

**The Implications of Timber Legality Regulations for the Vietnamese Wood Processing Industry**

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As the world's fifth largest producer of furniture and with furniture exports increasing by 253% between 2005 and 2012, Vietnam is one of the most promising markets for wood products globally. However, recent reports indicate that a substantial proportion of the raw materials used by the Vietnamese furniture and flooring industry are from illegal sources threatening the future of the Vietnamese wood products industry. Since 2006, several major consumer countries have implemented timber legality regulations which restrict the import of illegally harvested wood products and have imposed requirements on importers and exporters to ensure legality. These mechanisms include the use of chain-of-custody documents, partnership agreements between importing and exporting nations, as well as the use of certifications by third party organizations. Vietnam is the second largest furniture supplier to the United States, and as such it is expected that the requirements imposed under the 2008 Amendment to the US Lacey Act in particular will have significant impacts on Vietnamese businesses. At the same time, Vietnam is currently in negotiations with the European Union to establish a Voluntary Partnership Agreement which is aimed at ensuring that Vietnamese manufacturers have adequate safeguards in place to prevent illegally harvested wood products from entering the European marketplace.

Past research on timber legality regulations has primarily used economic models, such as the United Nations Food and Agriculture Organization's Global Forest Products Model and the Global Forest Sector Model, to estimate the economic and market effects of timber legality regulations globally. However, to date there has been little assessment of the impacts of these regulations at the national level or by sectors within the wood products industry, and emerging markets for wood products have largely been overlooked.

This study seeks to fill this void by addressing the following questions: 1) to what extent are wood products manufacturers and traders in Vietnam aware of timber legality regulations, 2) has firms' awareness of regulations affected sourcing and sales decisions, 3) have timber legality regulations affected firms' use of certified wood products and is this usage impacted by firms' involvement with specific consumer markets, 4) have timber regulations increased the use of raw materials from countries at low risk for illegal logging, specifically the United States and Canada.

**Background**

**Illegal Logging**

Illegal logging refers to the harvest, transport, purchase, or sale of timber in violation of local,

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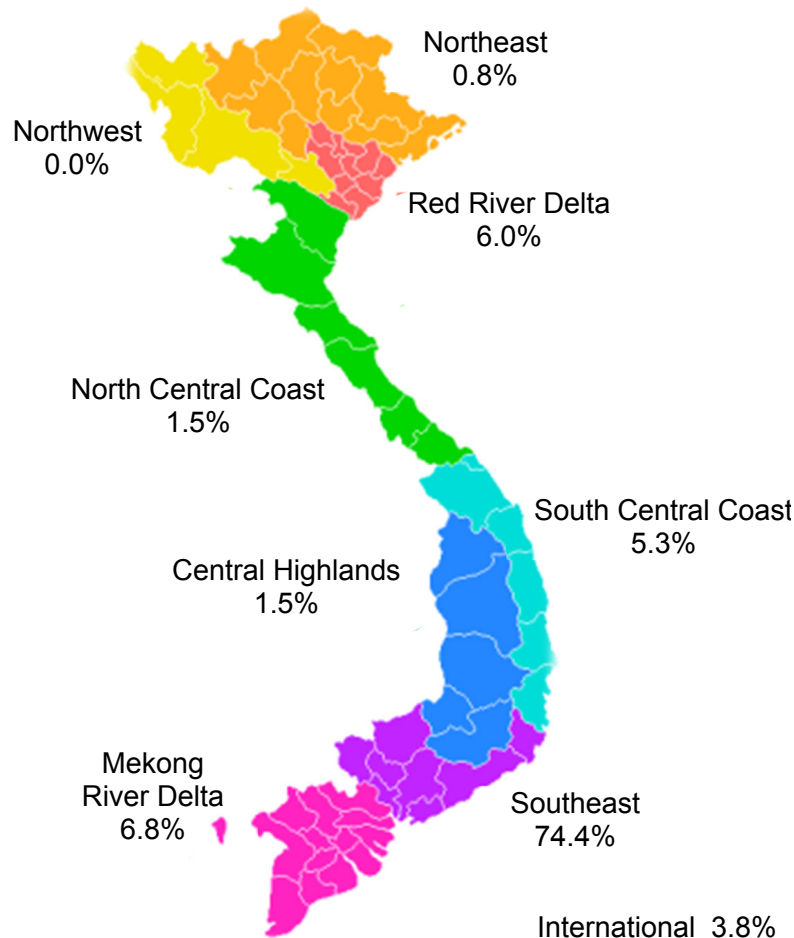


Figure 1. Regional distribution of survey respondents throughout Vietnam.

