Discrepancies in Forest Products Trade Statistics: with China as the importing hub

Presented by
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Overall Goal

The goal of the study is to develop a pragmatic understanding on how illegal timber and forest products move through the global supply chain, by identifying the key supply chain nodes within the remanufacturing and redistribution hubs, like **China** and Vietnam.
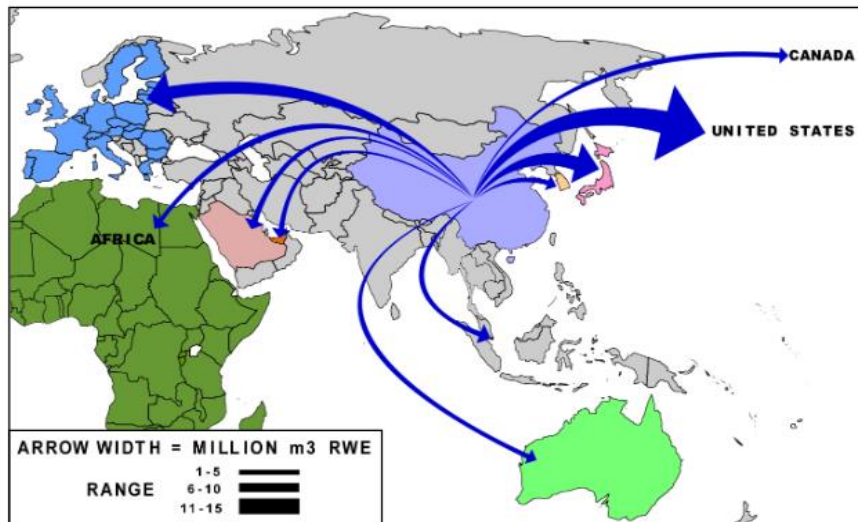
**China's imports of logs and lumber**
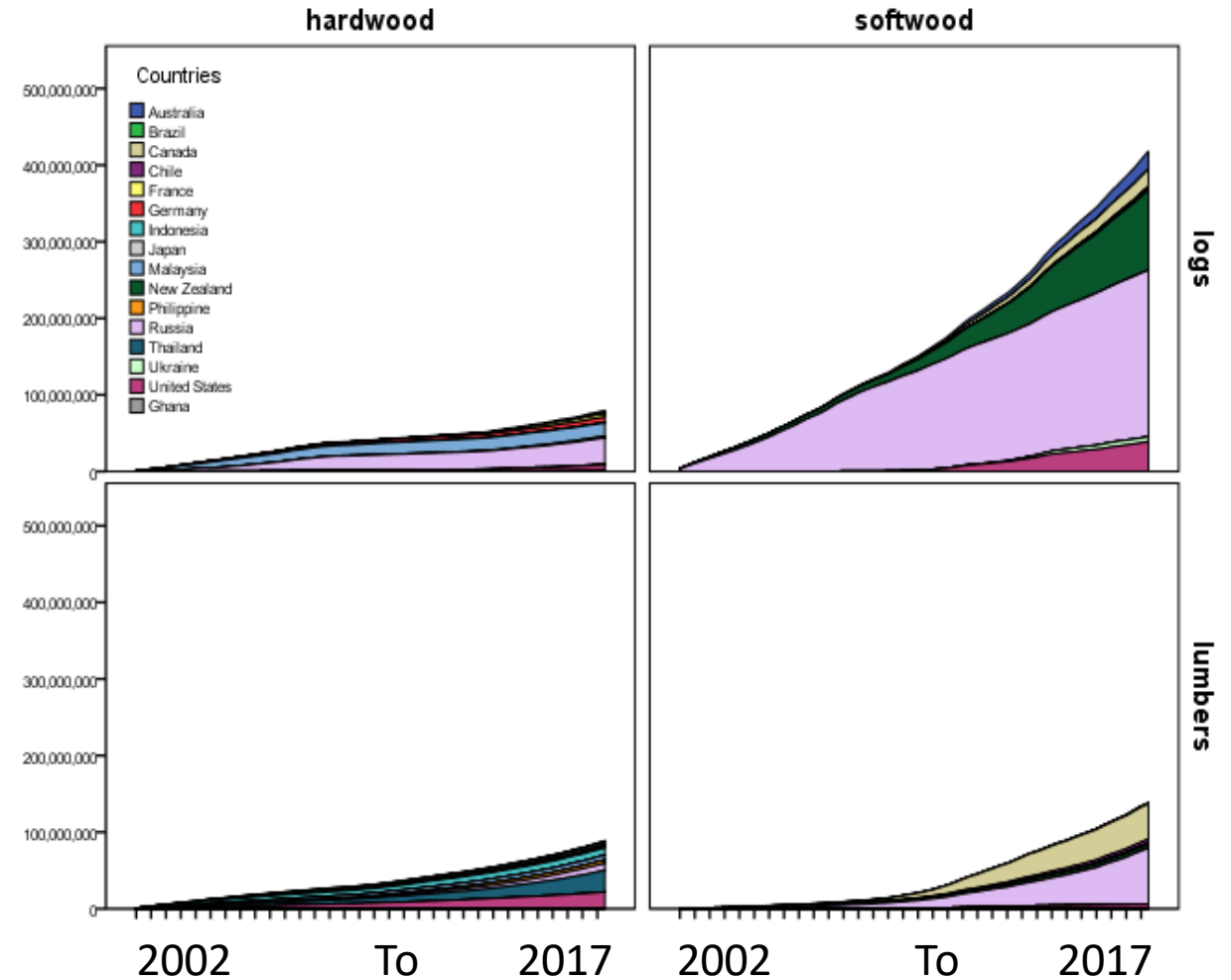
Estimating Illegal Logging and Associated Trade

Two common methods for estimating illegal logging and wood products trade are wood balance analysis and import source analysis (IURFRO 2016).

