

Interswitching: the recent Canadian experience

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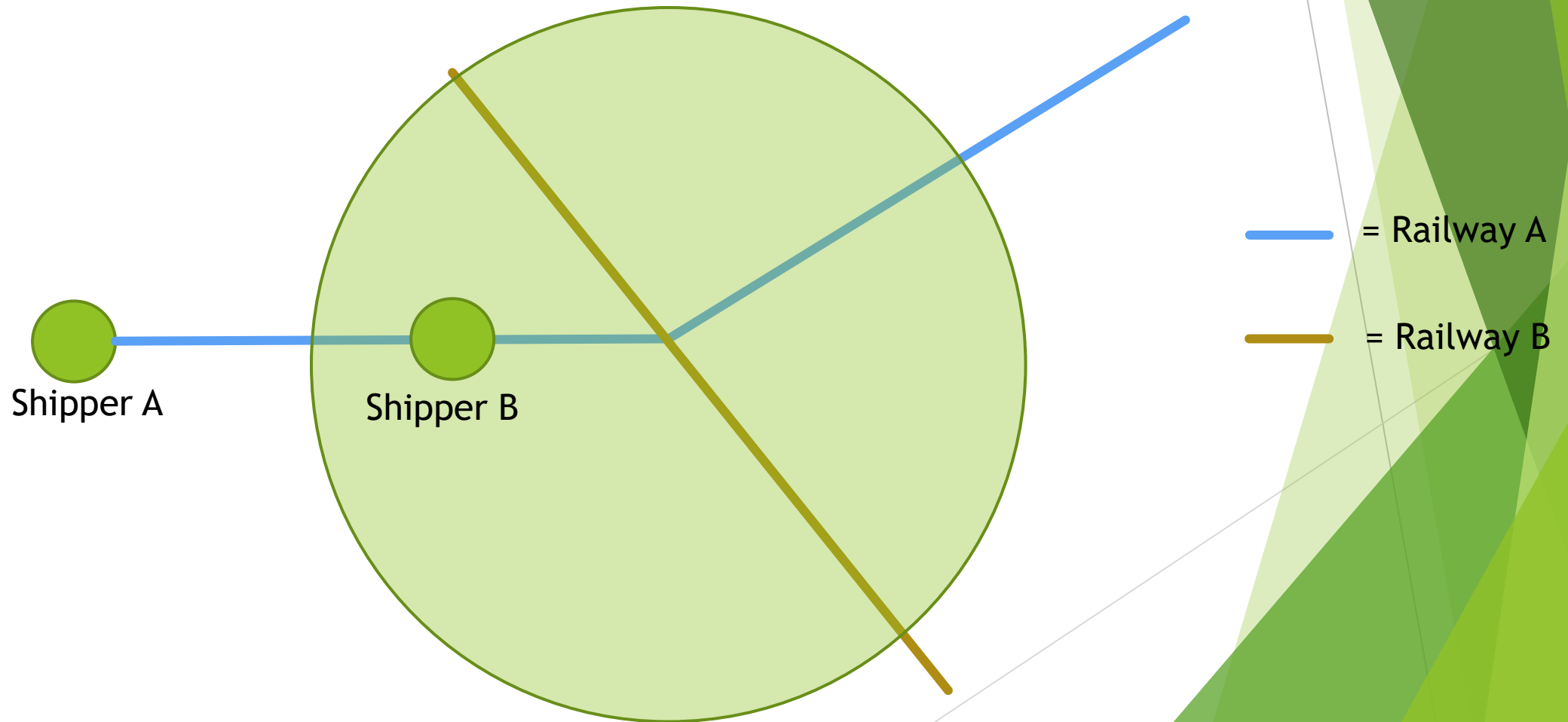
2013-2014 Grain Handling Crisis

- ▶ Record Canadian grain crop harvested that took many by surprise
- ▶ An exceptionally cold winter - not only affected Western rail operations but also delayed shipping out of Thunder Bay
- ▶ Simultaneously, aggressive management changes by CP to streamline their operations by reducing employees and equipment that the railway operated
- ▶ Some stakeholders would blame the railways for finding themselves unequipped to deal with the increased demand for rail due to the harvest
- ▶ Prairie elevators piled up grain and some grain buyers stopped bidding for grain altogether due to system congestion

