Extended Abstract
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Paper/Poster Title	The Impact of Export Price Volatility on Market Behaviour in the International Export Market: A Case Study of Canadian and German Pork Exports in China

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Abstract	***200 words max***

This study delves into the intricate dynamics of export price volatility and its impact on the market behaviour of major pork exporters, Germany and Canada, in the world's largest pork market, China. Exporters' market behaviour often responds to the uncertainty arising from price fluctuations by curtailing their supply; a reduction in the supply by a major exporter can disrupt the overall market supply, potentially leading to an increase in prices. However, the extent to which an exporter can leverage this increase in price depends on the responsiveness of demand to such changes.

To explore these relationships, a residual demand function elasticity model (RDE) is extended to incorporate price volatilities. Prices and their volatilities are modelled using Autoregressive and GARCH models, respectively. The results of the RDE analysis of pork exports reveals strong competition among pork exporters in the Chinese pork market and indicate that price volatility increases the market power of the exporting country.

This research not only contributes to the understanding of the interplay between export price volatility and market power but also provides practical insights for major pork exporters. This study helps formulate informed strategies to navigate the challenges posed by price fluctuations in the international pork market.

Keywords	Market Power, Price Volatility, International trade, Market Structure, Market Imperfection
JEL Code	Oligopoly and Other Forms of Market Imperfection D43 see: www.aeaweb.org/jel/guide/jel.php?class=Q)

Introduction

100 – 250 words

In economics, market power refers to a firm's ability to influence the prices of its goods. As a corollary, the concept of market power is absent in perfectly competitive markets, such as agricultural markets. Nevertheless, major exporters can gain market power through international trade, as changes in the supply patterns of key exporters can noticeably impact market prices, signalling their market power.

On the other hand, price volatility poses a risk for exporters, leading them to reduce their supply. Global exporters may exploit this volatility to enhance their market power. This is evident in the positive correlation between the wheat export activities of Russia, Kazakhstan, and Ukraine and price fluctuations during 1980-2010 (Kemeny et al., 2012).

However, the extent to which exporters can increase prices in response to fluctuations remains uncertain. If an importer switches to alternative suppliers, the exporter may need to adjust prices to remain competitive.

This study is focused on the impact of price volatility on the market behaviour of Canada and Germany in the world's largest pork market. The objectives of the study are to measure the degree of competition in the Chinese pork market; to test how price fluctuations affect the market behaviour of pork exporters; and to examine how competitors restrict their market power in the Chinese pork market.

While existing literature has primarily focused on measuring market power, competition, or market behaviour, our study investigates how market behaviour and competition among exporters are influenced by price fluctuations in the international market.

Methodology	***100 – 250 words***

In this study, we expand the residual demand approach by integrating the insights from literature that treats export quantities as a function of price volatilities.

We consider two exporting countries, denoted as $k = 1$ for Germany and $k = 2$ for Canada. P^k and Q^k represent the export price and export quantity of competitor k, and Z a vector of demand shifters.

(1) $$P^1 = P^1(Q^1, Q^2, Z)$$

and

(2) $$P^2 = P^2(Q^2, Q^1, Z)$$

Let e^k represent the exchange rate between the importing country and exporter k. C^k, $W^k$and V are competitor k's cost function, a vector of k's cost shifters, and a vector of cost shifters relevant for all exporters, such as price volatilities respectively.

The supply of both exporting countries is determined by the optimality condition for profit maximization:

(3) $$MR^1(Q^1, Q^2, Z) = e^1 \cdot MC^1(Q^1, W^1, V)$$

and

(4) $$MR^2(Q^2, Q^1, Z) = e^2 \cdot MC^2(Q^2, W^2, V)$$

The residual demand function for exporting country $k = 1$ is derived by simultaneously solving equation (2), with the profit maximization in equation (4). Substituting the residual demand for exporting country $k = 2$ into equation (1) yields the expression:

(5) $$P^1 = R(Q^1, e^2, W^2, V, Z)$$

The exported quantity on the right-hand side needs to be instrumented.

Equation (5) can be estimated in a reduced double logarithmic form (Goldberg and Knetter, 1999):

(6) $$\ln P^k = \lambda + \eta \ln Q^k + \grave{\alpha} \ln Z + \grave{\beta} \ln e^n + \grave{\gamma} \ln W^n + \grave{\vartheta} \ln V + \varepsilon$$

Where:

η: the market power.

$\grave{\alpha}$: coefficients of demand shifters,

β' and $\grave{\gamma}$: coefficients of cost shifters, determining degree of competition.

$\grave{\vartheta}$: coefficients of price volatilities of exporting countries, revealing the impact of price volatilities on exporter's market behavior.

The price and price volatilities are estimated using Autoregressive and GARCH models respectively.

Results	***100 – 250 words***

The estimated results of RDE model for Canadian pork export indicate that Canadian exporters are price takers and Chinese pork market is competitive. The estimated parameter is close to zero and statistically not significant. The estimated coefficients for cost shifters β' and $\grave{\gamma}$ reveal that Canadian exporters strongly compete with Spain exporters in Chinese pork market, but not with Brazilian, US, and German exporters. The estimated coefficient of price volatilities $\grave{\vartheta}$ demonstrate an increase in the market power of Canada following heightened volatility in the Canadian pork market. Additionally, the estimation results highlight a significant and positive impact of the Canadian price volatility on the export prices of Germany.

Discussion and Conclusion	***100 – 250 words***

This study illuminates the intricate relationship between export price volatility and market power in the context of major pork exporters, Canada and Germany.

Our investigation into the impact of price volatility on the behaviour of exporter countries in the pork industry unveils noteworthy findings. The results of the study highlight a strategic behavior among Canadian pork exporters during periods of price volatility. Specifically, it indicates that Canadian exporters are adept at leveraging these fluctuations to their advantage. When faced with increased volatility in export prices, Canadian pork exporters take proactive measures to influence the pricing of their products. This suggests a level of adaptability and responsiveness in the Canadian pork export market.

Moreover, the study suggests that this influence on pricing doesn't occur in isolation. The findings indicate that competitors in the same market also reap benefits from the heightened price volatility in their competitor's (in this case, Canada's) market. This interplay demonstrates a connected and responsive global market where changes in one country's export prices can have a cascading effect on competitors in other countries.

References	

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