

Navigating the new normal: Status of Telecommuting in the US in a Pandemic Era.

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Abstract

This study attempted to examine the spatio-temporal changes of telecommuting during the pandemic and identify factors influencing those changes. The study used data from the Household Pulse survey which was designed to capture the effect of the pandemic on peoples' lives. Three definite time periods were considered for this study: i) pre vaccination, ii) active vaccination, and iii) new normal, to observe the gradual changes in the adoption of telecommuting. A binary logistic regression model was employed to identify factors influencing the adoption of telecommuting at each of the periods considered. The result of the study revealed a general reduction in those telecommuting as the pandemic winds down and the new normal set in. The new normal period defined showed that people with children, not working in public institutions, or never been married and those with higher income and education are more likely to telecommute. The findings of this study is helpful for policymakers and transportation planners considering the lasting effect of COVID-19 on the population.

Background

- The COVID-19 Pandemic has recently shown and proven the overdependence on travel infrastructure through the significant increase in "tele-" activities.
- Activities such as telemedicine, telecommuting, and teleconferencing have recorded a substantial increase in usage due to restrictions imposed by the government to curb the ravaging pandemic.
- To assess the effect of the pandemic on households, the US Census Bureau, in collaboration with other federal agencies, launched the household pulse survey which was uniquely designed to capture household experiences during the COVID-19 pandemic.
- Several studies have previously examined the differences in telecommuting across socio-demographic groups during the pandemic's early stage. Findings here showed that women and Asians were more likely to work from home while people of color and Hispanics show lower likelihood of working from home.

Methods

- This study used data from the Household Pulse Survey collected by the US Census Bureau. Collected in different phases starting from April 2020, the phases 2.0, 3.2, and 3.4 of the survey collection was employed for this study. These phases corresponds to the pre-vaccination, active vaccination, and the new normal period.
- Descriptive analysis was used to examine the spatio-temporal changes in telecommuting across the various phases considered.
- Binary logistic regression model was employed to better understand the variables influencing the adoption of telecommuting over the pandemic phases.
- Three categories of variables were considered for this study which are: i) socio-demographics, ii) location, and iii) COVID-19 policies and regulations.

Spatio-Temporal Results

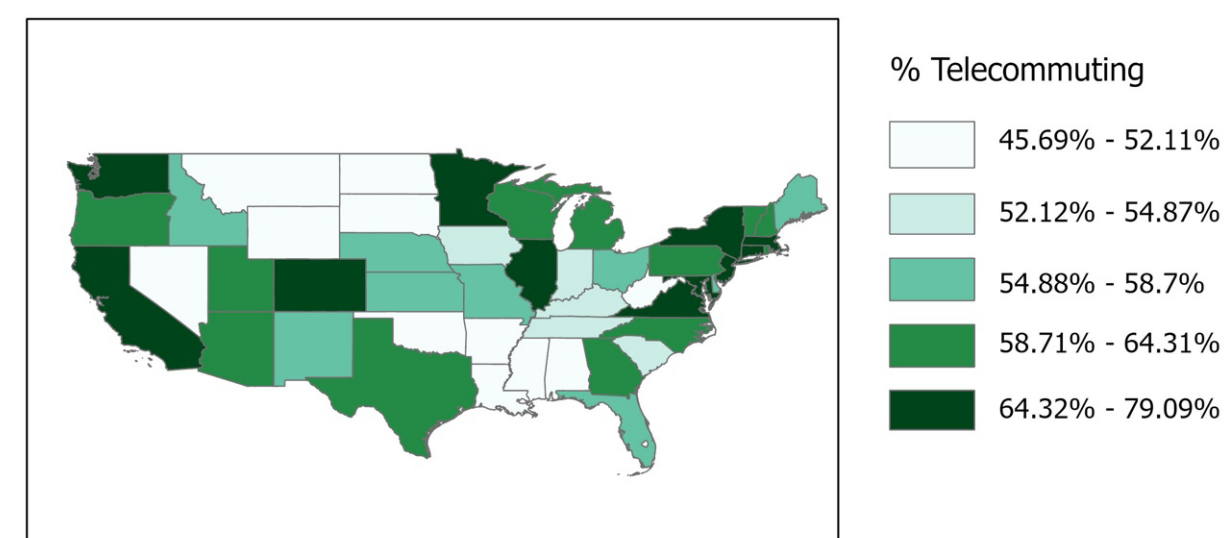


Figure 1: Map showing the percentage of people telecommuting during pre-vaccination period

