

The effectiveness of the 2008 Lacey Act Amendment in curbing the global flow of illegal wood: an assessment using trade data discrepancies¹

Abstract

Discrepancies in trade statistics can be normal or benign and attributed to a wide variety of unintentional factors or can be associated with systemic factors that distort trade statistics including (i) measurement and shipment issues, (ii) misreporting of product volumes, (iii) misclassification of product types, and (iv) government regulations controlling trade. This study measured trade discrepancies in log and lumber trade statistics for China and its trading partners from 2002 to 2018 using a time-lagged function based on customs data available from Global Trade Information Services. The study aimed at exploring a more nuanced understanding of trade discrepancies and their systemic factors. The results showed that the range of overall discrepancies in log and lumber trade statistics shrunk since the implementation of the U.S. Lacey Act Amendment in 2008 aimed at restricting importation of illegal wood. The trade data discrepancy factor shrunk by 60% between the pre-Lacey Act Period (2002–2007) and the post-Lacey Act period (2013–2018). Larger trade flows of logs and lumber from Russia, New Zealand, and the U.S. (each above 10% of China’s total imports) showed small discrepancy ratios, less than ± 0.06 . However, trade discrepancies remained large at the disaggregated level, with significant differences between tropical and non-tropical countries. The range of trade discrepancies in hardwood logs increased from 2002 to 2018 and appears to be attributed to misclassification and misreporting in tropical countries.

Objectives and Methodology

The study hopes to fill a gap in the literature by attempting to isolate both the unintentional and intentional factors behind identified discrepancies and provide an account of the reasonable explanations and incentives for trade discrepancies. By doing so, this study hopes to add to our collective ability to effectively interpret, control and reduce discrepancies in timber trade and improve the accuracy and reliability of trade data. Accordingly, the three objectives of this study are:

1. To develop the time-lagged function in order to estimate timber trade discrepancies, after adjusting for measurement and transshipment factors;
2. To summarize the characteristics and trends of discrepancies in log and lumber trade statistics and analyze the possible factors contributing to large discrepancies;
3. To discuss the possible factors that may impact the occurrence and scale of trade discrepancies, like international trade policies and regulations.

This study examined trade volumes in cubic meters using six-digit level HS codes for logs and lumber products. The study used the discrepancies measure presented based on a time lagged trade discrepancy measure proposed by Ferrantino et al. The model used the natural logarithm

¹ An excerpt from the paper titled: “Sustainable Timber Trade: A Study on Discrepancies in Chinese Logs and Lumber Trade Statistics” by Fei Liu, Kent Wheeler, Indroneil Ganguly and Mingxing Hu, Published: 12 February 2020, in *Forests*; doi:10.3390/f11020205, www.mdpi.com/journal/forests

of the ratio of imports and time-lagged exports as the trade discrepancy measurement. The time-lag factor and time-lagged exports are used to estimate the discrepancy ratios.

Results and Discussions

The Lacey Act Amendment of 2008, a US trade legality legislation, was enacted to curb the global flow of illegally obtained timber products by reducing demand. This legislation included, for the first time, any tree species illegally obtained in the country of origin and any wood or paper product containing illegally obtained tree material. In 2013, a similar trade legality legislation, FLEGT, was implemented by the European Union. The study period used in this paper was divided into three sections, (i) pre-Lacey Act 2002-2007, (ii) post-Lacey Act 2008-2012, and (iii) post-Lacey and FLEGT 2013-2018.

