



UNIVERSITY OF
TORONTO

February 3, 2025

Subject: Request for access to the Confidential Carload Waybill Sample

309213

William Brennan
Director, Office of Economics
Surface Transportation Board
395 E Street SW
Washington, DC 20423

ENTERED
Office of Proceedings
February 12, 2025
Part of
Public Record

Dear Dr. Brennan,

I am writing to request access to the full unmasked Carload Waybill Sample (CWS) from 1984-2022 for the purposes of academic research. I am pursuing a project studying the economic implications of flood risk to transportation infrastructure, with a particular focus on the U.S. rail network. The project will involve a substantial empirical component in which I intend to use the CWS to evaluate how disruptions to rail service impact commodity flows and prices within freight shipments.

Researcher Qualifications

I am a Ph.D. student within the Department of Economics at the University of Toronto, currently in the second year of a six year program. I previously received my M.A. and B.A. in Economics from the University of Toronto. Through my economics training, I have gained extensive experience analyzing data, and formulating and estimating econometric models. Additionally, as a research assistant for academic faculty, I gained experience working with confidential data at the Statistics Canada Research and Data Center. I am familiar with protocols for handling and storing confidential data, and ensuring that analysis output does not reveal sensitive information.

My research will be done under the supervision of Dr. Stephan Heblich and Dr. Jeffrey Sun, respectively Professor and Assistant Professor within the Department of Economics at the University of Toronto.

Research Question

Climate change will have profound effects on transportation infrastructure, particularly rail. Historically, rail lines have been constructed alongside rivers to minimize construction and operation costs. However, this means that many rail lines traverse through flood plains, exposing them to heightened risk of flooding. It is well-established that the flooding of railbeds can cause significant damage to infrastructure and lead to transportation disruptions and delays. However, what is less clear are the broader economic costs of the flooding of rail infrastructure, and its implications for the spatial distribution of economic activity. Rail is essential for the movement of commodities. The cost of transporting goods has consequences for decisions made by firms and workers about where to concentrate economic activity, and for overall consumer welfare.

Climate change is expected to lead to increased flood risk in the future, which could imperil rail infrastructure. Decisions must be made today about infrastructure allocations that will persist well into the future. Firms and policymakers should therefore make choices about infrastructure allocation with future flood risk in mind. Several options are available: the level of infrastructure along a segment can be maintained or improved; investments can be made to protect against flooding, such as elevated tracks; or, a segment could be re-routed altogether to avoid a risky floodplain. However, the returns to the various types of investment are heterogeneous across space, and will be jointly determined by a particular segment's future flood risk and economic importance.

My research will aim to address the following question: *What are the economic costs associated with the flooding of railroad infrastructure, and what does this tell us about how investments should be made considering climate risks?*

I intend to use the CWS to help estimate the economic costs of localized railroad disruptions, which will inform how flood-induced disruptions affect the economy.

Research Plan

My ultimate goal is to develop and estimate a structural economic geography model that captures flood risk to rail infrastructure and the economic forces relevant to measuring the costs and benefits of rail infrastructure investments at each location. In order to estimate model parameters, I must conduct a significant amount of empirical work — the CWS will be crucial in facilitating this.

As a first step, I will produce reduced-form causal estimates of how geographically localized disruptions to railroads impact the flow of freight shipments along affected segments, as well as the associated revenue and shipment rates. I will collect data on various localized railroad disruptions over the time period which the CWS covers, including weather and flooding related disruptions, safety incidents, etc. I will then match these disruptions to railroad segments to determine affected origin-destination pairs. CWS data would then be used to determine flows along rail segments, and associated shipment costs and revenues. I intend to conduct event studies that would estimate causal effects.

While the public version of the CWS enables preliminary analyses, access to unmasked revenue and rate information and unmasked information about commodity types are necessary to ensure precise estimates and avoid sample selection bias. Additionally, I require origin-destination information at a more granular level than BEA areas so that shipment observations can be attributed to particular rail segments.

The CWS will also be important at the model estimation phase. I will calibrate my model to match observed aggregate price and flow information.

Confidentiality

I will comply with the confidentiality terms laid out in 49 CFR § 1244.9. At the Department of Economics, I will have access to an IT solution that will enable for secure storage of the confidential data. The planned research will measure aggregate effects which may be differentiated by geographic unit and commodity, but will contain no firm-level differentiation, nor any reported information on specific prices or revenues for a particular firm, station, or railroad. Prior to the release of results, I will submit all of my preliminary results to the STB Office of Economics to ensure they comply with confidentiality standards.

Request for CWS

I request access to CWS data from 1984 to 2022. Access will be provided for myself (Derek Thiele). The CWS will be used solely for academic research. The results of confidentiality-compliant analyses may be published online and in an economics journal.

Sincerely,

A handwritten signature in black ink, reading "Derek Thiele". The signature is written in a cursive, flowing style.**Derek Thiele**

Economics PhD Student
Department of Economics
University of Toronto
150 St George St, Toronto, ON M5S 3G7