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# A Comparative Assessment of Timber Resources for the Woodworking Industry of Ukraine and EU Countries

**Abstract.** *The woodworking industry in Ukraine is a promising export-oriented branch nowadays. The creation of new jobs, the generation of budget revenues, a growth in the competitiveness of the country's regions largely depend on the successful development of this industry. It is therefore necessary to implement best European practices in the areas of forestry development, trade policy and environmental protection in order to provide woodworking enterprises with sufficient raw materials, support them and enable further economic growth of Ukraine's woodworking industry as a whole. The authors conduct a comparative analysis of the structure and production of raw materials for the woodworking industries of Ukraine and EU member states. Its results are used to justify the necessity of increasing the share of industrial roundwood harvested in Ukraine, since Ukraine has sufficient timber resources to ensure a dynamic development of the woodworking industry. The authors argue that the growing share of fuelwood in roundwood production in Ukraine poses a threat to the environmental and national security as well as harming the prospects of the woodworking industry. Therefore, the creation of effective economic and legal instruments for the development of forestry and the woodworking industry is extremely important for strengthening the processes of economic integration in the context of the moratorium on timber exports from Ukraine.*

**Keywords:** *raw material potential, woodworking industry, roundwood, fuelwood*

## 1. Formulation of the problem

The woodworking industry is one of the promising links of the Ukrainian economy, which can ensure the growth of jobs, budget revenues and industrial products for related industries (furniture industry and construction). A sufficient supply of woodworking manufactures with raw materials while maintaining a sus-

tainable environment and the rational use of wood is a necessary condition for the functioning of this economic sector. These issues become especially relevant in the conditions and period of strengthening economic integration processes and the introduction of a moratorium on timber exports from Ukraine.

All this highlights the studying importance of the raw material potential of Ukrainian woodworking manufacturers, especially in comparison with EU countries, in order to develop economic and legal instruments for the forestry and woodworking industry development.

## **2. Literature review**

The key functioning problems of the Ukrainian woodworking industry in modern conditions are considered in many works [Deyneko 2018; Guzhva & Ivanov 2018; Halasyuk 2017; Heyets & Ostashko 2016; Wanat et al. 2018]. Thus, the expediency of maintaining the moratorium on roundwood exports is substantiated in V.V. Halasyuk [2017], and the compliance of this measure with Ukraine's international obligations under the WTO is proved, as well as priority measures are proposed to create favorable conditions for improving the development of Ukraine's woodworking industry and ensuring inexhaustible usage of the forest fund. O.T. Deyneko [2018] outlines the threatening challenges, the main problems and ways to solve them, and the target areas of development of the wood products market. Functioning peculiarities of the woodworking industry in Ukraine in the conditions of economic integration are considered in work V.M. Heyets & T.O. Ostashko [2016], and the economic and legal aspects of the woodworking industry development, problems of irrational use of rare assortments of wood for production needs are described in work I. Guzhva and Y. Ivanov [2018]. Mechanisms of cooperation between local governments and businesses operating in the forestry and woodworking industry of Poland are studied in L. Wanat et al. [2018].

A comparative assessment of the structure and dynamics of the raw material potential of woodworking industries in Ukraine and EU member states is the goal of this article.

## **3. Main results of the study**

Ukraine ranks sixth place among EU countries in terms of forest area (9698 thousand hectares in 2017) and timber reserves (2102 million m<sup>3</sup>), competing with Poland, Italy and Romania [SSSU data 2019, FAO Forestry statistics 2019]. In 2017, 18913.9 thousand cubic metres of roundwood was harvested in Ukraine, which is by 3.5% less than in 2016, but by 8.0% more than in 2012. The dynamics of roundwood harvesting in terms of its main types (industrial roundwood and

fuelwood) is different. Thus, in 2017 the volume of industrial roundwood harvest was 7296.6 thousand m, while in 2016 it was by 12.2% more (8311.3 thousand cubic metres), although the harvest of fuel timber increased by 2.9% in 2017 against 7.8% in 2015 (Table 1).

