

# RESEARCH SEMINAR



**December 8, 12:00pm - 1:00pm**

**ESB 243 & Zoom**

## Can Regulating Transportation Increase Supply Chain Resiliency in The Canadian Prairies?



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**Abstract:** Supply chain disruption can occur for a variety of reasons, including natural disasters or market dynamics for which resilient strategies should be designed. If the disruption is profound and with dire consequences for the economy, it calls for the regulator's intervention to minimize the impact for the betterment of the society. We consider a shipping company with limited capacity which will ship a group of products with heterogeneous transportation and production costs and prices and investigate the minimum quota regulation on transportation amounts stipulated by the government. An interesting example can happen in North American rail transportation market, where the rail capacity is used for a variety of products and commodities such as oil and grains. Similarly, in Europe supply chain of grains produced in Ukraine is disrupted by the Ukraine war and the blockade of sea transportation routes, which puts pressure on rail transportation capacity of Ukraine and its neighboring countries to the west that needs to be shared for shipping a variety of products including grains, military, and humanitarian supplies. Such situations require a proper execution of government intervention for effective management of the limited transportation capacity to avoid the rippling effects throughout the economy. We propose mathematical models and solutions for the market players and the government in a Canadian case study. Subsequently, the conditions that justify government intervention are identified, and an algorithm to obtain the optimum minimum quotas is presented.

**In-Person:** Room 243 (Edwards)

**Zoom:** [register here](#)

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