

COVID-19 EFFECTS ON INSTITUTIONAL PERFORMANCE

A Brief View of the Peruvian Education Sector

TABLE OF CONTENTS

01

INTRODUCTION

Motivation and objectives

02

CONTEXT

Brief overview of
education in Peru

03

DATA USED

Institutional performance
and Covid-19 impact

04

ANALYSIS

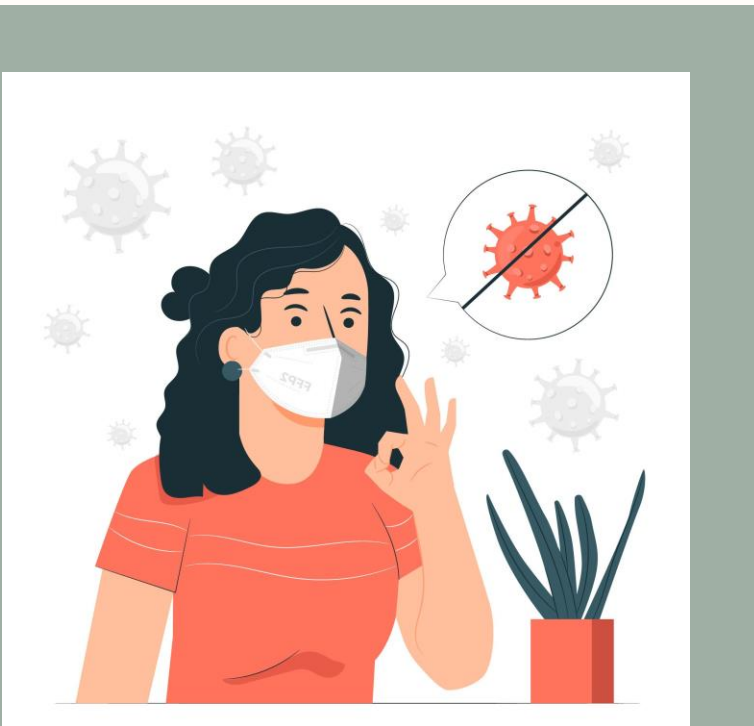
Correlation analysis and
linear regressions

Introduction

The impact of the pandemic has been felt across all aspects of our lives, and we continue to uncover the ways in which it has altered our daily existence.

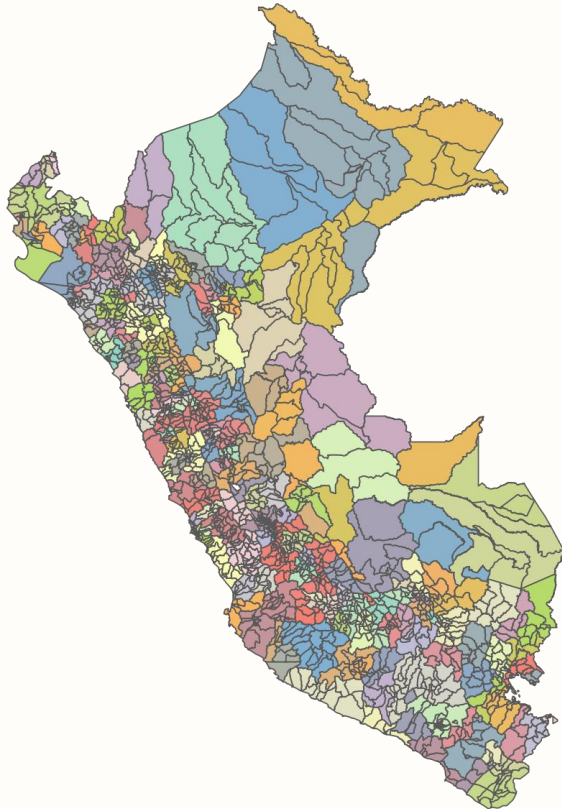
How did our institutions change? Did Covid-19 affected performance?

This analysis was part of the design of a Program of the Ministerio de Educación of Peru (Minedu). This is a brief and public version of that analysis.



