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: A step forward to enhance the wood processing industry: identifying its challenges. A case study in Ukraine

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: ABSTRACT

This study aims to identify the challenges for the wood processing industry in Ukraine after 2022. A case study was conducted, and online surveys were employed to gather information from industry stakeholders. The results indicate that both private companies and public State Forest Enterprises (FMEs) were affected. Private companies experienced difficulties in obtaining raw materials due to high prices and limited quantities, as well as logistical problems and increased transportation costs. The labor market also posed challenges, with private companies reporting a decline in their workforce and struggles in finding skilled employees. FMEs, being vertically integrated, encountered fewer supply and logistics problems and employment results were inconclusive. The study highlights the need for further empirical research to gain more conclusive insights and possibly suggest ways to improve the sector.

: KEYWORDS

Wood processing sector, employment, reforms, Ukraine

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⫶ 1 INTRODUCTION

The Ukrainian wood processing sector, including wood and pulp and paper, employed on average roughly 76 thousand regular workers by January 2022, accounting for 4% of the industry workforce (State Statistics Service of Ukraine, 2022). The wood processing sector, characterized by its dynamism, accounted for approximately 7% of the total volume of industrial products sold in 2021. Over the past years, this sector has encountered various challenges and undergone reforms, including those related to raw material purchase auctions, which have had an impact on companies' production volume. Currently, the sector is grappling with challenges arising from the consequences of the war that began in 2022. While numerous studies and reports address the economic and labor-related issues Ukraine is currently facing, there remains a gap in identifying the specific challenges confronting the wood processing sector. Thus, the research question we aim to address is: *what are the economic and employment challenges that wood processing sector is facing?* Bridging this knowledge gap is a crucial first step towards formulating future policy recommendations aimed at enhancing the sector. To this end, a case study was developed, and online surveys were conducted to collect direct information from wood industry stakeholders.

1.1 Challenges of the sector since 2022

The Ukrainian Ministry of Economy estimated that the war will decrease the GDP by 30.4 % in 2022 (Reuters, 2023). The war had and still has significant consequences for the Ukrainian forest sector, specifically the wood supply. This is because in total 2.9 million hectares of forests were damaged and about 1 million hectares of forests are within areas of active hostilities. Moreover, the presence of mined areas and a significant increase in forest fires further exacerbate the situation. Climate change has also contributed to heightened fire risks in forests. Furthermore, numerous facilities within the wood processing industry have been destroyed or damaged, compounding the challenges faced by the sector. The decline of local wood supply was also reduced by the ban on imports of Russian and Belarusian timber. As a result, also supply to the foreign markets were reduced, and prices went up (Prins, 2022), affecting wood processing industries production (Prodanova et al., 2022). In addition, the demand for roundwood as a fuel is in direct competition with the demand from the wood processing sector, putting even more pressure on the companies' economic performance. On the other hand, there are also transportation and logistical difficulties (Prins, 2022; Serhii et al., 2022) affecting both the purchase of raw materials and the distribution of the products manufactured by wood processing companies. Part of the infrastructure has been rendered inaccessible due to damages and closed roads, in addition to a considerable increase in transportation costs, which is partly explained by the increase in fuel prices.

Another major problem has to do with changes and unpredictabilities in the labor market in Ukraine (Szajna and Kostrzewski, 2022; Horne, 2023). On the one hand, a labor shortage was triggered, due to many reasons linked to the war, leaving many vacant positions that could not be replaced due to a lack of personnel in the economy or specialized workers in the sector (Prins, 2022; Szajna and Kostrzewski, 2022). On the

other hand, many companies had to relocate due to the war from easter to western Ukraine, which naturally impacted the regional labor force availability (Anastasia et al., 2022). Some employees followed the companies, but many employees did not. The migration of workers from one region to another and the recruitment of workers in the new locations therefore led to movements and complex changes in the industry that still cannot be fully captured.

To better understand and capture the consequences of the war impacts since 2022, we developed a case study. It focuses on identifying the challenges faced by wood processing companies in Ukraine, both public (FMEs, acronym for State Forest Enterprises, which are vertically integrated, and some of them with an integrated wood processing unit) and private, in terms of the economic and labor market aspects of the sector.

