THE IMPACT OF INTERNATIONAL TRADE ON SOUTHERN FORESTRY

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Abstract

Forecasts of stagnant-to-declining markets for major southern forest products has stimulated unprecedented interest in export markets. Beginning in the early 1970s, exports of most southern forest products, especially lumber and plywood, increased rapidly until 1980, when a strengthening U.S. dollar made U.S. wood less competitive on world markets. Exports declined somewhat precipitously for most products until 1985, when a falling dollar made U.S. products attractive once again. Pulp and paper products—primarily sulphate pulp and kraft linerboard account for two-thirds of the total value of southern forest products exports. The major solid wood exports are softwood plywood and lumber, and hardwood lumber and veneer.

INTRODUCTION

International trade is one of the most rapidly growing and controversial areas of forestry economics. The realization that the southern forest products industry will have to rely increasingly upon foreign markets in face of anticipated slow growing domestic markets is a major reason for the growing interest in international trade. Another reason is the excitement of the modeling challenges international trade offers. Finally, trade by its very nature generates forest policy issues and controversy. Trade issues create divisions among branches of the forestry profession as the costs and gains from trade affect members unevenly.

Why has international trade become important to southern forestry? One reason is the financial difficulties experienced by the forest products industry as the extended depression of homebuilding, the major market for lumber and plywood, led to plant closings and bankruptcies of epidemic proportions in some regions of the country. The recession in the housing market coincided with increased foreign penetration of markets traditionally served almost exclusively by domestic suppliers, such as softwood lumber from Canada and furniture from Taiwan.

Another reason for the increased importance of trade to southern forestry is that high transportation costs have essentially shut U.S. West Coast lumber producers out of the eastern market, forcing them to look to export markets as outlets for their production. The vacuum left by the withdrawal of the Western producers has been filled partly by Canadians, thereby injecting international trade into what was previously a rivalry traditionally between two U.S. regions.

Third, the strong appreciation of the American dollar, beginning in 1980, made our wood exports more costly in foreign markets and reduced the domestic cost of our foreign competitors' products. The weakening in the dollar, beginning in 1985, has brought some relief.

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Finally, although trade generally confers net benefits upon society as a whole, individual members of society are affected differently by trade. Some gain, some lose. The fact that the gains may offset the losses for society as a whole is of little comfort to those who lose. It is the transfer of income from one group to another that makes trade such an emotional issue. In the case of forest exports, the problem is compounded by the fact that the gains and losses often are distributed among members of the forest sector, thereby pitting one forest industry against another.

**World Trade in Forest Products**

Comparative advantage is the driving force behind forest products trade, as it is with trade in other commodities. Because of the low value-to-weight ratio characteristic of most forest products, however, transportation cost plays a vital role in determining both the level and direction of forest products trade.

An examination of world forest products trade reveals that three-fourths of all trade takes place among the developed countries. Developing countries are relatively unimportant in forest products trade, with a few exceptions. Developing countries are major wood consumers, but the bulk of wood consumption is from domestic forests and is used for fuelwood and charcoal.

The major wood deficit countries are the United States, Europe, Japan and China. The major wood surplus regions are Canada, Sweden, Finland, Brazil, USSR and Southeast Asia. The USSR holds a special fascination for international foresters because of its vast softwood resources and its non-market economy. The USSR contains half of the world's softwood growing stock, and Soviet forest policy must be considered in any forecast of world forest products trade. The fact that it is a centrally planned economy makes the task of forecasting Soviet wood production all the more interesting. The proximity of the Soviet forest resources to Japan, America's most important foreign wood market, means that Soviet strategy is particularly important to the United States.

Europe is the world's most important forest products trading region, in both exports and imports. The large volume of trade is a reflection of: (1) the traditional dependence of Central Europe on the timber-rich Nordic countries, and (2) the free trade among the European Community countries, which resembles trade amongst our states.

The European countries experienced a severe overcutting of their forests during World War II and the Reconstruction Period. As a result, these forests have a severe gap in their age class distribution and Europe has had to depend heavily upon imports to meet its wood demands. Much of this has come from the Nordic countries, traditionally a wood surplus region. The Nordic countries, however, have reached their sustained yield cut, and are able to increase their cut only through land reclamation and intensive management. Both take a relatively long time before the increments to allowable cut become available for harvest. Until that time the rest of Europe must look elsewhere, primarily to North America, for the raw material needed by its forest products industry. Because of its favorable location relative to Europe, the U.S. South has been able to capture a substantial share of the European market.

