C I N T R A F O R

Working Paper 47

Back to Publications List

The Impact on Domestic and Global Markets of a Pacific Northwest Log Export Ban or Tax

John Perez-Garcia, Holly Lippke Fretwell, Bruce Lippke and Xiaoming Yu. 1994

Executive Summary

A ban on the export of privately-grown logs has been proposed by s6me domestic log purchasers, environmental groups and congressional representatives td relieve the timber shortage caused by court injunctions and state and private land regulations in the Pacific Northwest (PNW). The assumptions behind this proposal are that: (1) log markets require some form of policy intervention--such as a log ban--to divert export logs to domestic mills; and (2) the benefits from added domestic log processing and export of finished products will outweigh the losses incurred by private timber growers? log exporters and consumers. Previous economic studies have generally shown that restricting open markets may benefit s6me processors, but these benefits come at the expense of others and with a substantial net cost to consumers. This study presents results which support the finding from previous studies that restricting open markets leads to higher costs with negative economic impacts in the restricted region, within the U.S. and across the globe.

This study examines the assumptions behind a log export ban proposal. First, it draws attention to recent data on log export declines as evidence supporting the contention that open markets provide an efficient response to timber supply shortages. It then addresses the factors needed to determine the benefits and costs of a log export ban on global and regional markets: (1) how log and lumber trade flows are redirected and at what costs; (2) who is impacted regionally; and (3) who benefits and who pays at the log and lumber levels. The question of how an export tax differs from a log ban is also considered since log export taxes have been proposed as an alternative to a log export ban. This raises the general question of whether there are other forms of market interventions rather than a log ban that might relieve the log shortage for mills with less negative impacts on other producers. Implications of the impacts of a log ban on job markets and forest management are discussed briefly.

The CINTRAFOR Global Trade Model (CGTM)--a product of over ten years of research by a number of international experts--characterizes regional timber, processor and consumer markets, and simulates the international flow of logs and products from wood surplus regions to wood deficit regions. The model is used in this study to analyze the global and between-region trade flow response to log export ban and tax policy proposals. This modeling exercise provides a first approximation of the proposals' impacts. Potentially important within-region issues--such as the location of timber relative to mill capabilities, and the many different categories of jobs that are impacted by changes in trade flows--are important areas of further research work.

Open market forces divert export logs for domestic processing: Data on log exports from Washington and Oregon indicate a 40% declined since 1989 as a consequence of higher regional timber and log prices that have been caused by the timber shortage. These data suggest that higher log prices under open market conditions have already redirected a substantial. amount of previously-exported logs to domestic processors. if logs were banned from exports--i.e., if closed-market conditions were to exist--the price conditions forcing the diversion of export logs to domestic markets would not exist. In economic jargon, open markets are more efficient than restricted or closed markets since open markets allow prices to stimulate the next lowest cost suppliers to replace the timber harvest reduced by policy constraints. Open markets faced with a timber supply shortage allow the price for timber--the product in shortage--to rise, coaxing out the next least costly increment in supply from around the globe. In contrast, a log ban

supplements the wood available to processors in the log-deficient region by diverting logs from export markets. This form of market intervention prevents logs from reaching their highest valued markets. Log prices in the restricted region will then be lower even though timber harvest restrictions have reduced timber supply. Log prices will be higher in the alternative, unrestricted markets where timber supply was not reduced. Deviations from an open market response caused by interventions impose higher costs on consumers and a large number of processors. Only those processors within the restricted timber market will see lower log costs. Transportation costs to move the resources to global markets will also be greater under a ban or tax.

Lower prices reduce the supply in the timber short region: The COTM estimates by 1995 a $48 per mbf decline in the PNW real domestic log price from a private log ban and a $150 per mbf increase in real log prices in Chile and New Zealand, two regions representative of remaining ½en market log suppliers. A similar $150 growth in real log prices is estimated by the model for Japan, the major log importing country. Real price increases are estimated to be much smaller in other markets that are not directly linked through trade to the Pacific Rim log flow. Price increases are measured as the difference between simulations ~f all regional markets after the imposition of a private log export ban from the PNW and baseline market conditions without a ban.