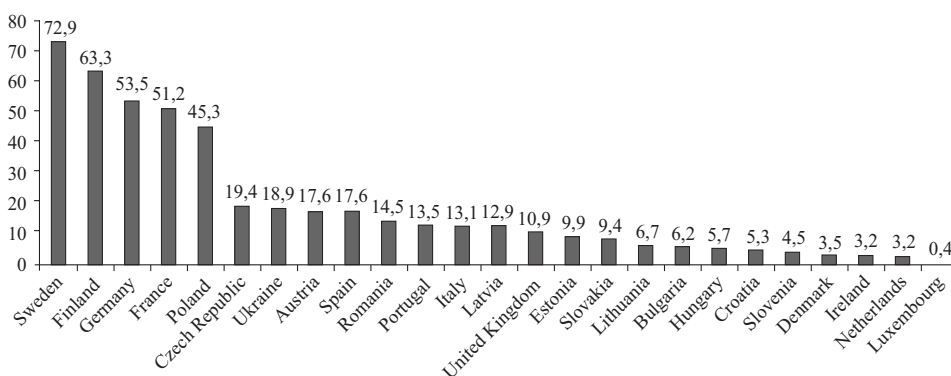
Table 1. Dynamics of harvested wood volume in Ukraine

Wood type	Volume (thousand m <sup>3</sup> ) Growth/decrease rate (%)					
	2012	2013	2014	2015	2016	2017
Roundwood	17506.7 –	18021.9 2.9%	18333.2 1.7%	19267.7 5.1%	19605.7 1.8%	18913.9 –3.5%
Industrial roundwood	7850.8 –	8102.1 3.2%	8158.8 0.7%	8302.6 1.8%	8311.3 0.1%	7296.6 –12.2%
Fuelwood, incl. charcoal	9655.9 –	9919.8 2.7%	10174.4 2.6%	10965.1 7.8%	11294.4 3.0%	11617.3 2.9%

Source: based on data from SSSU 2019.

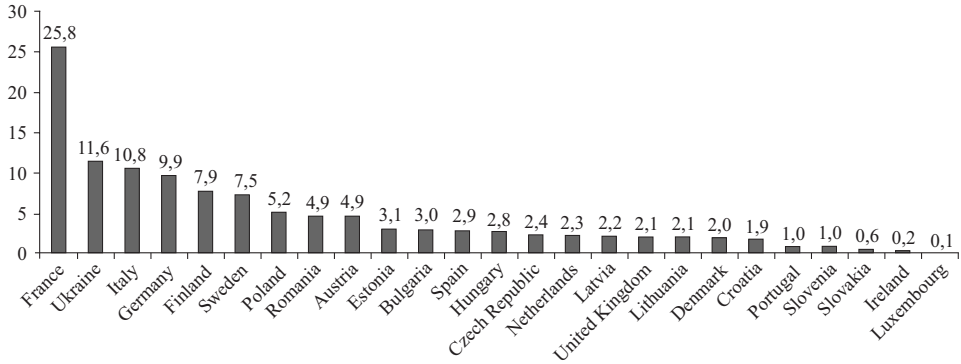
In terms of harvested roundwood, Ukraine ranked 7th place among EU countries in 2017, ahead of its closest neighbors in the ranking (Austria and Spain) by 7.1% and Romania (by 23.4%), but behind the Czech Republic (by 2.4%), Poland (by 58.3%) and France (63.1%) (Chart 1). Instead, in terms of the volume of harvested fuelwood, Ukraine ranked 2<sup>nd</sup> place in 2017 (against 3<sup>rd</sup> place in 2011) among EU countries, giving first place only to France (Chart 2). The latter is the undisputed leader in the EU in terms of harvested fuelwood. According to this indicator, France outperforms the nearest followers more than 2.5 times. However, its importance tends to decrease, while in Ukraine, on the contrary, it increases.

