EVOLUTION OF COUNTRY GROSS DOMESTIC PRODUCT FOLLOWING THE COVID-19 PANDEMIC

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Background

- The COVID-19 pandemic represented an unprecedented health crisis, resulting in million of cases and thousands of deaths worldwide
- Multiple measures were implemented to limit the transmission of the virus, some of them having indirect impacts on economies such as lockdowns and border shutdowns
- **The aim of this study was to observe the evolution of country gross domestic product (GDP) following the COVID-19 pandemic**

Methods

- Quarterly and yearly GDP growth rates were extracted from the OECD website, focusing on the following countries: France, UK, Spain, Italy, the United States and the United Kingdom
- We used non-parametric Wilcoxon signed-rank tests to investigate significant variations in GDP during the COVID-19 pandemic (2020/22) compared to pre-COVID-19 years (2010-2019)

Results

- Major drops in GDP growth were observed for all countries between Q1 and Q2 2020, with massive rebounds occurring in Q3 2020 (**Figure 1**)
- Significant decreases in yearly GDP growth rates were observed in countries during the COVID-19 period compared to previous years: -1.22% (percentage point) in the US, -2.17% in France, -3.29% in the UK, -2.87% in Germany, and -1.83% across all OECD countries (all p<0.001) (**Table I**)
- Non statistically significant decreases were observed in Spain and Italy with -4.21% (p=0.0654) and -1.77% (p=0.2158) GDP growth respectively (**Table I**)
- When excluding the year 2020 from the analysis, all countries presented positive GDP growth rates (**Table II**)

Figure 1: Evolution of GDP growth in OECD countries (2010 – 2022)

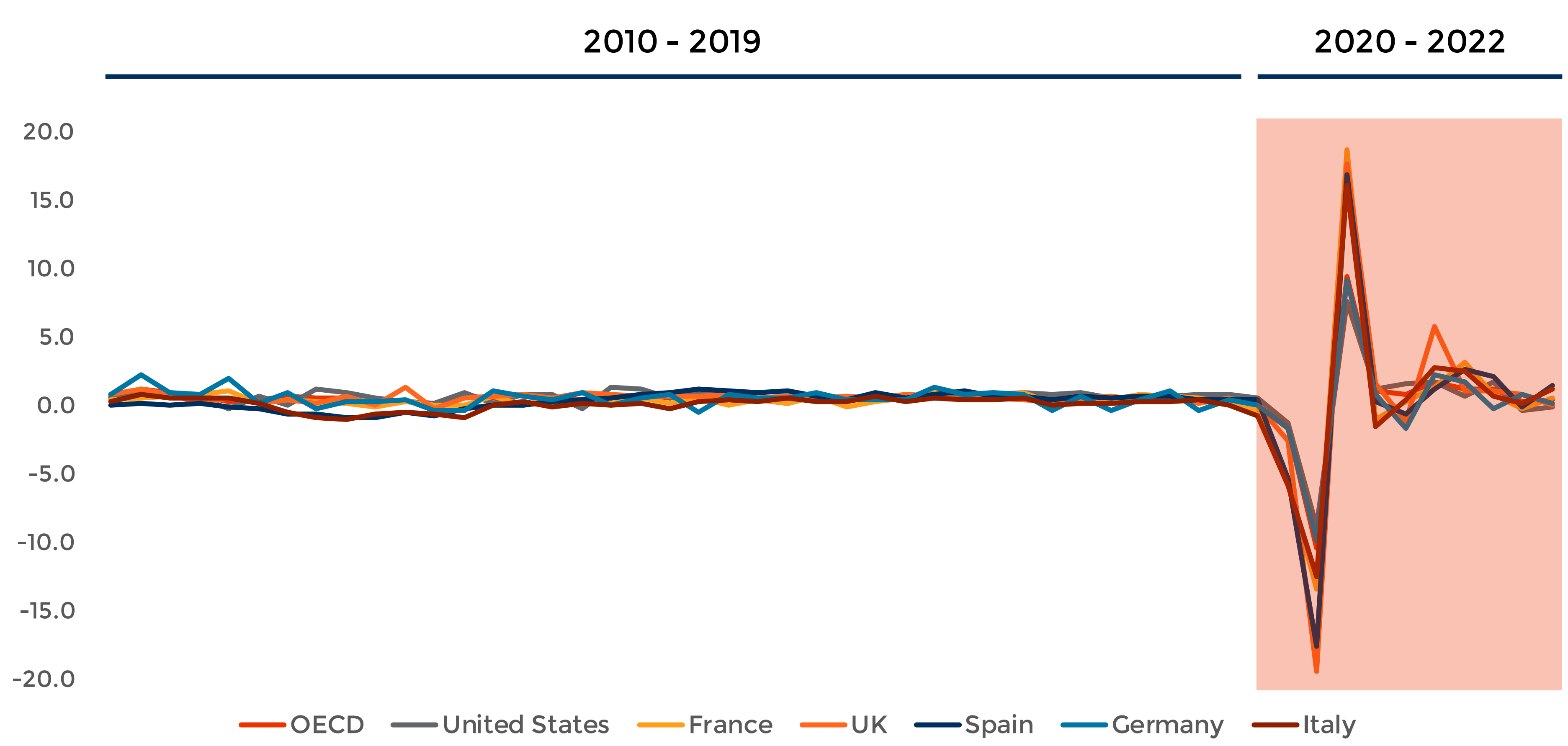

Table I: Difference in GDP growth rate

	Mean annual growth rate 2010 - 2020	Mean annual growth rate 2020 - 2022	Growth rate diff (%)
	2.15	0.32	-1.83*
	2.25	1.03	-1.22*
	1.42	-0.75	-2.17*
	2.03	-1.27	-3.29*
	1.03	-3.17	-4.21
	1.96	-0.9	-2.87*
	0.27	-1.5	-1.77

* Meaningful difference at level of significance of 5%

Table II: Difference in GDP growth rate - Excluding year 2020

	Mean annual growth rate 2010 - 2019	Mean annual growth rate 2021 - 2022	Growth rate diff (%)
	2.15	5.46	5.46*
	2.25	5.67	5.67*
	1.42	6.82	6.82
	2.03	7.44	7.44*
	1.03	5.13	5.13*
	1.96	2.89	2.89†
	0.27	6.64	6.64*

* Meaningful difference at level of significance of 5%

Discussion

- Our study highlights a drop in GDP following the pandemic, most likely linked to several of the non-pharmaceutical measures taken by governments to reduce the transmission of the virus such as lockdowns and restrictions on air/maritime traffic
- One secondary objective of our research was to conduct a feasibility assessment to explore the link between COVID-19 vaccine coverage rate and GDP growth. However, data points for quarterly GDP were insufficient at the time of the study to guarantee the necessary statistical power to explore any potential correlation with COVID-19 VCR. Furthermore, the recent geopolitical events would constitute major co-founding factors for such an analysis.
- Our study highlights the consequences of lockdowns at a broader economic level and could provide useful insights for future modelling exercises related to pandemics and immunization

GDP= Gross Domestic Product ; VCR= Vaccine Coverage Rate

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