Public Education in Peru

Map of the UGELs' Jurisdictions



Source: Own elaboration with R
1,874 district divided into 222 UGELs



Ministerio de Educación

Public Education in Peru is Governed by the “Ministerio de Educación” (Minedu) at the national level.



Regional Offices and UGELs

Additionally, many functions and responsibilities fall under 26 Regional Offices and 222 UGELs (Local Education Management Units)

The UGELs are responsible for a range of functions, including but not limited to:

- Enrolling students
- Hiring teachers
- Distributing books

Some of these processes are evaluated in the Compromisos de Desempeño (CdD), an RBF program of Minedu.

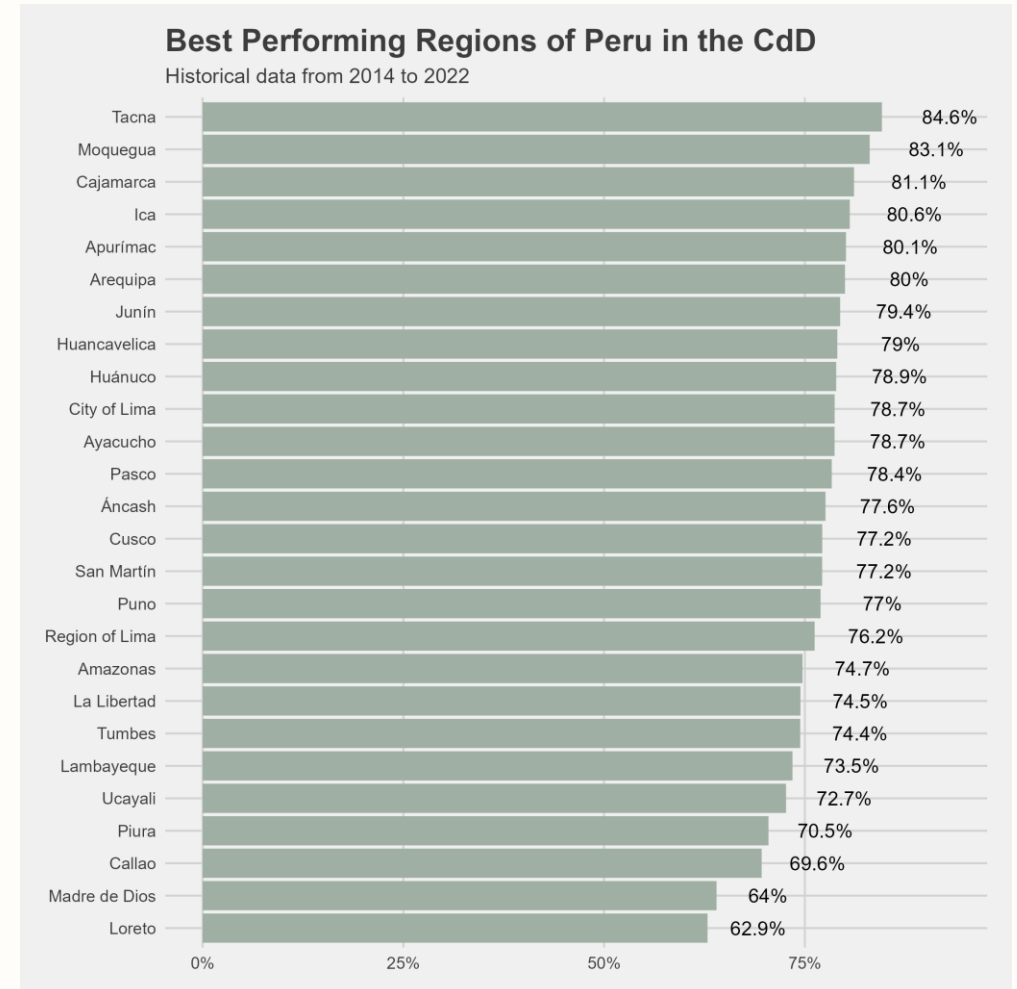
Data Used in the Analysis

How to measure Institutional Performance?

