Strategies to Promote Vaccine Uptake in the COVID-19 Pandemic: Exploring the "Ladder of Intrusiveness" in Three Countries

Strategies to promote vaccine uptake in the COVID-19 pandemic: Exploring the 'ladder of intrusiveness' in three countries

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Abstract

A key task for countries around the world facing the COVID-19 pandemic was to achieve high vaccination coverage of the population. To overcome "vaccination inertia," governments adopted a variety of policy instruments. These instruments can be placed along a "ladder of intrusiveness" based on their degree of constraint of individual freedoms. The aim of this study is to investigate how the governments of three European countries moved along the ladder of intrusiveness and how the choice of policy instruments was influenced by contextual factors.

The study draws on secondary data sources, including academic and gray literature, policy documents, and opinion polls, over an observation period from December 2020 to summer 2022. The study employs inductive logic to analyze data and identify the factors explaining similarities and differences across England, Germany, and Italy.

The study identifies similarities and differences in how the three countries advanced along the ladder of intrusiveness. Contextual factors such as policy legacy, social acceptability, and ideological orientation contribute to explain the observations.

Country-specific contextual factors play an important role in understanding the choice of policy instruments adopted by the three countries. Policy makers should carefully consider these factors when planning immunization strategies.

Keywords: vaccine uptake, COVID-19, policy instruments, cross-country comparison

1. Introduction

The approval of the first COVID-19 vaccines in late 2020 allowed numerous privileged countries with early vaccine availability the prospect of overcoming the pandemic crisis and returning to normalcy. In the collective perception, the success of the vaccination campaign would bring three essential benefits: 1) to save many lives; 2) to reduce the pressure on health care facilities, which were under great stress during the first pandemic waves; and 3) to enable the resumption of economic, social and cultural activities. A key prerequisite for the return to normalcy was to achieve high vaccination coverage of the population as quickly as possible. Thus, one of the most challenging tasks of governments from a health policy perspective has been to overcome vaccine refusal and 'vaccine hesitancy' (Dubé et al. 2013; Betsch et al. 2015; MacDonald 2015).

In order to promote vaccination uptake, policy makers can use a wide range of instruments, from simply providing information to introducing a vaccination requirement. These policy instruments can be placed along a 'ladder of intrusiveness' (Nuffield Council on Bioethics 2007; Weaver 2015; Giubilini 2019; Profeti and Toth 2022), based on the degree of constraint and impairment of individual freedoms. It is worth noting that the adoption of more coercive instruments does not necessarily result in a higher level of compliance: more intrusive instruments may in fact result in a 'boomerang effect,' polarizing the political issue and reinforcing compliance aversion on the part of hesitant individuals (Schmelz 2021).

The purpose of this article is to investigate how the governments of three major European countries (England, Germany and Italy) moved along the ladder of intrusiveness, and to what extent the choice of policy instruments was influenced by the peculiarities of national contextual factors and the ideological orientation of the governments in office.
The article is organized as follows. In section 2 we introduce the analytical framework guided by the concept of the 'ladder of intrusiveness'. Section 3 makes explicit the aim of the work and the methodological choices. Sections 4 to 6 succinctly present the vaccination campaigns in the three countries under investigation. In each country, we analyze what use was made of the 'ladder of intrusiveness'. Section 7 compares the social and political contexts of the three countries analyzed, focusing in particular on policy legacy, social acceptability and ideology of governments in office. Section 8 discusses similarities and differences among the three country cases. Section 9 concludes.

2. Analytical framework

2.1 The concept of the 'ladder of intrusiveness'

In this article we use as an analytical guide the concept of the 'ladder of intrusiveness' as proposed by Profeti and Toth (2022) in the context of COVID-19 vaccine situation. This formulation explicitly takes up some earlier conceptualizations of an 'intervention ladder' developed by the Nuffield Council on Bioethics (2007) and Giubilini (2019), respectively.
Plain information. The lower rung of the ladder consists in the dissemination of information: the government collects data and makes it public, but without directing citizens towards a particular behavior. Information is provided so that the citizens have the elements to evaluate and form an opinion.
Hortatory tools: Persuasion, Exhortation and Admonition. Moving up the ladder of intrusiveness, we find 'hortatory tools' (Schneider & Ingram 1990): the government explicitly takes a position and recommends a certain behavior. The aim is to convince citizens with rational or emotional arguments, but without imposing restrictions or providing any kind of material incentive or disincentive (Giubilini 2019). Exhortative strategies can make use of a variety of 'motivational levers': the arguments may be positive or negative, and with varying degrees of emotionality (Profeti and Toth 2022).
Nudge. The third rung of the ladder is represented by nudge strategies (Thaler and Sunstein 2008). The government has a preferred option (in this case, the vaccination), but this preference is not necessarily made explicit. Policy makers - following a typical 'libertarian paternalism' approach - promote preferred behaviors through one of the typical nudge mechanisms (Sunstein 2014), e.g. the invitation to vaccinate 'because many others are doing so', thus exploiting the propensity of individuals to 'follow the herd'. The strategy of removing logistical barriers by bringing vaccination points closer to the users (in order to make the 'vaccination' option easier and less time-consuming) can also be traced back to nudging (Sunstein 2014).
Positive incentives. The next rung of the ladder is material incentives, thus changing the rationale through which citizens' compliance is pursued. The 'carrot strategy' (Vedung 1998), assumes that individuals go along with the preferences of policy makers not out of conviction, but because they receive a benefit. Material incentives can range from free goods or services (e.g., transport from home to the vaccination site and back) to cash rewards (for those who vaccinate).
Negative incentives/Personal restrictions. With a policy of negative incentives (or disincentives), certain behaviors that policy makers disapprove of remain permissible, but entail an additional burden for the citizens who adopt them. Negative incentives may take the form of financial penalty, either through taxation or the withholding of financial benefits.