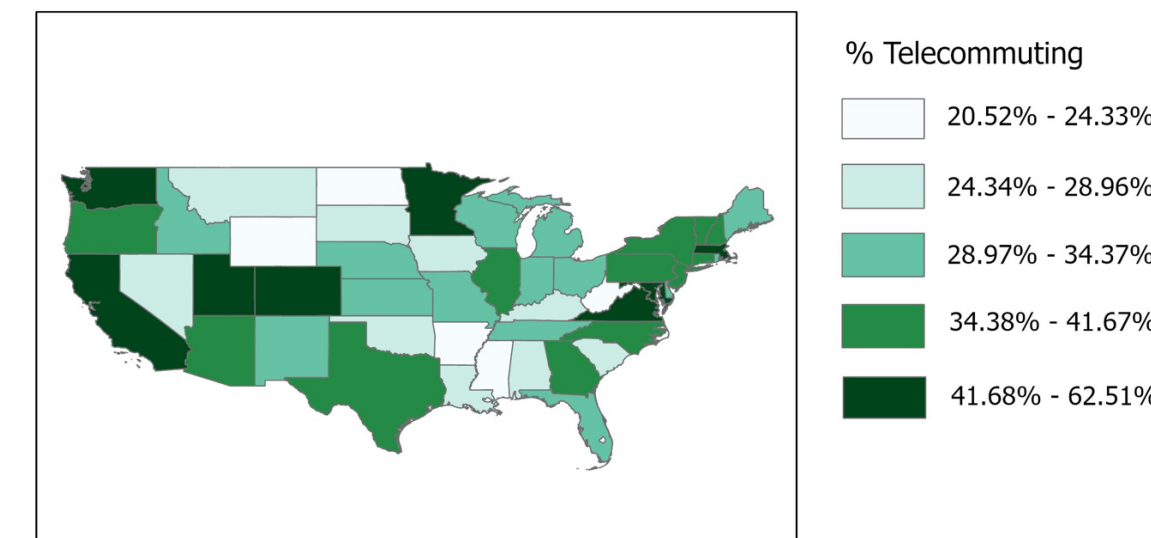


Figure 2: Map showing the percentage of people telecommuting during active-vaccination

