

The Cost-of-Living Index for OECD Countries in Pre and Post Covid-19 Pandemic

Hannah Tinney & Dr. Gokhan Egilmez, Plaster College of Business and Entrepreneurship, Lindenwood University

➤ Introduction

- The cost-of-living index is defined as the amount of money needed to sustain a reasonable standard of living¹
- The cost-of-living index affect how people in a certain area can sustain their lifestyle. If the cost-of-living increases but average wages do not, then this makes it difficult to sustain the same lifestyle as before.
- We conducted a literature search and identified 7 variables that make up the cost-of-living index and the average wages for 35 different countries.¹
- We focused on analyzing the 35 countries because they partner with to share data on their country.
- The variables that we chose for the index include, housing, childcare, transportation, healthcare, food and nonalcoholic beverages costs, and household debt.
- We used a five-year time span, 2017-2019 for pre pandemic, and 2020-2021 for post pandemic.

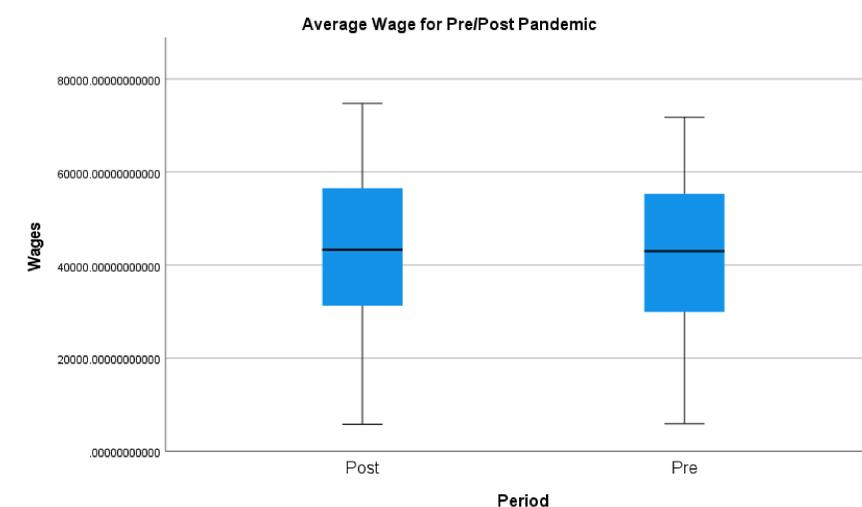
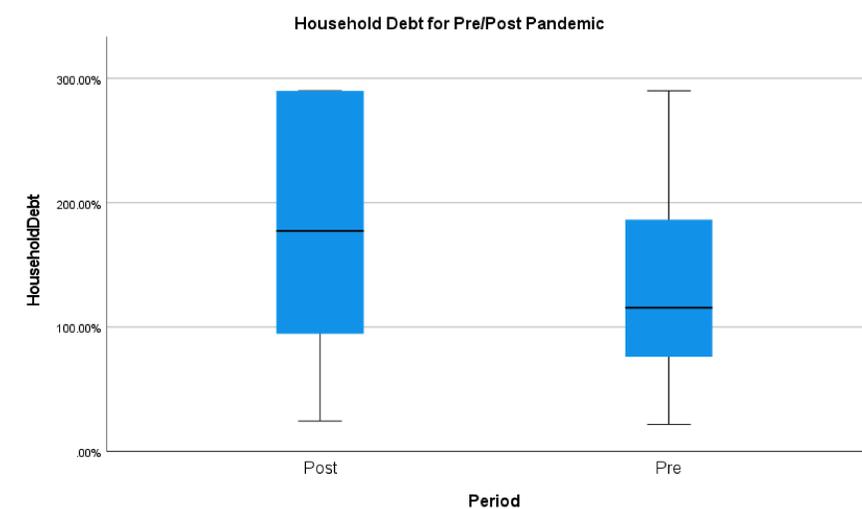
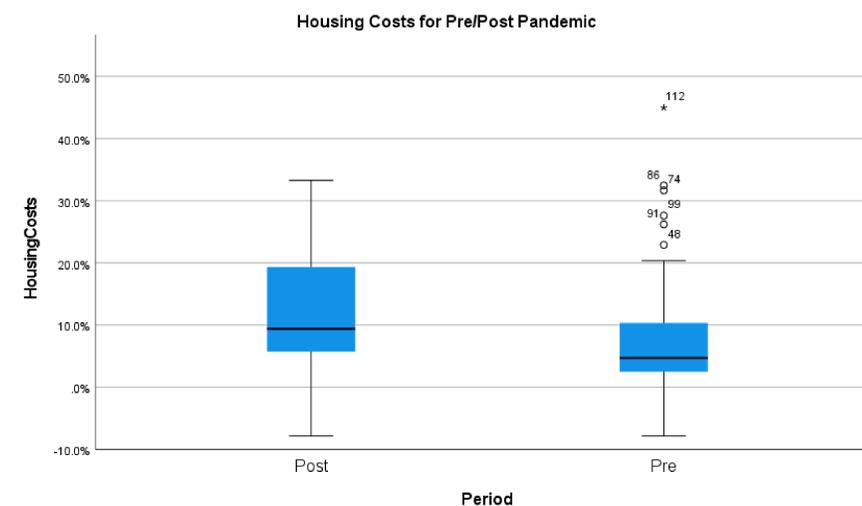
Data Preparation