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The Center for International Trade in Forest Products addresses opportunities and problems related to the international trade of wood and fiber products. Emphasizing forest economics and policy impacts, international marketing, technology developments, and value-added forest products, CINTRAFOR's work results in a variety of publications, professional gatherings, and consultations with public policy makers, industry representatives, and community members.

Located in the Pacific Northwest, CINTRAFOR is administered through the School of Environmental & Forest Sciences at the University of Washington under the guidance of an Executive Board representing both large and small companies, agencies, and academics. It is supported by state, federal, and private grants. The Center's interdisciplinary research is carried out by university faculty and graduate students, internal staff, and through cooperative arrangements with professional groups and individuals.

Illegal logging is associated with a host of social ills. It contributes to global warming, causes deforestation and species extinction, threatens the survival of indigenous communities, undermines the rule of law, promotes the spread of organized crime, encourages official corruption, distorts timber prices and places legally harvested wood at a competitive disadvantage within the global timber trade. One strategy for reducing the demand for illegally harvested wood is through the adoption of timber legality regulations that prohibit the importation of any wood products that include illegally harvested wood. The rationale being that reducing the demand for illegal timber will reduce the incidence of illegal logging. Timber legality regulations requiring that all wood product imports be sourced from legally harvested wood have been adopted in several developed countries including the US, the EU and Australia. In the case of the US, the Lacey Act was amended in 2008 to specifically exclude illegally harvested wood products from being imported into the US. Following the implementation of timber legality regulations in the US, the EU and Australia, environmental groups have heralded their effectiveness in reducing illegal logging. For example, the Environmental Investigation Agency recently reported that: “[the approval of the amendment to the Lacey Act] has created dramatic changes in the still heavily unregulated global timber industry and led to systemic shifts in the practices of importers, manufacturers, and timber companies within both the U.S. and around the world”. However, little empirical research has been done to evaluate the impact of timber legality regulations on either the incidence of illegal logging or the role of illegal timber products within the US, let alone the global, wood supply chain. To address this lack of research, CINTRAFOR has been conducting research over the past several years in China, Vietnam and Thailand to document the impacts of timber legality regulations on the sourcing of timber by wood manufacturers in these countries. The research reported in the Spring and Summer editions of the CINTRAFOR News is an effort to bridge the gap in our understanding of the effectiveness of timber legality regulations in reducing the demand for illegally harvested wood. While CINTRAFOR researchers have found that timber legality regulations are generally effective in reducing imports

of illegal timber in the countries that have adopted them, they are much less effective in eliminating illegally harvested wood from the global supply chain. While this statement may seem contradictory, the rationale behind it is quite simple. Consider the fact that the countries that have adopted timber legality regulations represent just 11.7% of the global population. In contrast, the proportion of the global population in China, India and the Middle East, where consumers are generally less concerned about illegally harvested wood, is approximately 39.5% and growing rapidly. As a result, illegal timber which may have been exported to the US and the EU is now being redirected to these other less environmentally sensitive markets through a process known as “leakage”. In fact, industry managers in Vietnam and China have reported that they often redirect suspicious wood (wood about which there is some concern about the reliability of the documentation of origin) away from markets where timber legality regulations have been adopted towards unregulated markets where increasingly affluent consumers are willing to pay a premium for wood products made from rare timber species such as old-growth teak and rosewood. This is particularly concerning given the fact that the population, and purchasing power, of less-developed countries is an increasing share of the global population. The takeaway message from CINTRAFOR's research is that while timber legality regulations can be effective in reducing imports of illegal timber in the countries that have adopted them, they appear to have had a much smaller impact on the sourcing of wood products in timber manufacturing countries like China, Vietnam and Thailand. In addition, leakage is allowing illegally harvested wood to maintain its position within the global wood products supply chain. Given this, the challenge for policymakers and the environmental community in developed countries is to identify and implement strategies to raise the awareness of governments and consumers in developing countries about the myriad negative impacts associated with illegally harvested timber in an effort to encourage consumers and environmental groups to persuade governments to adopt timber legality legislation. Only by succeeding in these efforts can the demand for wood products manufactured from illegally harvested wood be reduced.

