Testing the Efficiency of Spatial Arbitrage between North American Softwood Lumber Markets of Homogeneous Products

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Abstract: Market integration forms the basis of price policy of a product traded between different markets. There has been a heavy dependence on testing market integration and law of one price (LOP) using cointegration, Granger causality, and error correction approaches. Although these approaches test for the existence of a long-run equilibrium relationship between prices in the two markets and the dynamics of adjustments to short-run deviations from long-run equilibrium, these methods suffer a fundamental general flaw. These are based on the price data in the two markets alone and fail to test the hypothesis of efficiency of arbitrage among these markets. These tests of market integration do not provide specific evidence as to the competitiveness of markets, the effectiveness of arbitrage, and the efficiency of foregone arbitrage opportunities. Therefore we need to pay adequate attention to the costs of arbitrage in markets analysis. We use Baulch’s Parity Bounds Model (PBM) to test the efficiency of inter market arbitrage for different homogeneous products of softwood lumber traded between Canada and the US to develop a comprehensive and comparative perspective of the Canadian and the US softwood lumber markets. We also test the efficiency of arbitrage among these homogeneous softwood lumber products using maximum likelihood estimation by decomposing the difference between the price differentials and the transfer costs into a mixture of normal distribution. We found that there is high efficiency of arbitrage between British Columbia and Southern US, Boston, North East US, and Spokane markets. However, the efficiency of arbitrage is low between British Columbia and Great Lakes, Redding, and Inland US markets. The nonparametric statistical tests largely corroborate our findings of the parametric tests.

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