THE EFFECTS OF NAFTA AND AN FTAA ON U.S. EXPORTS OF HARDWOOD FOREST PRODUCTS

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INTRODUCTION

The North American Free Trade Agreement (NAFTA) took effect on January 1, 1994, beginning what might result in a restructuring of trade in the hemisphere, especially between the United States and Mexico. This restructuring and expected welfare gains are intended outcomes of the kind of freer trade among countries that has been sweeping the hemisphere for at least ten years. An ultimate outcome of hemispheric economic liberalization might be a regional free trade accord-a Free Trade Area of the Americas (FTAA). NAFTA and this possible descendant may affect forest products trade and the forest products sectors of some of these countries (Prestemon and Buongiomo 1996; Prestemon 1997). Significantly, much change will occur for exports of United States hardwood products.

It is important that hardwood product manufacturers in the United States understand the importance of Latin America relative to other trading partners and the possible effects of regional trade liberalization on United States trade in these and competing products. More information on the expected effects of NAFTA and a proposed FTAA will help current and potential future exporters to the region and investors in the region make better trade and investment decisions. In the following pages, we place Latin America in context with regard to forest products trade, particularly for hardwood solidwood products, and we report some predictions of the effects of NAFTA and an FTAA relevant to hardwood products manufacturers of the United States. We begin by describing the genesis of NAFTA and other regional accords, proceed to summarize current trade in key forest products among North American countries, and finish by providing some predictions and recommendations about opportunities for United States hardwood producers.

The Growth of Regionalism

When Mexico began its domestic market and trade liberalization in the 1980s, this reform was an example of a broader, world-wide trend toward open markets. The trend was stimulated by the perceived failures of protectionism to foster sustained economic growth and by GATT (the General Agreement on Tariffs and Trade) negotiations. In this view, the sustained protectionism and economic mismanagement in the Third World created the debt crisis of the 1980s. As a condition for international bank (International Monetary Fund and regional bank) relief from overwhelming debt loads, countries were required to implement trade and domestic market liberalization and to sharply cut government spending.

Such externally imposed conditions were often viewed in these countries as ignoring important national industrial policy and other political objectives, and this view helped fuel increased attention toward regionally focused trade and investment agreements. Because World Trade Organization-sponsored agreements under the GATT necessarily involve negotiations among all GATT signatories, the GATT potentially threatens all domestic import-competing sectors of all signatories with more intense price competition, an important constraint in negotiating barrier reductions for many countries. These GATT negotiations have historically ignored sensitive issues such as foreign investment, the environment, labor relations, intellectual property, and transport. Smaller

accords can address many of these issues, and they can be drafted to preserve some of the protectionist policies and programs that are important to key domestic constituencies. And because regional and bilateral accords involve fewer countries, they are usually less complex and can proceed more quickly than GATT negotiations.

While the frustrations of the GATT and the advantages of regional accords have been clear for decades (viz., the European Free Trade Area, European Common Market, and accords among groups of Latin American countries in the 1960s), only since the late 1980s have they resulted in substantial, working regional trade agreements in the Americas. The results include many multilateral and bilateral accords such as the Canada-U.S. Free Trade Agreement, NAFTA, Mercosur (Southern South American Common Market), Caricom (Caribbean Common Market), and a revitalized Andean Pact and Central American Common Market. Chile, relatively early in liberalizing its economy (the 1970s), has in the last three years negotiated bilateral accords with Canada, with Mexico, and with the Mercosur countries as a group. It seems to many leaders of the region that the logical next step would be an Americas-wide free trade area. Latin American leaders have themselves expressed a desire to create a regional free trade area by 2005, reiterating their desires in Santiago, Chile, in April, 1998.

Regional Free Trade and Wood Products

Such free trade accords undoubtedly will stimulate trade in forest products among signatory countries. Currently, wood products trade among the United States and its hemispheric neighbors is dominated by the two-way flow between the United States and Canada. Only Japan is more important than Canada and Mexico in terms of United States exports of forest products (Table 1). And taken as a whole, the rest of Latin America and the Caribbean approach the importance of Mexico. Hardwood trade with the United States in the Americas is dominated by Canada, Brazil, Bolivia and Ecuador (Tables 2 and 3).

What is NAFTA?