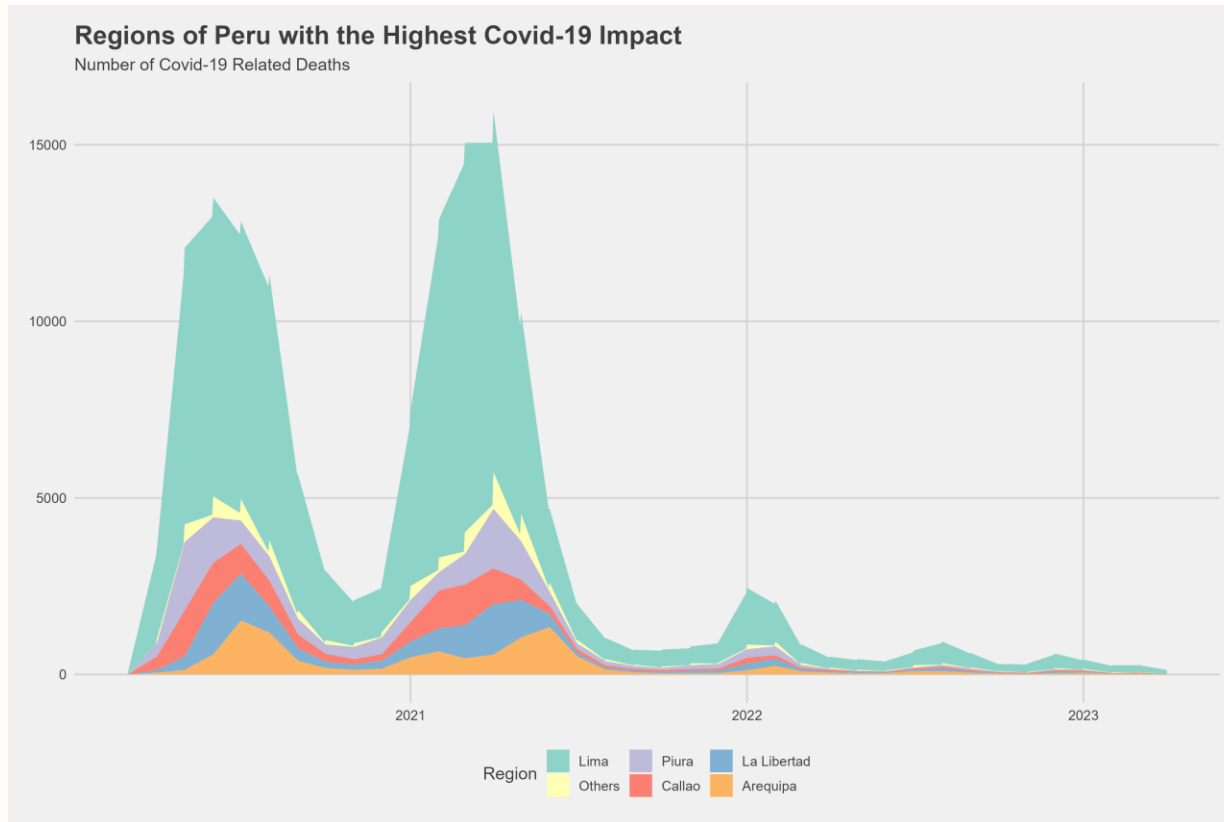
The Compromisos de Desempeño (CdD) program evaluates indicators in the UGELs in exchange of results-based financing as a monetary incentive to institutions.

Historical data about the results in achievement value or "Valor Logrado" are available in the CdD website:

<http://www.minedu.gob.pe/cdd/>



Data Used in the Analysis



How to measure Covid-19 Impact?

I used Covid-19 related deaths as a more accurate representation of the pandemic impact.

Infections may have been underreported due to testing scarcity.