2 METHODS

The Ukrainian wood processing sector case study was developed in two stages. The first step was the collection of secondary literature about the economic and employment aspects of the wood processing sector and the Ukrainian economy. As a result, it was possible to understand and capture the main problems of the wood processing sector, which was used to define the objective of the case study. The second step consisted of conducting an online survey that could capture the different questions sought in the previously defined survey related to the economic and employment challenges facing the wood processing sector. An online survey was chosen as the easiest way to collect data, as it was not possible to travel across the country to conduct face-to-face interviews. The online survey was conducted via LimeSurvey. The survey was distributed to the selected companies by E-mail and took place between February and June 2023. Additionally, phone calls were made to reinforce the request or explain the reason for the survey. The survey was conducted in Ukrainian language and was anonymous.

The selection of the online survey sample was defined as follows:

1. public sources were searched for lists of both public and private companies. In the case of public companies, the sources were the following: 1) Database of state-owned FMEs (websites of the Regional Administrations of the SFRA); 2) Web search results of the FMEs of communal property by using the word "агролісгосп" (database for this type of enterprises doesn't exist at the national level; 3) Database of PEFC-certified companies (only FMEs are certified currently) in Ukraine; and 4) FSC-certified companies (FSC Dashboard). For private companies the sources were the FSC list (by selecting of COC type of certificate) and lists of companies available at the websites of the professional associations of wood processing enterprise

2. the sources were cross-checked, and 50 public and 50 private companies were randomly selected.

3. Given that many of the initial batch of companies did not answer, an additional 25 public and 25 private companies were added, following the same random selection procedure.

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In total, six (6) FME's and fifteen (15) private companies answered the survey with more than 85 % answers completed. The responding FME's are mainly located in the provinces of Khmelnytskyi, L'viv, Chernivtsi, while the private companies are found in Kiev, L'viv, Rivne, Cherkasy, Transcarpathia, Volyn, Vinnytsia and Ivano-Frankivsk. As Figure 1 shows, all companies are mainly located in the northwest of the country.
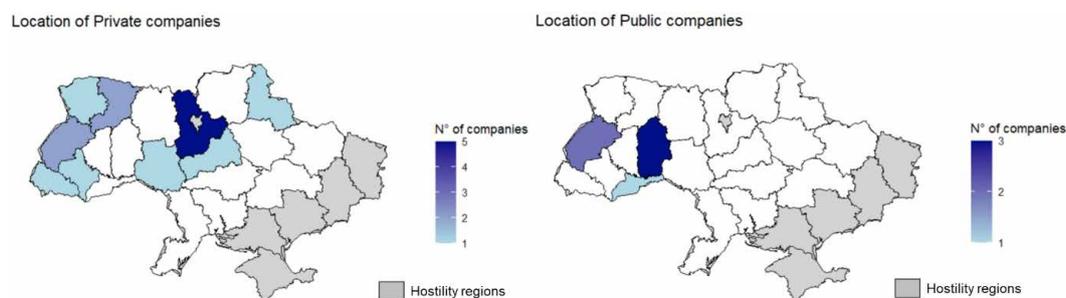

Figure 1. Location of FMEs and private companies surveyed

The survey distributed to the companies has two main sections: part 1 related to productive and economic issues of the companies; and part 2 that seeks to capture information about the labor market in the forest sector. In the first part, questions are asked about the products they manufacture, the raw materials they consume, whether they have shortages of raw materials and what the respective reasons are, whether they receive government subsidies for their operations; marketing aspects (volumes commercialized, prices paid, logistics aspects); net turnover of the company. #The second part asks questions related to the labor market, such as number of employees, types of contracts, gender, skills, wages, hiring issues. The survey includes a total of 22 questions. Descriptive statistics are applied as the analytical framework.