The North American Free Trade Agreement is a combination of lowering of trade barriers, liberalization of investment regulations, and easing of transport and business person travel restrictions, with some side accords dealing with labor rights and environmental protection. Trade barrier reductions include eliminating tariffs on practically all commodities, national treatment of imported products, and elimination or phase-out of quotas. Investment liberalization centers on overturning rules requiring partial or majority domestic ownership of firms and property. The freeing of transport is intended to allow trucks and other transport devices to cross international borders without changing carriers. Finally, relaxation of travel restrictions makes it easier for foreign business persons to enter signatory countries for business-related purposes. The side agreements, negotiated in 1993, are written to: (i) require that existing domestic laws regarding environmental protection and labor rights be enforced, (ii) permit quasi-judicial evaluation of cases of unfair trade advantages obtained through the violation of domestic environmental or labor laws, and (iii) decide on penalties to be applied to the offending country. Under these side-agreements, NAFTA requires that tri-national commissions be established to serve as the quasi-judicial arbiters of whether domestic laws of an accused country have been broken and whether such law-breaking conferred a trade advantage.

Most nontariff barriers to trade and investment restrictions were to be eliminated immediately upon the initiation of the agreement. But tariffs and transport restrictions were to be phased-out over specified periods, up to 15 years. In forest products, all trade barriers were to be eliminated within ten years. Hence, most forest product tariffs are either zero today (1998) or half way to zero from a maximum of a 20% base tariff.

Most analysts have predicted positive effects of NAFTA on the economies of the United States, Canada, and, particularly, Mexico (Bachrach and Mizrahi 1992; Brown et al. 1992; Roland-Holst et al. 1992), and such posi-

Table 1. United States trade in wood products, 1994 ($ 1,000), ordered by total United States trade.

Country/Region	Value of U.S. Imports	Value of U.S. Exports	Total Trade
Canada	6283,872	804,244	7,088,116
Mexico	180,785	226,227	407,012
Brazil	136,110	335	136,445
Chile	121,187	971	122,158
Dom. Republic	0	47,363	47,363
Bolivia	31,315	215	31,530
Jamaica	149	24,786	24,935
Peru	8,239	3,269	11,508
Honduras	8,251	103	8,354
Barbados	0	8,279	8,279
Trinidad & Tobago	61	7,010	7,071
Ecuador	4,876	131	5,007
Guatemala	2,793	907	3,700
Saint Lucia	0	3,225	3,225
Antigua	0	3,212	3,212
Paraguay	1,938	576	2,514
Colombia	275	1,944	2,219
Costa Rica	600	1,608	2,208
Venezuela	331	1,770	2,101
Panama	322	1,541	1,863
Dominica	0	1,057	1,057
Argentina	303	566	869
Belize	666	110	776
Uruguay	525	69	594
El Salvador	0	531	531
All Other Countries	288,080	4,413,752	4,701,832
World Total	7,070,012	5553,691	12,623,703

Source: United Nations (1996), *World Trade Annual*, 1994, Vol. I, Walker and Co. and the United Nations, New York.

tive effects might also apply to the region under an FTAA. The positive effects from NAFTA will accrue from more efficient use of domestic production inputs, greater rates of investment, and elimination of much of the loss in economic surplus associated with tariff and nontariff barriers. Hence, not only will overall trade increase because of tariff and nontariff barrier reductions, but also because of increased total output within each country obtained by more efficient use of production inputs. So it is reasonable to conclude that if NAFTA were to be expanded, or if a hemispheric free trade area were created that had many of the characteristics of NAFTA, then total efficiency and domestic outputs would increase for the entire hemisphere. This could mean expansion in United States exports to other countries in the region caused by both trade barrier reductions and enhanced production efficiencies.

The potential effects of free trade and investment flowing out of NAFTA on U.S. and Canadian forest products exports to Mexico were estimated by Prestemon and Buongiorno (1996), and general estimates of country-by-

country effects of a hemisphere-wide free trade agreement on U.S. forest product exports were presented by Prestemon (1997). In the former study, it was concluded that NAFTA's effect on U.S. and Canadian exports to Mexico would be to increase them by 20 to 85 percent over some non-NAFTA counterfactual long-run (Table 5). Principal products likely to gain most from NAFTA were found to be lumber, plywood and newsprint. In the latter study, a NAFTA expansion to include other parts of the Americas was found to have negligible effects on U.S. imports and exports. In that case, only a few opportunities for additional U.S. exports in some specific product categories to a few countries would emerge from such an accord. Because Prestemon's (1997) study applied a non-spatial partial equilibrium model and thus did not model the general equilibrium effects of hemispheric free trade, predictions about effects on currently minor or untraded forest products could not be made. A

Table 2. United States hardwood lumber imports (in cubic meters) from the Americas, ranked by total imports of hardwood lumber, 1993.