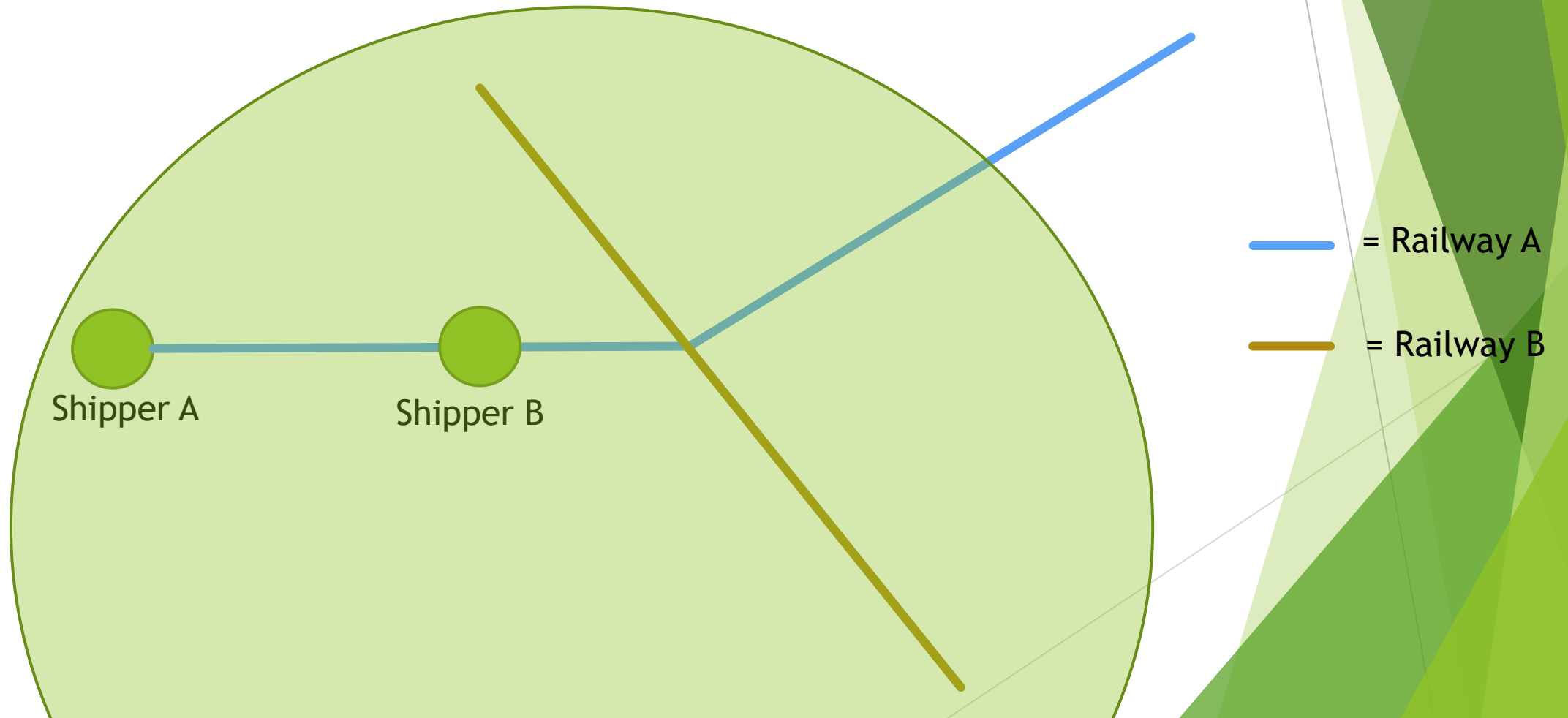
Government Response to the Crisis

- ▶ March 7, 2014: Order in Council setting a minimum movement threshold of 5,500 cars per railway - violation punishable by a fine of up to \$100,000 per day
- ▶ May 29, 2014: Fair Rail for Grain Farmers Act is passed. Among other provisions, it extended the Order in Council through to August 2014, demanded more stringent reporting by the railways, and extended the historical extended interswitching limit from 30km to 160km for a period of two years.
- ▶ June 8, 2016: The provisions of the Fair Rail for Grain Farmers Act were extended for one more year, expiring in August 2017.