3 RESULTS

The survey results indicate that most of the interviewed companies, both FMEs (84%) and private companies (67%), primarily manufacture sawnwood. This is followed by wood pellets, which is usually a co-product of sawmilling factories. Private companies also produce veneer and boards, ranking third in terms of product variety. Private companies produce between one to a maximum of three products. On the contrary, FMEs produce mainly one or two products, mainly sawnwood or wood pellets, with a low level of processing. This is because they are vertically integrated companies whose core business is forest management and harvesting, with the addition of an integrated but small processing unit.

In 2019, the 15 private companies that responded to the survey employed nearly 1,400 persons, with an upward trend leading until 2021 and 2022, when the number of employees reached 1,500. Although other factors cannot be ruled out completely, this upward trend was disrupted in 2022 by the impacts of the war. In addition, the survey results reveal that over two-thirds of the responding companies have difficulties in finding trained employees in this context.

The situation differs for the FME group of companies surveyed. Figure 2 illustrates that these companies experienced a significant decline in employment during the pandemic

(2020/2021) but managed to return 2019 levels in 2022. However, employment figures of FME's include personnel in forestry and wood manufacturing. Thus, further analysis is required to better understand the underlying determinants of that recovery.
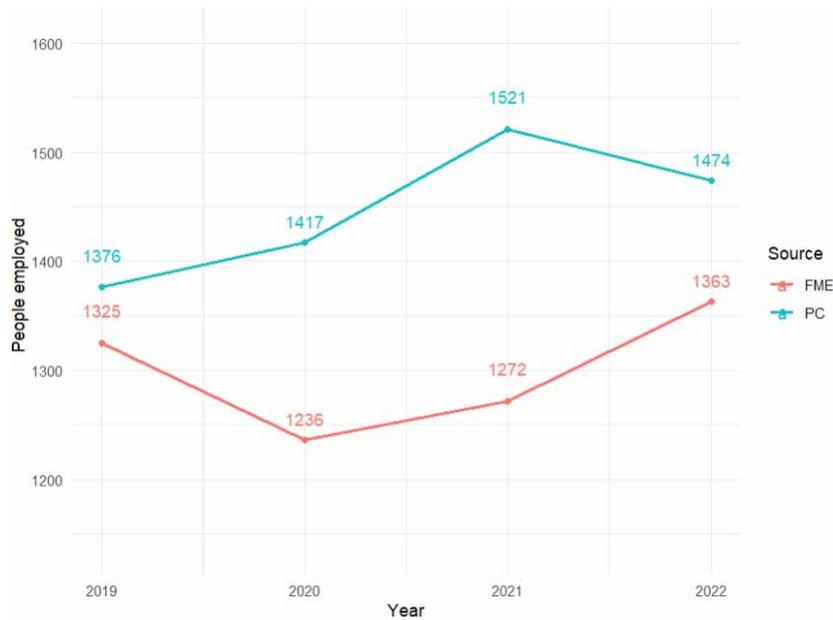

Figure 2. Total number of employees by company type, 2019-2022

The survey shows that FMEs have had minimal disruptions to their raw material supply and very few logistical problems because they are vertically integrated. In contrast, private companies faced numerous challenges, primarily attributed to high prices that restricted their access to raw materials. Furthermore, almost 40% of the responding private companies had difficulties finding the required raw material on the market and mentioned logistical problems and high transportation costs as important factors.

4 DISCUSSION AND CONCLUSION

The ongoing war had varying impacts on public (FMEs) and private companies in the wood processing sector. In terms of employment, private companies have experienced a decline in their workforce and encountered difficulties in recruiting individuals with the necessary skills and qualifications. This is a major obstacle that can hinder productivity and sectoral growth. The survey results related to the employment situation in FMEs did not yield clear results. To obtain more robust and reliable results, it is recommended to either increase the sample size through additional observations or to conduct qualitative interviews to complement the existing data.

In terms of the economic situation, the private companies interviewed had problems accessing raw materials due to high prices and limited availability. They also highlighted logistical problems and high transportation costs, which increased their expenses and hindered their sales. Identifying these aspects is crucial for targeted policy development. FMEs reported that they had minor logistical issues. Qualitative interviews and a workshop are planned to further deepen the study's findings. These activities aim to gather conclusive and robust evidence, as well as to develop suggestions to enhance the sector.

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