



Implications for the New Zealand Wood Products Sector of Trade Distortions due to Illegal Logging

A report prepared for the Ministry of Agriculture and Forestry

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July 2007



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Executive Summary

Introduction

This study determined, for New Zealand, the production, trade and price effects of international trade distortions due to illegal logging. The study considered the effect of illegal logging on both the price and competitiveness of New Zealand wood products in domestic and foreign markets.

Two complementary economic models, the Global Forest Products Model (GFPM) and Radiata Pine Market Model (RPMM) were used to view the New Zealand forest sector in its full international context. While the GFPM provides a global perspective, the RPMM provides a richer description of the New Zealand radiata pine forestry and sawmilling sectors.

Nature of Illegal Logging and Trade

Assessment of the extent of illegal logging is complicated by differences among countries in the policies and institutions that govern forest utilisation, and hence the rules that apply in determining whether logs are legally sourced. Differences between government and NGO approaches to assessment explain much of the variation found in estimates of illegal logging.

NGO assessments include issues such as logging concession award processes, whether forests are managed “sustainably”, and whether taxes and fees have been levied at a fair or market rate. Governmental organisations, on the other hand, focus on the extent that wood can be traced to an officially sanctioned logging operation. The most comprehensive, and widely quoted, review of illegal logging and trade is Seneca Creek (2004)¹, which derived estimates that generally fell between the extremes of the NGO and governmental sources.

Recognising the limitations of each source, this present study relied on the range of assessments to derive “low”, “most likely”, and “high” estimates (Table 1). Due to the scope of the review and its widespread recognition Seneca Creek (2004) was influential in our derivation of the “most likely” scenario.

Potential for the recently announced increase in the Russian softwood log export tax to have significant repercussions for the global forest sector meant that an additional set of projections included the tax.

¹ Seneca Creek and Associates. 2004. “*Illegal*” logging and global wood markets: *The competitive impacts on the U.S. wood products industry*. Prepared for American Forest and Paper Association by Seneca Creek and Associates and Wood Resources International.

Table 1: Study estimated rates of 2005 suspicious industrial roundwood harvests

| Country/ Region | Illegal Harvest Estimates (%) | | |
|----------------------------------|-------------------------------|-------------|------|
| | Low | Most Likely | High |
| Africa WC ¹ | 20 | 30 | 40 |
| Brazil | 13 | 19 | 25 |
| Other Latin America ² | 6 | 8 | 11 |
| China | 20 | 30 | 40 |
| Indonesia | 50 | 60 | 80 |
| Malaysia | 3 | 5 | 35 |
| Other Asia ³ | 12 | 17 | 23 |
| Acceding EU ⁴ | 7 | 10 | 13 |
| Russia | 10 | 18 | 40 |

¹ Gabon, Cameroon, Ghana and Liberia; ² excluding Brazil; ³ excluding Indonesia, Malaysia, China and Japan; ⁴ Latvia and Estonia

Impact of Illegal Logging without Russian Log Export Tax

Export Market Price and Production Impacts

Predictions from the GFPM show a variety of shifts in global wood products production and trade will occur with the elimination of illegal logging. Key impacts include:

- Global wood supply is 1.5 percent lower in 2020 and the average log price is 3.8 percent higher².
- Russian, Chinese, Indonesian, Malaysian and Brazilian industries experience decreased production due to reduced wood supply from their own forests, and countries such as Papua New Guinea, the Solomon Islands and West Africa.
- Reduced competition from these countries means that countries with lower levels of suspicious wood, including New Zealand, United States, Canada, Finland, Sweden and Germany, experience higher production, export and prices for their wood products
- In countries with high levels of illegal harvests and/ or domestic processing of these, comparative advantage is a combination of low cost wood and low manufacturing costs. The latter means that wood products production in these countries may remain competitive, even in the absence of illegal harvests. China and Indonesia are examples.

² All prices used in this study are real, i.e., corrected for changes in inflation.