Refusing to pay for medical care or medication for those 'unvaccinated by choice', for example, counts as a disincentive. On the borderline between disincentives and coercive measures lie restrictions on performing certain activities, such as entering certain places or freely engaging in certain activities.

Mandate. The last rung on the ladder of intrusiveness, which corresponds to the highest level of government coercion, is compulsory vaccination. This strategy does not grant any freedom of choice to individuals. The obligation can affect only certain categories, or the entire population.

It should be pointed out that the boundaries between one rung and the other are often blurred, and individual measures adopted by policy makers may straddle more than one category.

In this article, we would like to go a step further than the existing contributions regarding the ladder of intrusiveness. Indeed, the ladder represents a standard dashboard of 'technical tools' that must, however, be dropped into individual local contexts. Policy instruments are not neutral technical devices (Peters 2002; Lascoumes and Le Gales 2007), they have a political connotation, embody different values, and are interpreted differently depending on the social and political context (Linder and Peters 1989; Lascoumes and Le Gales 2007). The same policy instrument may be considered legitimate and enjoy wide acceptance in some countries, while in other contexts it may be considered illegitimate and highly unpopular, thus triggering reactance and an undesirable boomerang effect. For this reason, the same instruments and their mix may be more or less effective depending on the context in which it is adopted.

2.2. Dropping the 'scale of intrusiveness' into context

Three 'contextual factors' emerge from the policy instruments literature as particularly relevant (Linder and Peters 1989; Salamon 2002; Capano and Lippi 2017) to affect the choice of policy instruments. The first is 'policy legacy' (Rose 1990). The choice of policy instruments is influenced by choices made previously. These sometimes could preclude the adoption of different instruments or could constitute 'precedents' (both positive and negative) that policy makers may wish to reiterate (in case of success) or avoid (in case of failure). Public policies are highly path-dependent (Pierson 2000) and it is therefore important to consider the legacy that characterizes each policy sector and each specific local context (Capano et al. 2022).

A second factor concerns what we might call 'social acceptability'. In choosing policy instruments, decision makers inevitably take into account the reaction of policy recipients and public opinion (Schneider and Ingram 1990; Salamon 2002; Capano and Lippi 2017). Social acceptability can be influenced by the trust in government and healthcare institutions, dominant values, and the severity of the situation and problem to be addressed (e.g., coercive measures that are deemed acceptable under emergency conditions, are not acceptable under normal conditions).

A third factor influencing the choice of policy instruments is the ideological orientation of decision makers. The selection of a policy instrument, in addition to being a technical choice (based on criteria of efficiency, effectiveness, technical feasibility, etc.), is also a political choice (Linder and Peters 1989; Peters 2002; Salamon 2002), which has repercussions on the public image of decision makers, their electoral turnaround, inter-party dynamics, and public dissent. Right-wing and left-wing governments usually have different preferences on which instruments to adopt (Schneider and Ingram 1990) and some instruments end up being considered more or less 'appropriate' (March 1994) depending on the identity and ideological orientation of the decision maker.

3. Aims & Methods

The aim of this paper is to begin to investigate whether the choice of more or less 'intrusive' policy instruments to promote COVID-19 vaccine uptake in the selected countries might have been influenced by the three socio-cultural contextual factors mentioned above. The underpinning research question is therefore the following: why do countries advance more or less on the ladder of intrusiveness?

Our expectation is that each country would choose policy instruments to promote vaccination similar to those used in the past (policy legacy), more likely to be accepted and endorsed by the population (social acceptability) and that left-wing political parties would be more inclined to adopt more coercive measures than right wing parties (ideological orientation).

In terms of methods, the study draws on secondary data sources, including academic and grey literature as well as policy documents and opinion polls; the observation period is December 2020 (when vaccine became available in the three countries) to Summer 2022. We choose to adopt an inductive logic to analyze data and to identify the factors explaining differences across countries.

Regarding the choice of the countries to compare, we have selected three countries that share similar features but also some differences: they are large European democracies with a (roughly) similar population structure and they shared the need to reach a high vaccination coverage in a short period of time, given how badly they were affected by the pandemic. They present, however, differences regarding the policy legacy in the field of vaccination, their political culture, form of government and current government, making their comparison interesting to address our research question.

4. England

a. Overall organization

In England, the government was ultimately in charge of the development and implementation of the vaccination programme, with the support of additional key actors (i.e. the Department of Health and Social Care, NHS England, the Vaccine Taskforce, the Joint Committee on Vaccination and Immunisation (JCVI)).

In terms of the organizational delivery of the programme, vaccines were delivered via vaccination centres, GPs (primary care doctors), pharmacies and hospitals (with walk-in and pop up vaccination clinics added up in due course in specific location like supermarkets or universities).

The vaccine rollout was delivered according to a priority list (12 categories of people): older people, front line health and social care staff and clinically vulnerable people were due to get the vaccine first (up to April 2021), followed by all other categories (up to July 2021) (Timmins and Baird 2022).

b. The political context

In England, the vaccination campaign officially started at the beginning of December 2020 (although planning for the vaccination rollout started in May). The government in office at that time was led by Boris Johnson (leader of the Conservative Party) and the Secretary of State for Health and Social Care was Matt Hancock. In the same month, Nadhim Zahawi was appointed as Minister responsible for the vaccine rollout, although its specific remits and responsibilities were not fully clear. Hancock was replaced by Sajid Javid in June 2021, while Johnson was replaced by Lizz Truss in September 2022.

c. The instruments adopted and the ladder of intrusiveness

Plain information. Since the start of the vaccine rollout, the Government and NHS England developed a strong communication campaign to provide extensive information about the vaccine itself (with its benefits and possible side-effects), when and where to get them, how to book appointment, and details on where to find further information. A range of general and targeted material was delivered on newspapers, TV, radio, social media and the government and NHS websites, information leaflets and public locations (like bus stops). These information tools were overall widely supported by politicians and the public.

