CASE: VACCINATION AS A RESPONSE TO THE COVID-19 PANDEMIC

The COVID-19 pandemic has played a very important role from various perspectives, including public health, society, economics, or even politics. Overwhelmed healthcare facilities faced shortages of essential medical supplies and personnel, leading to difficulties in providing adequate care to patients. The pandemic also highlighted the importance of preventive measures such as vaccination campaigns, testing, contact tracing, and public health interventions in controlling the spread of infectious diseases. Measures such as quarantine and social distancing measures disrupted social interactions, leading to isolation and loneliness among many individuals.

The recent pandemic also led to widespread disruptions in global supply chains, and deep financial losses across industries. Various lockdown measures introduced to limit the spread of the coronavirus resulted also in business closures, job losses, and reduced economic activity, leading to recessionary pressures in many countries. No one needs to be convinced of the momentous significance of the pandemic, but we need to study carefully the channels that mitigated the spread and the consequences of the COVID-19 pandemic to be able to say 'lesson learned'.

Even if vaccination patterns were not the only factor that changed the course of the pandemic, they were certainly crucial (Chen, 2023). Having said that, vaccination patterns were identified to have essential roles in reducing the adverse effects of the COVID-19 pandemic, and the rapid vaccination schedule showed even greater improvements in curbing the spread of the coronavirus and mortality rates due to the pandemic. **However, the question remains, what were the drivers of vaccination uptake in the context of the recent coronavirus pandemic?**

As expected, the acceptance rate for vaccination against COVID-19 was related to personal characteristics like educational level, sex, age, income, ethnic group or flu vaccination history (Malik et al., 2020; Wang et al., 2021; Lillebråten et al., 2023). Moreover, living (housing) conditions, as well as housing composition were also important in the context of vaccination rate, shedding light on the issue of community vulnerability (Brown et al., 2021). Surprisingly, even if population density in rural areas is obviously lower than in cities, in some cases COVID-19 mortality rates were higher in the countryside as compared to urban areas (Ma & Monnat, 2022). The point was about vaccination uptake. It turned out that in the US vaccination rates declined with increasing rurality. It can be explained i.a. by relatively lower educational attainment or healthcare facilities (Fernandez et al.; 2011). Interestingly, the literature also suggests that political views could have translated into vaccination rates (Albrechts, 2022; Ye, 2023). Thus, political divisions seem to translate into trust in scientists and medicine. Politics again showed its power and importance, especially since people's lives and health were at stake. Moreover, Steinnert et al. (2022) recognised that high conspiracy beliefs and low health literacy negatively affect the perception of vaccination.

Poland can be an intriguing case study for examining the drivers of COVID-19 vaccination uptake due to several key factors. First, Central and Eastern Europe seems to be an underexploited geographical area as compared to the US, UK and other advanced economies. Second, Poland's historical experiences, socio-cultural dynamics and political landscape can play a significant role in shaping public health policies and vaccination strategies. Last, but not least, examining regional disparities in vaccination rates in Poland can shed light on the impact of socio-economic factors, healthcare infrastructure, and access to healthcare services.

With all that in mind, we would like to find an answer for the following question:

What were the drivers of the level of COVID-19 vaccination in Poland?

To be more precise we have prepared the following set of research questions, with division to main questions (obligatory) and additional questions (nice to consider).

Main questions:

1. Does the size of municipalities/cities matter?

2. Do we see a division between eastern and western Poland? Consider i.a. the partitions or Vistula river as borders?

3. Do we see variation in vaccination rates among different age groups?

Additional questions:

4. What makes us best in class? Approach this question in the context of big cities, small cities and rural areas.

5. Are there any links between vaccination rate and political views?

6. Is there a neighborhood effect? Is the propensity to vaccinate contagious? 😉

We have prepared for you the datasets that may be used for solving the case. The datasets contain the main information needed for solving the case. Do you need more? Only the Internet is the limit.

References

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Data files

- data_municipalities.csv, data_counties.csv, data_description.pdf

Suggested additional data sources

- https://bdl.stat.gov.pl/bdl/start
- https://ourworldindata.org/coronavirus/country/poland
- https://sejmsenat2023.pkw.gov.pl/sejmsenat2023/en/sejm/wynik/pl