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WOOD FOR THE FUTURE: INTEGRATING SUSTAINABILITY ACROSS INDUSTRIES

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Title of the paper: COMPARATIVE ADVANTAGES OF SLOVAK FOREST PRODUCTS IN THE EU MARKET

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INTRODUCTION

- Competition affects all sectors, including the WPI - sawmilling industry and the production of wood-based materials.
- As a consequence, individual changes require new strategies in order to gain long-term advantages and to face not only domestic, but also international competition.
- The concept of competitiveness is quite complex - it is used at different levels of aggregation (product level, business unit and firm level, industry sector, national or regional).
- Competitiveness - based on comparative advantages.



METHODOLOGY FOR APPLYING COMPETITIVENESS ANALYSIS IN WOOD PROCESSING

- The competitiveness analysis of wood processing focused on the mechanical wood processing sector - sawmill industry (C and NC) and wood-based materials (veneers, plywood, fibreboard and particleboard) production.
- Analyses of Slovakian foreign trade (export, import) for the period from 2004 to 2023 to EU.
- A specific sector can gain a market advantage by setting the index of trade specialization.
- Data based on official data from FAOSTAT International Statistics (2025).

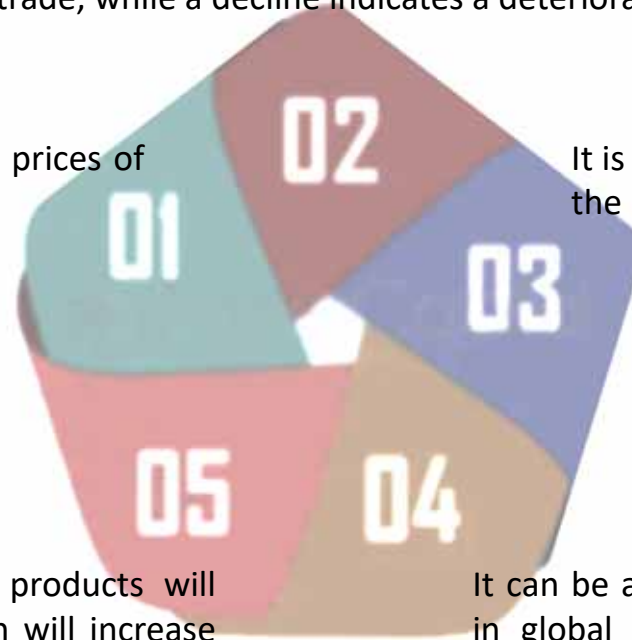


WHY TRADE SPECIALISATION INDEX ?

A rise in the index indicates an improvement in the country's terms of trade, while a decline indicates a deterioration.

It is a measure of the relative prices of exports and imports.

It is a tool for policymakers to monitor the health of the economy.



A country that exports wood or wood products will benefit from a rise in wood prices, which will increase the value of exports.

It can be affected by a variety of factors, including changes in global commodity prices, shifts in currency exchange rates, and changes in the policies of trading partners.



METHODOLOGY FOR APPLYING COMPETITIVENESS ANALYSIS IN WOOD PROCESSING

TSI (Trade Specialization Index) for the period from 2004 to 2023 for the Slovak Republic (SR).

$$TSI_j^A = \frac{X_j^A - M_j^A}{X_j^A + M_j^A}$$

Where:

- X_j^A – export of product j (sawnwood and wood-based materials) from the Slovak Republic,
- M_j^A – import of product j to the Slovak Republic.



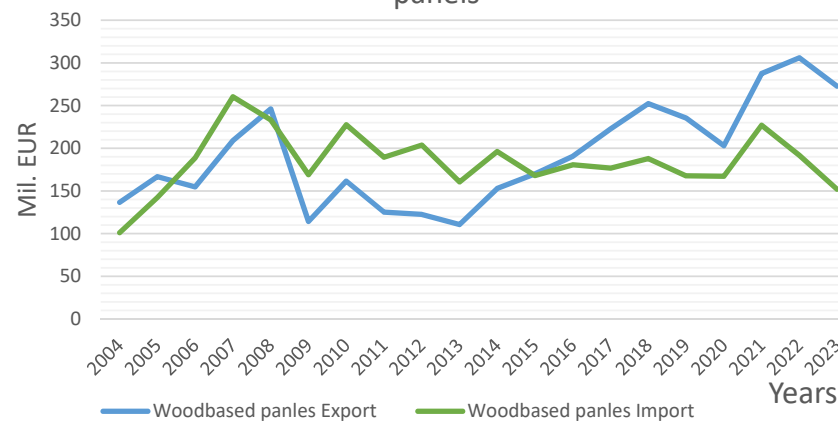
If the calculated value is equal to 0, it means that exports and imports of a certain product are equal.