Current (and historical) interswitching (30 km limit)



Extended interswitching (160 km limit, 2014-2017)



Natural experiment - assessing grain transportation performance under extended interswitching

- ▶ Using Canadian rail performance data, including car cycle times in various corridors as well as the total time grain spent in the grain handling and transportation system, perform statistical analysis to see if the new policy had any effects on these performance measures
- ▶ Data were analyzed spanning from July 2015 up to September 2018 - the first 26 months of data covers a time when the new extended interswitching rules were in place, while the last 14 months spans the period in which standard interswitching provisions were reinstated

Modeling rail performance under ext. int.

- ▶ Regression was performed on the following independent variables:
 - ▶ Dummy variables for each quarter of the year
 - ▶ Dummy variable for shipper access to extended interswitching
 - ▶ Total monthly shipments to western destinations
 - ▶ Total monthly shipments to eastern destinations
 - ▶ Total monthly shipments to American destinations
 - ▶ Total monthly shipments to Western domestic destinations
 - ▶ Total monthly days of rain recorded in Vancouver, BC
 - ▶ Total monthly days with windchill less than -30 in Regina, SK
- ▶ Regressions were performed on car cycle times to the west, east, and U.S., as well as the total time that it took grain to pass through the grain handling system

Car cycle times to the West Coast

Variable	Coefficient	Standard Error
Quarter2	-0.264924	0.8111519
Quarter3	0.5423199	0.7812354
Quarter4	-0.5847978	0.5551682
Interswitching	-1.518257***	0.4164627
Shipments West	-0.0007601*	0.0004125
Shipments East	0.0011551	0.0027913
Shipments US	-0.0012862	0.0027998
Shipments Dom	0.0203429	0.0173287
Vancouver Rain	-0.0157863	0.0277087
Regina Cold	0.0889967**	0.0378483
Constant	16.80037	1.896415

Total grain time in the GHTS

Variable	Coefficient	Standard Error
Quarter2	-5.276237	3.471204
Quarter3	-4.324753	3.343181
Quarter4	-2.650501	2.37576
Interswitching	-5.206704***	1.78219
Shipments West	-0.0053378***	0.0004125
Shipments East	-0.0123969	0.0.0119448
Shipments US	-0.002145	0.0119815
Shipments Dom	-0.0017629	0.0741555
Vancouver Rain	0.2583752**	0.1185753
Regina Cold	0.0911879	0.1619663
Constant	66.97702	8.115427

So did the new interswitching rules help to reduce system congestion?

- ▶ Having access to the new extended interswitching rules was associated with an average decrease in car cycle time to western destinations by 1.5 days
- ▶ Having access was associated with an average decrease in the total time that grain spent in the grain handling system by 5.2 days.
- ▶ Car cycle times to eastern destination and U.S. destinations did not seem to be significantly affected whether or not shippers had access to extended interswitching
- ▶ More generally, data collected from shippers indicate that they were discounted over C\$15 million (estimated) in freight rates over the last 2 years of the policy
- ▶ My observation - the policy was so successful that it was overturned under the influence of the Canadian railways
- ▶ Most recent LHI policy (intended to facilitate longer interswitches for shippers, but approved by the railways) is clumsy to implement and has never been used

Other points to ponder

- ▶ Contestability through reciprocal switching - will need to track gains and rail profits to see if the policy works
- ▶ Prior research on U.S. network mapped out 50 miles as the radius, but admittedly it is not clear what is ideal as a broad policy so this may need to iterate
- ▶ Flexible regulation and flexible regulator
- ▶ Need to try to use Ramsey pricing on the regulated reciprocal switches
- ▶ Won't solve all captive shipper issues but radii can be adjusted to hit shipper captivity targets if so desired
- ▶ Cannot let this get bogged down in case by case allowances (save possibly for computing the regulated switching charges) - LHI variant in Canada is proof that reciprocal switching needs to be a “bright line” policy