New Zealand Production, Trade and Price Impacts

The above changes in New Zealand's export markets suggest that there will be higher prices for species competing with radiata pine in international markets. Projections from the RPMM show that this will lead to increased demand and, hence production of and prices for radiata pine.

Changes in New Zealand due to the elimination of illegal logging are dominated by an increase in log exports, while sawnwood production and production of other wood products (wood panels, pulp, paper and secondary processed products) is less affected. This is because New Zealand sawnwood is consumed largely in the domestic and Australian markets for structural products, where the proportion of wood products produced from illegal logs is relatively minor. Other markets such as the United States moulding market also have a very low presence of illegal wood.

Key changes in New Zealand production, trade and prices of wood products due to the elimination of the "most likely" level of illegal logging include:

- The direct influence of illegal logging on the supply of logs means the price of New Zealand export logs is most affected, being 10.6 percent higher. The domestic log market shows a more modest 1.3 percent price rise.
- Harvests are 0.6 percent higher and log exports 1.0 percent higher.
- Log exports to Korea and Japan increase due to Korean plywood imports from Indonesia and Japanese log imports from Russia being lower.
- The relatively minor proportion of wood products produced from illegal logs in countries where New Zealand exports most of its wood products means prices exporters receive are less affected by the elimination of illegal logging.
- Sawn timber prices are 0.3 percent higher. As a result production is 0.3 percent higher, and exports 0.7 percent higher.
- The prices exporters of wood products (wood panels to mouldings) receive are up to 2 percent higher, production is up to 6 percent higher, and exports up to 15 percent higher.
- While there is higher demand for New Zealand furniture, the overall effect is very small. New Zealand imports are only 400 t per annum lower. The cost of wood is a small component of the cost of furniture, so furniture prices are only 2.8 percent higher.

The combined effect of these production and price changes is that New Zealand forestry and wood products sector producer revenues are higher:

- The New Zealand forest industry would gain US\$178 million³ per year in increased revenue. This impact is similar to the potential increase in producer revenue that would be realised with elimination of global tariffs on all wood products.
- Of this increase, forest owners gain US\$27 million per year, sawmillers US\$15 million per year, and collectively the panel, pulp and paper industries US\$134 million per year.

³ for a 10 percent discount rate, 2008 onwards

New Zealand Forest Land Value and Planting Impacts

Higher log prices and harvests due to the elimination of illegal logging, have a positive impact on forest land values, plantation forest area and standing inventory:

- The economic return on forest lands are US\$149 per ha higher (for a 10 percent discount rate), so that there would be 12 000 ha more land in plantation forests in 2020.
- The higher plantation forest area increases New Zealand's future (after 2030) standing inventory by 5.7 million m³ and carbon stored by 1.2 million t.
- While not directly estimated, indigenous forest area and harvests would be expected to change little. There is no change in New Zealand log imports, which are mostly temperate hardwoods used for specialty veneers, and hence not affected by illegal logging.

Implications of the Russian Log Export Tax

In early 2007 the Russian government announced an increase in the export tax on softwood logs to 80 percent ad valorem by January 2009. The key impacts of the tax are predicted to be:

- Significantly lower Russian log exports and prices, lower global wood supply, and increased global log prices.
- Major consumers of Russian logs all suffer a reduction in log imports, and hence production and export of wood products.
- In response, the United States, Germany, New Zealand and Australia increase their production and export of industrial roundwood.
- New Zealand log prices would be 17.0 percent higher by 2020, resulting in a 2.9 percent increase in harvests, and 4.9 percent increase in log exports.
- New Zealand's wood processing sector, however, does not benefit significantly.

Impact of Illegal Logging with Russian Log Export Tax

Export Market Price and Production Impacts

The net effect of eliminating illegal logging in 2008 with the Russian log export tax implemented is less decline in global harvests and a smaller increase in log prices, compared with eliminating illegal logging in the absence of a Russian export tax.