1. **Wood balance analysis** compares timber inputs (production plus imports) and outputs (consumption plus exports). Where a deficit emerges and cannot be otherwise explained, it is interpreted as an indication of illegality.

2. **Import source analysis** multiplies estimated illegal logging rates in source countries by trade volumes.

3. A more **objective import source analysis** – using _trade data discrepancies_. (i.e., the mismatch between the data reported by the exporting country to that of the importing country.)

What are Trade Statistic Discrepancies

Discrepancies in trade statistics are generally termed as **'normal/benign',** and are attributed to a wide variety of <u>intentional and unintentional factors</u>.

Softwood lumber (m3): Canada to China
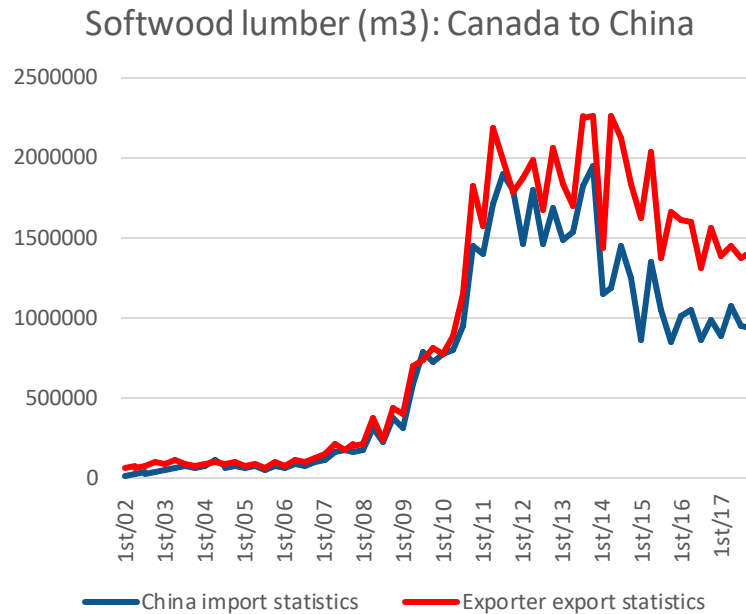
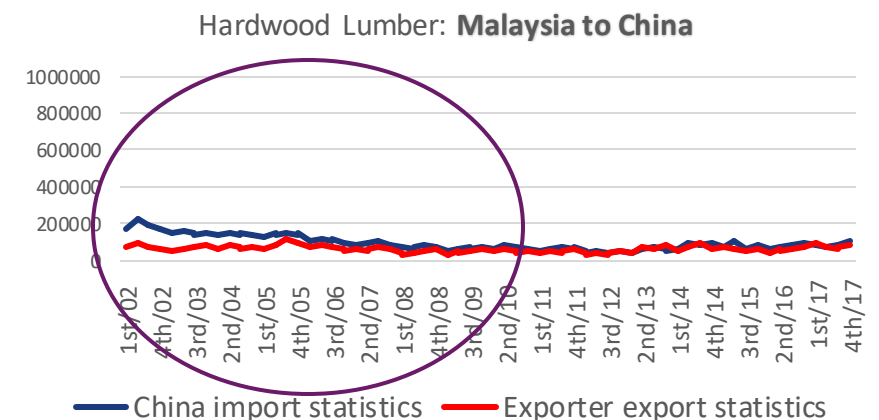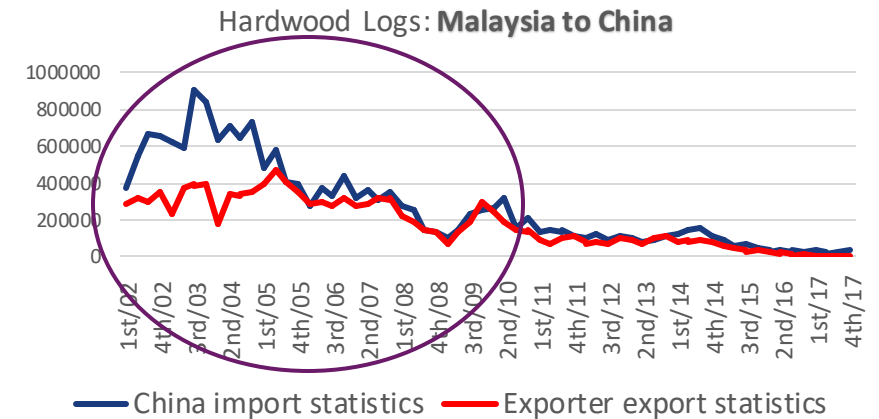For example: Unit conversion issues from Scribner Scale to Metric Scale

What are Trade Statistic Discrepancies

Discrepancies in trade statistics are generally termed as 'normal/benign', and are attributed to a wide variety of intentional and unintentional factors.