Country	Tropical	Temperate	Total
Canada	366	479,639	480,005
Brazil	65,797	49,294	115,091
Bolivia	25,192	1,031	26,223
Ecuador	7,757	4,333	12,090
Peru	3,565	3,715	7,280
Honduras	5,399	0	5,399
Guyana	1,801	2,474	4,275
Guatemala	3,169	177	3,346
Paraguay	0	2,925	2,925
Chile	442	945	1,387
Costa Rica	654	0	654
Mexico	268	60	328
Colombia	0	255	255
Nicaragua	239	0	239
Belize	161	0	161
Argentina	0	0	0
Bahamas	0	0	0
Barbados	0	0	0
Dominica	0	0	0
Dominican Republic	0	0	0
El Salvador	0	0	0
Haiti	0	0	0
Jamaica	0	0	0
Panama	0	0	0
Trinidad & Tobago	0	0	0
Uruguay	0	0	0
Venezuela	0	0	0
Rest of the World	64,267	14,937	79,204
Total U.S. Imports	179,077	559,785	738,862

Source: United States Department of Commerce (1994a).

hemispheric accord could, by altering the levels of economy-wide variables such as wages and interest rates, and by reducing barriers to the flow of capital among countries, create new investment and consumption patterns that may induce a forest product trading pattern not predictable through non-spatial partial equilibrium modeling.

Among the hardwood-derived wood products likely to be exported more as a result of NAFTA are U.S. hardwood lumber, veneer, and plywood. Oak lumber exports have been predicted to increase by about 20 to 60 percent in quantity, other hardwood lumber about 45 to 140 percent, hardwood veneer 5 to 25 percent, and hardwood plywood 25-70 percent. Export prices of these products may also increase, implying export value

Table 3. United States tropical, oak, beech, and maple hardwood lumber exports to the Americas, ranked by total exports of hardwood lumber, 1993 (in cubic meters).

Country	Tropical	Red Oak	Other Oak	Beech	Maple
Canada	3,035	322,003	76,299	3,143	93,538
Mexico	4,405	54,274	13,409	1,008	9,301
Dom. Republic	2,930	97	0	0	0
Bahamas	1,325	0	0	0	0
Jamaica	544	0	0	0	0
Haiti	0	0	795	0	0
Costa Rica	0	269	157	0	145
Guatemala	0	590	0	0	0
Trinidad & Tobago	340	0	0	0	0
Colombia	0	0	0	0	0
Argentina	0	0	175	0	0
Dominica	0	0	0	0	0
Chile	0	97	0	0	0
Barbados	80	0	0	0	0
Brazil	0	0	0	0	0
Bolivia	0	0	0	0	0
Ecuador	0	0	0	0	0
Peru	0	0	0	0	0
Honduras	0	0	0	0	0
Guyana	0	0	0	0	0
Paraguay	0	0	0	0	0
Belize	0	0	0	0	0
Nicaragua	0	0	0	0	0
El Salvador	0	0	0	0	0
Panama	0	0	0	0	0
Uruguay	0	0	0	0	0
Venezuela	0	0	0	0	0
Rest of the World	14,932	261,675	447,122	10,672	101,656
Total U.S. Imports	27,591	639,005	537,957	14,823	204,640

Source: United States Department of Commerce (1994b).

increases that are greater in proportion than quantity increases. Other market opportunities probably exist for certain kinds of hardwood pulp and more highly processed wood products (e.g., furniture), although these effects were not modeled. But placed in perspective, because the United States does not export a large quantity of wood products or pulp to those countries, these percentage increases amount to trivial changes in production in the United States. Said differently: these large increases in exports are likely to benefit a few, select, well-placed exporters of forest products from the United States (and Canada). Further, it may be true that much of the wood exported to Mexico from the United States ultimately ends up back in the U.S., in the form of more highly-processed materials. This currently applies to western pine and its result in border mills (molding), and it is probably true for furniture assembled in other border plants just across the border from California and Texas.