national or international regulations. Illegal logging results in deforestation, decreased biodiversity and the loss of endangered species and at the same time puts producers of wood products who operate in compliance with environmental and trade rules at a competitive disadvantage compared to less scrupulous firms. There is also a strong connection between illegal logging and corruption, smuggling, money laundering and other criminal activities. Estimates put the environmental and social costs associated with illegal logging at \$60 billion a year and value the financial costs to legal producers at \$46 billion a year.

While illegal logging covers a wide array of activities, there are a few practices which are of particular concern to the international community, specifically, harvesting in protected areas, harvesting timber in excess of concession limits, tax fraud and violations of international agreements. Studies of the global timber market suggest that illegal products make up 5-10% of global roundwood production. This represents 2-4% of softwood lumber and plywood and 23-30% of hardwood lumber and plywood traded globally, and has resulted in a 7-16% reduction in world timber prices.

#### ***Public Sector Responses to Illegal Logging***

Until recently, the primary international mechanisms in place to regulate trade in timber products have been the World Trade Organization (WTO) rules and the Convention on the International Trade in Endangered Species (CITES). The WTO issues general rules for governments to follow, and while the agreement is generally aimed at liberalizing international trade, individual countries can take measures 'necessary to protect human, animal or plant life or health.' While this generally takes the form of trade restrictions, the WTO has yet to be involved in any disputes related to illegally harvested timber. For years, CITES was the only international mechanism with enforcement provisions for limiting the trade in threatened animal and plant species. However, participation in CITES is voluntary, and the agreement only prohibits partner countries from trading in a limited number of commercially important endangered and threatened timber species.

#### ***Consumer Country Responses to Illegal Logging***

##### **Japanese Policy on Promoting Green Purchasing**

A number of approaches have been implemented by consumer nations in response to the problem of illegal logging over the last few years. In 2006, the Japanese government established the Goho-Wood policy, also known as the "Policy on Promoting Green Purchasing." This policy

requires the Japanese government to use wood products which are in compliance with forestry laws in the country of origin and to purchase products where it is "possible to reasonably explain that sustainability is secured". In order to accomplish this, the Japanese government requires that all government procured wood products be certified as sustainable and include chain of custody documentations. The Japanese Forestry Agency verifies legality and sustainability through the use of third party certification systems, industry associations' voluntary codes of conduct and through original measures organized by large corporations.

##### **United States' Lacey Act**

The United States' Lacey Act, originally enacted in 1900, made it a federal crime to hunt or trade endangered or illegally procured animals and wild birds, with subsequent amendments to the bill providing for the inclusion of reptiles, amphibians and indigenous plants. In 2008, the U.S. Congress made a major amendment to the Lacey Act in order to address the issue of illegal logging and add protections to prevent the importation of products made from illegally harvested wood materials. To qualify as a violation, a plant must first be harvested, sold or exported in violation of United States law or the law of a foreign country, then the product must be imported into the USA or exchanged in the course of interstate commerce.

Under the 2008 Lacey Act amendment, importers are required to submit an import declaration form stating the specific sourcing information of all wood materials included in their products. This documentation must include information regarding the plant's genus and species, the country from which it was taken and the volume and value of the wood product. The Lacey Act sets a due care standard to evaluate companies' efforts in ensuring legality. Due care is defined as "the degree of care which a reasonably prudent person would exercise under similar circumstances". As such, compliance is a flexible concept which cannot be guaranteed by any one document or checklist. This is a very important distinction within the context of wood manufacturing countries like Vietnam, since using certified wood products is neither necessary nor sufficient to ensure compliance with the Lacey Act. Thus there is some expectation that Vietnamese wood manufacturers may increase their usage of raw materials from countries that are considered at a 'low risk' for illegal logging, specifically the United States, to ensure compliance with the Lacey Act.