However, in some instances within the forest products sector, such discrepancies cannot be justified as 'normal', and can be associated with <u>systemic factors that distort the trade statistics</u>, including,

I.   illegal smuggling that avoids detection at the source country

II.   underreporting of export volumes

III. misrepresenting product types and product volumes

IV.   misreporting of timber species

Hardwood Logs: **Malaysia to China**
— China import statistics   — Exporter export statistics

Hardwood Lumber: **Malaysia to China**
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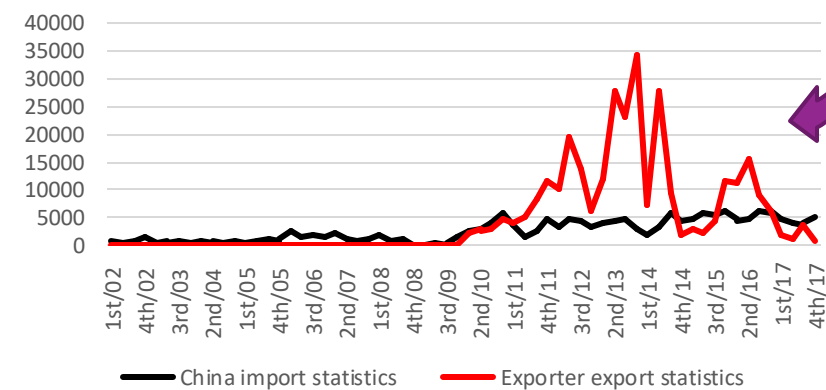
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Hardwood Logs (m3): Ghana to China

China import statistics — Exporter export statistics
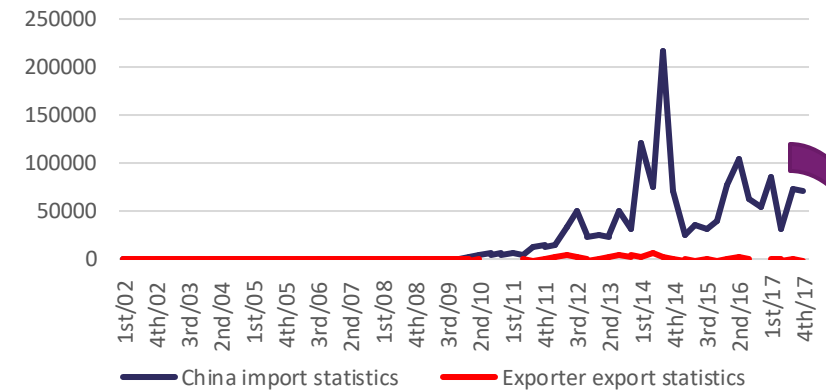
Hardwood Lumber (m3): Ghana to China

China import statistics — Exporter export statistics

How we calculated the discrepancies

To be able to calculate true data discrepancies, we factored in lag factors, transportation time.

1. We calculated a time lagged "new" export data X_{it}^* using Eq.(2) from ith country to China, which should equal the imports (M_{it}) reported by China for the same period from the same country.

2. Then we calculated the discrepancies using the logarithm of the ratio, as in equation 4.

$l_{it} = \left(\frac{M_{it+1}}{M_{it}}\right)^{\frac{T}{3}} - 1$ (1) --- Lag factor

$X_{it}^* = X_{it} * (1 + l_{it})$ (2)

The equation about discrepancies is,

Where, M_{it} is the imports reported by China from exporter i; X_{it} is exports reported by country 'i' to China; I represents export country; t represents quarter; T represents transportation time period in month.

Non-lagged discrepancies is represented in Eq.(3), according to M.J. Ferrantino et al.(2012).

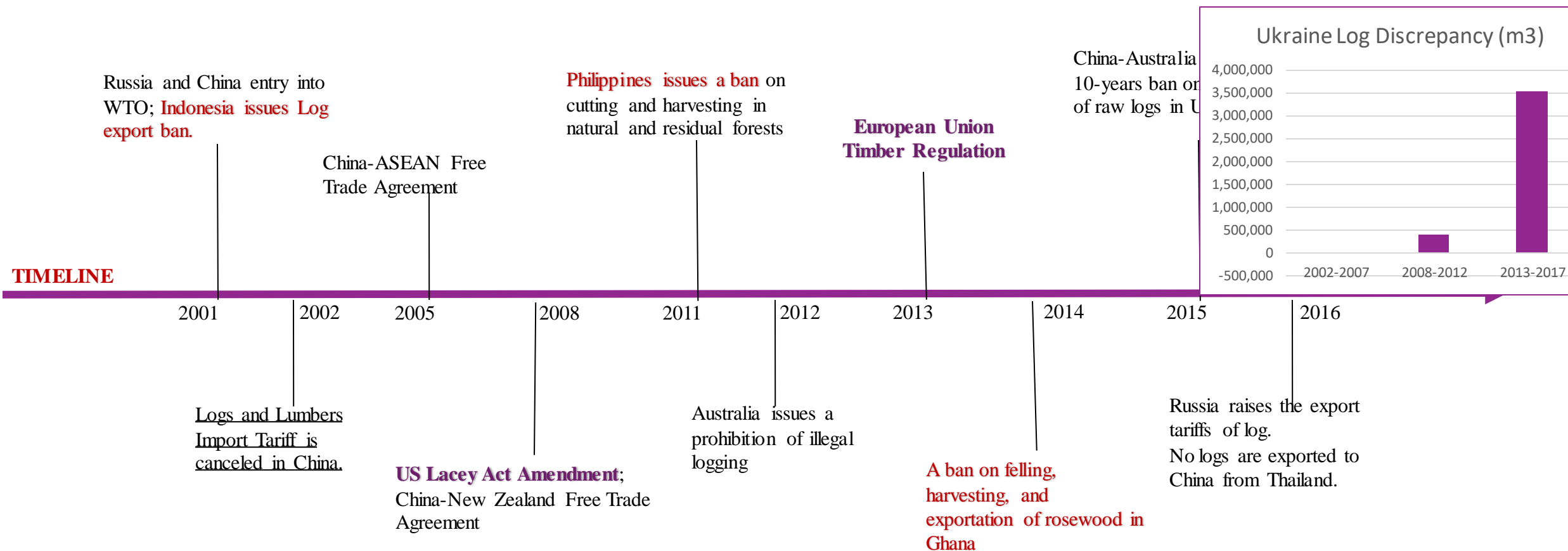$D_{it} = \ln(\frac{M_{it}}{X_{it}}) = \ln(M_{it}) - \ln(X_{it})$ (3)