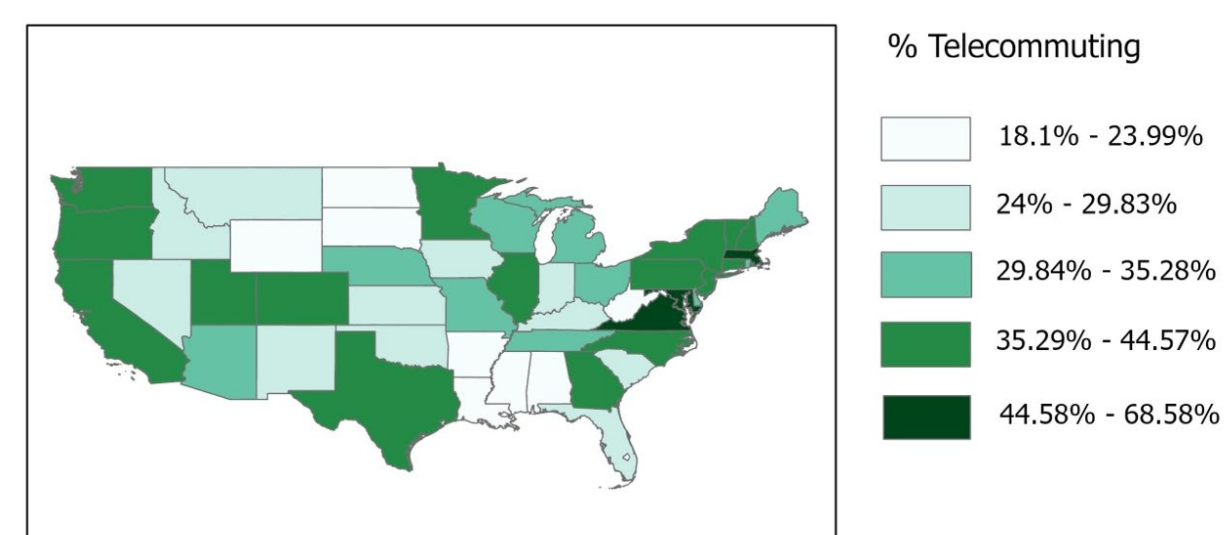


Figure 3: Map showing the percentage of people telecommuting at the new normal

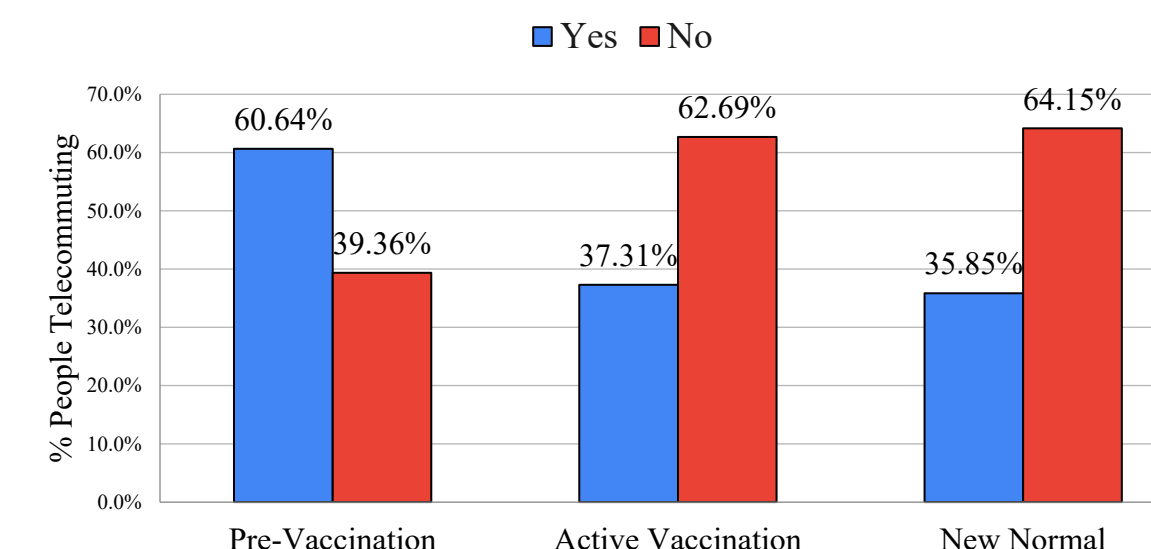


Figure 4: Percentage of population telecommuting in different phases

Discussion

- As expected, there was a major increase in the percentage of the working population telecommuting during the pandemic. This percentage has since reduced from a high of 60% to 37.31% and finally 35.85% during the active-vaccination and new normal periods considered. The changing office policies, less fear of the COVID-19 virus and rising level of vaccination within the population can be attributed to this trend.
- Spatially, it was observed that states within the Northeastern part of the United States recorded more workers teleworking than those in the other regions of the country.
- Also, from the result of the logistic models, it could be observed that over the cause of the pandemic, COVID-19 policies such as mask regulations and vaccination policies are having a reduced impact on the choice of workers who telecommute.

Conclusion

- This study analyzed the US Household Pulse Survey data, examining the status of telecommuting in the United States during the pandemic.
- The model result showed that COVID-19-related policies such as the number of COVID cases recorded and having some form of mask requirements in states showed a positive relationship with telecommuting. People living in states with some form of vaccination mandate were more likely to telecommute, which was consistent across all the periods.
- The results of this study will help policymakers and planners to understand the lasting effect of the COVID-19 pandemic on the telecommuting and the factors that continue to shape those who telecommute. Data informed decisions can, hence, be made to cater to the travel need of the population during this new normal.
- Further study will include even more recent data (recently released phase 3.5 household pulse survey) to keep track of the telecommuting behavior of the population.
- Also, other models such as structural equation models will be implemented to further investigate those factors contributing the telecommuting adoption.