Hortatory tools*.* Throughout the months, the Government has resorted to more explicit messages aimed at encouraging a specific behaviour. For example, in 2021 funding was provided to local authorities to develop targeted activities and initiatives to increase vaccination uptake in geographical areas or across ethnic minorities groups were vaccination rates were lower than average. Faith and community leaders were also involved to support vaccination uptake within their communities (NAO 2022). The aim of these activities was to facilitate people's willingness to get vaccinated listening to people they trust. Specific targeted communication campaigns were tailored to increase confidence in the safety of COVID-19 vaccines and to counter disinformation that was widespread particular on social media. Finally, the Prime Minister and other members of the Government made several statements and interviews in which they highlighted the individual and collective duty to get vaccinated for everyone's benefit.

Nudge*.* Some nudge tools were adopted by the Government to encourage people to get vaccinated and to facilitate the uptake of key messages. For example, in April 2021 the NHS launched a campaign with the slogan 'Join the million already vaccinated' to encourage people to 'follow the many people who already did it'. The government set up also a specific website (https://coronavirus.data.gov.uk/) that provided weekly and daily update about the number of doses delivered and the percentage of people vaccinated at national but also at local level that allowed, for example, to highlight areas were vaccination rates were lagging behind. Famous personalities (like member of the Royal Family, actors, singers, politicians, tv personalities, etc.) were included in communication campaign to encourage people getting vaccinated.

Many GPs across England made repeated phone calls and/or sent out text messages to invite people registered in their practice to get the vaccine. Moreover, some communication campaigns focused more specifically on the individual and collective benefits of getting vaccinated and on the risks/limitations of not doing that.

Positive Incentives. An example of positive incentives was a range of different discounts, rewards, vouchers, gifts, etc. that some private companies (for example supermarket like Asda, travel companies like Lastminute or food delivery companies like Deliveroo) offered to vaccinated people to support vaccination uptake in the Summer 2021, particularly among young people.

Negative Incentives/Personal restrictions. In terms of negative incentives, vaccination passport was never introduced in England. However, a 'lighter' version of it (called 'Covid pass' or 'Covid status certificate', also available for people with a negative test) was introduced in May 2021 for travelling purposes: in a nutshell, vaccinated people could avoid travel testing and/or quarantine while these requirements were still in place for unvaccinated people. This pass was also required for a limited period of time to access nightclubs and large venues (see Table 1 for details).

Mandate*.* While other countries introduced mandatory vaccinations among certain categories of the population, England decided not to introduce similar schemes, mostly because they were considered an excessive limitation of individual freedom. However, an exception to this rule was the introduction in November 2021 of mandatory vaccination for people working in care homes (revoked in March 2022). The original plan was to extend such compulsory requirement

to NHS frontline staff as well but, given the opposition of many NHS staff and professional associations (like the BMA),the risk that many of them could leave and the lighter impact of the Omicron variant, the government made another U-turn and revoked this requirement in March 2022.

Table 1 – Policy instruments introduced in England

Month	***Contextual elements***	***Policy instruments introduced***
December 2020	The vaccination rollout started	***Information:*** details about how, where and when to get vaccinated and info on the vaccines ***Nudge:*** daily update on number of vaccinations provided; communications campaigns. Targets/goals set by the government
Summer 2021	Surge in infection, low vaccination rate among under 30' and aim of opening up society	***Hortatory tools:*** specific communications campaigns aimed at changing behaviour. ***Positive incentives****:* rewards/voucher/discounts/etc. offered by private companies to support vaccination upatke
May 2021	Surge in infection and slowing down of vaccination uptake	***Negative incentives/Personal restrictions*****:** Covid pass for travelling purpose
June 2021	Slowing down in the vaccination uptake and limited uptake from younger people	***Hortatory tools:*** Targeted info campaign to improve uptake particularly among 18-4 years old. For example youtube in collaboration with the NHS launched a video campaign with the tagline: 'Let's Not Go Back' to remind the importance for young people to get vaccinated ***Negative incentives/Personal restrictions***: plan to require vaccine-only COVID pass for domestic use (for high risk venues, etc.) from September 2021 was discussed but eventually not implemented
Second half 2021	Discussion about the introduction of vaccine passport	***Mandate:*** the introduction of vaccine passport was discussed but it was decided not to adopt it.
June-November 2021	By June 2021, only 65% of older adult care homes in England were meeting the minimum level for staff uptake for one dose	***Mandate****:* introduction of mandatory vaccination as a condition of deployment for care home staff in November 2021 (revoked in March 2022)
September 2021	Start of the booster campaign	***Information****:* communication about the importance of getting a booster dose and its safety ***Hortatory tools and nudge****:* specific communications campaigns implemented
December 2021	Spread of Omicron variant	***Negative incentives/Personal restrictions*****:** COVID pass required from December 2021 to access some domestic venues (revoked at the end of January 2022)
November 2021-		***Mandate****:* decision in November 2021 to introduce mandatory vaccination for frontline healthcare staff

January 2022		from April 2022 (the decision was revoked in March 2022 because of the prominence of a milder variant of the virus and of the reduced effect of vaccinations after time)
March 2022	Fourth dose for priority groups	***Information***: information about the importance of getting the fourth dose ***Hortatory tools and nudge****:* specific communications campaigns implemented
September 2022	Start of the autumn booster campaign for priority groups	***Information***: information about the importance of getting the booster ***Hortatory tools and nudge****:* specific communications campaigns implemented

5. Germany

a. Overall organization

Germany is a highly federalized country. Health care policy is an area of shared responsibility between the federal and 16 state governments, and the self-regulatory actors. While public health generally is the responsibility of the states, the Basic Law constitutionally grants the federal government legislative competence for measures to combat infectious diseases, which is enshrined in the German Infection Protection Act (Infektionsschutzgesetz or IfSG). During the pandemic, the IfSG has been amended several times, including to determine an 'epidemic situation of national scope', granting the Federal Minister of Health far-reaching powers to act in key areas of infection protection. The Robert Koch Institute (RKI) is the central institution in the field of disease surveillance and prevention and therefore, together with the federal government, also the most important federal authority in organising vaccinations.