Then, we use the time lag factor to adjust the export data and the original transformed to Eq.(6).
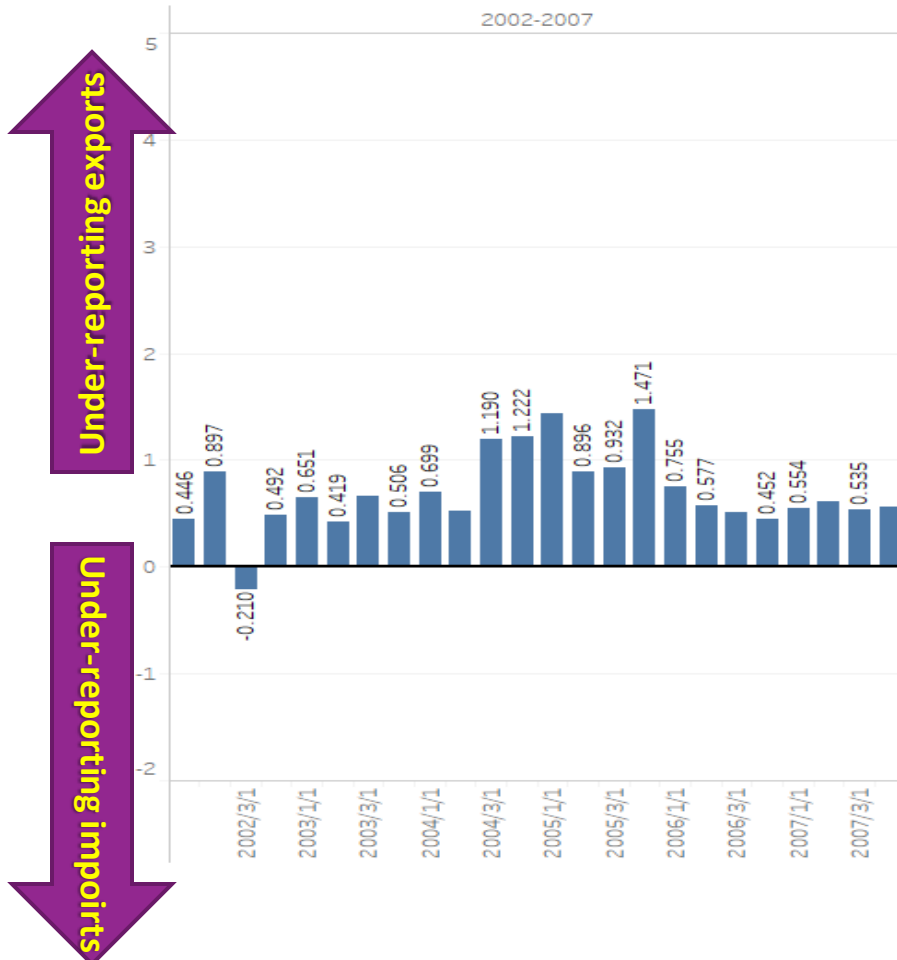
$D_{it} = \ln(M_{it}) - \ln(X_{it}^*)$ (4)

$D_{it} = \ln(M_{it}) - \ln(X_{it} * (1 + l_{it}))$ (5)

