

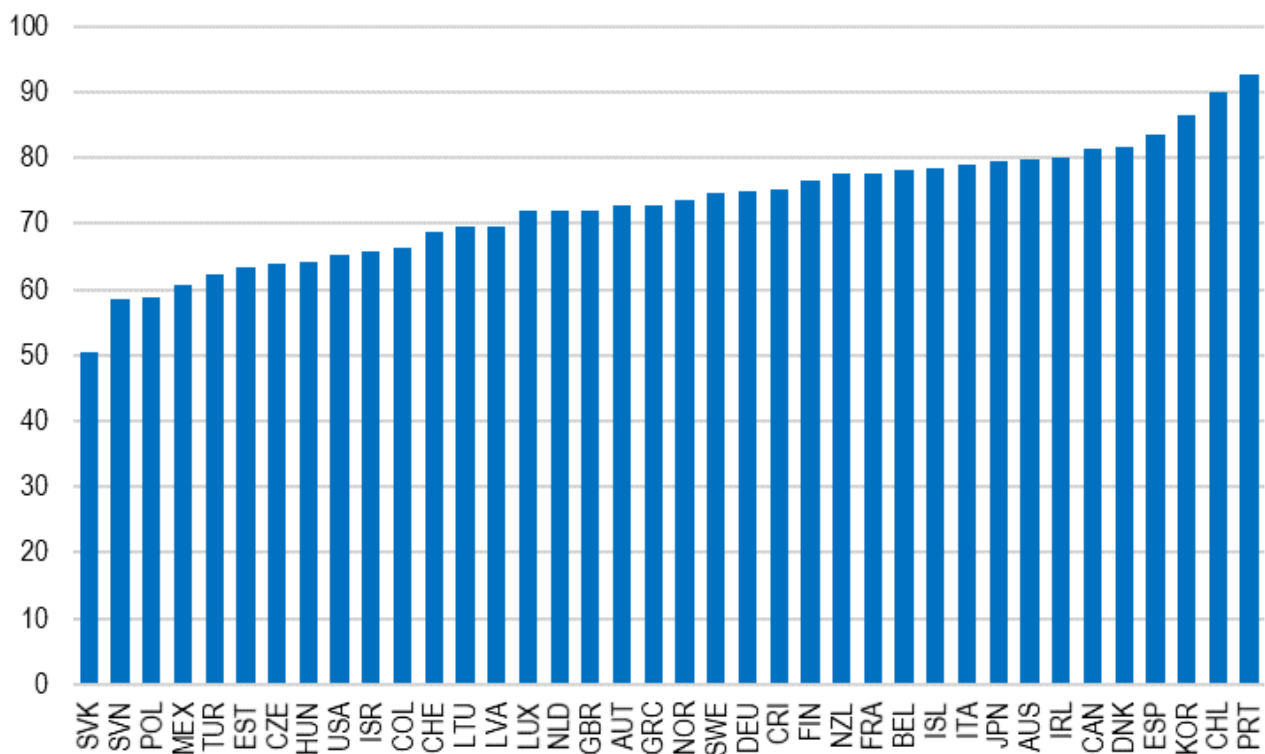
# What explains the striking differences in vaccination uptake across OECD countries?

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Massive differences in COVID-19 vaccination coverage between rich and poor countries are mostly explained by supply and logistical issues. However, even among OECD countries, where such issues are no longer a major constraint, there remain striking differences in the share of the population that is fully vaccinated (Figure 1). Our recently published OECD Working Paper: **Understanding differences in vaccination uptake among OECD countries** (Turner, D., et al., 2022) attempts to understand the reasons for these differences, which is important not only in dealing with current and future waves of COVID-19, but also to be better prepared for the next pandemic.

**Figure 1. The share of the population fully vaccinated in OECD countries**

Per cent, data for the 11<sup>th</sup> of March or nearest period.



Note: Total number of people who received full doses prescribed by the initial vaccine protocol divided by the total population of the country. Alternative definitions of vaccination, for example having been infected or having one dose of a two doses protocol, are ignored in order to maximise cross-country comparability.

Source: *Our World in Data*, downloaded on the 11th of March 2022.