b. The political context

Vaccination started on 27 December 2020, sequencing was removed on 7 June 2021. At the federal level, after elections on 26 September 2021, the grand coalition with chancellor Angela Merkel was replaced by a coalition of Social Democrats, Greens and the Liberal Party. In December 2021, Karl Lauterbach, a medical doctor with public health background, became Health Minister. Lauterbach became known as one of the most vehement advocates of compulsory vaccination.

c. The instruments adopted and the ladder of intrusiveness

Plain information. In order to inform the population broadly, a steering group was established at the federal level. Its main information tool is the web-based service 'Zusammen gegen Corona' (together against Corona), which together with at least six websites of health care institutions in Germany, pursues a high-profile nationwide communication strategy on vaccination and can be considered relevant sources of information for citizens (Holland-Letz et al. 2021).

Hortatory tools*.* There were two major campaigns in Germany to persuade the population. The first, jointly launched by the federal ministry of health (BMG), the RKI and the federal centre for health education (BzgA) called 'Deutschland krempelt die #ÄrmelHoch' (Germany rolls up its sleeves) started in early 2021. In April 2021 Government's communication strategy experienced a major backlash caused by a commercial in which a group of popular actors and artists spoke out against the federal government's containment measures (#allesdichtmachen).

At the end of January 2022, the second campaign, initiated by the new government and called 'Impfen Hilft' (vaccinating helps) started as a multilingual offer.
A form of admonition applies to numerous advances, especially by the new government, which drastically portray the negative consequences of being unvaccinated, e.g. in newspaper advertisements. In summer 2022, Lauterbach warned from a 'killer virus' (Die Zeit 2022), immediately prompting reactions, that he was trying to scare more people into vaccinating.
Nudge. In Germany, some measures were taken in the sense of building a choice architecture (Thaler and Sunstein 2008), e.g., by making the preferred alternative easier and more convenient. For example, the organization of vaccination devolved from centrally organized, large anonymous vaccination centres to the family doctors in April 2021. Starting in autumn 2021, more mobile vaccination teams provided vaccinations in shopping malls, libraries and sports fields without appointment. These were supported by private non-profit organisations that also offered vaccination services, especially outreach activities for groups with difficult access to the health system, such as people with disabilities, low health literacy, and non-German speaking populations. In Berlin, techno sound and a light show encouraged young people to get vaccinated at their favourite nightclub. With recourse to the herd effect, campaigns featured people from all spheres of life along with testimonials demonstrating that they have already been vaccinated or are ready to be vaccinated. Some states sent personal letters to inform people about the possibility of vaccination against COVID-19 thus using prompts to encourage the decision to vaccinate. However, the 'easy and convenient' rule was also disregarded in many situations. Surveys reveal that booking appointments on internet portals is a challenge for many people, especially for older people and for non-native speakers (COSMO 2021, p. 45).
Positive incentives. Positive incentives, such as small in-kind rewards, were used in some instances, sometimes with significant impact, but with rather limited reach. In November 2021, a vaccination premium of 100 Euros for fully vaccinated persons was proposed by the Left Party in the German Bundestag, but the proposal was not accepted (Deutscher Bundestag 2021a).
Negative incentives/Personal restrictions. From 23 August 2021 on, only vaccinated, recovered, or negatively tested persons (called '3G': geimpft, genesen or getestet) had access to hospitals and nursing homes, certain indoor events, and also for certain services (hairdresser, indoor sports, accommodation). However, the states had some discretion to suspend this rule in counties with low incidence. As of 25 November, following an amendment of the IfSG, 3G was required nationwide for access to workplaces. In a further tightening of the regulations, from December 2021 on, only recovered and vaccinated people (2G, geimpft or genesen, or 2G+, including a negative test or booster immunization) were allowed to enter retail, cultural and leisure facilities. Only shops for daily needs were excluded. Gatherings in public and private spaces were restricted for the unvaccinated. However, these regulations were implemented differently in the states. Lawsuits against the 2G ordinance were filed in some states, sometimes successfully.
Mandate. On 13 July 2021, then-Chancellor Angela Merkel announced that here will be no compulsory vaccination, neither in general, nor for health and social care staff (ZDF 2021). On 10 December 2021, the new government decided to make COVID-19 vaccination mandatory for all workers in health and social care organisations (so called 'facility-based mandatory vaccination'), requiring them to provide proof of full immunisation by 15 March 2022 (Deutscher Bundestag 2021b). Led by the new Health Minister Lauterbach and the Social Democratic party, the discussion about imposing a general mandate for the adult population gained speed in spring 2022. The political debate, which was accompanied by street protests, saw heated disagreements within the government coalition, and between the government and the opposition. In the vote in the Bundestag on 7 April 2022, compulsory vaccination was rejected (Deutscher Bundestag 2022). The Christian Democrats voted almost unanimously

against a general mandate, as did members of the co-governing Liberal Democrats, as well as the right-wing 'Alternative for Germany' and the majority of the Left Party in the opposition.