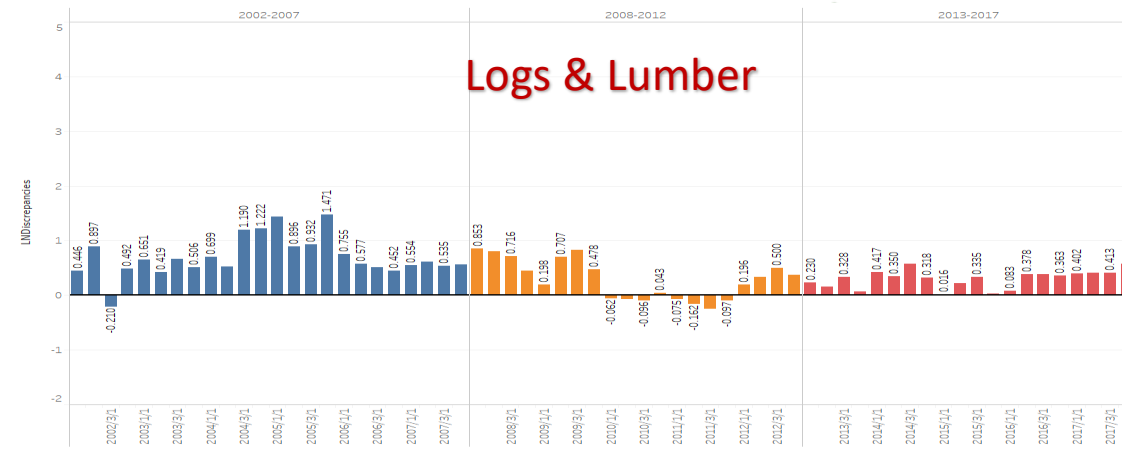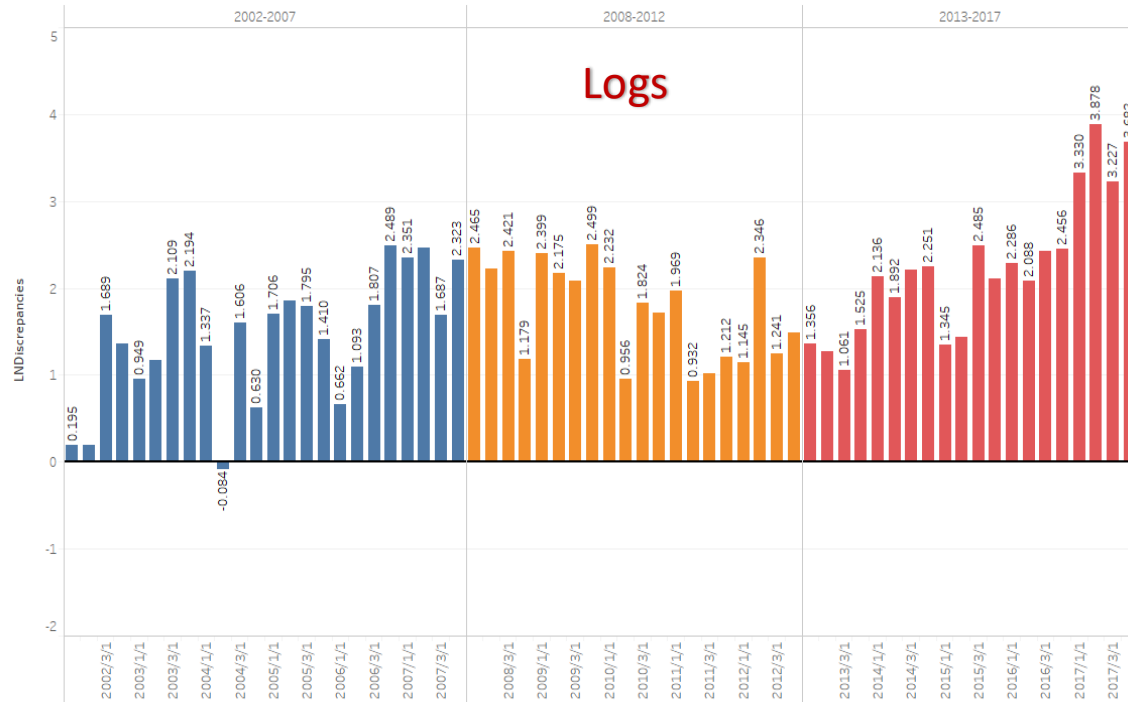$D_{it} = \ln(M_{it}) - \ln\left(X_{it} * \left(\frac{M_{it+1}}{M_{it}}\right)^{\frac{T}{3}}\right)$ (6)

Some aspects of forest trade timeline

Russia and China entry into WTO; Indonesia issues Log export ban.

China-ASEAN Free Trade Agreement

Philippines issues a ban on cutting and harvesting in natural and residual forests

European Union Timber Regulation

China-Australia 10-years ban on of raw logs in U

Ukraine Log Discrepancy (m3)

4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
-500,000
   2002-2007   2008-2012   2013-2017

TIMELINE

2001   2002   2005   2008   2011   2012   2013   2014   2015   2016

Logs and Lumbers Import Tariff is canceled in China.

US Lacey Act Amendment; China-New Zealand Free Trade Agreement

Australia issues a prohibition of illegal logging

A ban on felling, harvesting, and exportation of rosewood in Ghana

Russia raises the export tariffs of log.
No logs are exported to China from Thailand.