Peru has been transparent in releasing pandemic data, which can be accessed through the "Datos Abiertos" (Open Data) website:

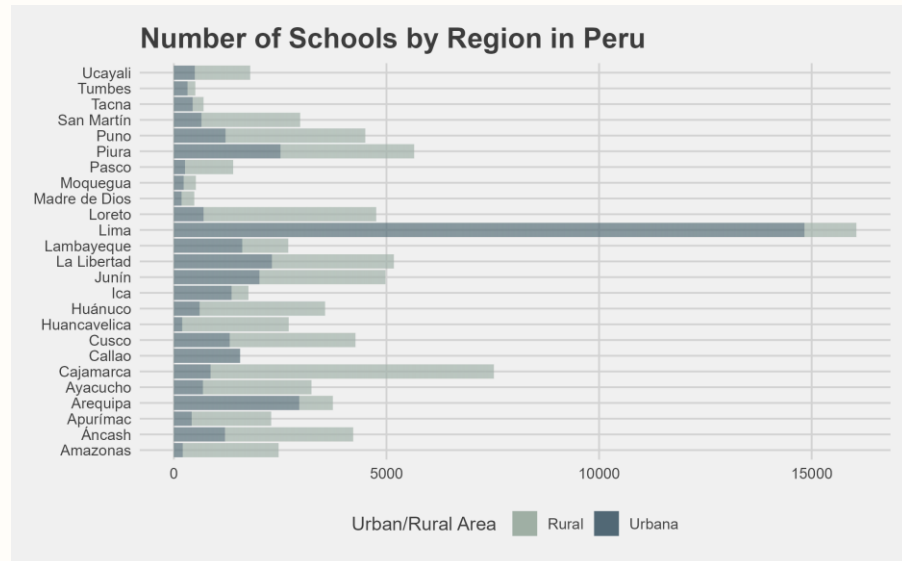
<https://www.datosabiertos.gob.pe/dataset/fallecidos-por-covid-19-ministerio-de-salud-minsa>

Data Used in the Analysis

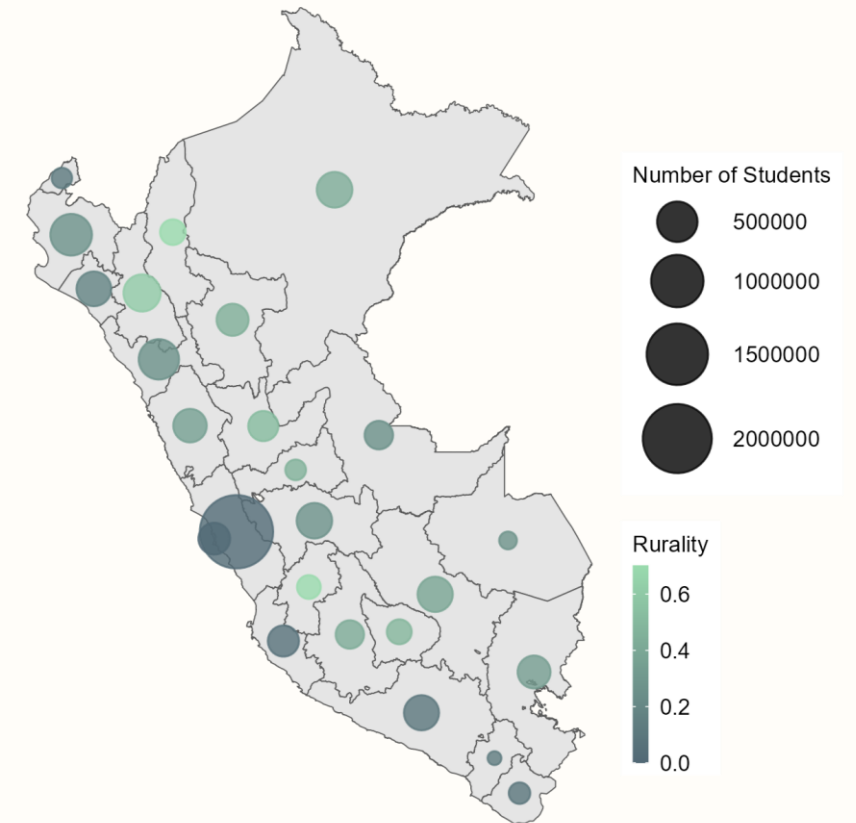
Additional Data Needed - UGELs

In order to associate districts to UGEL jurisdictions and to better characterize each UGEL, we required more data about the UGELs.