Chart 1. Volume of roundwood harvested in 2017 in Ukraine and EU countries (million m<sup>3</sup>)



Source: based on data from SSSU 2019 and FAO Forestry 2019.

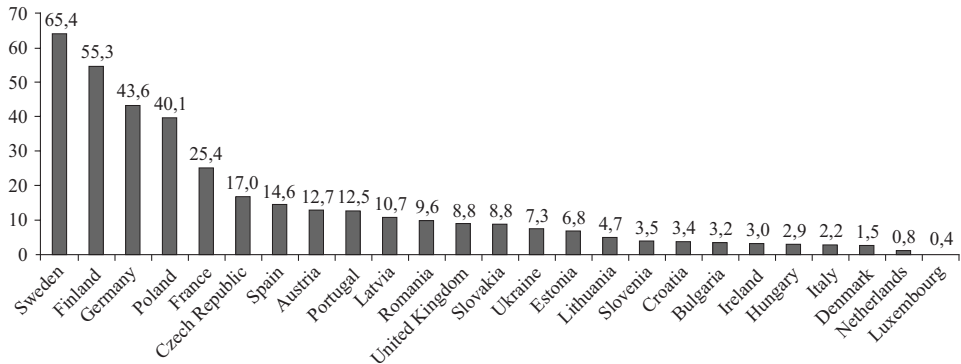
Chart 2. Volume of fuelwood harvested in 2017  
in Ukraine and EU countries (million m<sup>3</sup>)



Source: based on data from SSSU 2019 and FAO Forestry 2019.

In terms of industrial roundwood production, Ukraine ranked 14<sup>th</sup> place during 2012-2017, ahead of Estonia by 6.6% (in 2017), Lithuania by 56.5% and Slovenia – 2.1 times ahead, but behind Slovakia (by 20.2%), Great Britain (by 21.1%), and Romania (by 31.3%) (Chart 3). It should be noted that Poland differs insignificantly from Ukraine in terms of forest area, timber reserves and roundwood production, but it ranks 4<sup>th</sup> place among EU countries in terms of industrial roundwood production, beating Ukraine 5.5 times (40.1 vs. 7.3 million m<sup>3</sup> in 2017).

Chart 3. Volume of harvested industrial roundwood in 2017  
in Ukraine and EU countries (million m<sup>3</sup>)

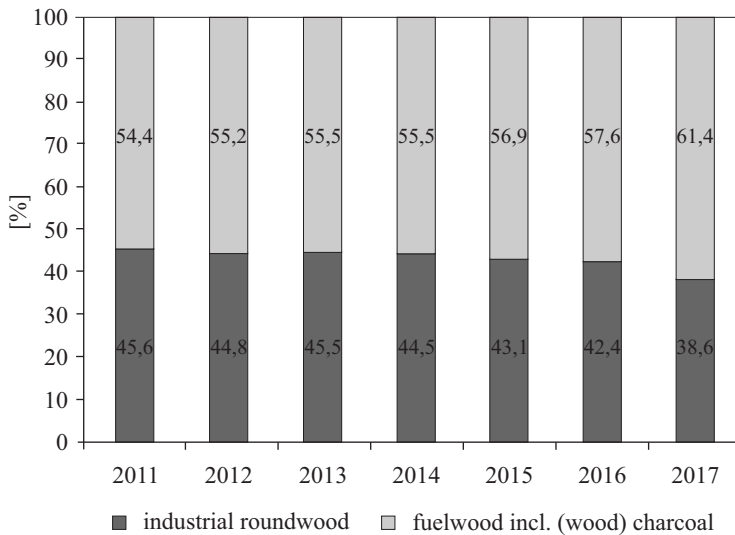


Source: based on data from SSSU 2019 and FAO Forestry 2019.

