CSYS 300 Term Project

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Abstract

Topic: The Rearranging of Places

Conventional maps depict places in relation to one another in terms of physical space. People often express their location relative to another location not in terms of distance, however, but in terms of travel time. This report will explore the relative connectedness of places by using the travel time between points as the unit of distance. Closer places will be ones which can be reached faster, rather than ones which are physically closer. Postal codes stand in for places to simplify location pairing and time calculation. Two case studies, one for the State of Vermont and one for New York City, will be constructed with three modes of transportation: car, bicycle, and on foot. A fourth option, public transport, will be added to the New York City case study to create irregular emergence of locations reached. I hope to produce a metric for connectedness in terms of time, not distance. Ideally, I would like to also link in air travel, which can dramatically change the complexion of the analysis. My immediate task will be acquiring and visualising the data, and the findings of these activities will guide the next tasks.

Chapter 1

Project Content

I have begun to collect VT driving time data. So far, I've got times for trips between 30 ZIP codes and every other VT ZIP code. The below figure shows this data:

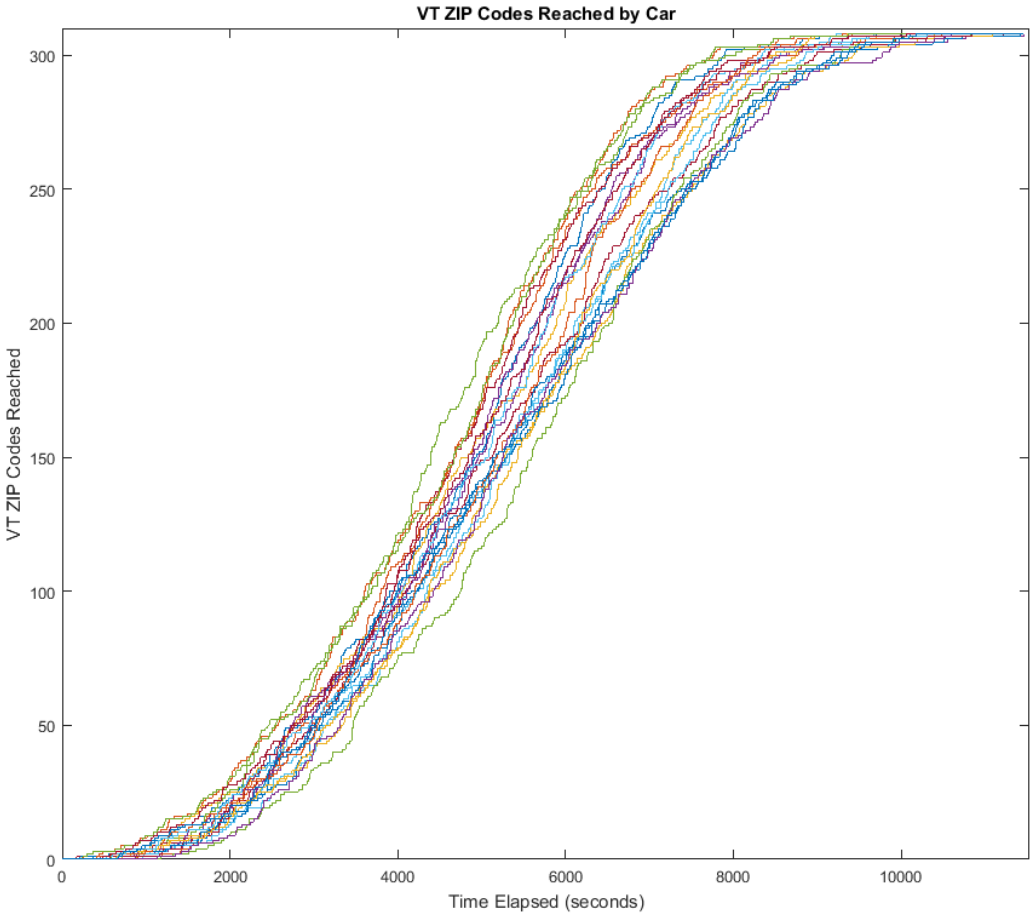

Figure 1.1: Preliminary VT drive times plot (30 of 309 complete).

Using this data, I hope to start characterising the connectedness of each zip code relative to the others. I think my 'Index of Connectedness' could come from analysing the average relative arrivals counts for each zip code in each 'ecosystem.' In other words, if trips made from a given ZIP code to others in the given domain (VT in this case) tend to be completed faster (a larger arrivals count at time t) then it's index would be higher. I next want to implement the above idea, and then acquire the rest of the VT driving time data and then (ideally) NYC driving, walking, cycling, and public transport times as a comparison case.