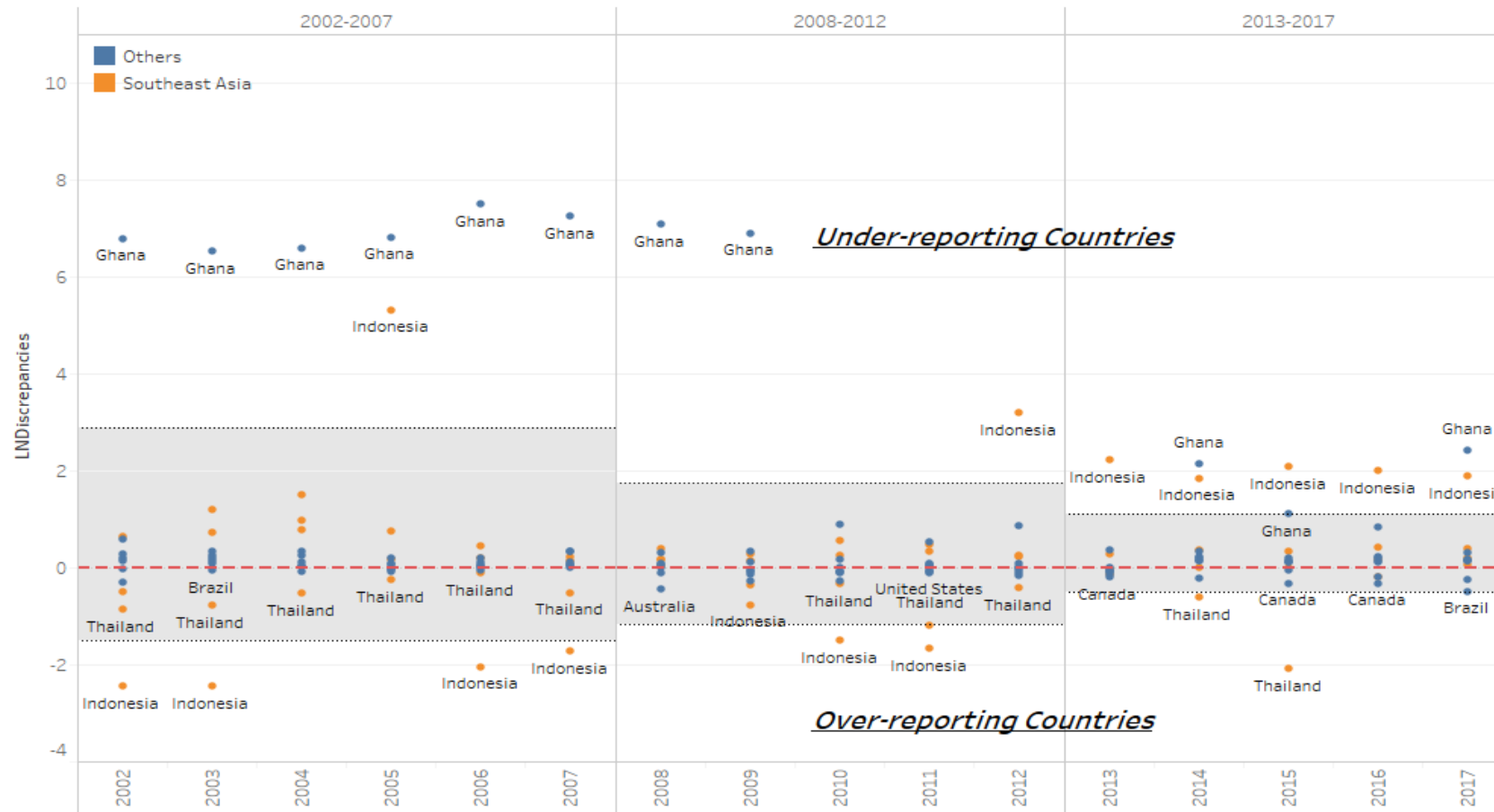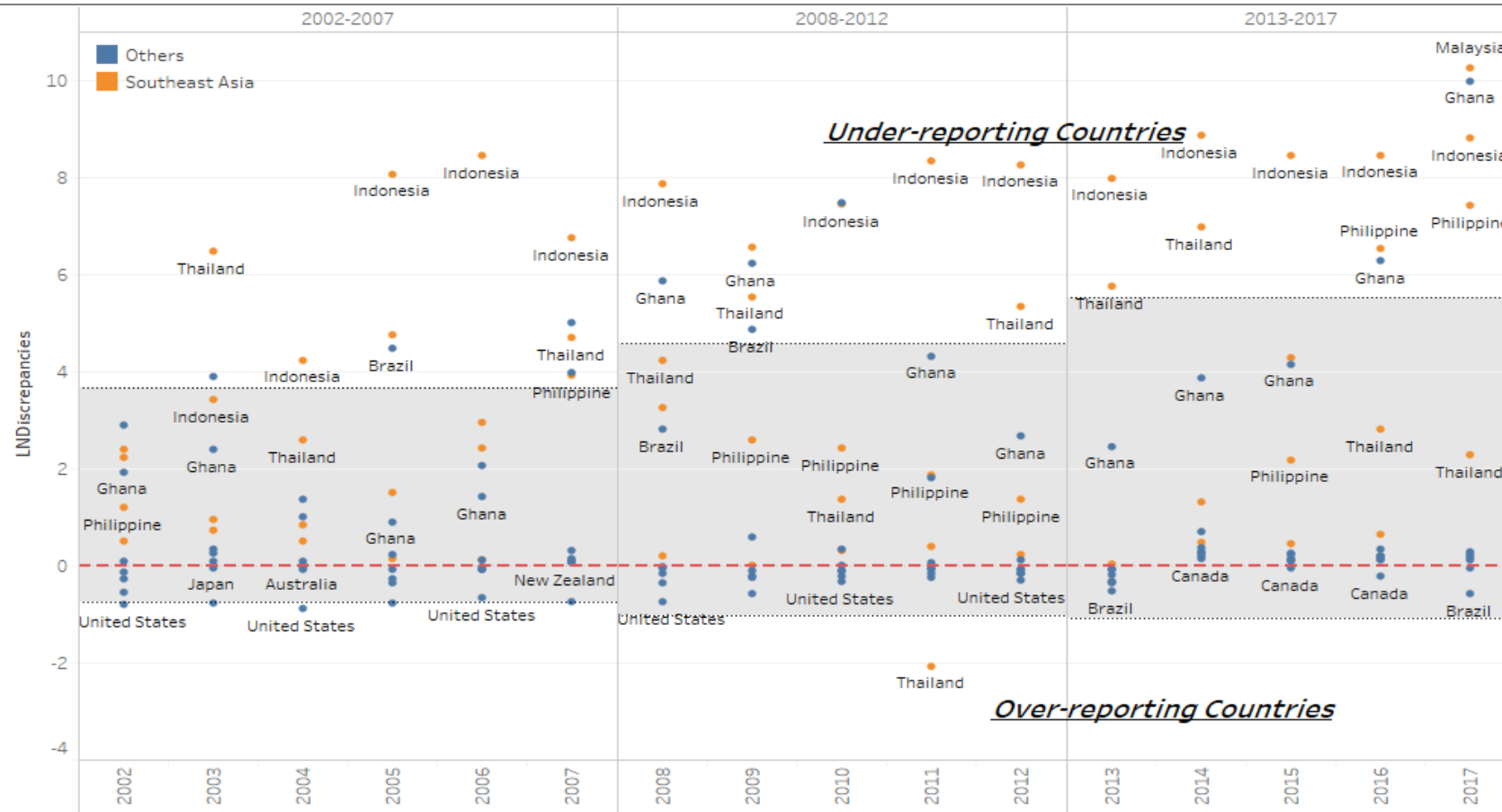# Discrepancies in Logs & Lumber trade statistics and its partner countries