Brazil is a comparative newcomer as a world-class wood exporter. It is also distinguished by owing its export status to plantation forests. The American
forest products industry was startled recently when Brazilian pulpwood began to appear in Wisconsin, replacing local wood. There has been much speculation about the long-term export potential of Brazil’s forest plantations. There are indications that the rapidly expanding domestic demand would take most of Brazil’s production if it could be released on the domestic market.

Imports

Although the U.S. is the world’s largest importer of forest products, the composition of imports is surprisingly simple with four products making up more than three-fourths of total imports. These are newsprint, softwood lumber, hardwood plywood, and pulp. Virtually all of the lumber, newsprint and pulp comes from Canada. Most of the plywood comes from Southeast Asia. The newsprint and hardwood plywood imports are not controversial because they are not perceived as threatening domestic businesses or jobs because of limited production of these products in the U.S. In sharp contrast, Canadian softwood lumber imports are quite controversial.

Exports

The U.S. exports a large variety of forest products. For example, individual grades and kinds of paper products number in the hundreds. But we export only a limited number of forest products in sizeable quantities. Our most important exports are paper and paperboard, softwood logs and wood pulp. Of these, only softwood log exports are controversial.

In the early 1960’s, the Japanese began buying softwood logs harvested from public lands in the U.S. West. Japanese purchases increased rapidly, and by the mid-sixties had become controversial as local log prices began to rise. Although the likely culprit was the Forest Service’s refusal to increase the allowable cut on National Forests in response to a rapid increase in housing starts, local mill operators dependent entirely upon public timber blamed log exports for the price increase. After much debate, Congress imposed a log ban on softwood logs from federal lands west of the 100th meridian. Soon after, Oregon imposed a similar ban on the exports of state timber.

It’s not at all clear that the log export ban served any real purpose. The states of Washington and Idaho and private forestland owners with old-growth timber reaped significant windfall profits from log exports. The ban has, in effect, given non-federal owners of old-growth timber monopoly in the log export trade.

SOUTHERN WOOD EXPORTS

Exports of southern wood and paper products were valued at $2.2 billion in 1987, more than 7 times the level of exports in 1967. The strong upward trend in exports during the Seventies reflected a resurgence of southern wood and paper exports after little export activity. There was a steady increase in the value of shipments from 1971 to 1980. Imports dropped sharply in 1981 and remained depressed until 1985, when they once again began to grow.

An important factor helping the recovery of southern exports was the decline in the value of the dollar during the 1970s, which made U.S. products more com-
petitive in foreign markets. Also, an improving southern timber supply situation provided a base from which additional exports could be supported, without triggering price increases that would make southern products uncompetitive on world markets. At the same time, foreign buyers shifted their attention to the South as other overseas supply areas became constrained by resource availability and/or government policies discouraging raw material shipments. Finally, the depressed housing market forced southern producers to recognize the importance of diversifying their markets.

Paper-related products dominate southern wood and paper exports, accounting for 80 percent of the total. Pulp is the largest export, amounting to $959 millions in 1986, followed closely by paperboard, with $799 millions. Wood products is third with $402 millions. Most of the growth in Southern exports since 1967 is attributable to paperboard and pulp.

Western Europe, the Caribbean, and Asia are the major export market regions. Most important is the European Community (EC). All EC countries have substantial wood and paper deficits and are net importers of forest products. The pulp markets are heavily concentrated in Europe and Asia, whereas the Caribbean is more important as a paper and wood market.

Roundwood Products

Hardwood logs and wood chips are the major roundwood exports. Oaks account for the bulk of log exports. Most hardwood log exports are veneer quality logs going to Western Europe. European interest in U.S. hardwoods has increased because of restrictions on log exports from Asia and West Africa, Europe's major overseas sources of hardwood logs.

Pulpwood

In the mid-1970's, the European pulp industry began to seek overseas sources of raw materials. Booming markets and capacity expansion in papermaking in the early 1970's caused Scandinavian pulp industry requirements to exceed pulpwood supplies. At the same time, a wood chip surplus developed in the South as pulp industry requirements lagged behind rising lumber sales following the 1974-75 recession.

Trial deliveries of wood chips to Europe in 1975 and 1976 culminated in long-term chip supply agreements with Sweden; and chip handling facilities were constructed at Lake Charles, Louisiana, and Savannah, Georgia, to serve the overseas market on a continuing basis.

Chip exports surged in 1977 as the new chip terminals began to operate. However, shipments were curtailed in 1978 because of depressed European markets. Shipments pushed up again in 1979, and spot sales to Japan helped boost shipments in 1980. Large shipments to Finland increased exports to an all-time high of 739 thousand tons in 1981. Chip exports dropped to 46 thousand tons in 1986, reflecting the slow-down of the Scandinavian economies and Finland's restrictions due to the pine nematode.
Lumber

Southern lumber exports have almost tripled since 1967, increasing from 131 million board feet to 368 million board feet in 1986. Softwoods account for two-thirds of the total.

