



Caltrans Division of Research,
Innovation and System Information

Research

Notes

Planning
Policy
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Project Title:
Traffic Volume and Aggregate Economic
Activity: Implications for Taking the Pulse
of the U.S. Economy

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Task Manager:
Haniel Chung
Transportation Engineer
haniel.chung@dot.ca.gov

Traffic Volume and Aggregate Economic Activity

Implications for Taking the Pulse of the United States Economy

WHAT IS THE NEED?

Gross Domestic Product (GDP) is the key summary statistic of economic activity and the most important variable in analyses of economic growth. Our research questions focus on the potential of aggregate traffic volume indices to serve as coincident and leading indicators of overall economic activity. A contemporaneous link between aggregate traffic volume data and overall economic activity would suggest that such data can be relevant for *nowcasting* GDP growth. Moreover, an intertemporal link would suggest that aggregate traffic volume data can also be relevant for forecasting subsequent realizations of GDP growth.

Our investigation of the link between aggregate traffic volume data and macroeconomic activity has the potential to inform macro forecasting staff of the U.S. Government's GDP growth. U.S. government staff regularly use GDP growth forecasts to develop the Federal Budget, and the Federal Reserve considers GDP growth forecasts a central part of monetary policy making. If aggregate traffic data contain information relevant for forecasting GDP growth in real time, then it is possible such data can be used to improve consensus forecasts of GDP growth. Given that consensus GDP forecasts are central for policy making, any evidence of improvability based on our indices becomes *de facto* important.

WHAT ARE WE DOING?

The research is performed in four major tasks:

- (1) Collection of traffic volume data from metropolitan areas in the US. Both aggregate data, and data per facility type are collected. Development of data processing and visualization software for analysis of the data collected.



DRISI provides solutions and
knowledge that improves
California's transportation system

- (2) Aggregation of the traffic volume data collected from the different sources. Construction of time-series of traffic volume growth information using different levels of aggregation.
- (3) Collection of macroeconomic series that proxy for economic activity both at the state level and at the federal level. The macroeconomic data will be collected from several sources including (i) the Bureau of Economic Analysis, (ii) the Department of Labor Statistics, and (iii) the Federal Reserve System. In addition, we plan to obtain consensus forecasts for the different macro series from the Survey of Professional Forecasters conducted by the Federal Reserve Bank of Philadelphia.
- (4) Analysis of the data collected and processed in Tasks 1 through 3 to determine the linkage(s) between traffic volume data and economic activity. Development of recommendations for use of the research projects. Preparation of the final report and workshop.

WHAT IS OUR GOAL?

The goal of the project is to use real-time traffic volume data to forecast economic activity in the U.S. with emphasis in the State of California.

WHAT IS THE BENEFIT?

The study findings will be used to inform policy making, and address key issues that are relevant to California. The real-time indices of traffic volume data when aggregated at the state-level can be used for nowcasting and forecasting economic activity in California. Also, given that economic activity is inexorably linked to labor market conditions, the study findings will provide new light on the link between traffic volume growth, employment growth, and unemployment rates in the State. Furthermore, the study can address the question whether traffic conditions in California can serve as a “bellwether” indicator for economic activity in other states as well as for taking the pulse of the entire U.S. economy.

WHAT IS THE PROGRESS TO DATE?

The project kick-off meeting was held at the Caltrans DRISI offices on April 21, 2015.

The project team presented the project objectives, expected products and ongoing and future work. Discussions focused on the data availability, relationship of the research with other Caltrans projects, and next steps of the project. The presentation was made available to Caltrans by the research team.

Currently, we have collected most of the available traffic volume data. We performed a literature search to identify any recently completed and on-going work of relevance to the research effort. We developed software for data processing and visualization.

For next step, we will aggregate the traffic volume data collected from the different sources, and construct time-series of traffic volume growth information using different levels of aggregation. The different levels of aggregation range from detailed series at the commuters-zone level, to the metropolitan area level, at the state level, as well as at the federal level, over time.