Table 2 – Policy instruments introduced in Germany

Month	***Contextual elements***	***Policy instruments introduced***
27 December 2020	Start of vaccination campaign	***Information:*** Campaign 'together against Corona' (www.zusammengegencorona.de)
Spring 2021	Parts of the population are sceptical or even opposed, major backlash on communication strategy (#allesdichtmachen)	***Hortatory tools:*** Start of the 'sleeves-up' campaign ***Nudge:*** decentralizing of vaccination, mobile vaccination teams, outreach
early Summer 2021	Immunization rates remain concerningly low	***Mandate:*** Then-Chancellor Angela Merkel announces that here will be no compulsory vaccination
23 August 2021		***Negative incentives/Personal restrictions:*** 3G-Regulation, some discretion of the states
26 September 2021	Federal elections followed by a change in government	
25 November 2021	Amendment of the IfSG	***Negative incentives/Personal restrictions*:** extension of the 3G-Regulations, states have less discretion
10 December 2021	Karl Lauterbach Health Minister	***Mandate:*** facility-based mandatory vaccination
December 2021		***Negative incentives/Personal restrictions:*** (enhanced) 2G/2G+ regulations, discretion of the states
January 2022		***Hortatory tools:*** Start of the second campaign ('Impfen Hilft')
April 7, 2022	Debate in the Bundestag on general compulsory vaccination	***Mandate:*** Rejection of compulsory vaccination in the German Bundestag
Summer 2022	Health minister maintains threat, while experts and epidemiologist believe infection incidence is declining	***Hortatory tools:*** Health Minister Lauterbach warning of a 'killer virus'

6. Italy

a. Overall organization

The Italian National Health Service is highly regionalised (Toth 2021). The national government has the power to set the general regulatory framework, but the management and planning of health services are assigned to regional governments (Toth 2014). With reference to the

COVID-19 vaccine, all decisions concerning vaccination strategy have been taken by the national government. No region introduced restrictions or incentives other than those provided at national level. The national government procured the vaccine doses, distributing them equally among the different regions. The regions were responsible for the 'organisational machine' through which they administered the vaccines to the population. The national government set targets (number of daily doses administered) that the regions were supposed to reach.

b. The political context

In Italy, the vaccination campaign officially started at the end of December 2020 with the European vaccination days. The Italian government in office at that time was led by Giuseppe Conte (a centre-left coalition government whose major parties were the 5 Star Movement and the Democratic Party). As of mid-February 2021, Prime Minister Conte was replaced by Mario Draghi, with a government of 'national unity' (supported by all major parties except the right-wing party Fratelli d'Italia).

c. The instruments adopted and the ladder of intrusiveness

Plain information. From the very beginning, the Italian government accompanied the vaccination campaign against COVID-19 with typically informative tools. Information was provided to the population regarding the available vaccines, priority categories, administration and booking procedures. Data on the number of injections carried out in the individual regions was provided on a daily basis.

Hortatory tools. From the very beginning of the vaccination campaign, members of the national government took an explicit stance, calling on the entire population (when their turn came) to vaccinate. The government's first communication campaigns (launched in January and February 2021) aimed to persuade the population that vaccinating was both a benefit for the individual and an altruistic gesture towards their loved ones and the most fragile. These messages in the positive were followed by messages in the negative (intended to admonish, provoke guilt, scare off the hesitant). The President of the Republic, Sergio Mattarella, publicly declared in September 2021 that *'vaccinating against COVID-19 is a civic and moral duty. Those who do not vaccinate put the health of others at risk'*. The communication campaign launched by the government in December 2021 emphasised the health risks of not vaccinating. Some of these public statements with exhortatory purposes irritated the 'anti-vax' groups, and were criticised by some politicians and commentators in the media.

Nudge. In order to push the vaccination campaign, the Italian government - although not stating it explicitly - has resorted to some nudge instruments. The vaccination rollout data released daily served to convey the message 'many Italians are getting vaccinated' (focusing on the 'follow the herd' effect). The communication campaign launched in June 2021 used some famous testimonials (show business and sports stars) in order to entice people to emulate them. Another example of nudge is the government campaign launched in December 2021. Through this initiative, the government announced that the vast majority of Italians (over 85%) had already been vaccinated. Relying more on possible losses than possible gains, the government's campaign also emphasised the number of deaths and hospitalisations that vaccinations had so far prevented. The strategy pursued by the Italian government to facilitate access to the vaccine can also be traced back to nudging. This strategy entailed a decentralisation of vaccination points, the possibility of having the vaccine at pharmacies, the possibility of booking in regions other than one's region of residence, mobile vaccination points on beaches, in airports, etc. (Profeti and Toth 2022).

Positive Incentives. In order to booster the vaccination rate, the Italian government decided in the summer of 2021 to move up the 'intrusiveness ladder', adding some incentives to the

exhortative tools. No monetary rewards or similar were adopted in Italy. The positive incentives were incorporated in the so-called 'Green Pass'. This certification was issued to those who had been vaccinated and those who had contracted the disease. A temporary 48-hour Green Pass could be obtained following a negative swab result. The Green Pass was initially required to move freely between regions and attend wedding parties, but was later (August 2021) made compulsory for access to restaurants, bars, swimming pools, public events, etc. It should be pointed out that non-vaccinated subjects could still carry out all these activities, but at the cost of undergoing frequent swabbing. This represented a saving of time and money (hence an incentive) for vaccinated subjects, whereas it was clearly a disincentive for non-vaccinated subjects. The introduction of the Green Pass triggered vehement protests from 'anti-vax' people throughout the country.

Negative Incentives/Personal restrictions. By November 2021, the number of 'first doses' was falling, while the number of infections was rising sharply. The Draghi government then decided to climb a further rung of the 'ladder of intrusiveness', moving from positive to negative incentives. Thus the so-called 'enhanced Green Pass' was introduced, which was only issued to those who had already been vaccinated and to those who had recovered from COVID-19. The 'enhanced' Green Pass was required in order to gain access to restaurants, bars, public events, museums, gyms, swimming pools, etc. Later, the 'enhanced' Green Pass was also required for the over-50s to go to work. In fact, those who were not vaccinated found themselves excluded from a wide variety of social activities. The enhanced Green Pass measure was opposed by many commentators and politicians (especially from the League, the 5 Star Movement and Fratelli d'Italia).