The lower real domestic price results in an annual 500 million bd ft reduction by 1995 in private timber harvest in the U.S. West region. The redirection amounts to 21 percent of logs previously exported under baseline conditions. The countries previously importing U.S. logs are only partially successful in offsetting their lower log trade volumes with the U.S. by increasing their domestic log production and log imports from other regions. In this manner the previously importing countries offset only 15 percent of the log trade volume lost through the imposition of a ban. There do not appear to be enough open market log suppliers to offset the loss in Asia's softwood log imports from the U.S. outside of Russia. While Russia may respond to this shortage, there is no economic history to characterize such a response, which in any case appears plausible only in the long term, given their current political problems.

Log importing country losses are much greater than PNW processor gains: The lumber volume reductions by overseas log-importing mills is far greater than the gains in log consumption by U.S. firms. Lumber shutdowns in log-importing countries are 70 percent greater than additional processing in the U.S. West Higher log prices, the loss of higher-yielding lumber mills, and the decline in Western harvest levels all contribute to the greater decline in processing

capacity in these regions. the large decline in overseas processing capacity implies significant reductions in their associated labor markets.

Canadians gain the comparative advantage in lumber markets: The volume loss in lumber production in log-importing countries is made up by greater amounts of lumber imports, almost totally from Canada. While the Canadian log export ban has shifted the comparative advantage to the U.S. PNW in the Pacific Rim log markets, the Jog ban simulation indicates that a U.S. log export ban will shift the comparative advantage in Pacific Rim lumber markets to Canada, and the comparative advantage in logs to New Zealand, Chile and perhaps even to Russia.

Consumers pay higher lumber prices even in the U.S.: While the price of logs declines in the expon4estricted supply market, other regions see log prices row. The log price increase becomes an additional cost to lumber producers. U.S. lumber prices rise 1.2 percent relative to the baseline. Other markets respond similarly with the exception of New Zealand and Chile. Lumber prices increase in these two markets as much as 30 percent due to a high growth in log prices.

Who gains and who loses: From an economic and social welfare standpoint the beneficiaries of habitat preservation--the policy action resulting in the log supply shortages--should pay for the cost of a program aimed at reducing the negative economic impacts on domestic mills from mandated timber harvest reductions. As a measure of a more equitable program, the U.S. public should pay for the costs to offset the impacts of these constraints on timber supply since the beneficiary of federal habitat preservation policies is the U.S. public.

Instead, under a log ban proposal, the model estimates an annual $395 million decline in timber value in 1995 for timber producers in the restricted region due to lower domestic log prices. This value declines further when the price premium for quality timber currently paid in foreign markets and not contained in timber received for domestic processing is included in the above loss. The log price premium is estimated to be $262 million, raising the total estimated loss to almost $658 million annually. The model estimates that the region's lumber producers will gain almost as much, as they see their log costs decline. According to the results, they also see a lift in national lumber market prices and their production volumes increase. However, it is the consumer that ultimately pays the bill. Since the model predicts that PNW log and limber producers direct a high percentage of their production to the U.S. national market, consumer costs in the western region are much tess than lumber producers gain. However, the region still suffers a net loss when timber producer losses which include the export price premium are considered. U.S. lumber consumer cost grows by an annual $218 million. Therefore, in the U.S., the consumer and PNW timber producer pay for implementing a federal policy to ban private log exports. M important implication from these results is that one can expect less investment in timber management which, over several decades, would result in sustainable harvests of lower volume and quality, forcing consumer costs to grow further as a result of the current timber producer's losses.

Since the model suggests that overseas log processing mill closures are greater than U.S. production gains, it is not surprising that the international consumer pays even more than the U.S. consumer according to the study results. Around 70 percent of the total annual $733 million increment in lumber consumer cost is outside of the U.S.. The total global lumber consumer cost per volume of logs banned is almost $280 per mbf. The loss of higher-yielding processors and the use of more costly substitute timber causes the growth in global consumer cost to be large. The modeling results indicate that while the principles of free trade offer global savings, a log export ban is a restriction to trade which adds to global costs, reduces global efficiency, and lowers the world's welfare. It also produces negative economic impacts in the log ban region greater than gains to lumber producers.