### **Australian Illegal Logging Prohibition Act**

In 2012, the Australian parliament passed the Illegal Logging Prohibition Act, which restricts the importation of illegally logged timber products into Australia and enforced due diligence requirements on Australian businesses in 2014. The act requires that importers carry out proper tests to determine whether wood coming into Australia is legal and establishes trade descriptions which specify the circumstances under which certain products can be used. The act uses a due diligence standard, wherein importers must show that they took steps to assure the legality of their products and complete a 'statement of compliance with due diligence requirements' alongside the customs import declaration, which holds them legally responsible for the sourcing of their products. The act includes a comprehensive monitoring, investigation and enforcement regime to ensure compliance, and violators face seizure of suspected timber products, up to five years imprisonment, and fines up to \$275,000.

### **European Union Timber Regulation**

In 2013, the European Union implemented the EU Timber Regulation (EUTR) as part of the Forest Law Enforcement, Governance and Trade (FLEGT) policy, establishing a system of collaborative Voluntary Partnership Agreements (VPA) between the EU and timber exporting countries. The aim of this program is to improve forest governance and guarantee that timber products exported to the EU from partner countries are legally harvested. Under the EUTR, European operators are legally responsible for using due diligence to minimize the risk of bringing illegally harvested timber products into the market. Due diligence is demonstrated on the basis of a documented system of procedures and measures and operators must be able to prove that legality is reasonably assured using a risk management approach. As part of a firm's risk assessment procedure, firms must take into account criteria including the prevalence of illegal harvesting in the country of harvest and indicators that the product poses a low risk, such as chain-of-custody certifications. This is particularly important in the context of the Vietnamese market, as this may impact manufacturers' use of raw materials, and may result in an increased dependence on products that are sourced from 'low-risk' countries.

The EUTR came into full effect on March 3rd, 2013 and its rules state that wood imported from a VPA country and carrying a FLEGT license is considered to be fully compliant with due diligence requirements and will be exempt from risk assessment. This incentivizes timber producing countries to enter into VPA agreements

as a way to secure their access to European markets. Partner countries found in violation of the policy face the possibility of losing their FLEGT licenses which creates an incentive for exporting countries to reform their regulations and implement strategies to combat illegal logging. There are currently six countries which have established partnerships and Vietnam is currently involved in negotiations with the European Union to establish a VPA which may result in the Vietnamese government taking steps to reform domestic regulations on timber imports and increase firms' awareness of the EU Timber Regulation.

### ***Forest Management and Chain-of-Custody Certification***

A number of private organizations have developed criteria and indicators which are used to certify forest management practices as being sustainable. In Vietnam the major certification schemes are the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC). FSC maintains a set of criteria and indicators which are used by assessors to certify forest management units as sustainable. FSC also certifies the supply chain management systems of secondary timber processing and trading companies, to ensure that they are able to maintain the chain of custody (CoC) for FSC-certified material. PEFC is an umbrella organization for national forest certification systems and is the largest forest certification system globally, offering forest management and chain-of-custody certification. While there are a very small number of Vietnamese firms which have obtained chain-of-custody certifications, most Vietnamese firms have chosen to simply import certified raw materials.

### ***Vietnamese Sourcing of Raw Materials***

In response to rapid deforestation, the Vietnamese government implemented a log export ban in 1992 and reduced the domestic logging quota by 80%. As a result of these efforts to rehabilitate Vietnam's forest resources, forest cover has dramatically risen in recent years, with a 55% increase between 1987 and 2005. Unfortunately, while policies which restrict logging have increased domestic forest cover, they have effectively outsourced deforestation and degradation to neighboring countries. While Vietnam's domestic supply of roundwood has remained stable, industrial demand has grown dramatically and legal imports have not increased sufficiently to meet the growth of the Vietnamese wood products industry. This gap has been filled with imports from Cambodia, Laos, Malaysia, Myanmar and Indonesia. As neighboring countries have also begun to

implement log export bans, the Vietnamese wood industry has become increasingly reliant on illegal raw material imports, which may make up as much as 48% of total roundwood imports into Vietnam. Vietnamese imports of illegal timber have been repeatedly documented since the 1990s and as neighboring countries like Indonesia have taken steps to prevent illegal logging, this trade has shifted towards Laos in spite of that government's ban on the export of raw logs.