Mandate. The Draghi government decided to use also the last rung of the ladder of intrusiveness, resorting to the imposition of compulsory vaccination. The vaccination mandate was initially imposed on a few specific job categories, such as healthcare personnel (April 2021), personnel in homes for the elderly (October 2021), school personnel and the police (December 2021). At the beginning of 2022, the vaccination obligation was extended to the entire over-50 population. The imposition of compulsory vaccination for the over-50s was a decision contested by many politicians in both the majority and the opposition. However, polls conducted at the end of 2021 showed that the majority of Italians were in favour of the introduction of a vaccine mandate for the entire population (Ipsos 2021).

Table 3 – Policy instruments introduced in Italy

Month	***Contextual elements***	***Policy instruments introduced***
December 2020	The vaccination campaign officially starts on December 27th	***Information***: information regarding the vaccination campaign constantly provided.
January 2021	Shortage of available vaccine doses. Prime Minister Conte resigns on January 26th	***Information and Nudge***: vaccine rollout data provided on a daily basis.
February 2021	Draghi government takes office on February 13th	***Hortatory tools:*** Government communication campaign
April 2021	Growth in the number of infections	***Mandate:*** compulsory vaccination for health personnel ***Negative incentives/Personal restrictions:*** Green Pass is introduced, initially required to move between regions
June 2021		***Hortatory tools and nudge:*** Communication campaign with famous testimonials

July 2021	Significant drop in the number of 'first doses'. Delta variant spreads	***Positive incentives**:* European Green Pass (to move freely between EU countries)
August 2021		***Negative incentives/Personal restrictions**:* Green Pass required for access to bars, restaurants, museums, shows, sporting events, swimming pools, gyms, conferences, etc.
September 2021		***Hortatory tools:*** President Mattarella declares 'Vaccination is a civic and moral duty' ***Negative incentives/Personal restrictions**:* Green Pass required for public transport. Green Pass required for school and university staff
October 2021		***Negative incentives/Personal restrictions**:* Green Pass mandatory for public and private sector workers **Mandate**: compulsory vaccination for staff of homes for the elderly
November 2021	Significant drop in the number of 'first doses'.	***Negative incentives/Personal restrictions:*** introduction of the 'enhanced' Green Pass.
December 2021	Strong increase in infections	***Negative incentives/Personal restrictions:*** Those who do not have the 'enhanced' Green Pass cannot access restaurants, bars, theatres, shows, etc. ***Coercion**:* compulsory vaccination for school and police personnel
January 2022	Omicron variant spreads.	***Negative incentives/Personal restrictions:*** Those who do not have the 'enhanced' Green Pass cannot access museums, gyms, swimming pools, etc. ***Mandate:*** compulsory vaccination for the entire population over 50.
February 2022		***Negative incentives/Personal restrictions:*** Enhanced Green Pass becomes mandatory for workers over 50
June 2022		June 15th marks the end of compulsory vaccination for the over-50s

7. Contextual factors: Policy legacy, social acceptability, and ideological orientation

We have previously identified three contextual factors to be considered: policy legacy, social acceptability and ideology. In this paragraph we discuss how (and to what extent) these contextual factors may have influenced vaccine strategies in the three countries under consideration.

a. Legacy

In England, the extensive experience and dedicated infrastructure of the NHS to deliver flu immunization campaigns was an important factor in the planning and delivery of the COVID vaccination rollout (NAO 2022). This situation 'facilitated' the choice of the government to focus on 'lighter' approaches (information, hortatory tools, nudge) rather than opting for 'stronger' ones (incentives, coercion). In addition to that, England has an extensive track record of adopting nudge strategies to address public policy issues: the Behavioural Insight Team (also known as Nudge Unit) was established in 2010 for this specific purpose. Another important issue relates to fact that, differently from other countries, vaccinations in the UK are not

mandatory (House of Commons 2022) and, consequently, it would have been challenging to make an exception for the COVID-19 vaccine.
In Germany, although there has always been compulsory vaccination in the older past (e.g., against pox), the recent history of vaccination regulation has seen coercive measures pushed back in favor of strengthening personal responsibility, regardless of the party in power (Loer 2016). Nevertheless, since the IfSG came into force in 2001, compulsory vaccination can be (re-)introduced at any time. Recently, for example, the Bundestag passed a nationwide requirement to vaccinate against measles in certain settings (Jütte 2020). Although a (small) nudging unit was established within government in 2014, it has never dealt with the COVID-19 pandemic. Monetary incentives for disease prevention are an instrument that the German sickness funds use in principle (e.g., so called 'Bonusprogramme'), but not the government, which made the decisions in the vaccination campaign.
In Italy, mandatory vaccination is not taboo. In fact, Italy has a tradition of vaccine requirements, as evidenced by the recent 2017 reform that made ten childhood vaccinations mandatory (Casula and Toth 2021). In contrast, in the area of health promotion, Italians are unfamiliar with cash incentives. Most of the population would consider bizarre, perhaps even inappropriate, the decision to give an economic reward to those who vaccinate. Italy has no particular expertise in nudge strategies.

