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Estimate of the Impacts of the February 2020 Rail Disruption

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Description: This note provides PBO's estimate of the economic and financial impacts of the February 2020 disruption of rail transportation due to blockades of rail lines and other protests. The estimate includes both the direct and indirect impacts from rail transportation, transportation support activities (port disruptions) and urban transit system industries, as well as macroeconomic feedback.

Data sources:

<u>Variable</u>	<u>Source</u>
Revenue ton-miles (RTMs)	Canadian National; Canadian Pacific
VIA Rail employee compensation	VIA Rail financial statements
Passenger transit trips	Metrolinx; Translink; exo
Real GDP by industry	Statistics Canada (historical); PBO (projected)
GDP income and expenditure series	PBO November 2019 Economic and Fiscal Outlook (EFO)

Estimation and projection method: The direct impact on rail transportation in February was estimated using real-time data for revenue ton-miles and VIA Rail employee layoffs. Disruptions to port activity in Vancouver, Montreal and Halifax were estimated based on observed number of days impacted and assumed diversion of ships (based on historical experience, such as the 2014 Port of Vancouver trucker strike). Urban transit system disruptions in Ontario, Quebec and British Columbia were estimated based on the observed number of days impacted and historical experience (that is, the 2001 Vancouver and 2008-2009 Ottawa transit strikes).

Based on past disruptions in these industries, we assumed that lost rail transportation activity (except for VIA Rail) in February would be fully recouped by May. Support activity for transportation and urban transit system activity were assumed to return normal operation in March and not recoup lost activity in February. The following table presents our estimates/assumptions of the direct impacts on affected industries, which were mapped into GDP by industry.

Estimates and assumed direct impacts on affected industries:

	February	March	April	May	June
Revenue ton-miles lost (in millions)	924	0	-426	-426	0
VIA Rail layoffs (number of employees)	875	0	0	0	0
Port activity disruptions (number of days)	16	0	0	0	0
Transit passenger trips lost (number of trips)	273,000	0	0	0	0

Note: The direct impacts represent the difference between the realized scenario and a counterfactual scenario in which the rail disruption did not occur.

The indirect GDP impact of the disruptions to the affected industries (that is, rail transportation, support activity for transportation and urban transit systems) was estimated by using Statistics Canada's Supply and Use Tables at the detailed level. The indirect impacts capture the spillover of the disruption to other industries, as well as those industries directly affected, based on their linkages to activity in the transportation sector. Direct and indirect GDP impacts were estimated for 2020Q1 and 2020Q2.

To estimate the overall economic impact including macroeconomic feedback, we simulated PBO's macroeconometric model—the same model used to produce PBO's EFO projections—with the combined direct and indirect GDP impacts from the Supply and Use Tables that were mapped into GDP expenditure components. Given the supply-side nature of the economic shock, our model was simulated under the assumption that monetary and fiscal policy would not respond to these disruptions.

Sources of Uncertainty:

The real-time data used in constructing estimates of the direct GDP impact on rail transportation are of good quality. However, due to data limitations, the uncertainty surrounding our direct impact estimates of port disruptions is higher. Using past disruptions in port activity also introduces another source of uncertainty. Moreover, there is inherent uncertainty surrounding the counterfactual scenarios on which these impact estimates are based, as well as the assumed recovery from March through May.

Estimates of the indirect impacts based on the Supply and Use Tables assume no substitution across intermediate inputs and do not capture (potential) plant shutdowns.

PBO's macroeconometric model is estimated using historical data. The macroeconomic feedback from the responses of households and firms to the rail disruptions could differ from historical experience.

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Indicator	2020Q1	2020Q2	2020Q3	2020Q4	2020
Nominal GDP level (\$ millions)	-283	41	-21	-11	-275
Nominal GDP level (per cent)	-0.05	0.01	0.00	0.00	-0.01
Real GDP level (per cent)	-0.05	0.01	0.00	0.00	-0.01
Real GDP growth (percentage points)	-0.20	0.22	-0.04	0.01	0.00
Pre-tax corporate profits (\$ millions)	-236	78	12	14	-132
Compensation of employees (\$ millions)	-28	-35	-27	-20	-110
Employment (number of people)	-1,010	-840	-700	-540	-772
Full-time equivalents (number of work years)	-481	-290	-229	-170	-1,170

Notes:

The impact estimates represent the difference between the realized scenario and a counterfactual scenario in which the rail disruption did not occur. The real GDP (quarter/quarter) growth impacts are expressed at annual rates.