Discrepancies in Logs & Lumber trade statistics and its partner countries
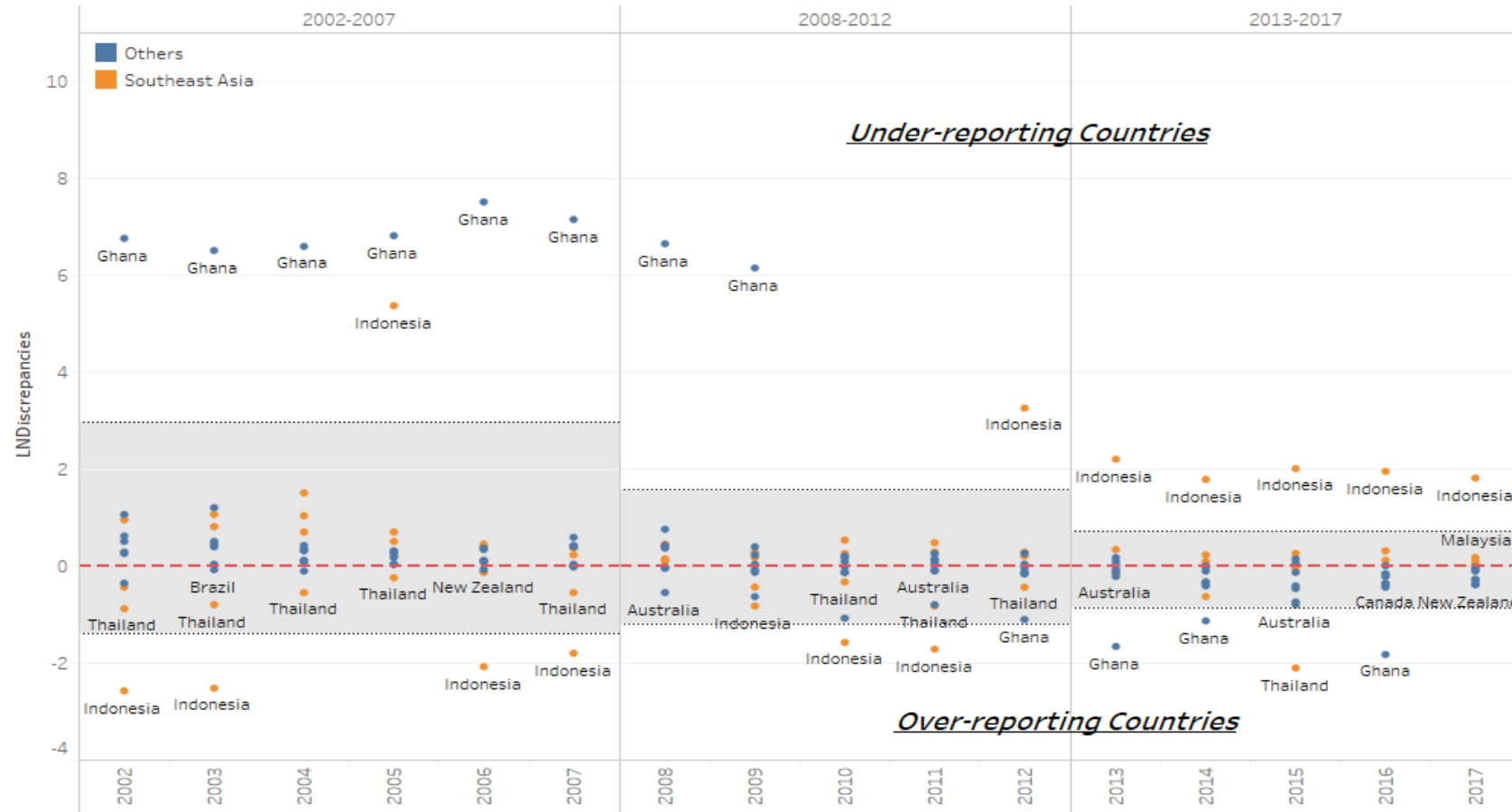