Fuelwood has invariably been the major part of roundwood harvested in Ukraine: its share increased by 4.3 p.p. during 2011-2016, and by 3.8 p.p. in 2017 compared to 2016 (Chart 4). In contrast to Ukraine, most roundwood harvested

in the vast majority of EU countries is classified as industrial roundwood, with a much smaller share of fuelwood. For example, the share of fuelwood in 2017 was 11.6% and 12.3% in the neighboring countries with a similar forest landscape – Poland and the Czech Republic respectively, Slovakia – only 6.3%, and in the EU as a whole – 23.2% [FAO Forestry statistics 2019]. Hence, the sharp deterioration in the roundwood harvested structure in Ukraine can be interpreted as a threat to environmental and, consequently, national security as well as the prospects of woodworking industries.

Chart 4. Roundwood harvested in Ukraine (by main types) (%)

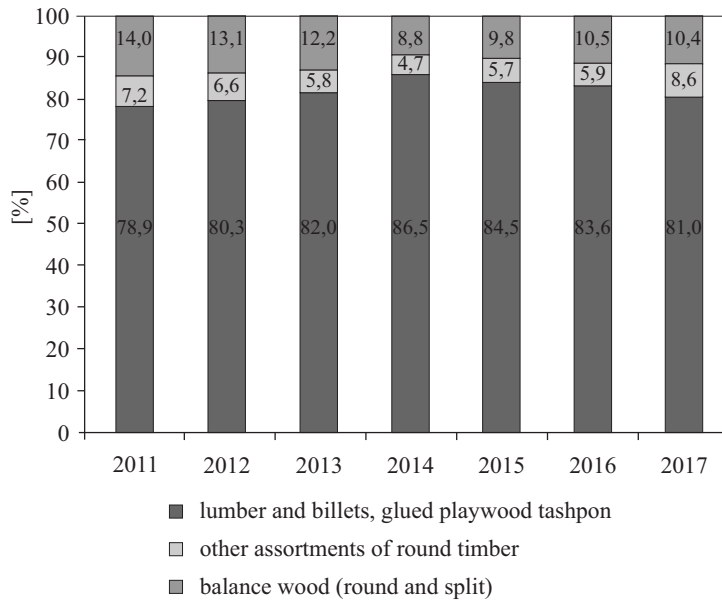


Source: based on data from SSSU 2019.

The structure of industrial roundwood harvested in Ukraine during the analyzed period was steadily dominated by lumber and billets, glued plywood and veneer, the share of which in 2017 was 81.0% against 86.5% in 2014, and 78.9% in 2011 (Chart 5). The decrease in the share of this type of roundwood in the structure of industrial roundwood in Ukraine was a consequence of its harvesting reduction.

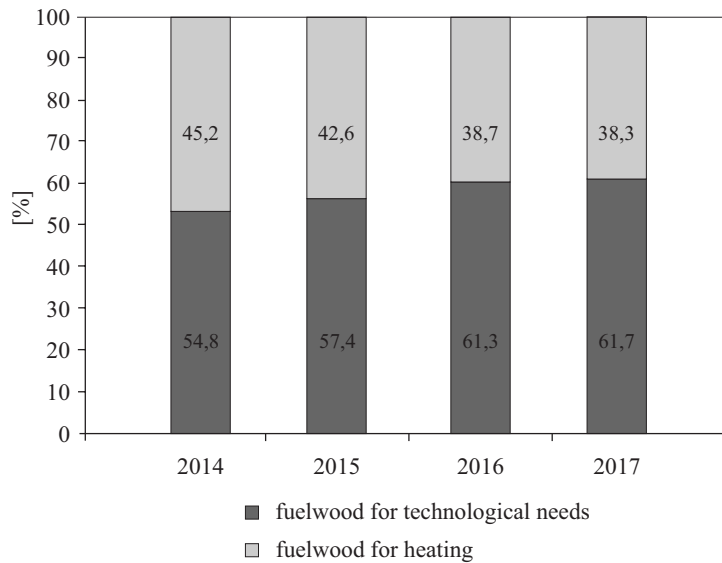
Thus, the harvested volume of timber and billets, glued plywood and veneer decreased by 16.2% during 2015-2017 (from 7053.7 thousand m<sup>3</sup> in 2014 to 5909.2 thousand m<sup>3</sup> in 2017), including by 14.9% in 2017 [SSSU data 2019]. As a result, Ukraine ranked 11<sup>th</sup> place in terms of the harvested volume of timber and billets, glued plywood and veneer in 2016 (against 10<sup>th</sup> place in 2015) among the EU countries, while Poland ranked 4<sup>th</sup> place, the Czech Republic – 6<sup>th</sup> place, and Romania – 8<sup>th</sup> place [SSSU data 2019].