While the Vietnamese wood products industry has yet to be significantly impacted by timber legality regulations, it is expected that as firms in the US and EU face increasing scrutiny and liability for their wood imports, they will begin to demand that the Vietnamese government and exporters take steps to eliminate illegal wood products from the supply chain. However, it is still to be seen whether these changes will affect the Vietnamese wood industry in a uniform manner or if they will impact different segments of the Vietnamese industry in different ways. Timber legality regulations may result in major differences in business practices between firms that sell to markets with timber legality regulations and those selling to less regulated markets. Firms exporting to countries with stronger regulations may increase their use of low risk and certified wood products while firms which sell to less regulated markets, such as China, may continue to source lower cost illegally harvested timber from neighboring countries, thus minimizing the effectiveness of timber legality regulations.

### Methodology

To better understand the impact of timber legality regulations on business practices in Vietnam, researchers at the Center for International Trade in Forest Products (CINTRAFOR) at the University of Washington administered surveys in 2013 and 2014 at representative home and furniture trade shows in Ho Chi Minh City, Vietnam. Survey questions were developed based on the results of background research and informal interviews with Vietnamese industry associations and industry managers. The questions were designed to assess the impact of recently implemented timber legality trade regulations on the perceptions and business practices of managers in the Vietnamese wood industry. The survey was designed to specifically target individual companies based in Vietnam that are involved in the manufacture and export of wood furniture and flooring products.

The survey instrument was developed in English by professionals from industry and academia and included questions regarding firms'

awareness of timber legality regulations and how these regulations influenced their use of chain-of-custody certification, impacted material sourcing decisions as well as the export market decisions of industry managers. The survey also included demographic questions, such as the firm's industry sector, geographic location, annual revenue, and number of employees. The survey was translated into Vietnamese and was administered by students and faculty from the University of Washington with the assistance of Vietnamese university students. From September 25th – 28th 2013, 53 surveys were collected at the Vietnam Wood Woodworking Industry Fair and from March 11th - 14th, 2014 an additional 81 surveys were collected at the Vietnam International Furniture and Home Accessories Fair, for a total of 134 surveys. Due to the wide variety of companies present at both trade shows, screening questions were asked before administering the survey to ensure that only industry managers involved in the production and trade of wood products were invited to participate.

### Results

#### Respondent Profile

The majority of respondents were located in southeastern Vietnam (Figure 1), with Ho Chi Minh City accounting for 33% of respondents, followed by Binh Duong province with 31.5%. While there was moderate representation from the Red River Delta region (6%), a regional hub for furniture manufacturing, there was relatively low representation from the South Central Coast (5.3%) which includes Binh Dinh province (2.2%), one of the largest wood processing and export centers for the country.

Firms represented a broad range of business types and provided a good representation of the industry population. The majority of firms were from the wood manufacturing sector (69%) with 44.7% of firms producing wooden indoor furniture, 6.7% produced wooden outdoor furniture, 3.7% produced wood flooring and 13% produced both indoor and outdoor wooden furniture. Of the respondents, 25% of firms were not involved in manufacturing and worked solely on trading and distribution. It is worth noting that very few of the manufacturers we surveyed carried out their own importing and exporting in-house (only 10%), suggesting that few Vietnamese manufacturers have expanded into integrated trading and distribution, but instead rely heavily on third party trading companies.

The majority of firms which participated in the survey were relatively small, with over 65% of respondents reporting annual sales revenues

less than \$6.5 million. There was a relatively even distribution of firms among the medium and large sales revenue categories, with 19% of respondents reporting annual revenues between \$6.5 million and \$16.5 million, and 17% of respondents reporting annual sales above \$16.5 million.