- Global wood supply is 1.3 percent lower in 2020 and the average log price is 2.7 percent higher.

New Zealand Production, Trade and Price Impacts

Changes in New Zealand due to the elimination of illegal logging with the Russian log export tax implemented are dominated by an increase in log exports, while domestic processing is much less affected. This effect is stronger with the Russian log export tax in place, than in the absence of the Russian export tax. Key changes include:

- Prices for logs exported are 14.2 percent higher. The domestic log market shows a more modest 3.5 percent price rise.
- Harvests are 1.5 percent higher and log exports 2.4 percent higher.
- Log exports to Korea and Japan increase due to Korean plywood imports from Indonesia and Japanese log imports from Russia being lower.
- Sawn timber prices are 1.1 percent higher. As a result production is 1.1 percent higher, and exports 2.3 percent higher.
- The prices exporters of wood products (wood panels to mouldings) receive are up to 2 percent higher, production is up to 6 percent higher, and exports up to 15 percent higher.
- While there is higher demand for New Zealand furniture, the overall effect is very small. New Zealand imports are only 400 t per annum lower. The cost of wood is a small component of the cost of furniture, so furniture prices are only 2.0 percent higher.

Because of the larger price and quantity impacts predicted for New Zealand with the Russian log export tax in place, predicted revenue changes are larger than in the absence of the tax. The combined effect of these production and price changes is that New Zealand forestry and wood products sector producer revenues are higher:

- The New Zealand forest industry would gain US\$257 million per year in increased revenue.
- Of this increase, forest owners gain US\$77 million per year, sawmillers US\$45 million per year, and collectively the panel, pulp and paper industries US\$135 million per year.

New Zealand Forest Land Value and Planting Impacts

Key impacts of the elimination of illegal logging include:

- The economic return on forest lands are US\$429 per ha higher, so that there would be 32 000 ha more land in plantation forests in 2020.
- The higher plantation forest area increases New Zealand's future (after 2030) standing inventory by 11.3 million m³ and carbon stored by 2.4 million t.
- While not directly estimated, indigenous forest area and harvests would be expected to change little. There is no change in New Zealand log imports, which are mostly temperate hardwoods used for specialty veneers, and hence not affected by illegal logging.

Discussion and Conclusion

This and previous studies^{1,4} have shown that the elimination of illegal logging leads to significant increases in the price and production of wood products in almost all countries without suspicious harvests. An economic incentive, therefore, exists for legitimate producers in New Zealand, and other countries, to support a reduction in illegal logging.

Beyond the direct benefits to the forest industry identified in this study, illegal logging has potentially significant economic implications at the national level, in terms of lowering investment in forest development. This results in higher carbon liabilities for countries such as New Zealand. At the global level, illegal logging discourages forest investment that could address global deforestation.

Policies aimed at reducing illegal logging must address three important issues:

- i. They must be widely adopted to ensure illegal supply is significantly reduced.
- ii. Property rights for legitimate producers must be improved to enable them to capture benefits from reduced illegal logging.
- iii. The cost for legitimate producers must not increase more than that for illegal log producers, as an incentive for illegal logging comes from its lower cost.

Future Work

A variety of measures to address illegal logging are being identified. Economic models of the forest sector, such as the GFPM and the RPMM, can be used to assess the relative efficacy of these different measures. Such analysis could answer questions such as:

- Would expanding the country and product coverage of the European Union's Action Plan (2003) for Forest Law Enforcement, Governance and Trade be beneficial?
- How much would reducing the cost of compliance for legal harvests affect illegal harvests?
- Will compliance costs in natural forests increase relative to plantations, accelerating the move to timber production from plantations?
- Would a market for carbon increase the profitability of legal forest management?

⁴ Li, R., J. Buongiorno, J.A. Turner, S. Zhu, and J. Prestemon. 2007. Long-term effects of eliminating illegal logging on the world forest industries. *Forest Policy and Economics* (submitted).

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