ESTIMATING THE EFFECTS OF NAFTA AND AN FTAA

An economic model of forest products markets (Olechowski 1987) was used to calculate the effects on United States exports caused by perceived changes in prices of products from the United States. The econometric model used here exploits estimates of import demand elasticities as estimated by Prestemon and Buongiomo (1996) (for the case of Mexico), or as published in the literature or chosen by the author. The model begins with the definition of the import demand function: domestic demand minus domestic supply:

$$[1] \qquad M = D(p, Y, \mathbf{w}) - S(p, \mathbf{r})$$

where M is the quantity imported, D is the quantity demanded by domestic consumers, S is the quantity supplied by domestic producers, p is domestic price, Y is domestic output of the forest product consuming industries, w is a vector of consuming industry input prices, and r is a vector of prices relevant to domestic wood products producers. Under trade protection, the product price often contains a tariff, t, applied to imports, as well as other ad valorem import charges,f. If the pre-tariff import price is P, then

$$[2] \qquad p = P(1 + t + f)$$

The effect of a tariff change on imports can be expressed as an elasticity:

$$[3] \qquad \varepsilon_M^p = \frac{\partial M}{\partial p}\frac{p}{M}$$

Combine [2] and [3]:

$$[4] \qquad \partial M = \varepsilon_M^p M \frac{\partial p}{P} = \varepsilon_M^p M \frac{\partial P(1 + t + f)}{P(1 + t + f)} = \frac{\partial (1 + t + f)}{(1 + t + f)}$$

Equation [4] can be expressed in discrete terms as

$$[5] \qquad \Delta M = \varepsilon_M^p M \frac{\Delta(1 + t + f)}{(1 + t + f)}$$

In order to evaluate the effects on imports from a tariff change, data must be gathered on the elasticity of imports with respect to price, ε_M^p, current imports, M, initial tariff levels, t, and the other import charges, f. For Mexico,

Equation 5 was augmented to include changes in other demand factors, since these were permitted to change as well. Among these factors were United States export prices, domestic demand, and a variety of other input prices (see Prestemon and Buongiomo 1996). For the rest of Latin America and the Caribbean, only the effects of tariff and nontariff barrier elimination were included, and import demand elasticities were evaluated within a range from elastic to inelastic (see Prestemon 1997).

TRADE EFFECTS FOR HARDWOOD FOREST PRODUCTS

A trade agreement would primarily affect the tariff applied to United States exports to the countries of Latin America and the Caribbean, so the economic model was used to estimate the net effects of reducing ad valorem tariffs on most traded forest products exported from the United States to Mexico for NAFTA and from the United States to all other countries in Latin America and the Caribbean. Because hardwood lumber imported from Latin America is not subject to a United States import tariff, and so would not be directly affected by tariff reductions, the effects of freer trade on hardwood imports are not calculated and are assumed to be zero. As shown in Table 2, imports from the region (outside of Canada) are small, relative to total imports.

Exports to Latin America are dominated by Mexico (Tables 3 and 4), with much smaller amounts mainly going to the Caribbean. Hence, all of the results for lumber exports are shown only for Mexico. Using a nonspatial partial equilibrium model to calculate the effects of tariff reductions, the FTAA would expand a currently very small export volume from the U.S. to the Caribbean. For hardwood, the only secondary product with an export value in excess of a million dollars exported to Latin America is hardwood pulp, to Brazil and Venezuela. And it is doubtful that the 15-20 percent price drop in import price for U.S. products to the rest of the region would be enough to make new U.S. hardwood lumber export markets materialize upon passage of an FTAA.

Table 5 describes the effects of eliminating the tariffs. Export changes to Mexico were evaluated under three macroeconomic scenarios, as described in Buongiomo and Prestemon (1996), reflecting different assumptions on the effects of the agreement on economy-wide variables (wages, interest rates, exchange rates, investment). For United States exports to Mexico, hardwood lumber products are expected to increase substantially. Oak lumber exports are expected to increase by 19-58 percent in the long-run over what they would have been without a free trade agreement. Other hardwood lumber exports are expected to increase by 74-247 percent. Bleached hardwood sulfate pulp exports are expected to increase to Brazil and Venezuela by trivial amounts, mainly because tariffs on these products currently are very low.

DISCUSSION

According to the model used here, NAFTA will stimulate hardwood exports to Mexico from the United States. But a broader, hemisphere-wide free trade agreement is not likely to affect United States hardwood exports significantly, due to weak existing U.S. hardwood exports to the region (outside of Mexico). While NAFTA modeling did account for economy-wide, general equilibrium effects of the agreement, the modeling of the FTAA did not. Hence, potential effects of a hemispheric agreement ignored were (i) changes in output of forest product consuming sectors, (ii) economy-wide effects of the agreement on input prices in signatory countries, (iii) substitution within expansion countries between domestic and imported United States forest products, including competition between softwood and hardwood products, and (iv) effects of the FTAA on trade among the expansion countries.