**Awareness of Timber Legality Regulations**

Respondents were asked about their level of familiarity with the US Lacey Act, the EU Timber Regulation, the Japanese Public Procurement Policy and the Australian Illegal Logging Prohibition Act (Figure 2)

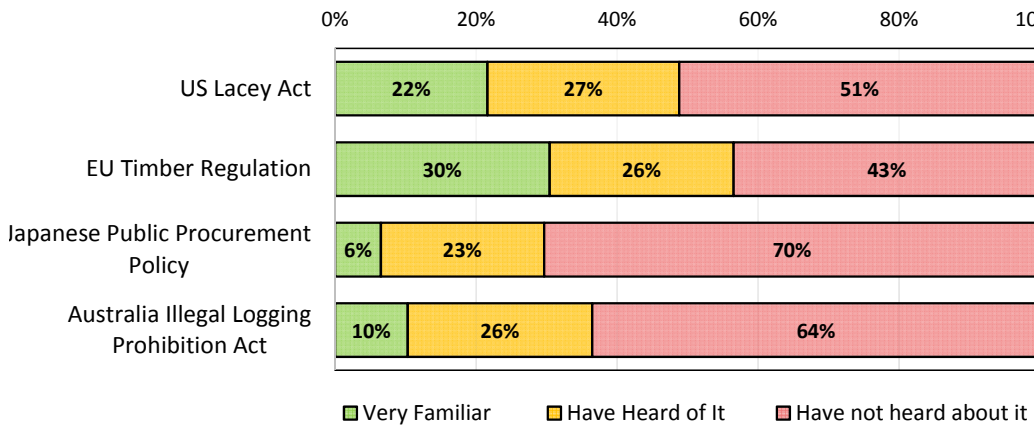


Figure 2. Respondents' familiarity with timber legality policies.

Vietnamese firms reported very low levels of awareness of timber legality regulations, particularly those in Japan and Australia. Survey respondents showed higher levels of awareness of the US Lacey Act, with 27% of firms having heard of it and 22% being very familiar with it. Firms were somewhat more familiar with the

EU Timber Regulation, with 26% having heard of the policy and 30% indicating they were very familiar with the regulation. It is somewhat surprising that the Vietnamese firms had a higher level of awareness of the EU regulation than the US Lacey Act, as Vietnam is the 2<sup>nd</sup> largest supplier of wood furniture to the United States but is not in the top ten suppliers for furniture to the European Union. This higher level of awareness may be related to the fact that the Vietnamese government has been working with the European Union since 2010 to establish a Voluntary Partnership Agreement, which may have increased firms' awareness of the EU

Timber Regulation. However, given the importance of international trade to the Vietnamese wood industry, the level of awareness of timber legality regulations shown by Vietnamese firms was surprisingly low.

**Export Market Decisions**

The survey also asked respondents to report how their exports of wood products have changed over the last five years (Figure 3). Over half of

the respondents reported that they sell products into the domestic market, 48% export to the US and 42% sell to the EU. The survey results show that over the past five years, 31% of respondents reported a large sales increase to the United States, 18% reported a large sales increase to the EU and 28% reported a large sales increase into the domestic market.

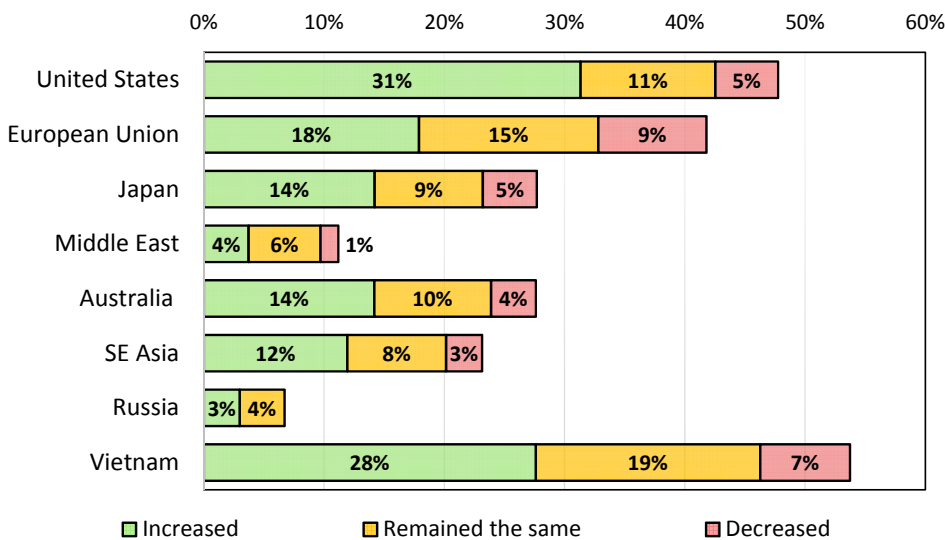


Figure 3. Change in sales of wood products over the last 5 years.