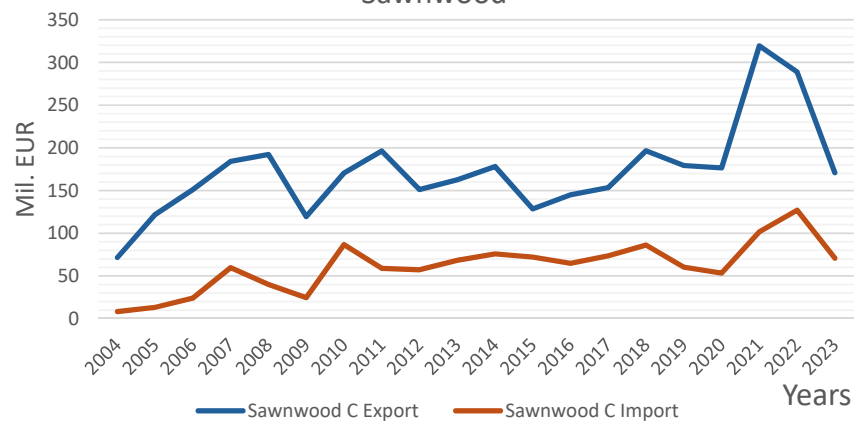
RESULTS



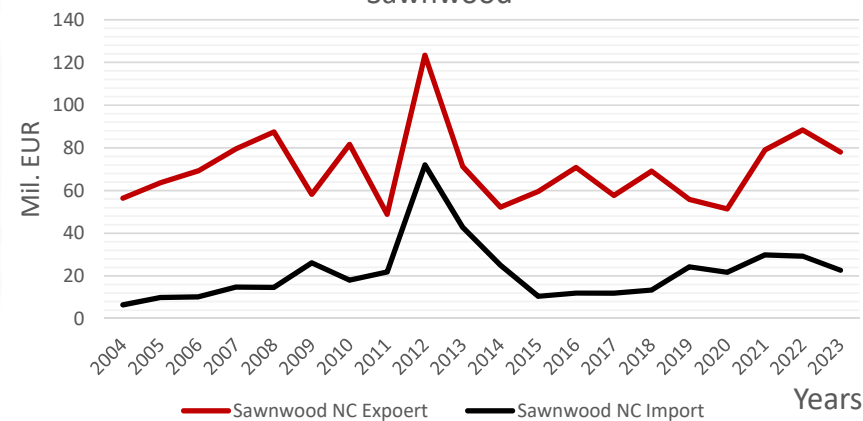
Development of Foreign Trade in Wood Based panels



Development of Foreign Trade in Coniferous Sawnwood



Development of Foreign Trade in Non-coniferous Sawnwood





RESULTS OF THE SAWMILL INDUSTRY AND THE WOOD-BASED MATERIALS PRODUCTION

TABLE: Development of TSI Competitiveness Indices for the Sawmill Industry and Wood-based Materials Production for the Slovak Republic.

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Coniferous Sawnwood	0.79	0.81	0.73	0.51	0.66	0.66	0.33	0.54	0.45	0.41
Non coniferous Sawnwood	0.80	0.73	0.74	0.69	0.71	0.38	0.64	0.38	0.26	0.25
Wood-based Materials	0.00	0.00	-0.10	-0.10	0.04	-0.19	-0.14	-0.22	-0.15	-0.18
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Coniferous Sawnwood	0.40	0.28	0.38	0.35	0.39	0.49	0.53	0.52	0.39	0.42
Non coniferous Sawnwood	0.35	0.70	0.71	0.66	0.68	0.39	0.41	0.45	0.40	0.42
Wood-based Materials	-0.12	0.01	0.03	0.11	0.15	0.17	0.10	0.12	0.23	0.28



KEY FINDINGS

- Coniferous as well as broadleaved sawnwood both recorded their highest level of competitiveness in 2004.
- Throughout the analysed period, the TSI remained consistently positive, with coniferous sawnwood reaching its maximum value of 0.81 in 2005.
- The lowest level of specialisation for coniferous sawnwood was observed in 2020 (0.53), while for broadleaved sawnwood it occurred in 2023 (0.42).
- The situation is different for wood-based materials, - characterised by a high variability in foreign trade.
- The TSI fluctuates around a value of 0, ranging from -0.22 to 0.28, with zero indicating a balanced foreign trade balance and approximately equal volumes of exports and imports expressed in monetary units.
- This trend begins to shift after year 2015 with the highest TSI in 2023. The narrow range between competitive advantage and disadvantage in this category reflects the sensibility of the outcome to the specific indicator used.
- Based on the analysis, wood-based materials as a whole do not exhibit a clear comparative advantage for the Slovak Republic.



CONCLUSIONS



APPLYING TRADE SPECIALISATION INDEX (TSI) INDICATORS, THE ANALYSIS OF THE SAWMILL INDUSTRY AND WOOD-BASED MATERIALS PRODUCTION OVER THE PERIOD 2004–2023 IDENTIFIED A CLEAR COMPARATIVE ADVANTAGE FOR THE SLOVAK REPUBLIC.



OVERALL, THE ANALYSIS CONFIRMS THE CURRENT SITUATION OF A RELATIVELY HIGH SHARE OF EXPORTS OF WOOD-BASED PRODUCTS WITH LOWER ADDED VALUE (SAWNWOOD) AND THUS A BETTER POSITION OF THE SLOVAK REPUBLIC ON THE EU MARKETS.



ON THE OTHER HAND, THERE IS NO EFFORT TO USE RAW MATERIALS DOMESTICALLY IN ORDER TO MAXIMISE ADDED VALUE AND THUS SUPPORT THE NATIONAL ECONOMY BY USING DOMESTIC RENEWABLE RESOURCES, AS CAN BE SEEN IN SOME DEVELOPED EUROPEAN COUNTRIES.



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THANK YOU FOR YOUR ATTENTION !



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