

# Third Country Effects of Price Discrimination: The Case of the Canadian Wheat Board

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# Introduction

- There are a variety of criticisms of exporting STEs ranging from hidden subsidies to abuse of market power
- Market power in product market involves reducing sales to extract higher prices but this is not typically the case in grain markets
- However, 3<sup>rd</sup> degree price discrimination allows for the exercise of market power with inelastic market taxed with higher prices while elastic markets face lower prices
- GATT Article XVII allows price discrimination if the “practice is done for commercial reasons and to meet market conditions in the export market”

**Are Competing Exporters worse or better off under STE price discrimination? Under what conditions?**

# Background

## Necessary Conditions for Price Discrimination

- Some degree of market power
  - sufficient product differentiation creates market power
- Segmented markets to prevent arbitrage
  - home mkt. sanctuary ; transport costs
- Different demand elasticities

## Alternative Approaches to Model Price Discrimination

- ☯ Measure price differences and use observed prices and quantities to determine the model parameters which would satisfy a discriminating monopolist's profit maximizing rule (Alston and Gray 2000) and then eliminate behaviour
  - Reasonability of elasticities?
- ☯ Create/calibrate a competitive model and then introduce price discrimination
  - Imperfect competition in international grains markets?

# Simulation Model

## Synthetic linear model

- Three separate wheat markets (Cdn., US, Other)
- Armington assumption to derive own and cross price demand elasticities
  - Five Importers and two domestic markets make up demand
- Linear supplies are function of domestic wheat prices
- Calibrated as a competitive model with 2001/02 IGC data for prices and quantities
  - Prices in destination markets are linked to FOB price by transport costs

Price discrimination is introduced for Cdn. wheat market

(S.1)  $\Sigma MR = MC$  and equate MR across markets

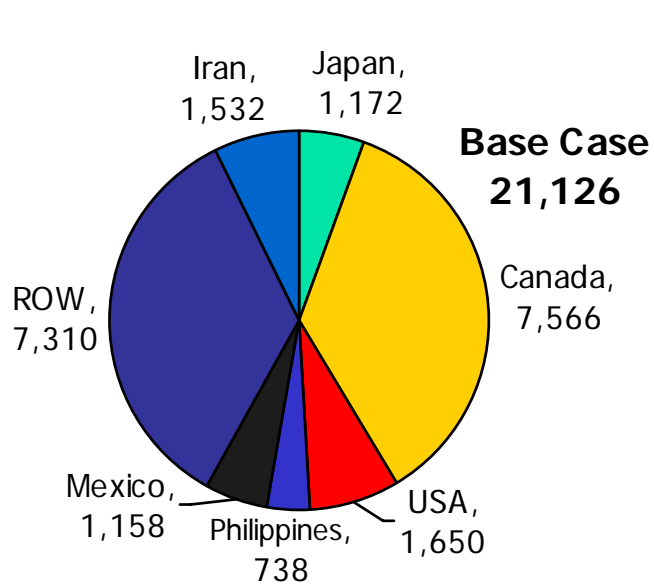
(S.2) Equate MR's *but*  $P^{\text{supply}} = P^{\text{pooled}}$

(S.3) Equate MR's &  $P^{\text{supply}} = P^{\text{pooled}}$  *but*  $(P^{\text{C}} - P^{\text{US}}) < 30$