Softwood exports are virtually all southern pine lumber and amounted to 221 million board feet in 1986. The two major markets are Western Europe and the Caribbean. Modest quantities are also shipped to South America and Asia. Southern pine lumber shipped to Europe is primarily clear material, used for joinery, paneling, and furniture parts. Most of the lumber shipped to this market is shipped rough for remanufacture to metric sizes and also because of the EC tariff on dressed lumber. Most of the pine shipped to the Caribbean is for structural purposes, with a majority as dressed lumber.

The South exported 147 million board feet of hardwood lumber in 1986, up from 20 million in 1967. The primary reason for the increase was the growth in the European market during the 1970s and the Asian market during the 1980s.

European interest in U.S. hardwoods has grown as traditional sources of tropical hardwoods have become restricted. In addition, oak has become the fashion in European furniture in recent years. Almost the entire increase in hardwood exports since 1967 has been oak lumber.

Veneer

Hardwood veneer exports increased from 13 million square feet in 1967 to 382 million in 1980, but declined to 250 million square feet in 1986. There is only a minor quantity of softwood veneer exported.

The EC absorbs about four-fifths of southern veneer exports. The rapid expansion of veneer exports to Europe can be attributed to the growth in European housing and furniture construction, the decline in the availability of tropical hardwoods, and the expansion of the European plywood industry.

Plywood

The South exported 304 million square feet (3/8" basis) of plywood in 1986, virtually all of which was southern pine plywood. Softwood plywood exports have increased dramatically in recent years, surging upward from 62 million square feet in 1980, to 286 million in 1986. This huge expansion was due entirely to increased shipments to the United Kingdom and Benelux countries. Softwood plywood is the most rapidly growing southern wood export.

Pulp, Paper and Paperboard Exports

Pulp and paper exports dominate the South's forest products exports, with the total value of exports amounting to $1.7 billion in 1986, or 7 percent of the total value of southern wood and paper exports.

Pulp is the most important southern forest products export, amounting to more than 2.5 million tons in 1986. Sulphate pulp dominates pulp exports, accounting for 86 percent of total pulp exports, most of which is bleached pulp. Europe is
the principle market for southern pulp exports, accounting for two-thirds of the total.

Pulp and paperboard are the South's second largest forest products exports, amounting to slightly more than 2.2 million tons in 1986. Virtually all is kraft linerboard.

THE IMPACT OF TRADE ON FOREST MANAGEMENT

Timber management decisions reflect perceptions about present and future forest products markets. In principle, at least, whole series of management practices beginning with site preparation is designed to deliver a tree of a species, size and form demanded by a specific market or markets. Trade can alter management decisions by changing the pattern of demand for forest products, and hence the trees best suited to produce those products. Exports will increase, imports will reduce, the demand for specific trees. Exports will tend to raise the prices of all timber, because of the high degree of substitutability among timber species and size classes. Thus, the Southern forest landowner may see prices offered for his timber go up even though his timber is not sold in the export market. On the other hand, imports will tend to dampen price increases by reducing the demand for domestic timber.

The Impact of Exports

Exports increase the aggregate demand for forest products and, thus can be expected to increase the derived demands for timber. Since the management actions of forestland owners presumably are influenced by changes in the rates of return earned by forest management alternatives, one would expect that the increase in price of timber associated with an increase in export demand would stimulate landowners to shift their management towards producing more of the timber demanded by the export market. There are reasons, however, to doubt whether forestland owners will respond to changes in export demand in the same way as they do, for example, in agriculture.

To begin with, timber production is a long-term investment decision. Only the timber inventory can be changed in the short term. Changes in forest output typically take years to implement. Thus, responses to a change in, say, export demand for oak lumber must come first through an increase in harvest, which amounts to a draw-down in the oak timber inventory. But, since the tree is both the inventory of produced goods, and the production unit, a drawdown in timber inventory is, simultaneously, a reduction in plant size. This amounts to a negative long run supply response. Put simply, the decision to harvest a forest today is also a decision to reduce future wood production by that forest.

The profit maximizing landowner attempts to balance the marginal revenue from letting the stand grow another year against the marginal cost of holding the stand for another year. It can be shown that these revenues and costs are driven by the value growth percent of the stand and the interest rate, respectively. An increase in stumpage price, if perceived to be permanent, will have no effect on the harvest decision since it both increases the return from harvesting and the opportunity cost of delaying the harvest equally, and hence cancels out. Changes in prices do, however, influence the profitability of the best combination of
forest outputs, of which timber is one, and, therefore, determine whether one produces timber or shifts to management for other forest outputs.

