"Working Nine to Drive" : Socioeconomic Status and Commuter Traffic

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Background

- The '9 to 5' is a Western capitalist convention of working hours. Conventional wisdom states that it heavily influences traffic patterns.

- Hypothesis: traffic in generally non-western LEDCs is not as heavily dictated by commuting hours.

Data

- Uber Movement: anonymized data on over 2 billion trips to help urban planners.
- In April 2018, Uber expanded its program to 20 cities, 7 of which are from Less Economically Developed Countries (LEDCs), giving unique insight into traffic patterns in those countries.
- Large CSVs of all rides from 2016Q1 downloaded systematically and dealt with Pandas.
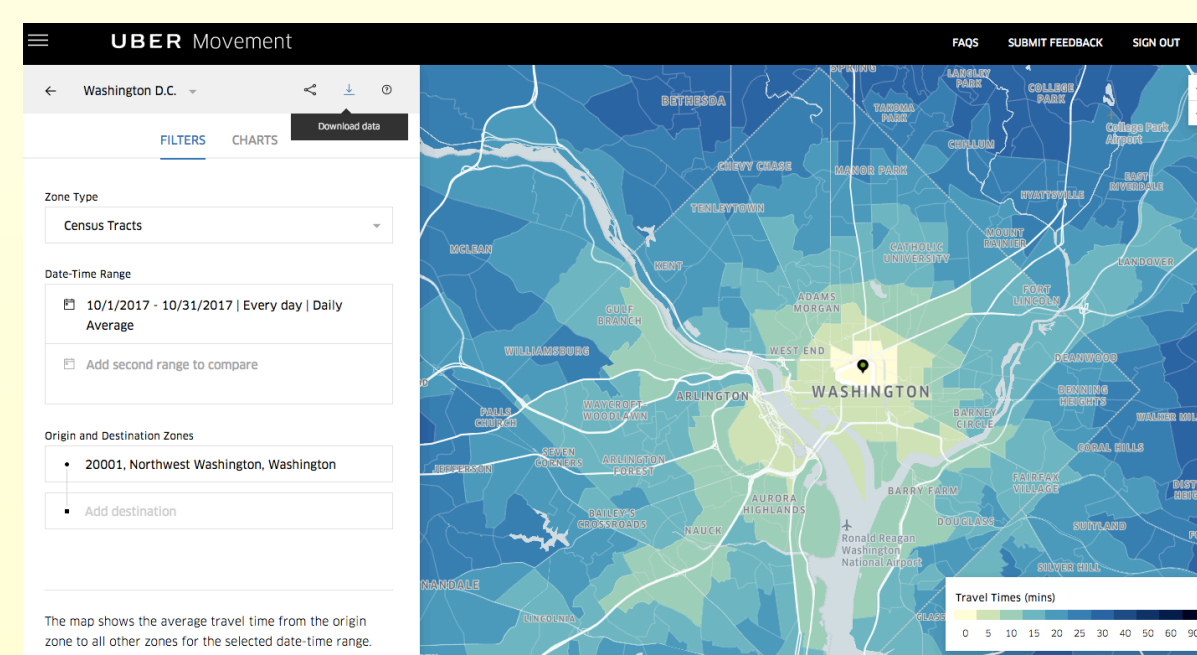

Methods

- For each city, consider the Average Travel Time (ATT) of all rides.

- How does the ATT change depending on temporal factors? I propose a novel index to measure this:

$$NineToDriveIndex = ATT(noncommute)/ATT(commute)$$

- Interpretation: Index takes on values 0-1. 1: no commuter effect. The lower the index, the more significant a 'Nine to Drive' commuter effect.

- In my analysis, I defined weekday commute hours as those which were the maximum for some city:

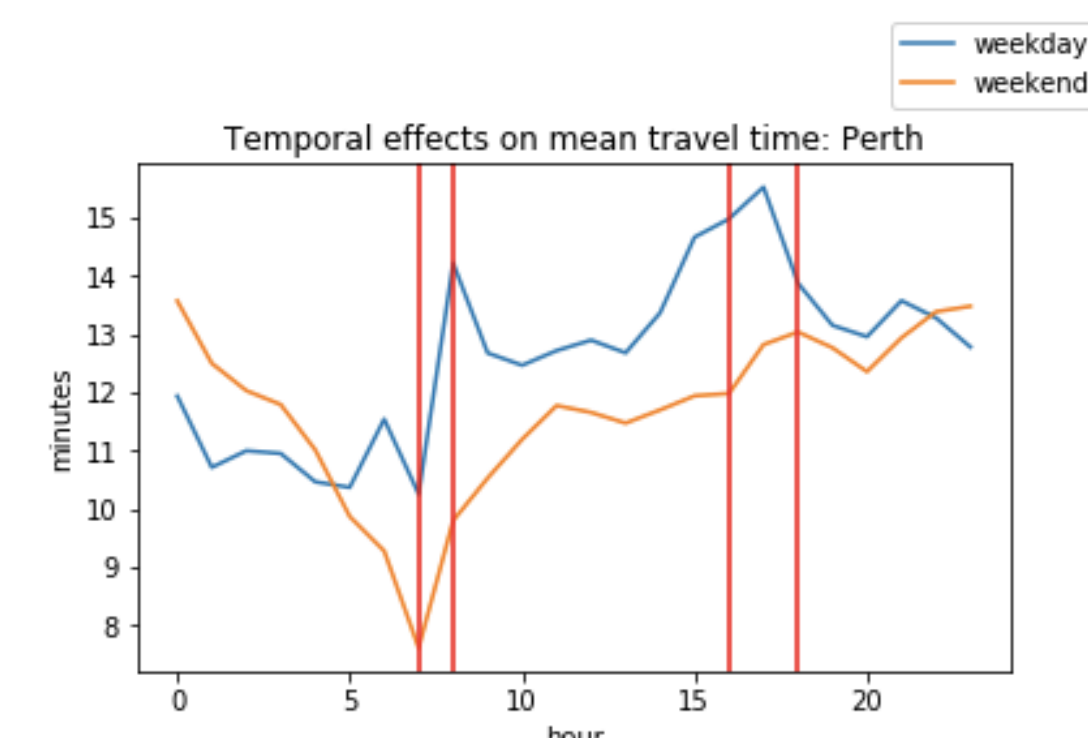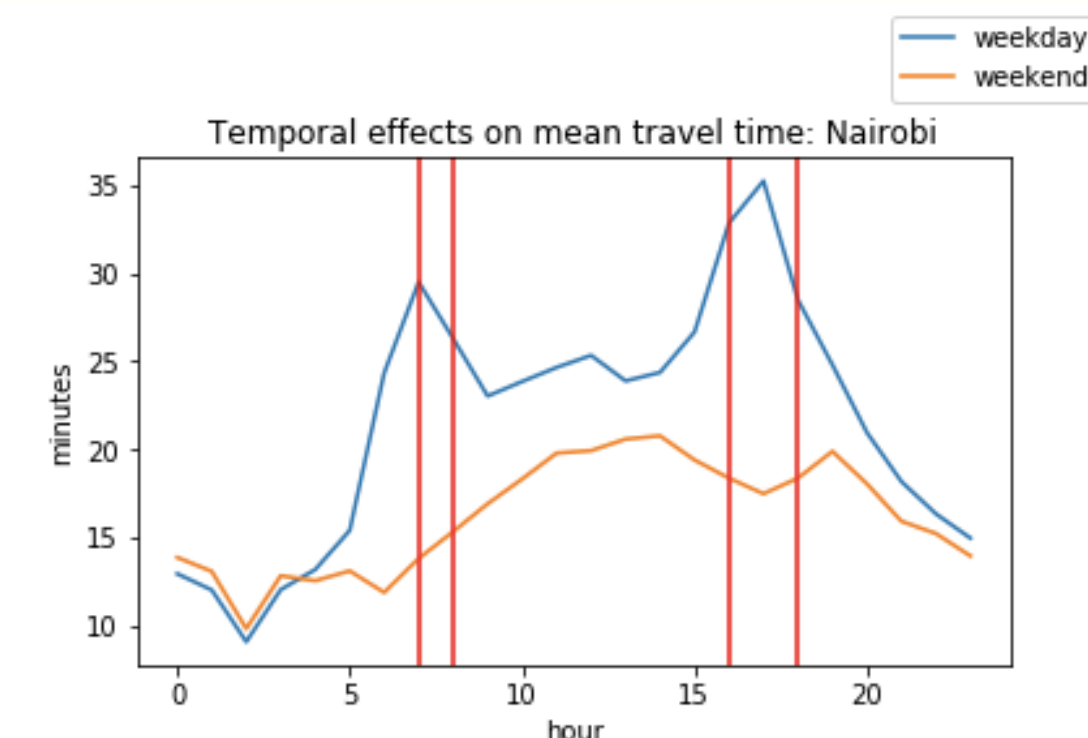- Weekday AM; 7, 8