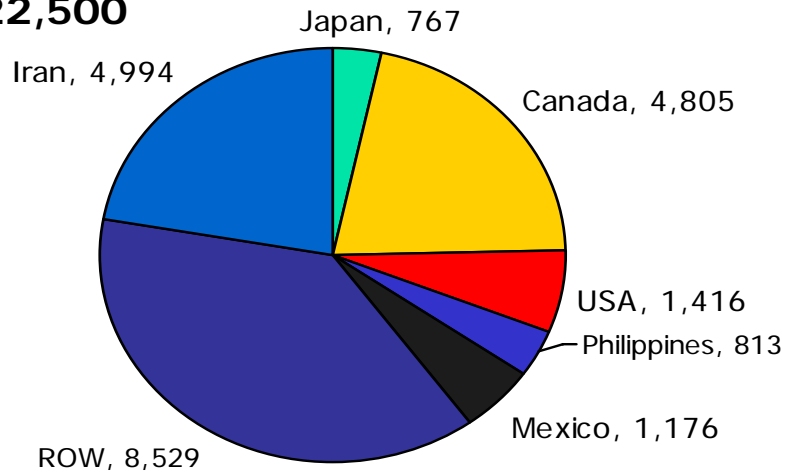
# Results - Prices

	<b>Base Case</b>	<b>Price Discrimination</b>	<b>Price Discrimination</b>	<b>Price Discrimination</b>
		<b>Pooling</b>	<b>Pooling/N.A.</b>	<b><math>\Sigma MR = MC</math></b>
	Prices	Prices	Prices	Prices
	(\$US/mt)	(\$US/mt)	(\$US/mt)	(\$US/mt)
<b>Canadian Market</b>				
Demand				
Japan	149	231	245	246
Canada	149	227	148	239
USA	149	160	147	173
Philippines	149	161	175	176
Mexico	149	158	172	173
ROW	149	141	155	156
Iran	149	140	149	148
Supply	149	165	156	181*
<b>US Market</b>	128	126	128	130
<b>Other Exporter</b>	135	135	140	141