If the landowner believes the export demand is temporary and timber prices will decline in the future, he is likely to harvest his timber today to take advantage of the temporarily high prices. Thus, a temporary increase in export demand is likely to trigger a harvest decision, but not change long range management practices.

The most likely contribution of a general and sustained increase in forest products exports will be to maintain aggregate demand for timber. That is, it will offset the declining growth of domestic markets and encourage the retention of lands currently in timber production to remain there. I do not see any strong trend towards increasing the forestland base in response to export demand.

The Impact of Imports

It is interesting to speculate on the impact of Canadian softwood lumber imports on southern forestry. The impact goes beyond the direct reduction in demand for southern substitutes for the Canadian wood and consequent price reductions. The derived demand for southern pine timber involves complex interactions between the demand for southern pine used as a substitute for the Canadian imports, southern pine used as a complement to the Canadian imports, and mill residues generated in the production of southern pine and used as furnish by the pulp industry, and southern pine plywood production.

An increasing portion of the southern pine harvested goes into house decking, where southern pine's superior treating capability insulates it from competition from Canadian lumber. This southern pine use is, in fact, complementary to Canadian lumber. To the extent that the less costly Canadian lumber induces more housing construction than otherwise would take place, Canadian imports increase, not decrease southern pine consumption.

On the other hand, an increasingly important source of furnish to the southern pulp industry is mill residues. A reduction in southern pine lumber production due to Canadian imports will reduce residue supply, increase pulpwood demand, thereby increasing the demand for small diameter, short rotation timber. The net effect is likely to be a slight incentive for landowners to shorten their rotations, but I believe this will be a very slight tendency, at best.

Furniture Imports

Another interesting case is furniture imports. At first glance, the rapid increase in wood furniture imports would seem to reduce the demand for U.S. hardwoods, thereby discouraging management for these species. This is true to the extent that the imported furniture is made from foreign woods. But because of a scarcity of furniture-grade hardwoods in Taiwan—the source of much of the imported furniture—Taiwan imports a substantial quantity of southern hardwood furniture dimension stock. To the extent lower-priced Taiwanese furniture increases total U.S. wood furniture demand, the derived demand for hardwood timber is increased over what it would be otherwise.

This example illustrates an important characteristic of forest products trade. The forest products industry includes manufacturing plants producing products at
several stages of fabrication, with the wood output at one level the raw material input at another level. Modern technology has increased the ability to substitute wood inputs across product lines. In economic jargon, the timber production possibilities curve has become smoother. This had made the initial forest stand establishment decision less of a crap-shoot than it was before. Within increasingly broad ranges of species and tree sizes, the wood products producer can adjust his manufacturing process to take advantage of the availability of different timber, as reflected in the timber price structure.

Forest management decisions are thus becoming more sensitive to changes at the margin between timber and non-timber uses, such as agriculture, than they are to changing demands for forest products. Changing demands for forest products can be more swiftly and economically met through shifts in wood technology. For these reasons, changes in forest products imports are more likely to be met through shifts in wood processing technology than they are in changes in long-term forest management practices.

SUMMARY

In principle, the expectation of continued growth in exports should encourage more intensive timber production in the direction of the exported species. I suspect, however, any such change will, with the possible exception of some specific species/grades, be negligible. The reason is that the domestic market will continue to drive management decisions. Even if the most optimistic projections of exports are realized, they will be, in most cases, small relative to domestic markets. It is the domestic market that is the primary determinant of forest management decisions. Of course, if the domestic market is stagnant and the export market is growing, then changes in management practices at the margin will likely be driven by the export market.

The private landowner's response to price changes is complicated by multiple management objectives. Numerous studies have found that timber management is only one of several reasons for the ownership of forest land. More frequent than not, timber management is relatively far down the list of ownership purposes. Although it is reasonable to assume that higher timber prices will make timber management more attractive to these owners, we don't know enough about their management preferences to know how much of a price change would be necessary to trigger a change in management.

In my view, the primary impact expanding exports will have on forest management will be to provide an incentive for lands already in forest production to remain in forestry. Expanding exports are unlikely to attract large new acreages into forest production, since expanding exports are likely to be replacing, not adding to, domestic demand.

I think changes in forest land use will come about, as it has in the past, through changes in agricultural land use. Historically, changes in the economics of particular agricultural crops has been a more important factor in increases or decreases in forest land than have changes in forest products prices. The large number of acres planted to forest trees under the Soil Bank Program is an example. I suspect we may see a significant amount of land returning to forest as a result of the Reagan Administration's removal of agricultural price supports.
and subsidies. One can argue that agricultural subsidy programs are the biggest barrier to an optimal allocation of land to forestry.