Vaccinations have major health and economic benefits. There is overwhelming evidence from extensive clinical trials and real world experience that vaccines provide protection against the most severe outcomes of COVID-19. There is also clear evidence that OECD countries with less extensive vaccine coverage have experienced more COVID-related deaths from the most recent wave of the Omicron variant. Analysis by Olliu-Barton, Pradeliski, Woloszko *et al.* (2021) suggests that an increase of vaccination by 10 percentage points is associated with an increase of  $\frac{1}{2}$  of a percentage point in GDP after four weeks.

The time profile of vaccination rates typically follows an S-shaped logistic curve, which captures the main dynamics of a diffusion process: adoption is initially slow due to supply constraints and widespread hesitancy, then peaks when

logistical problems are solved, until coverage starts plateauing as progress depends on persuading those that are reluctant or hard to reach. As a result, the drivers of vaccine uptake in the early stages of the vaccination campaigns are no longer the main explanations of current vaccination levels:

- **Supply constraints** were initially bottlenecks, but have since been overcome. By the end of April 2021, Israel, Chile, the United States, the United Kingdom and Hungary were far ahead of other OECD countries in terms of number of vaccine doses delivered. However, most other OECD countries have since caught up and among these five early leaders, only Chile remains in the highest quartile of vaccine coverage among OECD countries.
- **Initial vaccine hesitancy** can be overcome. Among a small sample of OECD countries for which survey evidence is regularly available, there is little correlation between the share of the population that is currently *not* fully vaccinated and the share of a surveyed population who was unwilling or uncertain to consider vaccination at the *beginning of 2021*.

The focus on the contemporaneous rates of vaccination precludes using time series statistical methods, and the paper thus highlights some of the key drivers of vaccination based on univariate correlations:

- Many of the countries where **flu vaccination** has been historically low are also those where current vaccine coverage against COVID is low. Similarly, there is a positive correlation between the **share of general practitioners likely to prescribe vaccines against other illnesses** and current vaccine coverage against COVID.
- **Trust in healthcare systems** is correlated with vaccination in the small number of countries where it is surveyed regularly. For a wider sample of countries, there appears to be a weaker correlation with an

indicator of **access to and quality of healthcare**.

- **Demographics factors:**

- The elderly are more vulnerable to COVID and have higher vaccination rates. As a result, countries that have a **high elderly population share** tend to have a higher overall vaccination rate, as evidenced by Japan (with relatively high shares of both), compared to Turkey, Colombia and Mexico (relatively low shares).
- There seems to be major differences across countries in the **tendency to vaccinate children**, which help to explain differences in total population vaccine coverage. Vaccine coverage of children aged 0 to 17 is particularly low (often around 10% or less) in Eastern European countries, Mexico and Turkey as opposed to Denmark and Portugal where it is much higher (more than 40%).
- There is no simple correlation of vaccine coverage with survey measures of **trust in government**, but it does appear that low trust in government implies greater vulnerability to mixed messages from other sources. Many of the OECD countries with the lowest vaccination rates have both a low trust in government and a greater reliance on social media for news and information. Also, when the merits of vaccination are disputed by mainstream political parties, then vaccination rates can be correlated with political affiliation.

While a substantial share of the differences in vaccination rates across countries depends on pre-existing factors, vaccine policies also play an important role and contribute to explain differences in vaccination rates:

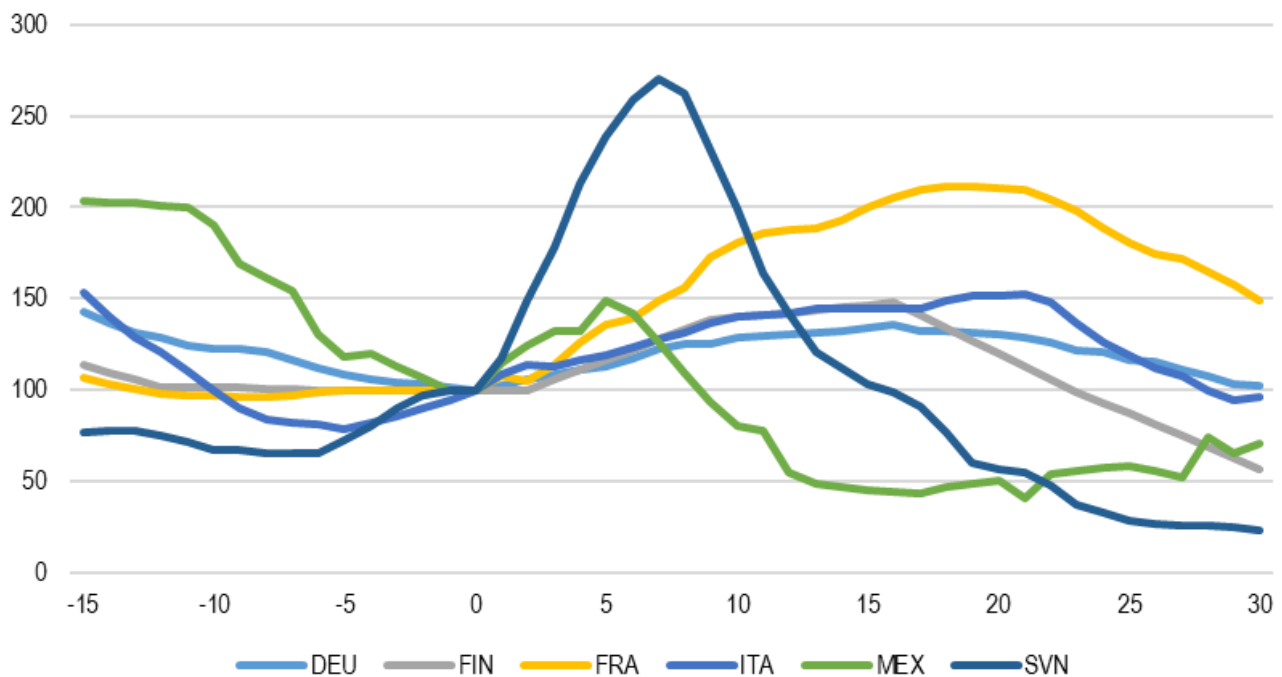
- **Nudge policies** (e.g., lotteries, financial incentives, public health messages) are found by a number of studies based on Randomised Controlled Trials to have

accelerated vaccination in the early phases, but to have had non-significant effects afterwards (Chang et al., 2021), or even a negative effect on some subgroups due to a backlash effect.

- **COVID certificates** had a substantial impact in some countries. For instance, Ollivier-Barton, Pradelski, Woloszko et al. (2021) estimate that they boosted vaccination by 13 percentage points in France, 6 percentage points in Germany, and 10 percentage points in Italy. This is consistent with simple time series evidence from a number of countries as new vaccinations seem to have substantially increased following the COVID certificate announcements in Germany, Finland, France, Italy, Mexico and Slovenia (Figure 2). However, their effect was less clear in countries where the coverage of COVID certificates was narrower, such as in Poland, Spain and Sweden where they were limited to restricting international travel.
- **Vaccine mandates** were set up for selected professions (including healthcare workers and civil servants) in most OECD countries. Greece and Italy made vaccination mandatory for the elderly, resulting in substantial increases in vaccination rates for these segments of the population. The announcement of the vaccine mandate for the general population in Austria was found to boost vaccination by 3 percentage points in November 2021 (Kloiber, Peichl and Winner, 2021), but was suspended on 9 March 2022.

**Figure 2. Daily number of people receiving their first vaccine dose per 100**

Seven-day moving average, date of the COVID certificate announcement = 0



Note: The horizontal axis measures the days relative to the date of a COVID certificate announcement; the vertical axis shows the number of new people vaccinated per hundred population as an index based the day of the announcement.

Source: Our World in Data, downloaded on the 11th of March 2022; Oliu-Barton, Pradelski, Woloszko et al. (2021).

Vaccination dramatically reduced the human and economic toll of the COVID-19 pandemic. The lower levels of uptake in some OECD countries remain an important issue, especially if new variants emerge and require additional booster shots. Over the longer term, understanding differences in vaccination rates is important for building resilience to future health shocks. The fact that past flu vaccination remains amongst the best predictors of COVID-19 vaccination suggests that policies that aim to improve understanding of the benefits of vaccination in general, along with the willingness of GPs to prescribe vaccinations and the quality of the health systems are all important in improving a country's resilience to the threat of a new pandemic.

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