Proposal

Introduction

In the last few months of 2019, the COVID-19 pandemic caused the entire world to adapt. Due to the virus, meetings and lectures were hosted online, and people were not allowed to go to offices. The use of public transport and motorways dropped accordingly.

This report will explore the impact of the COVID-19 pandemic on the usage of these modes of transport, the recovery in the years after, and a forecast of transport use in the future years. Objectives The main objective of this study is to analyze how the performance of different transport modes in the Netherlands was affected by the COVID-19 pandemic and how they have recovered since. The study aims to provide insights into:

- The relative impact of COVID-19 on different modes of passenger transport (car, local public transport (bus, tram, metro), trains, bicycle, and walking).
- Regional variations in recovery between urban and rural areas.
- Regional variations in recovery per province
- Forecasting future transport performance and identifying when levels are expected to return to pre-COVID (2019) levels.

Research Questions

Main question:\ How were different transport mode performances affected, did they recover after COVID-19 and how was the recovery process?

Sub-questions:

- How did the transport performance of different modes of transport change during and after the corona period (2020–2022) compared to 2019?
- Which transport modes show the largest recovery compared to pre-COVID levels?
- Are there significant differences in the degree of recovery between urban and rural regions in the Netherlands?
- Are there significant differences in the degree of recovery between provinces in the Netherlands?
- Based on historical trends, how is transport performance likely to develop over the next five years (2025–2030), and if or when will each mode of transport return to pre-COVID levels?

Data pipeline

- Importing data from the CBS CSV files
- Structuring and organizing relevant data
- Creating line plots that show the trends
- Creating a plot for travel data of the Netherlands for regional differences
- Comparing data for the province and the city/rural environment.
- Creating a forecast for the future

Data Sources

CBS Open data StatLine – Totale vervoersprestatie in Nederland; vervoerwijzen, regio's https://opendata.cbs.nl/statline/#/CBS/nl/dataset/84687NED/table?ts=1759138063

The CBS dataset 84687NED – Transport Performance in the Netherlands provides annual figures on the total number of kilometers traveled within the Netherlands, broken down by transport mode (car, public transport, bicycle, freight/other) and by region (provinces and degree of urbanization). The data, collected through the ODiN survey, covers residents aged six and older. In our study, we will use this dataset to compare transport performance across modes before, during, and after COVID-19 with 2019 as a baseline, to assess regional differences between urban and rural areas and to examine recovery trends over time in order to forecast developments up to 2030.

CBS Mobiliteit; per persoon, persoonskenmerken, motieven en regio's (woon-werk verkeer) https://opendata.cbs.nl/statline/#/CBS/nl/dataset/84713NED/table

The CBS dataset 84713NED – Mobility by person, personal characteristics, motives and regions provides detailed data on individual mobility behavior in the Netherlands, including the number of trips, distances, transport modes, motives (such as commuting, shopping, leisure), and breakdowns by personal and regional characteristics. In our study we will focus especially on home-work (commuting) travel data: how many trips or kilometers are made for commuting, what transport modes are used, and how this varies across regions and over time.

Geographical Scale

By keeping the scope within the Netherlands it is possible to compare the transportation data for the different regions in the Netherlands. Because the different regions often largely differ in the amount of urban and rural areas it is possible to research if urban or rural areas could better cope with the impacts of COVID-19 on the various transportation modes.

- National coverage: Netherlands.
- Subdivisions: Comparison across regions and between urban and rural areas.

Temporal Scale

The data from the two datasets is from 2018 to 2023. This then includes the data in the years before COVID-19 where the values can be used to describe the “normal” transportation levels before the pandemic. It also includes the years during the pandemic, which show how the transportation levels were affected by COVID-19. Lastly, it includes the years in which the transportation levels slowly returned back to “normal”.

- Early data: 2018-2019
- Main COVID-19 impact years: 2020–2022.
- Recovery analysis: 2023–2024.
- Forecast horizon: 2025–2030.