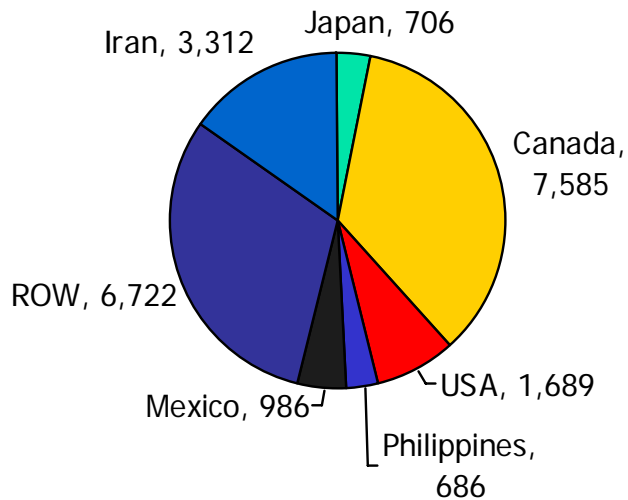
# Results – Canadian Sales



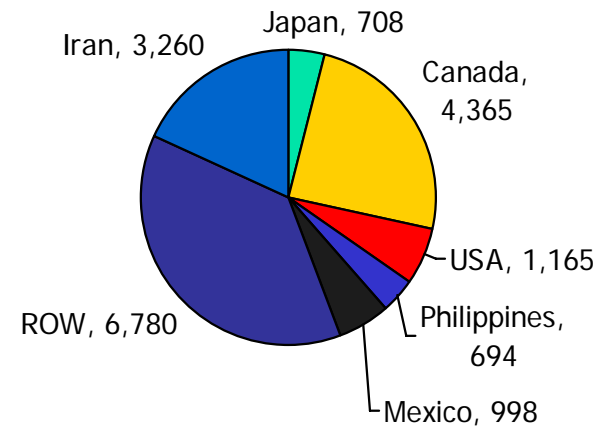
**PD and Pooling**  
**22,500**



**PD and Pooling w Arbitrage**  
**21,686**



**Pure PD**  
**17,972**

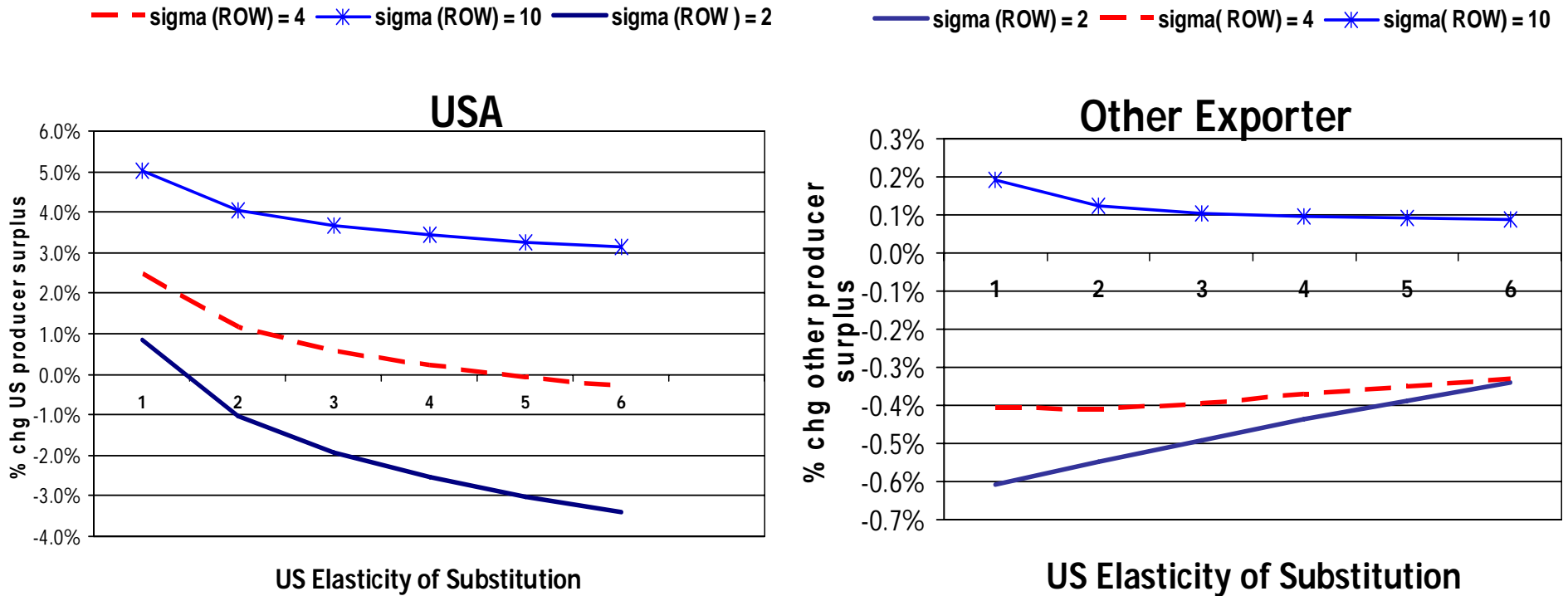


# Results - Welfare

\$(US) Millions

	Price Discrimination Pooling	Price Discrimination Pooling/N.A. Arbitrage	Price Discrimination $\Sigma MR = MC$
<b>Canadian Market</b>			
• Change in consumer surplus	-437	47	-494
• Change in producer surplus	224	120	61*
• Change in total surplus	-214	59	-435
<b>US Market</b>			
• Change in consumer surplus			
US wheat	257	-234	423
Canadian wheat	-16	25	-48
• Change in producer surplus	-105	15	129
• Change in total surplus	136	-194	480
<b>Other Aggregate Exporter</b>			
• Change in producer surplus	-550	-449	-538

# 3<sup>rd</sup> Country Producer Surplus



- The Effect on the USA is larger than for the other exporter
  - When US market becomes more elastic CWB directs more sales to that market and this ↓ PS
  - More elastic markets in ROW create more opportunities for both traders when CWB price discriminates
  - Significant amount of other exporters' sales are to elastic markets so more negative impacts are expected for this trade ... but small impacts



# Conclusions

Price discrimination does not necessarily put competing exporters at a disadvantage ... we found the impacts were small over a reasonable range of elasticities

- US exporters are more sensitive
  - Range of impacts + and – , less than |5%|
- Other exporters are worse off but by less than 1%

Given this study's results it would be difficult to write a set of WTO STEs disciplines with respect to the use of price discrimination

- Since competitors can be better or worse off ... rules are unlikely to only discipline negative outcomes