Logs & Lumber

Logs

Discrepancies in Logs & Lumber trade statistics and its partner countries

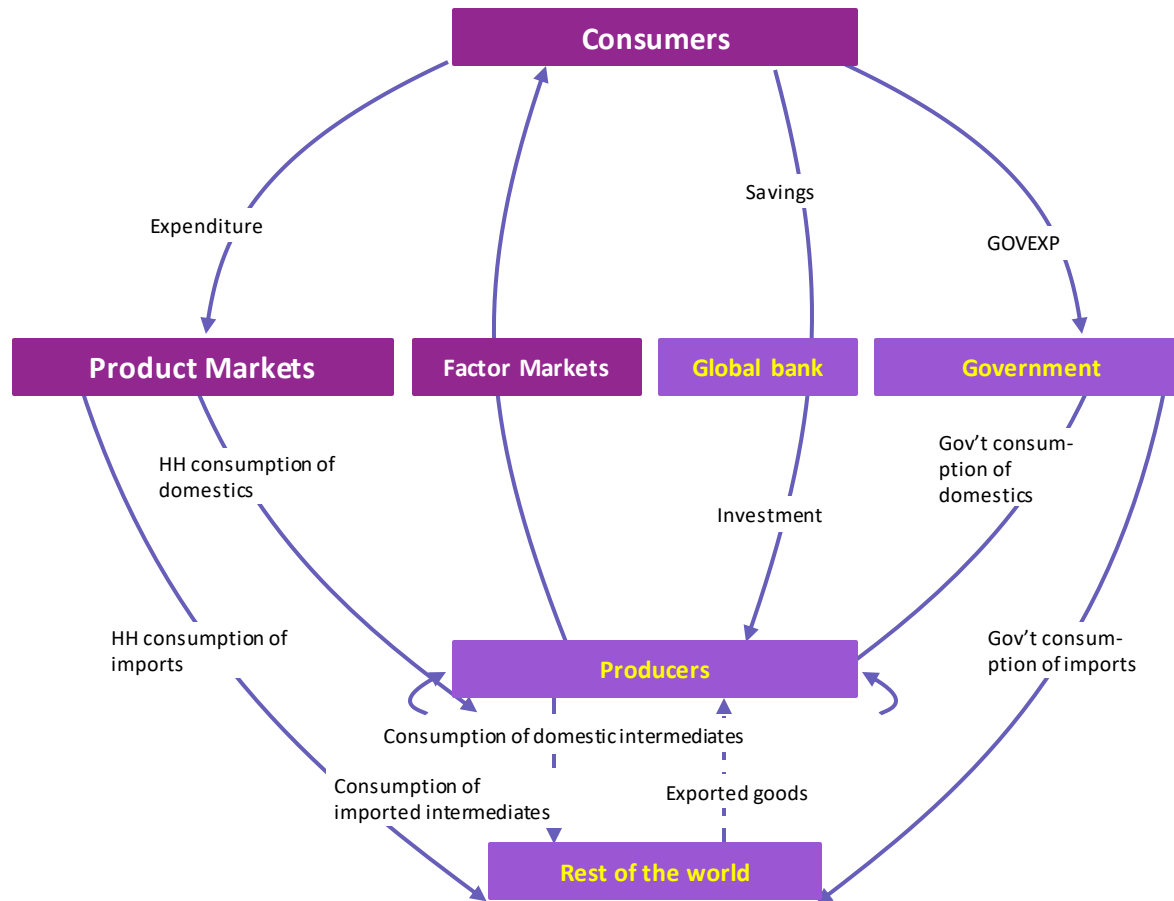# Discrepancies in trade statistics and its partner countries

Discrepancies in Lumber trade statistics and its partner countries

Impact of illegal wood in China on the US wood products industry and the US economy

USING COMPUTABLE GENERAL EQUILIBRIUM MODELING FRAMEWORK

The GTAP model adds additional dimensions to this core model

The GTAP model builds off the core household, firm, factor markets and product markets by adding four main additional blocks:

- **Firms.** Allows for inter-industry trade and linkages.

- **Government.** Allows taxes and expenditures to affect other sectors.

- **Rest-of-world.** Allows for bilateral trade at the commodity/industry level and connects it to overall domestic demand and foreign production

- **Global Bank.** Allows for global savings and investment flows to balance each other globally, and intertemporal dynamics.
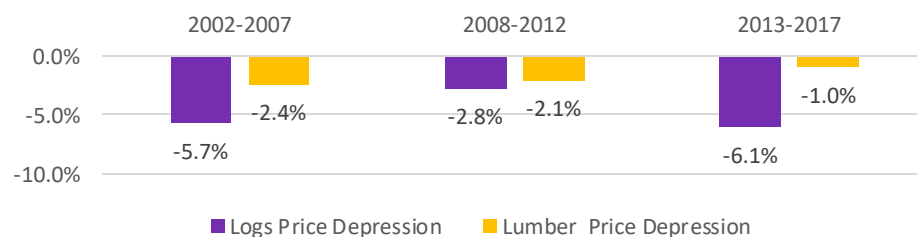
Impact on the US wood products industry

Log and Lumber Production Depression in the US

Log and Lumber Price Depression in the US
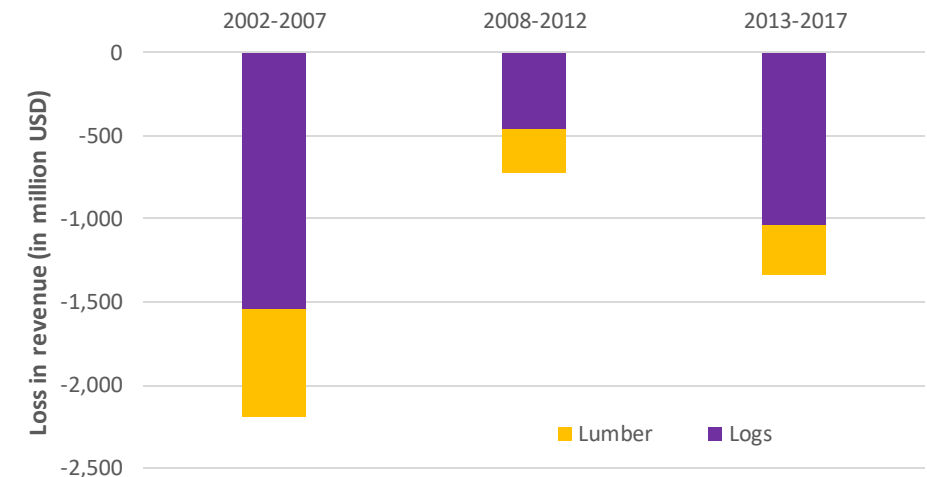

Average annual loss in revenue

Based on preliminary data, it was modelled that illegal logs/lumber are anywhere between 20% to 50% cheaper than its legal counterpart.

Post-lacey act period has a beneficial impact on the US wood products industry for both logs and lumber. The positive impact on the lumber industry is more consistent.

Can we conclude that legality legislations have resulted in saving the US forestry industry $1 billion per year since 2008?

Thank you

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