Modelling Results

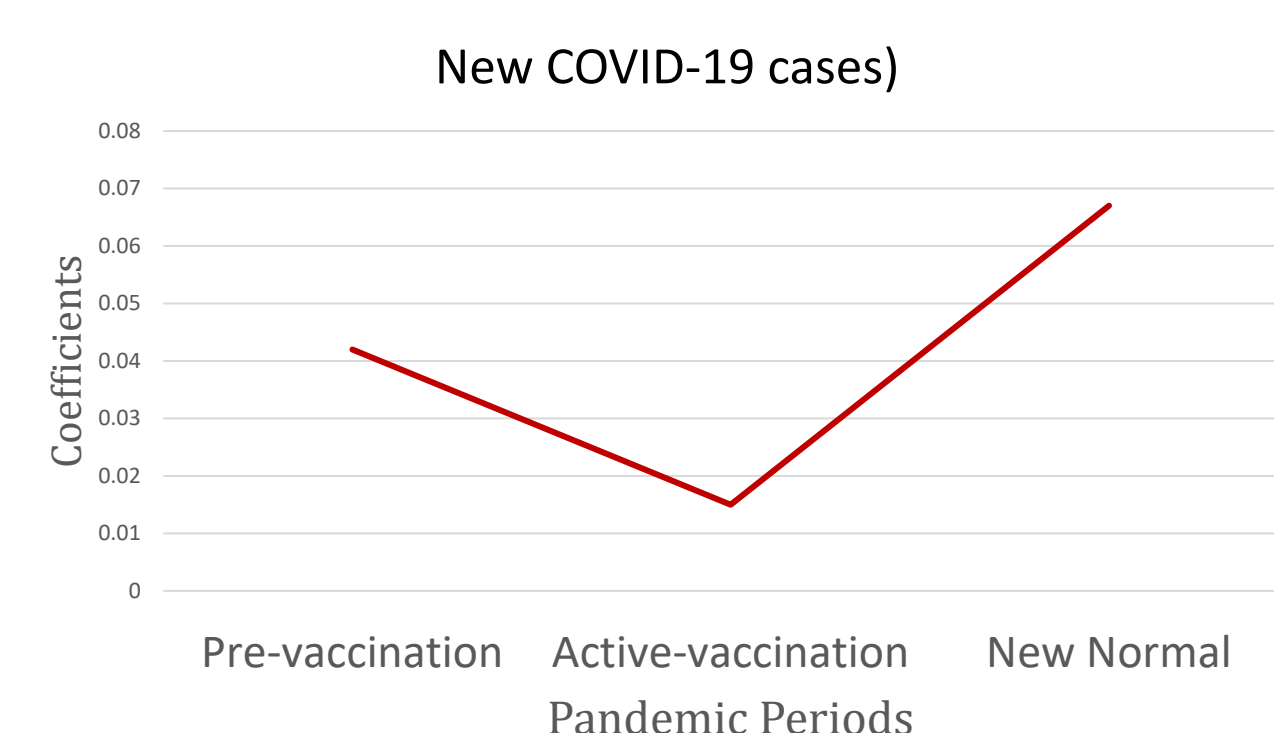


Figure 5: logistic regression coefficients of the COVID-19 cases in the pandemic period considered