- ✓ We collected data for the time period between 2017 and 2022. (See the summary table)
- ✓ We conducted normality check by applying a Z value transformation and identifying outliers which were more than 3 standard deviation away from the mean for each variable.
- ✓ Variables such as the unemployment rate, healthcare costs, transportation, food and nonalcoholic beverages, and housing costs had outliers that were removed. Average wages and childcare costs did not have any outliers.
- ✓ Data Summary Table is as follows.

Methods

- ✓ We primarily employed visual and statistical methods to study the problem.
- ✓ After conducting an initial normality check on the data, we found out that most of the data have outliers and significant normality issues.
- ✓ Then, we decided to compare before and after pandemic data for all variables that impact the cost of living by using a non-parametric method, Mann Whitney value test, which was proven to be effective on a non-normal dataset.
- ✓ We conducted the tests by using SPSS
- ✓ We used the Mann-Whitney U test to compare the pre pandemic years (2017-2019) to the post pandemic years (2020-2021) of each variable.

Results



Hypothesis Test Summary

	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The distribution of HouseholdDebt is the same across categories of Period.	Independent-Samples Mann-Whitney U Test	<.001	Reject the null hypothesis.

- a. The significance level is .050.
b. Asymptotic significance is displayed.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The distribution of HousingCosts is the same across categories of Period.	Independent-Samples Mann-Whitney U Test	<.001	Reject the null hypothesis.

- a. The significance level is .050.
b. Asymptotic significance is displayed.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The distribution of Transportation is the same across categories of Period.	Independent-Samples Mann-Whitney U Test	.677	Retain the null hypothesis.

- a. The significance level is .050.
b. Asymptotic significance is displayed.

Conclusion

- ✓ By comparing the data for each variable against its pre and post pandemic time period we found two variable that did change significantly, while the average wages stayed the same.
- ✓ We found that the housing and the household debt increased during the pandemic.
- ✓ Even though these are the only two that had a significant difference, the other variables did change as well, which we can see in the boxplots to the right.\
- ✓ The median of the average wages did increase slightly during the pandemic, this amount is not substantial when compared with the increase in housing costs.
- ✓ From these results we can conclude that the cost-of-living index did increase during the pandemic, but wages stayed the same, causing a significant increase in the household debt across the 35 OECD countries.

References

1. *Cost of Living Index Manual*. (2021). The Council for Community and Economic Research (C2ER). www.coli.org
2. *OECD Data*. (n.d.). Organization for Economic Co-Operation and Development. Retrieved April 2, 2023, from <https://data.oecd.org/>