b. Social acceptability

In England, the organization and delivery of the vaccination programme provided the Government with the opportunity to restore some trust and support in its activity after receiving several critiques for its approach and choices in dealing with the pandemic in its earlier stages (Lee at al. 2021). Particularly relevant was the choice of the Government to put the NHS in charge of the organization and delivery of the vaccine rollout. The NHS is one of most trusted and supported institutions in England (Warren and Lofstedt 2022) and the 'faith' of the English people in the NHS, and the high level of public support for healthcare staff in general (Imperial College 2021), contributed from the very beginning to a strong uptake and confidence in the vaccination program.
The decision to make vaccination mandatory for care homes staff and the proposal to do the same for healthcare staff received widespread opposition (and in fact, they were revoked). This overall perception of opposition to mandatory vaccination is corroborated by several studies. One study showed that the introduction of vaccine passports will likely lower inclination to accept a COVID-19 vaccine (De Figueiredo et al. 2021); another study showed that control measures, (like mandatory domestic vaccine passports) 'may have detrimental effects on people's autonomy, motivation, and willingness to get vaccinated' (Porat et al., 2021); another study showed that health care workers in England were more likely to refuse vaccination if they felt pressured to get one (Bell et al. 2022).
In Germany, according to the COVID-19 Snapshot Monitoring (COSMO) survey, trust in government and in healthcare institutions declined significantly since the beginning of the Corona pandemic. After a brief recovery following the change of government in the fall of 2021, about half of the population in 2022 said they had (rather) little trust in the government (COSMO 2022a). For about one-fifth of the population, dissatisfaction with the government is the motive to refuse vaccination (COSMO 2021, p. 46). Correspondingly, approval for mandatory vaccination against COVID-19 fell markedly in 2020, increased until the end of November 2021, and has since stabilized at a low level of 43% of all respondents by end of November 2022 (Graeber et al. 2021; COSMO 2022b). At the time of the Bundestag debate on a mandate, only about half of respondents favoured this coercive measure (COSMO 2022b).
In Italy, mandatory vaccination is not perceived as a particularly unpopular measure, especially in the midst of a public health crisis. This statement is confirmed by various polls conducted

between April and December 2021, in which nearly two-thirds of Italian respondents supported the introduction of mandatory vaccination against COVID-19 (Profeti and Toth 2022). It is also worth reminding that Italy in the first year of the epidemic was a country dramatically affected by COVID-19, especially in some northern regions (Bosa et al. 2022) and this certainly served as an incentive for people to get vaccinated.

c. Ideological orientation

In England, a libertarian political and institutional culture (and a Conservative government in charge at the time), reluctant to restrictions on individual freedom, has eventually prevented the implementation of more coercive measures (i.e. Green Pass) as it happened in other countries. The Labour Party has also opposed the introduction of compulsory vaccination for the general population. Even when COVID Pass staff was approved to access some domestic venues in December 2021, 99 Conservative MPs voted against it. The Prime Minister Boris Johnson has always declared to support a voluntary approach to vaccination rather than coercion and the same position was shared by the Health Secretary (Mr. Hancock first and Mr. Javid after).

In Germany, a change in the general strategy can be recognised due to the change of government that took place in September 2021. This new government first launched a new campaign, and it is reasonable to assume that this was to intend to demonstrate a fresh start in communications policy. A major change can be seen in the person of Karl Lauterbach as Minister of Health, who as an epidemiologist is a vehement supporter of vaccination, and as a politician is vehemently in favour of a general obligation to vaccinate. Immediately after he came into office, the 'mandate' level was activated by making vaccination compulsory for all workers in health and social care facilities. The enforcement of compulsory vaccination was his personal 'permanent theme'.

In Italy, on a political level, the two parties most opposed to the Green Pass were the League and *Fratelli d'Italia*. These two parties were also against the introduction of mandatory vaccination for the over-50s. The 5 Star Movement, which had taken anti-vaccine positions in the past, in the case of the COVID-19 vaccination voted in favor of the mandate. The Minister of Health, Roberto Speranza, leader of a leftist party, has always declared himself in favor of introducing vaccination requirements, if necessary.

8. Discussion

Although we observe some similarities in the measures that were introduced in the countries under comparison, there are also remarkable differences in the timing, sequence, and stringency of the instruments adopted. Coming to the ladder of intrusiveness, the first instruments introduced were very similar. In Italy, at first, only informative and hortatory instruments were used, through which the government intended to convey positive and reassuring messages: vaccines are safe; vaccine enables a return to normal life; vaccination is an act of responsibility towards others. Also, the strategies adopted by the German and England Government to promote the vaccine rollout in the beginning has been mostly focused on widespread information campaigns, and hortatory tools. In all three countries, whatever other step were taken on the ladder, information and persuasive tools were used throughout the rollout.

A major difference at this very first stage is that in England, in line with the political culture, nudging approaches played an important role from the very beginning. All the actions and initiatives implemented (from facilitating easy access with multiple, diversified and widespread vaccination sites to prominent public figures involved in communication campaigns) were aimed at improving vaccination uptake through persuasion rather than

coercion, providing the public with essential information and supporting tools to make the right choice by themselves. In Germany, initiated by both the government and private organisations, nudges were used at times with the intention to make the 'healthier choice' to vaccinate more convenient, for example by decentralizing supply, and by outreach activities, in particular addressing low socioeconomic groups, and the migrant population. However, it is important to note that the government at no point pursued an explicit or coherent nudging approach, as 'libertarian paternalism' is not part of the political culture in Germany. The Italian government as well put efforts in removing logistical barriers by increasing the number and ubiquity of vaccination points with the intention to making choices pro vaccination easy and convenient. Some of the awareness campaigns launched by the Italian government aimed at the 'follow the herd' lever, typical of nudge.

Moving the ladder further up, the use of positive incentives was put on the agenda of governments in all three countries. Monetary rewards have never been used in Italy, and only anecdotal evidence reports of in-kind incentives (discounts, rewards, vouchers, gifts, etc.) in Germany and England, mainly employed by private companies or organizations.

Negative incentives, coming in the form of personal restrictions, however, were very prominent in all three countries. Whether COVID pass in England, Green Pass in Italy, or 3G/2G Regulation in Germany, with these regulatory instruments, all governments restricted individual freedom. In all three countries, the personal restrictions started with a softer version and became tightened over time. England, for example, started with the 'lighter' version of a 'COVID pass' or 'COVID status certificate' for travelling purposes and the instrument was later expanded to grant access specific venues (although for a very limited period of time). In Italy, the Green Pass instrument was initially conceived as an incentive for those who had already been vaccinated and as a 'mild' disincentive for unvaccinated individuals. The Draghi government intended to make the Green Pass instrument more intrusive over time (Profeti 2022). Starting in summer 2021, the Green Pass was required for a wide variety of social and recreational activities. Later, the Green Pass became compulsory for all public and private sector workers. In November 2021, the 'enhanced' Green Pass was introduced, which - *de facto* - entailed personal restrictions for individuals who had not been vaccinated. In Germany, government began to introduce personal restrictions in August 2021, already under the previous Merkel government, applying the 3 G rule (recovered, vaccinated, or negative test) as a prerequisite to enjoy certain freedoms. Regulation was tightened in December by moving from 3G regulation to 2G or 2G+ regulation. It must be considered, however, that it is the federal structure that led to varying degrees of stringency and speed in implementation.

