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AN INVESTIGATION OF THE TRADE EFFECTS OF ANTIDUMPING AND COUNTERVEILING ON CHINESE EXPORTS OF SOLAR PANELS TO THE UNITED STATES

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EXECUTIVE SUMMARY

**Introduction:** Under increased strain from competition, US solar panel manufacturers successfully petitioned the U.S. Department of Commerce to undertake trade remedies. Consequently, in 2015 anti-dumping (AD) and counter-vailing (CV) duties on Chinese and Taiwanese solar panel imports were introduced with the intention of offsetting what American producers claimed to be unfair trade practices from Chinese and Taiwanese manufacturers. This investigation seeks examine the trade effects of the AD/CV duties placed in 2015. Particularly, whether there is evidence of AD/CV duty evasion through trade rerouting (a method of changing a product’s certificate of origin to circumvent duties).

**Motivation:** The energy sector plays a critical role in Wyoming’s economy and solar energy is an increasingly important part of Wyoming’s energy portfolio. With solar energy’s role only becoming more important in the coming years it is important to understand the nature of the market and domestic companies’ foreign competitors. Furthermore, Chinese and Taiwanese-made solar panels are likely to become increasingly important as they continue to lower costs and outcompete other manufacturers.

**Data and Methods:** The data used for this project was compiled from multiple sources. The trade data showing the value of trade and the duties paid in a given year were acquired from the US Census Bureau. This was then merged with the variables GDP and GDP per capita from the World Bank’s World Development Indicators dataset. Using the dates of the AD and CV duties (acquired from the federal register), additional variables were made to create an interaction term that would capture whether or not there is evidence of trade rerouting. Resulting in a panel dataset with 9417 observations of 21 variables.
**Results:** This investigation did not find statistically significant evidence of trade re-routing or of an impact from the duties placed on Chinese and Taiwanese solar panel imports. The fixed-effects regression model did not find evidence of trade rerouting via the interaction terms, returning negative coefficients for both with no significance within the 90% confidence level.

The only statistically significant variable (at the 99% confidence interval) found was a positive relation between the percent value of a duty (not the trade remedies) and the amount traded. This is contrary to what one would expect and could be the result of inaccuracy in the US Census Bureau’s data on duties paid (as some of it may not always be recorded). Furthermore, the model demonstrated an adjusted R^2 of 0.021, suggesting that the variable captured very little variance.

It can be concluded that there is no statistically significant evidence of Chinese or Taiwanese trade rerouting of solar panels per this investigation.

**Further Exploration:** The results of this investigation suggest that a gravity model of trade may not be a particularly insightful model when investigating solar panel imports. Consequently, if one were to conduct further research, an investigation of other variables may be more informative when analyzing US imports of solar panels. Additionally, one could further expand on the trade rerouting analysis through a closer investigation of third countries.

**Takeaways:** Through this undergraduate research experience, I acquired skills in data collection and the research process. The data had to be sourced from multiple datasets and combined into a singular cohesive dataset. This effort required reconciling different databases. Most of this was done in R and consequently, my skills in using R for statistical analysis greatly improved.
Additionally, I learned what it takes to develop a project, research, and conduct analysis. While my project did not return statistically significant values, I learned how to conduct and construct a fixed-effects model.