**Suicides and Entertainment in the American Youth: An Interrupted Time Series Approach**

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Abstract

This project aims at quantifying the impact of the 2017 release of Netflix’s “13 Reasons Why” on the absolute number of deaths in the American youth. We will use a interrupted time series approach to quantify the impact of the series’ release. This study follows on a paper by Bridge et al. in 2019 which inferred a significant increase in the number of monthly suicide rates following the release of the TV show. Our study aims at auditing for the aforementioned paper by estimating the counterfactual with other regressors. Our analysis suggests that [insert results], therefore [comparison with other paper].

Background

Following the release of Netflix’s “13 Reasons Why”, a spike in suicide rates has been noticed in the American youth.

Research Questions

Our study focuses on three main corollaries:

* Quantify impact of exposure to 13 Reasons Why on suicide rates across states
* How confident can we be in the tools we use in causal inference? (previous paper has been written with Poisson regressor, but we want to try with other methods to see how they compare).
* Comparative review of estimators for Interrupted Time Series

Literature Review

We will quantify the causal effect of the series release with an ITS approach. The most reliable way of estimating causal effect is through randomization, which has been widely used in medicine and social science research through randomized controlled trials. Through randomization, in-group differences are not a threat to validity as the treatment and control groups are randomly assigned, therefore allowing for the assessment of the effect of a treatment through comparing outcomes for both control and treatment groups.

However, running an RCT is not feasible in our situation due to the fundamental problem of causal inference: we only have access to one outcome, that is that all units are treated -we cannot observe the situation in which the unit has not been treated. As such, the statistics/econometrics community has come up with various ways of estimating causal effects without control groups, most notably with difference in difference, instrumental variables, regression discontinuity, synthetic controls and interrupted time series. More specifically, we observe the number of suicides at time t for state j as Yjt and the potential outcome YjtN as the potential outcome without intervention (release of the series) and Yjtl the potential outcome with intervention. We therefore define the treatment effect for treated state j = 1 at year t (for t>0) as follows:

Diagram, text, schematic

Description automatically generated

ARIMA

Prophet

SARIMAX

Poisson Regressor

Data

We aggregated state level suicide rates for the 5-24 years old population in the United States between 2000 and 2020 from the Center for Disease’s Control (CDC) comprehensive “Wonder’s” Database.

Methodology

ITS

ARIMA

Prophet

SARIMAX

Poisson Regressor

Findings

References

Graphs & Tables

Appendix