I used the education census of 2020, which can be found at:
https://escale.minedu.gob.pe/uee/-/document_library_display/GMv7/view/6226837

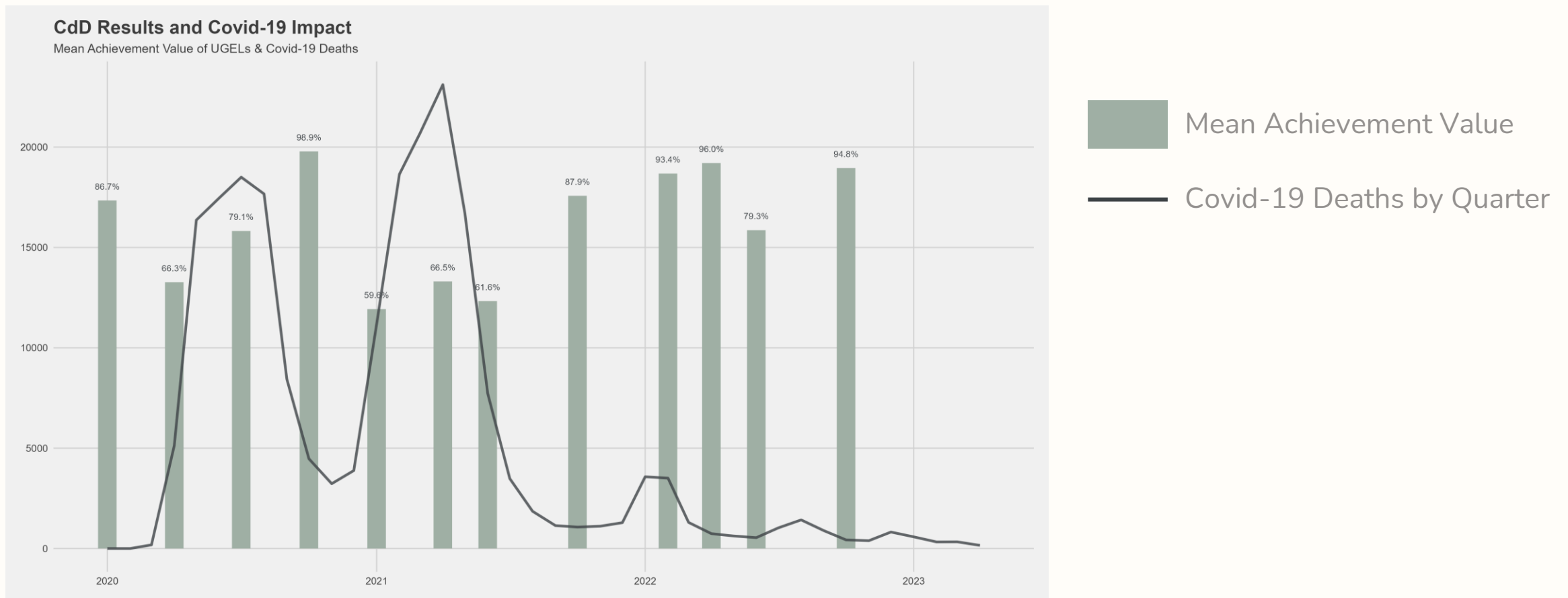


Number of Students in each Region of Peru
Peru is Divided in 25 Regions and 1,874 Districts



Analysis

The two waves of the pandemic in Peru coincide with reductions in the performance of the UGELs in the CdD, measured as mean achievement value for each phase of the program.