The survey data was analyzed to determine if the level of a firms' change in sales was influenced by their awareness of timber legality policies. The results of the analysis show that firms which do not export to the US were significantly less likely to be aware of the US Lacey Act as compared to firms that have increased their sales to the US (which were significantly more likely to be very familiar with the Lacey Act). Similarly, firms which do not export to the EU were significantly less likely to be aware of the EU Timber Regulation compared to firms which only knew a little about the EU Timber Regulation, who were likely to have had sales remain the same, and firms that were very familiar with the EU Timber regu-



lation, whose sales to the EU were likely to have increased.

Further analysis was performed to assess whether there was a relationship between firm size, in terms of annual sales revenue, and their export market decisions. The results of the statistical analysis show that the large and medium-sized firms were significantly more likely to have increased their sales to the US as compared to the smallest firms, which were significantly less likely to sell to the US.

**Raw Material Sourcing Decisions**

Respondents were asked to indicate how their sourcing of wood raw materials had change over the last five years. Firms were asked to indicate if they sourced raw materials from specific supply regions and whether or not their purchases of raw materials from each supply region had “Increased”, “Remained the same” or “Decreased” over the past five years. The results of the statistical analysis show that the firms who reported that their sales to the US had increased were significantly more likely to have increased their purchase of raw materials from the US. Similarly, the firms who did not sell into the US market were significantly less likely to purchase wood raw materials from the US. Firms who reported that their sales to the US had not changed over the last 5 years were significantly more likely to have their purchase of raw materials from the US remain unchanged. (Figure 4). However, Vietnamese firms who reported that their sales to the EU had increased over the past five years were significantly more likely to have increased their sourcing from Canadian suppliers.

These findings suggests that Vietnamese firms which sell to the US market may be increasing their purchases of US wood products in order to ensure the legality of their wood products and that their products are in compliance with the US Lacey Act. If this is the case, it provides an opportunity for US lumber exporters to increase their sales to Vietnam by working with Vietnamese wooden furniture manufacturers exporting to the US. It is noteworthy that Vietnamese firms exporting to the European Union do not show the same behavior, which could be due to the EU Timber Regulation’s consideration that products from the US and Canada are at an equally low risk for illegal harvesting. As such, Vietnamese firms selling to the European Union may be less concerned about the country of origin of their wood imports and may be more price sensitive which explains why

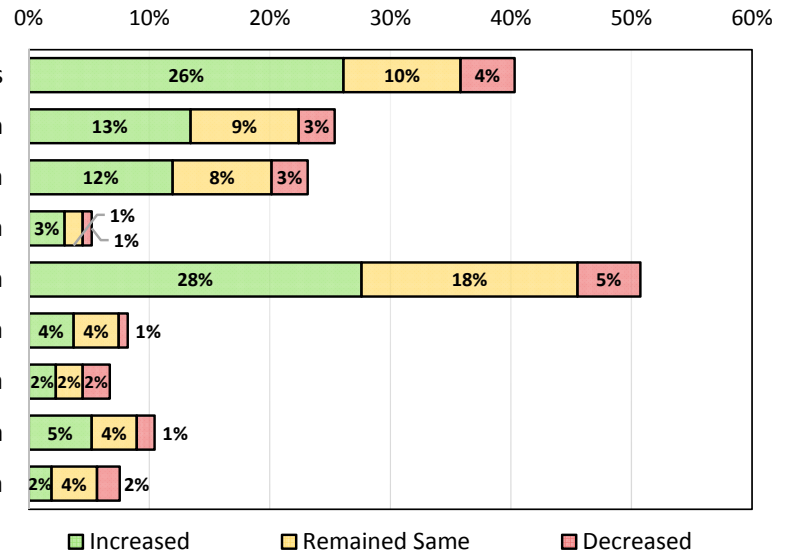


Figure 4. Change in Wood Raw Material Sourcing over the Last 5 Years.

they were more likely to choose Canadian raw materials over those from the US.

