

PUBLIC VERSION

OFFICE OF ECONOMICS



UNITED STATES INTERNATIONAL TRADE COMMISSION

WASHINGTON, DC 20436

October 22, 2001

MEMORANDUM

EC-Y-042

TO: Commissioner Bragg

THRU: Robert B. Koopman *CBD for RBK*
Director, Office of Economics

FROM: Catherine B. DeFilippo *Catherine B. DeFilippo*
Chief, Applied Economics Division

SUBJECT: Investigation No. TA-201-73 *Steel*

Per your request, attached is additional information concerning the econometric models submitted in this investigation.

Attachments

cc: The Commission

Assessment of Econometric Submissions on Flat Rolled Steel

Summary

The main points of our assessment of the submissions by Hausman and Prusa on Flat Steel can be summarized as follows:

- Both showed some statistical evidence that import competition in hot-rolled steel was related to the decrease in the hot-rolled domestic price. The magnitude of this effect relative to other factors was not addressed in a statistical manner.
- Neither showed strong statistical evidence that cold-rolled steel imports were a major determinant of the domestic cold-rolled price decline.
- Neither showed strong statistical evidence that galvanized steel imports were a major determinant of the decline in domestic galvanized prices.
- The effect of domestic competition on domestic price was not measured at all in Hausman's submission and measured only weakly in Prusa's submission.
- Both showed some statistical evidence that lower domestic prices in upstream markets resulted in lower domestic downstream prices. However, economic theory does not suggest that a downstream price decrease caused by an upstream price decrease is harmful to the downstream producer. Instead, it is likely associated with a decrease in downstream production costs, increased production, increased employment, and higher profit margins for downstream industry.

General Assessment

Hausman

Hausman's three major claims are (i) imports were the most important determinant of the decline in domestic hot and cold-rolled flat steel products, while demand conditions, factor prices, and capacity utilization¹ had secondary impacts; (ii) imports had a lagged effect on prices, lasting 12 to 18 months; and, (iii) an import increase of one product depresses not only the price of that product but the prices of other products, due to "supply-side substitution."

Prusa

Prusa submitted separate analyses for hot-rolled, cold-rolled, and galvanized steel products. To summarize Prusa's submissions, he found (i) evidence that changes in hot-rolled import prices and volumes lead to decreases in hot-rolled domestic prices, but the magnitude of the decline was more important for other determinants, such as lower auto production, lower scrap prices, greater capacity, and greater mini-mill market share; (ii) no evidence that cold-rolled import prices and volumes had a statistically significant effect on cold-rolled domestic prices, while lower auto production, lower hot-rolled prices, and greater *** market share were more important determinants; and, (iii) no evidence that galvanized import prices and volumes had a statistically significant effect on galvanized domestic prices, and there is evidence that the main determinants were capacity and cold-rolled prices.

¹A separate analysis incorporating capacity utilization was included in a post-hearing brief.

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Assessment

Hausman's import effects are larger than those of Prusa for a few reasons. First, Hausman interprets upstream-downstream price effects differently than does Prusa. Second, Hausman measures concurrent and past effects of imports. Third, Hausman does not measure the effect of domestic competition. Fourth, they each use a different measure of domestic price—Hausman uses an average price over a range of products for two firms and Prusa uses average unit values over a range of products for the entire industry. Lastly, Hausman and Prusa use different measures of import competition.

Specific Concerns and Technical Details

Conceptual Frameworks

One concern of Hausman's conceptual framework relates to interpretation. Specifically, Hausman interprets the profit margin on an upstream product to measure the "opportunity cost" of downstream production, i.e., a decline in the hot-rolled steel margin encourages the firm to shift away from merchant market sales and towards captive consumption for downstream production. However, price suppression in the downstream market caused by a lower upstream margin is not necessarily harmful to the producer.

Prusa has no formal model but argues informally that "massive" increases in domestic capacity, primarily by low-cost mills, have driven down prices. A weakness in this assertion is that capacity is generally not a proximate cause of price changes, and without a formal conceptual model, the argument cannot be duly assessed.

Main Sources of Domestic Price Variation

Ideally, a model developed for this type of case would explicitly measure the four main sources of variation in domestic prices:

- demand variation
- cost variation
- variation in domestic competition
- variation in foreign competition.

Below we discuss how Hausman and Prusa attempt to account for these determinants of price variation.

Econometric Models

In Hausman's econometric model, prices of *** are dependent variables, which has the advantage of using firm-level prices. The disadvantage is that these firms may not be representative of the industry. Independent variables that are used to explain the domestic price are domestic shipments, variable costs, margins on other flat products, and a ratio of imports to domestic shipments ("RATIOCOM"). Variable costs and margins account for cost variation, but RATIOCOM and domestic shipments must explain the remaining variation: demand, domestic competition, and import competition. RATIOCOM is not a clean measure of import competition, and domestic competition is not really measured at all. Thus, there appears to be no distinction among three (demand, domestic competition, foreign competition) of the four main determinants of price variation in Hausman's econometric model.

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In Prusa's econometric model, the average domestic price is the dependent variable, and the explanatory variables include input prices, such as upstream prices, and cost-related capacity. These variables measure cost variation. Another explanatory variable is auto production, which measures demand variation, and price and quantity of imports, which is a measure of the effect of imports. In the hot-rolled analysis, capacity utilization and the interaction of scrap prices and mini-mill market share measure domestic competition. In the cold-rolled analysis, two measures for domestic competition are used: the share of *** and a dummy variable (0/1 variable) for the ***. However, the extent to which these variables measure domestic competition is unclear. The *** dummy variable coincides with the rise in imports, and the market share of *** is inversely related to domestic price by definition. There does not seem to be a justification for these variables as being best measures of domestic competition. Thus, Prusa's econometric model clearly captures the four main determinants of domestic price; however, the main argument that domestic competition was the biggest source of domestic price decline is only weakly supported by the empirical results.

Inference

Neither author provides statistical evidence that the effect from import competition on domestic price was significantly greater than the effect of the other factors included in their analysis. Specifically, Hausman did not provide evidence that the effect of import competition was significantly greater than the effect of the other factors. This uncertainty is compounded as the effect of hot-rolled moves downstream to cold-rolled and galvanized. Prusa did not provide evidence that the effect of import prices and volumes was significantly less than the other factors.