- Weekday PM: 16, 17, 18

Key Result

Socioeconomic categories and the Nine to Drive Index
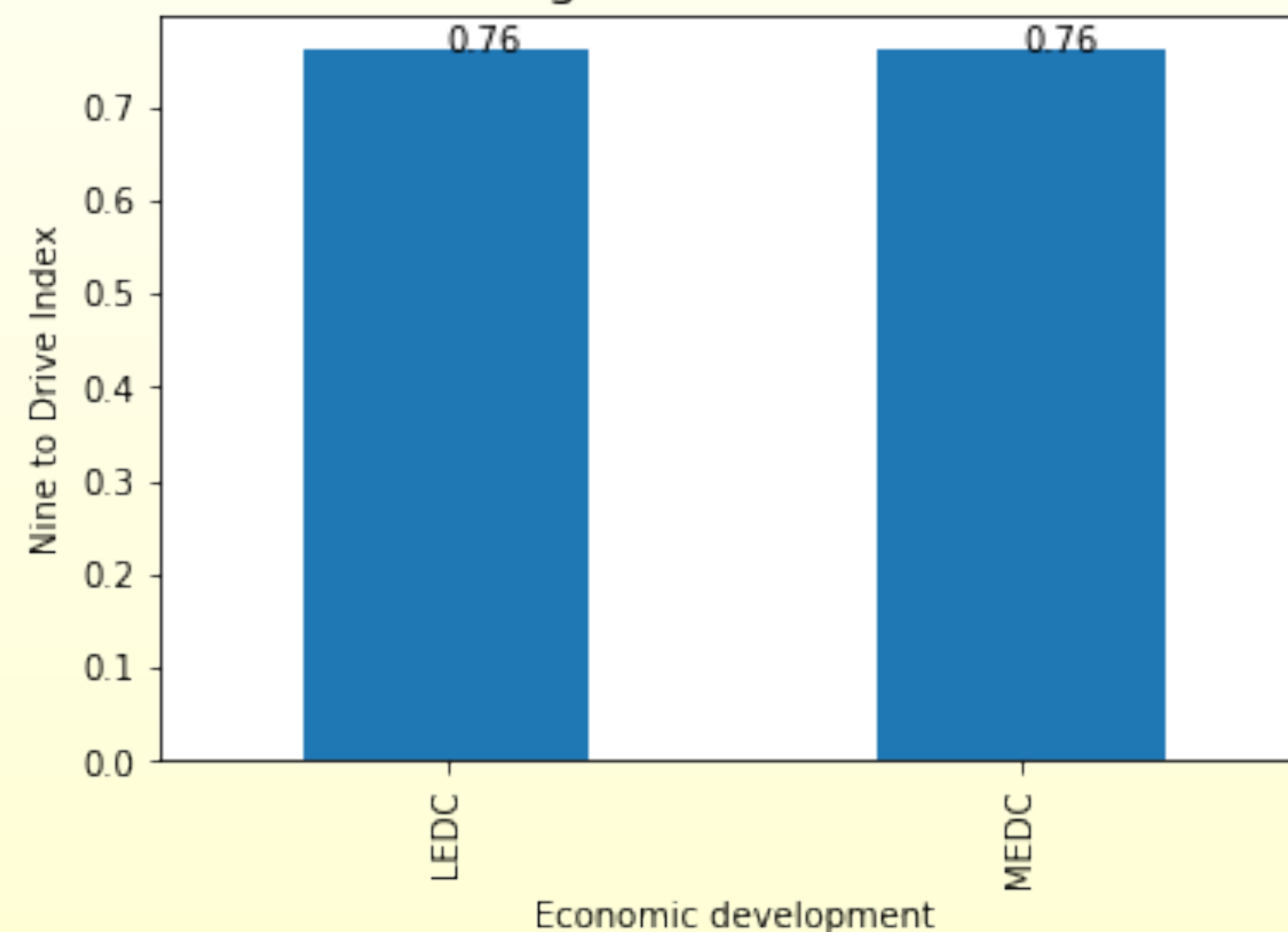
Example time series

Nairobi has the most significant Nine To Drive Index: 0.614, whereas Perth has the least significant: 0.871.

Nine To Drive hours are bounded by the red lines.

Conclusion

- A Nine to Drive effect exists. Adds approx. 1/3 to travel times (1/2 in the case of Nairobi).

- However, there is strong prima facie evidence that the country's socioeconomic status is not a predictor of a Nine to Drive effect, and that the hypothesis is incorrect.

Limitations

- Data: only 7 LEDC cities (4 Indian).

- Method: Aggregates spatial information

Future Research

- I'll be picking up a new passenger for my MA thesis: problematic smartphone usage (as part of my #firstweekflipphone project).

- Suggestions for building upon this work:

- Make use of spatial data: can we identify census tracts which are commuter hubs to validate the link between time & working hours.

- Validate with traditional data sources