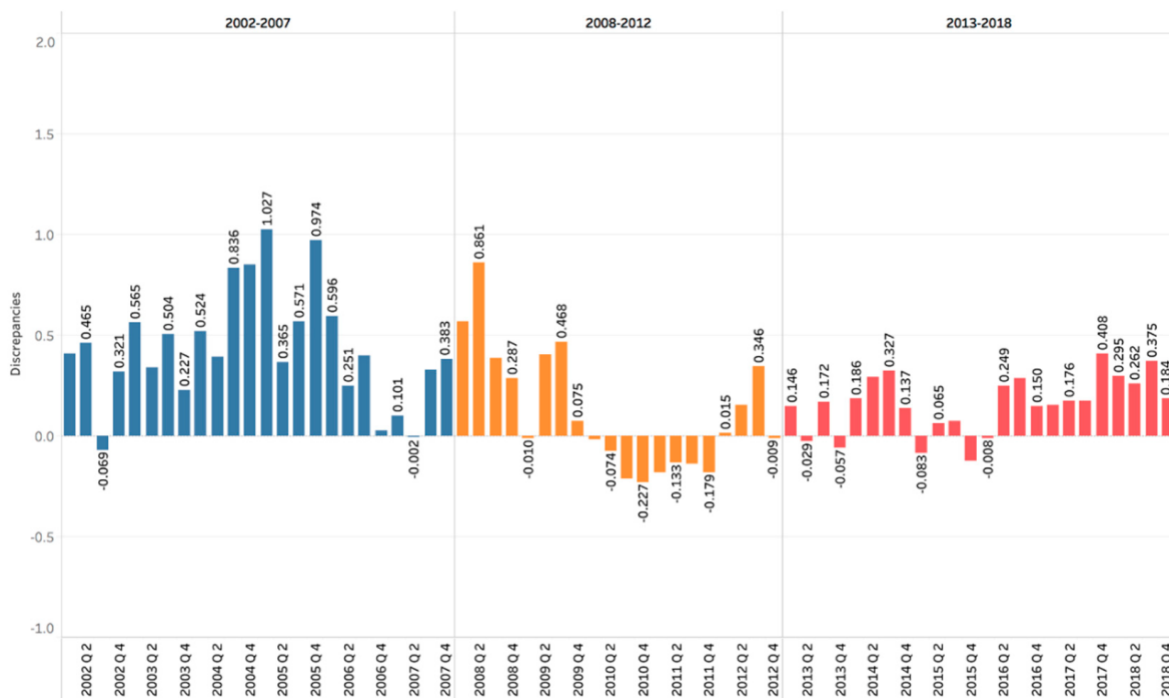


Figure 1: Trade discrepancy ratios for logs and lumber

Discrepancy ratios in bilateral trade statistics around or close to zero indicate good or normal recording by both importing and exporting countries. The zero line indicates that the export recorded data completely matched the import recorded data. As can be observed in Figure 1, discrepancies were observed mostly above the zero line in 2002–2007, falling within the range of –0.069 and 1.027, indicating that China and its partner countries had large trade discrepancies with the export data under-reported or import data over-reported. After 2008, during the post-Lacey act period, the discrepancy ratios move downward and fall within the range of –0.227 and 0.861 during 2008–2012, tightening even further between 2013–2018 (post-Lacey and FLEGT period) within the range of –0.120 and 0.408.

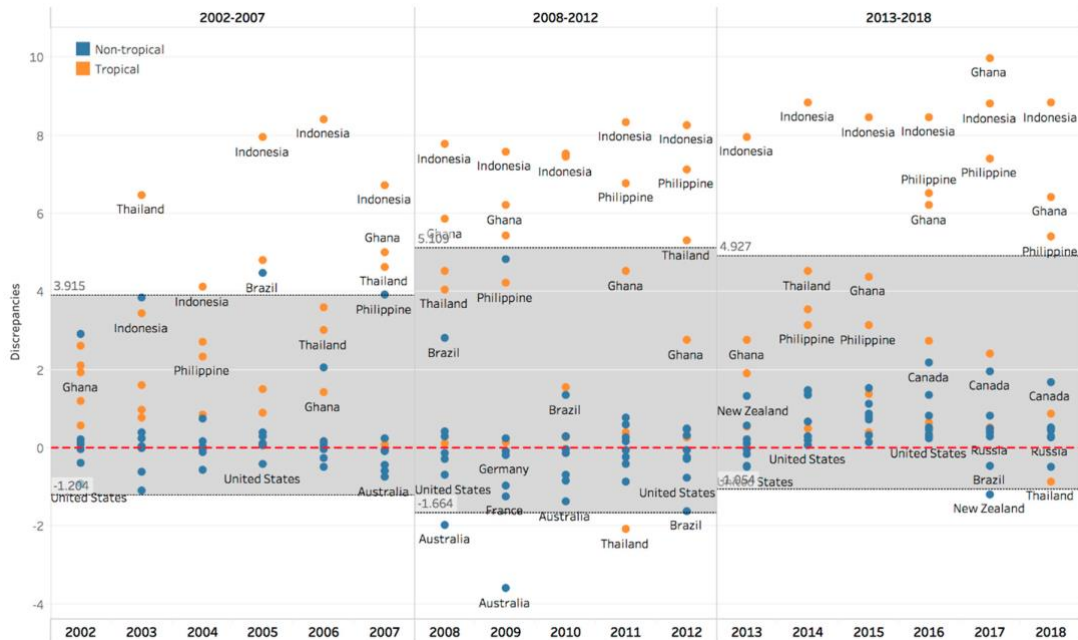


Figure 2: Trade discrepancy ratios for hardwood logs

The distribution of discrepancies in logs trade statistics across countries is fragmented and extremely scattered. For tropical logs, 96% of trade discrepancies are above the zero line, indicating that the selected tropical countries under-reported their exports of hardwood logs or China over-reported their import data. As can be observed in Figure 2, Indonesia and Ghana had the highest discrepancies. On the other hand, trade discrepancies in temperate hardwood logs and softwood logs were narrowly distributed and fluctuate around the baseline. The largest suppliers of softwood logs – New Zealand, Russia, and the U.S. – did not exceed the “normal” range of discrepancies. For hardwood lumber, again Indonesia and Ghana had the highest discrepancies, although the ratios of discrepancy have shrunk considerably over time. As with softwood logs, softwood lumber discrepancies were narrowly distributed and fluctuate around the baseline.

Though overall wood trade discrepancies improved significantly since the implementation of the U.S. and European trade legislations, trend analyses and statistical tests indicated that there are still large discrepancies at a disaggregated level. The discrepancies are especially acute for hardwood logs imported from tropical countries. It may be noted that most of these potentially illegally traded hardwood species are consumed locally within the Chinese domestic market, so are not impacted by the U.S. or European trade legality legislations. Misclassification and misreporting are considered to explain a significant proportion of the large positive trade discrepancies in Southeast Asian and African countries. These countries reported much lower export values than China reported as imports.