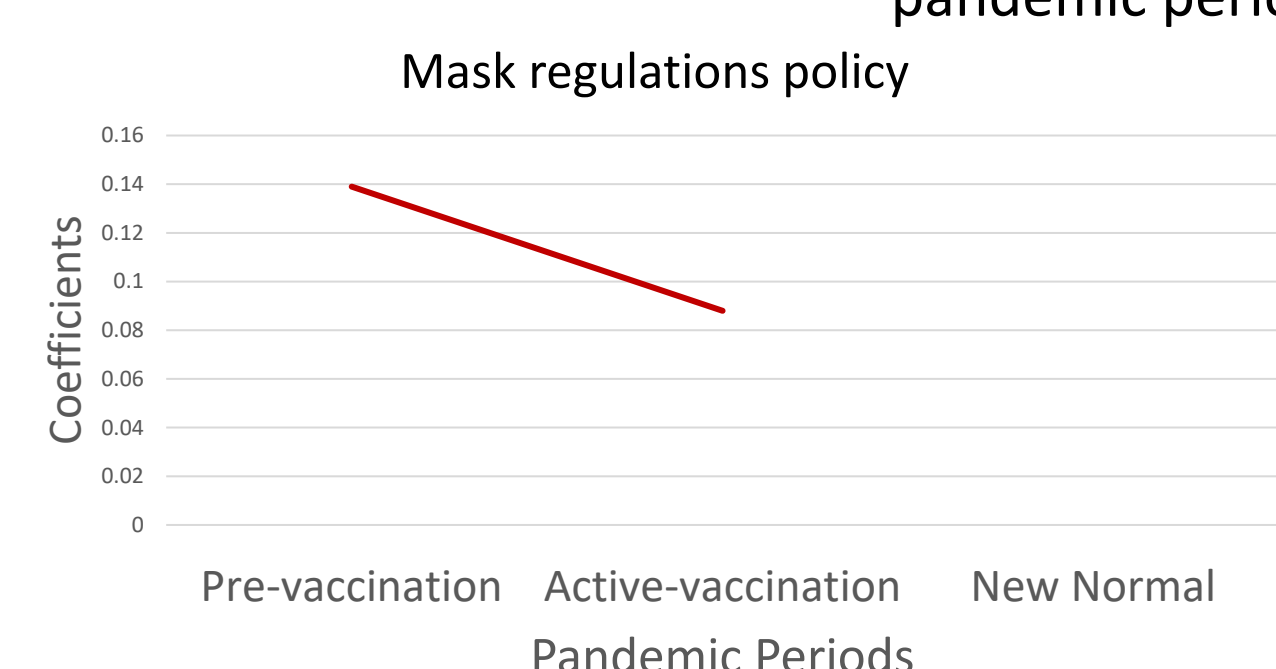


Figure 6: Logistic regression coefficients of the mask regulation mandates

*Note: During the new normal period, mask regulations had been deprecated in most states

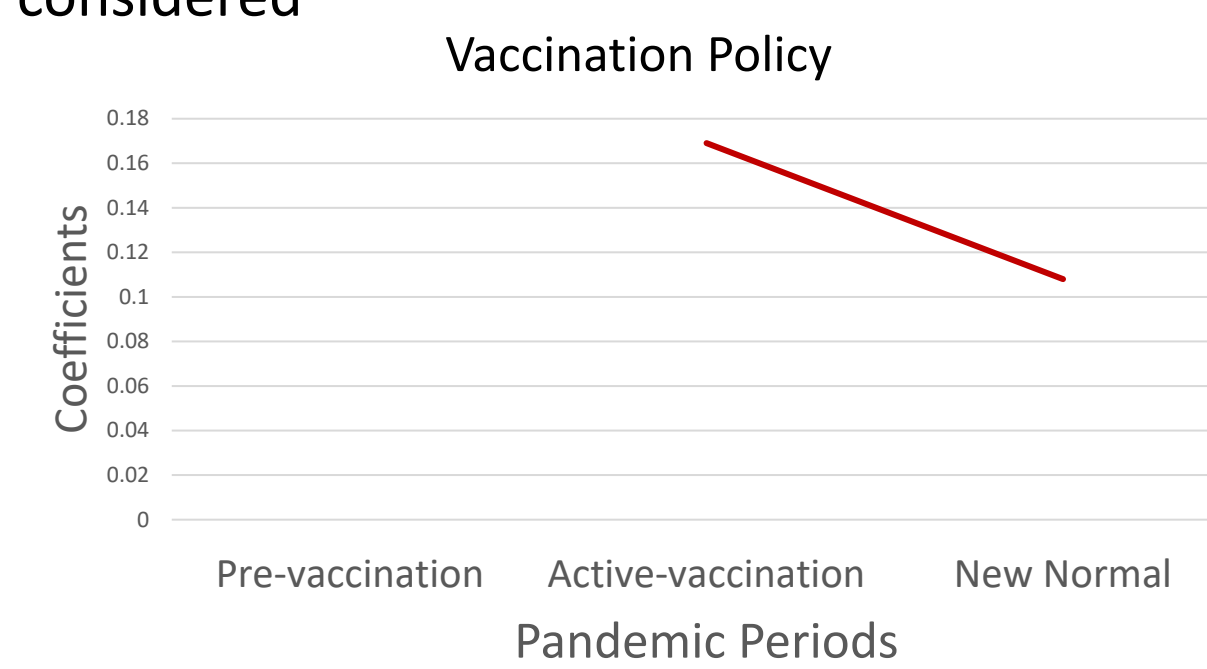


Figure 7: Logistic regression coefficients of the vaccination policies across pandemic periods

*Note: pre-vaccination period was the pandemic period before the distribution of the vaccines.

References

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