At the higher steps of the ladder, in all three countries government imposed some sort of mandatory vaccination. In December 2021, compulsory vaccination in health care facilities was established in Germany, extending to all workers in health care organisations, including housekeeping and kitchen staff. However, taking this step on the ladder was only possible after the new government was in place. In Italy, coercion was initially imposed on a few specific job categories, such as healthcare personnel (April 2021), personnel in homes for the elderly (October 2021), school personnel and the police (December 2021). In England, in November 2021 vaccination for people working in care homes became mandatory (but was revoked in March 2022). The plan to extend such compulsory requirement to NHS frontline staff as well was given up in the light of opposition of many NHS staff and professional associations.

The most coercive measure, i.e., the introduction of a generalized vaccination requirement (not tied to certain labor categories) was only taken by the Italian government. At the beginning of January 2022, the Draghi government decided to introduce compulsory vaccination for the entire over-50 population. In Germany, although the Social Democrats and the Greens, as the largest parties in the government coalition, and especially the Health Minister, made a strong case for extending compulsory vaccination to the general (adult) population, parliamentarians

scuttled all proposals that went in that direction. In England, the issue of mandatory vaccination for the adult population has never been really an option on the table.

9. Conclusions

In order to achieve a high vaccination coverage rate, the governments of England, Germany and Italy followed - to a large extent - a common pattern. They started with the least intrusive policy tools, focusing on information, persuasion and nudge. Over the months, because of the reluctance of part of the population to get vaccinated, the three national governments climbed the ladder of intrusiveness, introducing some positive incentives. At a later stage, disincentives and personal restrictions were introduced in all three countries. Here the similarities between the three national cases end, and the differences begin. In England, the restrictive measures related to the 'COVID pass' were softer than in the other two countries and a 'vaccine only' pass was never introduced. In Italy, the vaccination mandate affected multiple categories of workers (health care workers, school workers, university staff, police forces), in Germany it was extended to all staff within health care organizations, including cleaning and kitchen staff, while in England the vaccination mandate affected only care homes staff. The Italian government climbed to the last rung of the ladder of intrusiveness by introducing mandatory vaccination for the entire over-50 population. The option of introducing a general vaccination requirement has been debated in Germany, but was rejected in the German Bundestag. In England, the Conservative government has never really raised the possibility of a generalized vaccine obligation.

The differences between the three countries can be interpreted in the light of the contextual factors explored in the previous sections. In Section 3, we put forward some 'expectations' regarding the influence of such contextual factors. These initial expectations seem to be confirmed, at least to a large extent.

In terms of ***policy legacy***, Italy had the precedent of mandatory childhood vaccinations: mandatory vaccination was not taboo. Germany and England, by contrast, are not familiar with compulsory vaccination. This explains why the generalized vaccination obligation was only approved in Italy. The UK, on the other hand, has a greater tradition of 'nudging units'. This may explain why there has been greater use of such instruments in the UK. Thus, the expectation that decision makers tend to reiterate previously used policy instruments with which they are more familiar seems to be confirmed.

Social acceptability is influenced not only by how serious and urgent the problem is socially perceived, but also by attitudes and trust (Schmelz 2021), aspects that can only be scratched at surface within the scope of this paper. In England, highly coercive measures regarding vaccination would be considered illegitimate and certainly highly unpopular. Bringing the NHS to the forefront as one of the most trusted and supported institutions in England helped to increase acceptance of the measures introduced by the government. In Germany too, the subject of compulsory vaccination is a controversial issue. Although previous international research suggests that trust in government is not a necessary condition for restrictive measures (Sabat et al. 2020), in the German case, the acceptability of federal government action in general, and compulsory vaccination in particular, declined significantly during the pandemic, in line with a significant loss of trust. With reference to the Italian case, one must bear in mind that Italy in the first year of the epidemic was a country dramatically affected by COVID-19, especially in some northern regions. This contributed to 'frightening' the Italian population, leading them to be largely in favor of introducing coercive measures.

The individual preferences of policymakers and the ***ideology of governments*** in office plausibly played a role as well. In Italy, two of the parties most skeptical of mandatory

vaccination (Lega and Five Star Movement) as parts of the governing coalition, did not ride the anti-vaccine protest. The most opposing positions towards the Green Pass and compulsory vaccination came from the extreme right-wing party, *Fratelli d'Italia*. In England, the Conservative government led by Boris Johnson has always declared its firm opposition to mandatory vaccination and highly coercive policy instruments. In Germany, the most intrusive measures were introduced after the September 2021 elections when the Scholz government took office. The previous grand coalition government led by Angela Merkel had not seen fit to use highly coercive measures. Within the coalition of the Scholz government, two antithetical positions emerged: Health Minister Lauterbach (social democrat) was in favor of more coercive measures; of a different opinion was the co-governing Liberal Party. Together with the Christian Democratic Party in the opposition, the proposed legislation was brought down. Therefore, the expectation that conservative-led governments are less likely to use highly coercive measures seems to be confirmed as well.

In summary, our analysis shows that country-specific contextual factors (policy legacy, national culture and governments in office) play an important role in explaining and understanding the choice (and the timing) of policy instruments adopted by the three countries; in a similar way, the possible impact of the different instruments adopted also in other countries is not unique and should be carefully considered in the light of these factors.

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