Preliminary economic and job loss estimates: The model characterizes the price and cost changes in lumber and log product flows at the regional level. Neither the within-region transportation costs nor job sensitivities to revenue impacts is directly modeled. Instead, the study uses changes in revenues provided by the model to arrive at preliminary measures of job market impacts. Revenues determine both the number of jobs and wage levels that can be supported, hence revenue impacts are the better measure of economic policy effects. Using a national average job cost in relation to the total value of gross domestic product, the U.S. consumers' lumber cost increase of $218 million from a log export ban might result in a loss of about 5000 jobs annually across the nation. The PNW regional loss of more than $50 million would imply annual regional job losses of 1200 more than those gained by processors. In the longer term, regional losses would be larger as the harvest level declines with less investment in timber. In the short term, a poor distribution of mill capacities relative to the location of the timber currently being exported would also raise these job loss estimates. Since the revenue estimates only included the impact on lumber consumers, a full accounting for all forest products including panels and fiber products as was the loss in port activities, could increase these job loss estimates significantly.

A log export tax as an alternative to a log ban raises revenues but with additional risks: A

log export tax has the potential to collect monopoly rents for timber in shortage rather than to give the region's .comparative advantage to other timber suppliers without any compensation. Global trade model simulations with an incremental tax on log exports indicated that the tax revenue declines rapidly with any log export tax greater than 13 percent. A 13 percent tax is equivalent to a $66 per mbf tariff on log exports, roughly 62 percent of the premium estimated for log export prices over logs for domestic processing in 1991. Results from the tax simulation indicate a 35 percent reduction in PNW log export volume, corresponding to a 19 percent decline in Japanese log imports.

Under a tax scenario, revenue losses by western timber producers are predicted slightly less than the proportionate impact of a log ban, processor losses increase, especially in log-importing countries, and the consumer costs are nearly proportionate to the costs under the log ban scenario. The modeling results indicate that the export tax, similar to the export ban, reduces timber prices. Hence, timber managers

effectively pay for the tax. In theory, the collected tax may be used to offset the negative impact of the tax on timber management However, the results suggest that the tax revenue would not fully compensate for the timber producers' losses, even if it was allocated to them. Similar to a log ban, an important implication of the tax scenario results is that there will be a reduction in timber investments and harvests in the longer term.

Since a tax is collected from foreign buyers it poses both new legal and retaliation risks. Several conditions should exist in order to minimize the losses in the PNW region. It would be necessary (1) to channel the tax revenues to timberland owners to reduce their loss and maintain their investment, (2) for log export purchasers not to retaliate, and (3) for potential new suppliers like the Russian Far East not to receive an infusion of investment needed to increased exports. These are difficult conditions to control by the tax imposing regions hence an export tax policy incurs additional risks beyond those associated with a log export ban.

Other alternatives should also be considered: Open markets provide the most efficient avenue for response by timber producers and processors to alleviate timber supply shortages. Hence open markets are the best economic solution to timber shortage problems. Either a log ban or tax causes large welfare losses in the restricted region, the nation, and the globe. Therefore either would be less efficient than allowing the open market to guide the diversion of export logs to domestic mills. Since both a ban and tax penalize timber--the commodity for which supply has been reduced--any preferred alternative should insure that the benefits which are directed to those mills being impacted by log shortages do not exacerbate the timber supply problem. Furthermore, a tax, as is the case in a ban, does not reduce the cost to foreign buyers of timber and lumber who do not benefit from U.S. preservation programs. The preferred economic alternative would be for the U.S. general public--as the beneficiary of the habitat preservation--to bear the costs imposed by a policy to direct more logs to PNW mills.

A credit given to affected mills may provide these aspects of a more effective intervention program. Tax credits for processing wood will improve the domestic processor's ability to compete with foreign processors for logs, without negatively impacting the timber producer. A tax credit program would benefit domestic processors who could then bid pan of the credit back to timber when making bids to purchase timber. This approach would reduce the negative impacts on timber producers and increase the management and the output of timber, two large negative outcomes of either a log ban or tax policy. U.S. taxpayers who benefit from timber preservation might then pay for a larger share of the global cost through higher lumber prices, and the cost would be directly invested. in making U.S. processors more competitive; Such a program can be considered economically efficient relative to the intended goals--such as reducing job market and investment behavior impacts--even though its costs would be absorbed by the U.S. consumer with associated job losses nationally rather than regionally.

Full Report $20.00: To Ordering Instructions

Back to Publications List