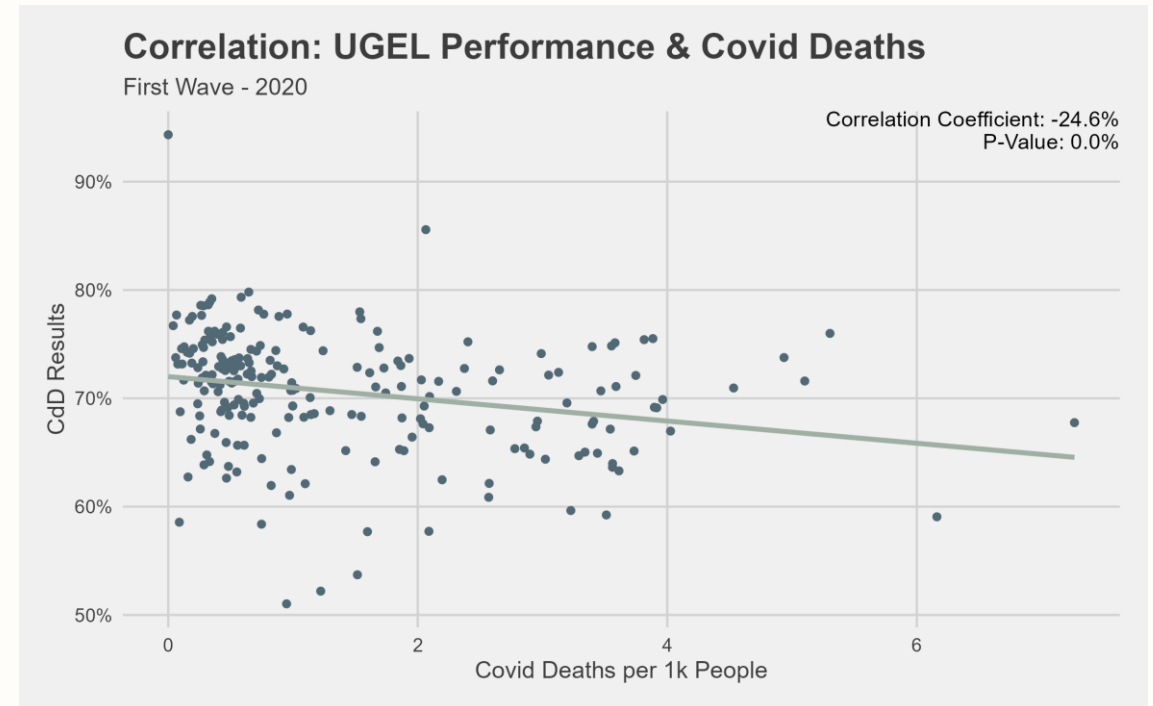


Correlation Analysis - First Wave

Covid-19 related deaths in the 2nd and 3rd quarters of 2020 – CdD results in the 2nd and 3rd phases of 2020.

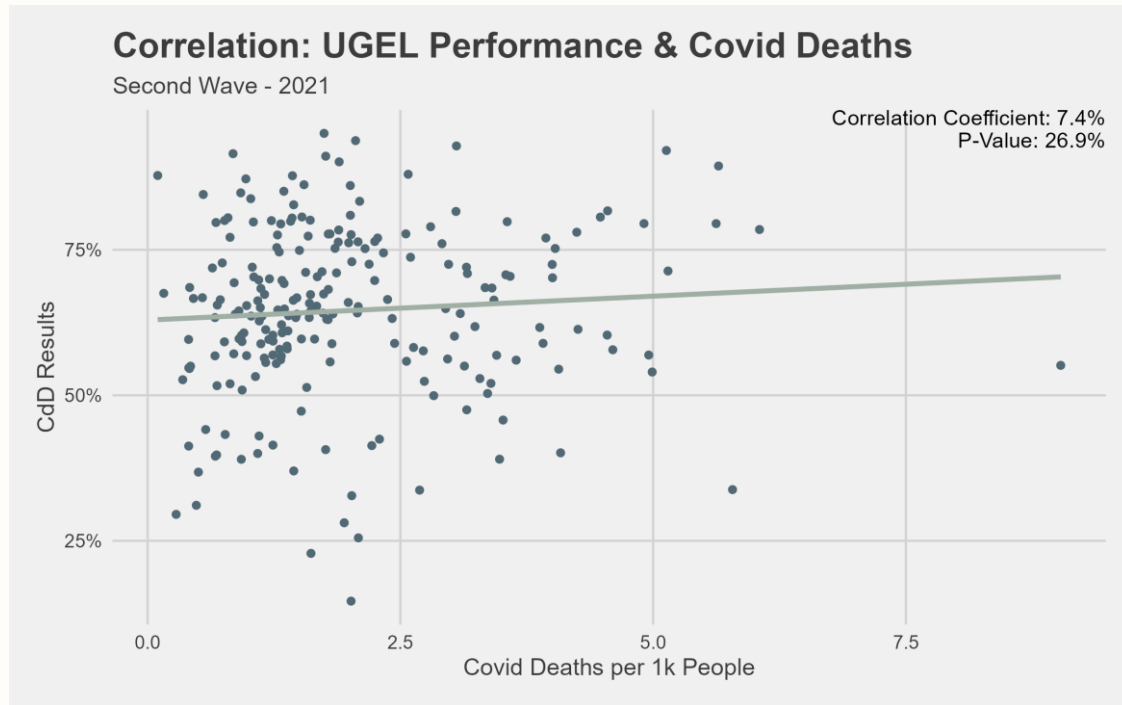
It is apparent that during the first wave of Covid-19 in Peru, there was a strong correlation between the number of Covid-19 impact in each jurisdiction and UGELs performance in the CdD.