Chart 5. Industrial roundwood harvested in Ukraine (%)



Source: based on data from SSSU 2019.

Chart 6. Fuelwood harvested in Ukraine (by usage) (%)



Source: based on data from SSSU 2019.

The tendency of the structure deterioration of not only harvested industrial roundwood, but also fuelwood is deepening in Ukraine. Thus, the structure of fuelwood was dominated by firewood for heating during 2014-2017, the share of which increased by 6.9 p.p. during the mentioned period (Chart 6). This, in turn, became a consequence of an increase in the volume of firewood for heating by 28.7%, in particular, by 12.9% in 2015.

## 4. Conclusion

In conclusion, it can be stated that Ukraine has sufficient raw material potential to ensure the dynamic development of the woodworking industry. The 6<sup>th</sup> place of Ukraine among the EU countries in terms of timber reserves and 7<sup>th</sup> – in terms of roundwood harvesting are the proof of this. However, in contrast to the vast majority of EU countries, the structure of harvested domestic roundwood is dominated by fuelwood – 61.4% (4<sup>th</sup> place after Cyprus, Italy and the Netherlands). Ukraine ranked 2<sup>nd</sup> place in 2017 among EU countries after France in terms of harvesting this type of wood.

Identified structural and dynamic features of timber that is harvested in Ukraine may be the result of increasing loss of forest stands, changes in world markets, domestic demand for certain types of wood, capacity of woodworking enterprises, regulatory mechanisms and many other multifaceted factors. Detailing, explanation and substantiation of the reasons for the deterioration of the structure of roundwood that is harvested in Ukraine requires separate special scientific and analytical studies.

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## Ocena porównawcza potencjału surowcowego przemysłu drzewnego Ukrainy i krajów UE

**Streszczenie.** Przemysł drzewny na Ukrainie jest zorientowany na eksport. Tworzenie nowych miejsc pracy, realizacja budżetu i zwiększanie konkurencyjności regionów w dużej mierze zależy od pomyślnego rozwoju tego sektora przemysłu. Aby w wystarczającym stopniu zapewnić przedsiębiorstwom zajmującym się obróbką drewna surowce, wesprzeć je i zapewnić dalszy wzrost gospodarczy przemysłu drzewnego na Ukrainie jako całości, konieczne jest wdrożenie najlepszych praktyk UE w dziedzinie rozwoju leśnictwa, polityki handlowej i ochrony środowiska. Autorzy przeprowadzili analizę porównawczą struktury i dynamiki potencjału surowcowego przemysłu drzewnego Ukrainy i państw członkowskich UE. Pozwoliło im to uzasadnić konieczność zwiększenia udziału drewna do przerobu przemysłowego w całości drewna okrągłego pozyskanego na Ukrainie, ponieważ Ukraina ma wystarczający potencjał surowcowy, aby zapewnić dynamiczny rozwój przemysłu drzewnego. Rosnący udział drewna opałowego zagraża bezpieczeństwu środowiska, a także perspektywom rozwoju przemysłu drzewnego. Opracowanie skutecznych instrumentów ekonomicznych i prawnych dla rozwoju przemysłu leśnego i drzewnego jest więc ważne dla wzmocnienia procesów integracji gospodarczej i jest konieczne w związku z wprowadzonym moratorium na eksport drewna z Ukrainy.

**Słowa kluczowe:** potencjał surowcowy, przemysł drzewny, drewno okrągłe, drewno opałowe, drewno do przerobu przemysłowego