This research provides insights into the order of magnitude of effects that freer regional trade is expected to have for United States hardwood lumber exporters. While the FTAA will probably not affect hardwood lumber exports significantly beyond a few Caribbean countries, NAFTA probably will. NAFTA has and continues to

Table 4. United States exports of western red alder, cherry, yellow-poplar, birch, ash, hickory and pecan, and walnut lumber to the Americas, ranked by total exports of hardwood lumber, 1993 (in cubic meters).

Country	Western Red Alder	Cherry	Yellow-poplar	Birch	Ash	Hickory/ Pecan	Walnut
Canada	2,383	19,265	132	14,149	30,727	824	4,487
Mexico	9,886	105	15,289	366	3,025	608	1,249
Dom. Rep.	0	0	0	0	0	0	0
Bahamas	0	0	0	0	0	0	0
Jamaica	0	0	612	0	0	0	0
Haiti	0	0	0	0	0	0	0
Costa Rica	0	0	170	0	0	0	0
Guatemala	0	0	0	0	0	0	0
Trin. & Tob.	0	0	0	0	0	0	0
Colombia	245	0	0	0	0	0	0
Argentina	0	0	0	0	0	0	0
Dominica	0	0	173	0	0	0	0
Chile	0	0	0	0	0	0	0
Barbados	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0
Bolivia	0	0	0	0	0	0	0
Ecuador	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0
Honduras	0	0	0	0	0	0	0
Guyana	0	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0	0
Belize	0	0	0	0	0	0	0
Nicaragua	0	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0
Panama	0	0	0	0	0	0	0
Uruguay	0	0	0	0	0	0	0
Venezuela	0	0	0	0	0	0	0
Rest of the World	185,646	47,167	129,582	4,405	122,730	6,470	12,453
Total U.S. Imports	198,160	66,537	145,958	18,920	156,482	7,902	18,189

Source: United States Department of Commerce (1994b).

create opportunities for probably a select group of already established exporters. But because the agreement will not be fully in place for-another five years, there are probably opportunities remaining. In particular, when the Mexican economy eventually resumes its pre-1995 growth rate, domestic demand in that country should blossom accordingly. The more favorable investment climate in Mexico has provided an opportunity for. United States manufacturers to establish cross-border processing and assembly plants that are wholly foreign owned and operated.

Table 5. Imports of United States forest products, 1993, by selected LAC countries, pre-NAFTA (for Mexico) or current tariffs, other charges, and effects of tariff elimination on these imports from the United States.

Product	Country	Import Quantity[a]	Import Value[a] (Mill. $)	Tariff[b] (%)	Other Import Charges[b] (%)	Scenario 1[c] Low elast. (Change %)	Scenario 2[c] Med. elast. (Change %)	Scenario 3[c] High elast. (Change %)
Oak lumber	Mexico	72 Mm^3	26.2	15	0.8	19	23	58
Other hardwood lumber	Mexico	56 Mm^3	16.6	15	0.8	74	94	247
Hardwood veneer	Mexico	3,576 Mm^2	5.0	15	0.8	7	7	25
Hardwood plywood	Mexico	76 Mm3	15.1	15	0.8	26	28	72
Bl. Hardw. Sulfate Pulp	Brazil	4,666 mt	1.4	4	0	1	2	4
Bl. Hardw. Sulfate Pulp	Venezuela	29,953 mt	9.7	0	12.5	0	0	0

[a]Sources: Prestemon and Buongiomo (1996); Prestemon (1997); and United States Department of Commerce, *United States Imports for Consumption, HTUSA Commodity by Country, Calendar Year 1993* (microfiche), 1994. Quantities are thousand cubic meters (Mm^3) or metric tons (mt). Values are in 1993 U.S. dollars.

[b]Individual country tariff schedules. Sources are available from the author.

[c]Import demand elasticities were obtained from Prestemon and Buongiomo (1996) and as chosen by the author. For Mexico, predictions are under three scenarios of macroeconomic effects of NAFTA, as described in Prestemon and Buongiomo (1996).

An FTAA, while still several years in the future, is one for which positioning opportunities may exist today. For example, a producer of hardwood lumber for furniture may seek to forge an alliance with a Caribbean or Central American firm to include United States hardwoods in its exportable products, even if profit opportunities in the short-run are limited. And similar possibilities exist for establishing joint ventures or identifying new customers in furniture manufacturing for domestic consumption in the larger economies of the region, including Venezuela, Colombia, Argentina, and Brazil.

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