It's important to note that this correlation may not necessarily imply causation. Other factors, such as limited human capita, may also have contributed to the variation in UGEL performance.



Correlation Analysis - Second Wave

Covid-19 related deaths in the 1st and 2nd quarters of 2021 – CdD results in the 1st and 2nd phases of 2021.



It seems that the second wave of Covid-19 related deaths in Peru may not be significantly correlated with UGEL performance, as the p-value is higher than .25.

Other factors may be contributing to the performance hit.

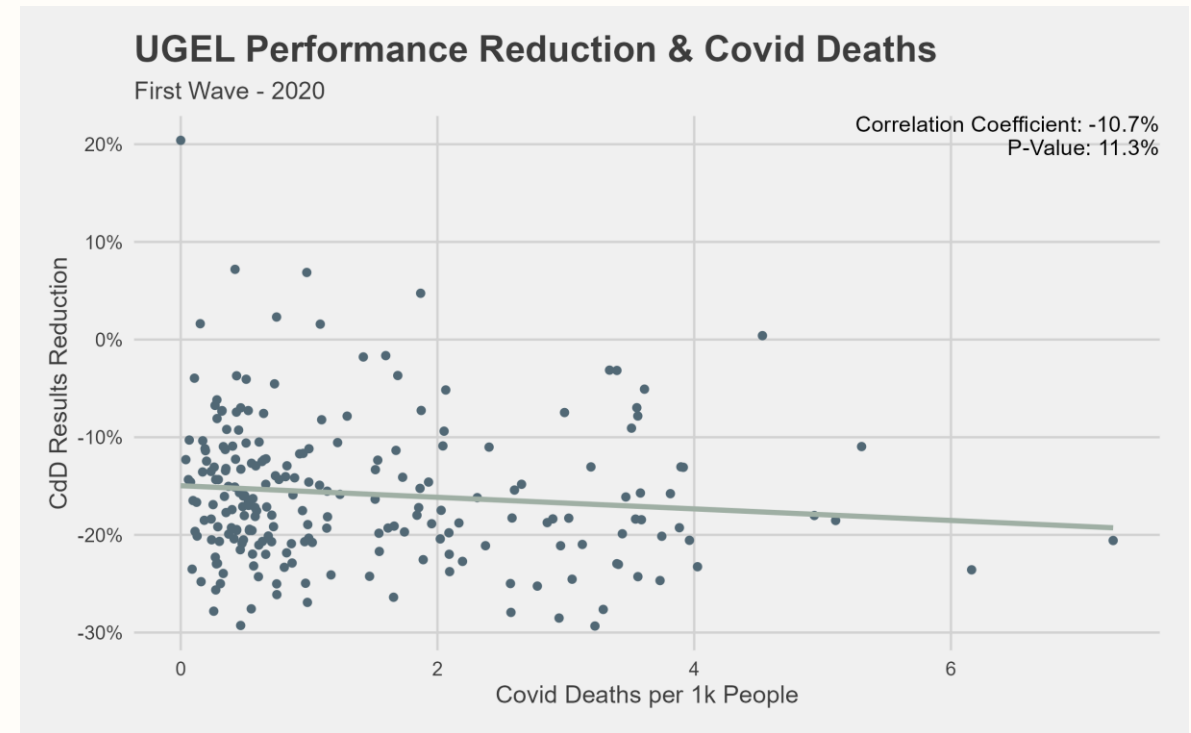
Perhaps institutions have become better adapted to the pandemic after a year of experience. More research needed.