**Chain-of-Custody Decisions**

Survey respondents were asked if their company had obtained FSC or PEFC chain-of-custody (CoC) certification. The survey results show that very few Vietnamese wood manufacturing firms have obtained third party certification. Considering the two major CoC certification programs, 28% of survey respondents had obtained FSC CoC certification whereas just 16% had obtained PEFC CoC certification. Further analysis was carried out to determine if a firms’ awareness of timber legality regulations influenced their decision to obtain chain-of-custody certification. The results of the analysis show that firms which were very familiar with the EU Timber Regulation were significantly more likely to have obtained both CoC certifications relative to firms that had not heard of the EU Timber Regulation. This is true for both the FSC and PEFC CoC certification programs. However, there was not a similar relationship between awareness of the US Lacey Act and use of CoC certification. This may be related to the fact that the EU Timber Regulation’s risk assessment procedures take into account the use of chain of custody certification to determine if a firm has demonstrated due diligence. In contrast, the US Lacey Act does not consider CoC certification to be a guarantee of compliance with the due care standard. This difference may help to explain the difference in the adoption of CoC certification between firms which export to the US and the EU.

**Conclusions**

As one of the largest and most rapidly expanding wood products markets, Vietnam has a significant impact on the world’s forest



resources. With nearly 50% of roundwood imports sourced from illegal sources, Vietnam is one of the major drivers of illegal logging in Southeast Asia, which results in forest degradation, deforestation and significant social and environmental costs. However, with increasing pressure from major consumer nations it may be possible for timber legality regulations to gradually move the Vietnamese government and manufacturers towards implementing safeguards which reduce their dependence on illegally sourced timber.

The results of this study suggest that timber legality regulations have yet to significantly impact Vietnam's use of illegal timber, but instead they may have simply shifted these products towards less regulated markets (e.g., India and China) through a market phenomenon referred to as leakage. Vietnamese firms which sell to the United States and the European Union are much more aware of timber legality regulations and have taken steps to eliminate illegal products from their supply chain by sourcing raw materials from the U.S. and Canada and by adopting CoC certification to eliminate illegally sourced wood from their supply chains. However, most of the smaller Vietnamese firms which do not sell wood products into these highly regulated markets are generally unaware of timber legality regulations and are much less likely to adopt CoC certification. Rather, our findings suggest that the Vietnamese market is becoming segmented, with smaller and less scrupulous firms continuing to use illegally harvested wood products while directing their products into less environmentally sensitive markets such as China, which is currently experiencing a boom in consumer demand for wood products and lacks regulations on illegally harvested timber. They also have expanded sales into the domestic Vietnamese market. Given the rapid growth of the Vietnamese wood furniture and flooring industry, the growing trend of smaller wood products manufacturers to divert illegally sourced wood products towards unregulated markets makes it very likely that Vietnam's furniture and flooring industries will continue to exacerbate the problem of illegal logging in the Southeast Asian region in general and within its neighboring countries (e.g., Cambodia and Laos) in particular.

On the positive side, our results show that firm size, familiarity with the Lacey Act, sales of wood products to the US, sourcing of wood products from the US and adoption of CoC certification are all positively correlated. In other words, it appears that the Lacey Act is reinforcing an almost virtuous circle of effects

within a segment of the Vietnamese wood products industry where larger firms are more likely to be familiar with the Lacey Act, are more likely to have adopted CoC certification for their supply chain, are more likely to have increased their sales of wood products to the US and they are more likely to have increased their purchases of wood raw materials from the US.

From a strategic market development perspective, our results suggest that US wood products exporters should be able to take advantage of this "virtuous circle" to expand demand for their products in Vietnam through: 1) targeting export promotion activities towards larger furniture and flooring manufacturers who are already familiar with the US Lacey Act, and 2) working in cooperation with US forest products associations (such as the Softwood Export Council and the American Hardwood Export Council) to increase the awareness and familiarity of medium and large size Vietnamese furniture and flooring manufacturers with the US Lacey Act.

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