H., Andretti, B., Boby, T., Green, K., Hale, T., Petherick, A., Phillips, T., Pott, A., Wade, A., & Zha, H. (2023). A panel dataset of COVID-19 vaccination policies in 185 countries. *Nature Human Behaviour*. <https://doi.org/10.1038/s41562-023-01615-8>
- Charrier, L., Garlasco, J., Thomas, R., Gardois, P., Bo, M., & Zotti, C. M. (2022). An overview of strategies to improve vaccination compliance before and during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, 19(17), 11044.
- Cheng, C., Barceló, J., Hartnett, A. S., Kubinec, R., & Messerschmidt, L. (2020). COVID-19 government response event dataset (CoronaNet v.1.0). *Nature Human Behaviour*, 4(7), 756–768. <https://doi.org/10.1038/s41562-020-0909-7>
- de Figueiredo, A., Eagan, R. L., Hendrickx, G., Karafillakis, E., van Damme, P., & Larson, H. J. (2022). *State of vaccine confidence in the European Union*. Publications Office of the European Union.
- Egger, C. M., Magni-Berton, R., Roché, S., & Aarts, K. (2021). I do it my way: Understanding policy variation in pandemic response across Europe. *Frontiers in Political Science*, 3, 622069.
- Engler, S., Brunner, P., Loviat, R., Abou-Chadi, T., Leemann, L., Glaser, A., & Kübler, D. (2021). Democracy in times of the pandemic: explaining the varia-

- tion of COVID-19 policies across European democracies. *West European Politics*, 44(5–6), 1077–1102.
- Gehrke, L. (2022). German parliament rejects mandatory coronavirus vaccination. *Politico*. Retrieved June 1, 2023, from <https://www.politico.eu/article/german-parliament-rejects-mandatory-coronavirus-vaccination/>
- Karaivanov, A., Kim, D., Lu, S. E., & Shigeoka, H. (2022). COVID-19 vaccination mandates and vaccine uptake. *Nature Human Behaviour*, 6(12), 1615–1624.
- Kuznetsova, L., Diago-Navarro, E., Mathu, R., & Trilla, A. (2022). Effectiveness of COVID-19 vaccination mandates and incentives in Europe. *Vaccines*, 10(10), 1714.
- Mathieu, E., Ritchie, H., Ortiz-Ospina, E., Roser, M., Hasell, J., Appel, C., Giattino, C., & Rod  s-Guirao, L. (2021). A global database of COVID-19 vaccinations. *Nature Human Behaviour*, 5(7), 947–953.
- Mello, M. M., Opel, D. J., Benjamin, R. M., Callaghan, T., DiResta, R., Elharake, J. A., Flowers, L. C., Galvani, A. P., Salmon, D. A., Schwartz, J. L., Brewer, N. T., Bottenheim, A. M., Carpiano, R. M., Clinton, C., Hotez, P. J., Lakshmanan, R., Maldonado, Y. A., Omer, S. B., Sharfstein, J. M., ... , Caplan, A. (2022). Effectiveness of vaccination mandates in improving uptake of COVID-19 vaccines in the USA. *The Lancet*, 400(10351), 535–538.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter’s Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter’s Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copy-right holder.