Correlation Analysis – Performance Hit

Covid-19 related deaths in the 2nd and 3rd quarters of 2020 – CdD results reduction in the 2nd and 3rd phases of 2020, relative to the 1st phase.

It appears that there was a correlation between the impact of Covid-19 on each jurisdiction and the reduced performance of the UGELs in those jurisdictions during the first wave of the pandemic.

his correlation seems to be less evident in this case, and there might be other factors in play.



Linear Regression Models – First Wave

Regression Results

	<i>Dependent variable:</i>
	v1_2020_2_3
covid_deaths_2020_2	-0.021*** (0.006)
covid_deaths_2020_3	0.006 (0.005)
n_students	-0.00000** (0.00000)
rurality	-0.003 (0.016)
Constant	0.719*** (0.013)
Observations	221
R ²	0.133
Adjusted R ²	0.117
Residual Std. Error	0.052 (df = 216)
F Statistic	8.280*** (df = 4; 216)
Note:	*p<0.1; **p<0.05; ***p<0.01

We can observe that Covid-19 related deaths had a significant impact on UGELs performance during the first wave in 2020, but the effect was reduced during the third quarter of that year.

Additionally, the number of students had a significant but small impact on CdD results.

Linear Regression Models – Second Wave

Regression Results

	<i>Dependent variable:</i>
	v1_2021_1_2
covid_deaths_2021_1	0.005 (0.025)
covid_deaths_2021_2	0.050** (0.024)
n_students	-0.00000 (0.00000)
rurality	0.089* (0.048)
Constant	0.548*** (0.045)
Observations	223
R ²	0.046
Adjusted R ²	0.029
Residual Std. Error	0.144 (df = 218)
F Statistic	2.652** (df = 4; 218)
Note:	* p<0.1; ** p<0.05; *** p<0.01

We found that the impact of Covid-19 on UGELs performance during the second wave in Peru was not as significant as during the first wave in 2020.

However, the model revealed some interesting and somewhat contradictory results, as it showed that Covid-19 related deaths in the 2nd quarter and rurality had a positive impact on UGELs performance. One possible explanation could be that urban areas had multiple lockdowns mandates enforced by the government relative and that could have hindered the results of the UGELs.

It is important to conduct more research to fully understand the underlying factors contributing to these results.

Linear Regression Models

Performance reduction in the first wave

	<i>Dependent variable:</i>
	v1_2020_dif
covid_deaths_2020_2	0.009 (0.009)
covid_deaths_2020_3	-0.005 (0.008)
n_students	-0.00000* (0.00000)
rurality	0.015 (0.023)
Constant	-0.159*** (0.019)
Observations	221
R ²	0.037
Adjusted R ²	0.019
Residual Std. Error	0.073 (df = 216)
F Statistic	2.065* (df = 4; 216)
Note:	*p<0.1; **p<0.05; ***p<0.01

The third model may indicate that further analysis may be needed to finally understand how Covid-19 effected UGELs performance.

None of the variables selected explain the reduction in achievement value between phase 1 of the CdD 2020 and phases 2 and 3 of the same year.



Conclusions and Recommendations

- Our research highlights the significant impact that the first wave of Covid-19 had on UGELs performance in Peru in 2020.
- However, our analysis of the second wave in 2021 suggests that institutions may have adapted to the pandemic, and that there may have been underlying factors contributing to performance reduction.
- Further research is needed to fully understand the underlying factors contributing to these changes.

Thanks

Presented by Rodrigo Garcia – Lima, Peru