



Timber prices and elasticities for emerging species and different product categories

Diversifying the tree species in our forests and woodlands is widely accepted as an effective measure to reduce the risks they face, including those associated with climate change. Despite widespread acceptance in principle of the case for tree species diversification, the shift towards it has been slow, with many in the industry cautious about moving away from the narrow range of species already well-established in UK timber markets. By reviewing existing literature, [our study](#) aimed to shed light on how less commonly planted 'emerging' species and different wood products may perform in future UK timber markets.

Prices

The review found analyses of historic prices for only a small number of emerging species (red oak, aspen, silver maple, black walnut, and Weymouth pine). All the previous studies identified focused on North American markets. The review found that, in the USA between 2000 and 2020:

- black walnut has been consistently the highest-priced, though prices have been volatile;
- aspen has consistently been one of the lowest-priced;
- red oak prices fell relative to other species (shifting from above those for white oak and soft maple, to below these prices);
- maple (silver maple) prices have been fairly stable. They largely followed prices of white oak for both high- and mid-quality sawnwood.

Elasticities

Elasticities quantify changes in the demand or supply of a product caused by a change in another factor. The most frequently estimated demand elasticity is the own-price elasticity of demand, which indicates how much the quantity demanded is expected to be altered with a change in the product's price. For example, a price elasticity of demand of -0.8 implies that a 1% increase in its price would result in a 0.8% decrease in the quantity demanded.

No existing estimates of elasticities for individual emerging species were identified for the UK. Previous studies estimating elasticities have generally focused on wood product categories.

Estimates suggest that sawnwood demand in the UK is relatively unresponsive to changes in price. However, softwood sawnwood in particular is more sensitive to changes in income.

Emerging species are tree species that have been identified as likely candidates to have a more prominent role in UK forestry and are split into two broad categories:

- **Secondary tree species** are those that have been planted on a comparatively small scale but are still reasonably well understood.
- **Plot-stage species** have not been planted on any significant scale but have shown promise in trial plots.

Own-price and income elasticities estimates for the UK are shown in the table below (estimates where the UK is grouped with a small number of other countries based on key characteristics are included, with estimates from Europe-wide and global studies excluded).

Own-price and income elasticities of demand for the UK

Wood product	Own-price elasticity of demand		Income elasticity of demand	
	Short-run	Long-run	Short-run	Long-run
Sawnwood	-0.36*		0.55**	
Sawnwood (softwood only)			1.04**, 1.31* to 2.00	2.13*, 2.17**
Plywood	-0.73**	-0.86** to -0.97**	0.13**	0.07**
Plywood & veneer	-0.62**		0.97**	
Particleboard inc. oriented strand board (OSB)	-0.55**, -0.70**	-0.96** to -1.21**	0.25*, 0.55**	0.11** to 0.38**
Fibreboard	-1.18*	-0.03** to -0.40**	0.32**, 0.79**, 1.11*	0.95** to 1.00**
Newsprint		-0.14** to -0.44**	0.28**, 0.57*	1.00** to 1.05**
Printing and writing paper	-0.29**, -0.54**	-0.69** to -0.79**	0.39**, 0.66**	0.45** to 0.93**
Other paper and paperboard	-0.16**, -0.52**	-0.15** to -0.31**	0.37**, 0.48** to 1.10**	

Significance: *:p<0.05, **:p<0.01

Other findings

The most frequently reported factors influencing demand for wood products identified in UK industry reports were the private housing market and the repairs, maintenance, and improvement market.

For short-term forecasting of timber prices, there are often relatively small gains in accuracy from using more complex models compared to a simple average of previous prices. A potentially useful and relatively simple model for predicting prices is the SARIMAX model (seasonal autoregressive integrated moving average model with exogenous factors). This uses historical price data, time of year, and some measure of construction activity.

For forecasting long-term demand and prices, the Global Forest Products Model appears to be the best starting point and is the most frequently used in studies of this type.

In previous studies, demand for sawnwood was found to be relatively insensitive to price changes compared to other (non-paper) wood products.



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To find out more about this and related research, go to: forestresearch.gov.uk/research/priorities-for-research-on-emerging-species/

To read the full report go to: forestresearch.gov.uk/publications/timber-prices-elasticities-emerging-species/