Fluctuations in the exchange rate can impact an exporter’s pricing behavior. By creating a wedge between the price set by the exporter and the price paid by the importer, exchange rates can be used as an instrument of price discrimination. Such practices can violate the spirit of much antitrust law and can lead to allegations of international dumping. The idea that an exporter can adjust destination-specific markups to accommodate changes in exchange rates has been termed “pricing-to-market” (PTM). In the 1980s, an empirical model was developed to analyze the presence of PTM. Due to its simplicity and use of data that is easy to access, the model has been used extensively to determine the presence of price discrimination in international trade.

Since market- or customer-specific price information usually is confidential, most PTM studies use export unit values as the price variable. Using trade data collected by customs officials, export unit values are calculated as the ratio of value to volume of exports for a specific product category and destination country. The disadvantage of unit values is that they often aggregate data on products that, while close substitutes, may be employed for different uses. For example, the code 1001 represents “wheat and meslin,” which encompasses durum wheat (100110), seed (100111), other (100119), and seed, white, other (100190). Thus, the 100190 code includes wheat used for bread, cake, and cookies, end products that require different types of wheat. Bread requires hard wheat, while cake and cookies use soft wheat. Most studies examining for the presence of PTM do not first investigate whether the necessary conditions for price discrimination hold. Thus, findings attributed to price discrimination might instead indicate product differentiation and/or data aggregation problems.

Since the PTM technique is widely used to identify the presence of imperfect competition in international trade, it is important to identify instances where false PTM results are generated and quantify the extent of measurement error. Such findings are important for policy since PTM can affect the international transmission of monetary fiscal policy, increase exchange rate volatility, lead to dumping allegations, and be used in evaluating policy decisions, such as the elimination of the Canadian Wheat Board as a single-desk exporter of Canadian wheat.

**PSEUDO-PTM**

The FSRG-funded study examined the extent to which a false detection of PTM (pseudo PTM) arises from using export unit values. We analyzed two scenarios, both of which involved a monopolist located in the home country producing both a low- and high-quality variety of a good. The monopolist’s objective is to maximize profit by the way he or she chooses prices. In the first scenario, price discrimination is not possible because consumers in the low-price country...
can costlessly resell the good to consumers in the high-price country. Thus, the monopolist charges the same price for both varieties in both markets. In the second scenario, markets are segmented because transactions costs are such that reselling is not possible, and the monopolist price discriminates between the two markets—in other words, prices to market.

When analyzing these scenarios, we found pseudo PTM in both. When the monopolist charges the same price for both varieties in both markets because resale of the good is possible, findings of PTM are spurious. When markets are segmented, however, the findings represent a combination of real and pseudo PTM. Moreover, pseudo PTM is found even when the firm has no market power, in other words, is unable to raise price above cost, a situation under which price discrimination is impossible. Pseudo PTM occurs because movements in the exchange rate alter the product-quality mix sold to each market, thus affecting the unit values, even when the prices to the two markets are identical by variety. For both scenarios, we determined that product differentiation increases the extent to which results are biased by pseudo PTM, thus increasing the likelihood of false detection of PTM in empirical work.

**TOWARD A MORE EFFECTIVE MODEL**

PTM findings have been interpreted as evidence of price discrimination and market power, without explaining the source of market segmentation or market power. In general, there is lack of justification for the examination of imperfect competition and price discrimination among PTM studies focusing on food and agricultural products. Our research suggests that the prevalence of PTM findings in the literature could be attributed to the use of unit values aggregating differentiated products. The results emphasize the need for future studies to (1) investigate the plausibility of market power in international trade of the product of interest, (2) evaluate the level of differentiation present in the export unit value data for the product category chosen, and (3) interpret the results accordingly.

Alternatively, more confidence can be placed on results obtained using disaggregated data for which there are reasons to believe exporters have market power in the international market—for example, they produce a differentiated product relative to other countries’ products, exports are conducted by a large entity such as a state-trading firm, or the exporter has a large world market share. Such caution is especially important when results are used for policy purposes.

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**FINDINGS**: False PTMs are due to unit value data that aggregate products used for different purposes. Directions for future research might include finding ways to mitigate pseudo PTM and analyze pseudo PTM in other settings.

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