

Global Investments in Timberlands & Manufacturing, International Trade and Southern Timber Supplies

Three key issues face the southern forest sector: 1) Where is there excess wood now and in the future? 2) What volume and/or form of wood could come to North America and impact southern competitiveness? and 3) What are the opportunities for forest sector investments outside of North America? This study seeks to answer these questions, and in turn, provide useful information in order to understand the southern timber supply situation in the national and global forest products markets, the investment opportunities in the forest products sector and likely new sources of wood products in the future.

The study examines where excess wood exists, how much can be imported to the US, and what opportunities exist for US investments overseas, beginning with an examination of global demand. **Figure 1** charts the historical relationship using world gross domestic product (GDP) as the measure of global income converted to real US dollars using purchasing power parity, and consumption of industrial round wood in million cubic meters. The figure also includes two extensions of the historical growth rate based on two different sample periods. Industrial round wood is defined as timber that produces paper and paperboard products, solid wood products and other miscellaneous products, (i.e. no firewood).

The chart data reveals a structural break in consumption patterns during the early 1990's. Part of this break is the result of the collapse of the former Soviet Union. The shut down of not only its consumption but also its production sectors has had a visible impact on global consumption. Also efforts to produce timber in a sustainable fashion in tropical forests and environmental restrictions on softwood timber harvests significantly constrained timber supply in the 1990's, leading to reduced global consumption of forest products.

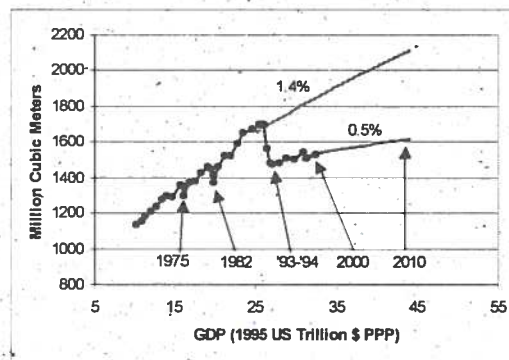


Figure 1: Consumption of Industrial Round Wood by Economic Activity from 1965 to 2000 and Projections to 2010.

Two projections of future consumption are made. Using a growth rate of consumption observed prior to the 1990s results in projected consumption of nearly 3 billion cubic meters by 2050. Using a growth rate estimated during the 1990s results in a projection of 2 billion cubic meters by 2050. Near-term consumption is projected to increase from 300 million to 800 million cubic meters over the next 20 years.

The study also examines global timber supply projections using the ATLAS timber projection model, and their implication for excess supplies (the volume over rotation age assuming no growth in current demand) of wood fiber. **Table 1** presents potential supply data for selected countries to illustrate the possible role new areas of wood fiber production may have in meeting its growing demand. Those included were identified as potential areas where plantation establishment could lead to excess supply of wood fiber and impact in the North American fiber supply.

The short- to medium- term (from now to 20 years from now) available wood from the countries indicated above suggests that within the Asian wood basket, plantations in Indonesia, Australia, and New Zealand have over 400 MMm³ of harvestable wood. These wood resources are close to China and represent 3.5 times the 113 MMm³ of wood fiber consumed by China in 1997. The projected demand for wood in China, combined with limited current short- to medium-term inventory, make these sources low cost options for China. The plantation wood is likely to compete with non-plantation wood, particularly from Russia, and to some extent Scandinavia, in the Chinese market. And, over the longer term, this plantation wood will also need to compete with Chinese plantations as they come on line.

In the American (North, Central and South) market, there is approximately 500 MMm³ from Argentina, Brazil, Uruguay and Chile. Market demand for these fibers is not certain. Much of the additional short-term fiber from these plantations may fill European and North American markets, but again come under competition from large non-plantation wood fiber sources in the northern hemisphere, such as Canada and Scandinavia, as well as the US fiber resource in the South.

Table 1: Potential Supply Data for Selected Countries

Country	Plantation Area (Millions of hectares ²)	Species Distribution	Balanced Age Class Distribution	Avg. Growth Rate	Average Rotation	Short-Medium Term Volume Available for Harvest	Industrial Roundwood	
							Production	% Pulpwood
New Zealand	1.5	91% <i>Pinus radiata</i>	Yes	18 m ³ /ha/yr	25 years	140 MMm ³	16.4 MMm ³	20%
Australia	1.0	62% <i>Pinus radiata</i>	Yes	18 m ³ /ha/yr	25 years	195 MMm ³	20.2 MMm ³	47%
Indonesia	3.0	Variety	Yes	12 m ³ /ha/yr	25 years	98 MMm ³	47.3 MMm ³	24%
Brazil	4.2	65% <i>Eucalyptus sp</i>	Yes	18 m ³ /ha/yr	25 years	190 MMm ³	84.7 MMm ³	36%
China	17.5		No	1-18 m ³ /ha/yr	25 years	0 MMm ³	108.7 MMm ³	7%
Argentina	0.7	Softwood & hardwood	Yes	18 m ³ /ha/yr	25 years	137 MMm ³	7.7 MMm ³	48%
Uruguay	0.1	>80% <i>Eucalyptus</i>	No	18 m ³ /ha/yr	25 years	32 MMm ³	1.0 MMm ³	21%
Chile	1.7	78% <i>Pinus sp</i>	Yes	18 m ³ /ha/yr	25 years	146 MMm ³	19.8 MMm ³	36%

Economic supply for softwood logs is also estimated in this study, using the CINTRAFOR Global Trade Model (CGTM). We develop cost curves by ranking the quantity of sawlog supply available at a given price. The cost curves assume no growth in demand over the projection period from 1993 to 2040. An additional 200 MMm³ of sawlogs would be produced with an increase of \$188/mbf (2000US\$ or \$40/m³ in 1980US\$). Finland produces the lowest cost sawlogs followed by New Zealand and then the US South. These three regions provide the bulk of the first 100 MMm³ of addition sawlogs. The interior region of western Canada, sourcing wood fiber from native forests, provides additional wood in the mid- to longer-term. Regions such as the US West provide little or no additional wood supply because they are meeting current demand.

Supplying the least cost manufacturing capacity is modeled in a similar fashion as supplying least cost sawlogs. The European region of Finland, Sweden and the western continental countries provide the majority of the lower cost manufacturing capacity.

CONCLUSION AND RECOMMENDATION FOR FURTHER WORK

Excess wood now and in the future is distributed between native forests of the northern hemisphere and new plantation areas of southern hemisphere and temperate regions. The marketability of this wood depends on many factors. Under homogenous demand across the globe, Scandinavian wood fiber is lower cost than plantation wood fiber from New Zealand, for example. Excess supplies in the South are also low cost over interior Canada. From this representation, we conclude that Scandinavian wood fiber is likely to be the most competitive with southern timber and can be viewed as an important marginal supplier to US markets. The 1 billion cubic meters of potential wood fiber is greater than the upper bound of 750 million cubic meters projected for the near-term demand for industrial roundwood. However, the projection of biological supply is sensitive to plantation growth rates and rotation ages used in the study. Timber inventory projections decline significantly with changes in these assumptions. Future work will require better information on area planted, their growth and management intensities defining rotation ages.

Global Investments in Timberlands & Manufacturing, International Trade and Southern Timber Supplies is available from CINTRAFOR as Working Paper 88.