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Social upgrading in the forest industries and the influencing factors

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2. List of abbreviations

ANDRC – Agentia Nationala pentru Dezvoltare Regionala - Regiunea Centru (*National Agency for Regional Development – Central Region*)

ASFOR – Asociatia Forestierilor din Romania (*Romanian Foresters Association*)

CoC – Chain of Custody

FDI – Foreign Direct Investment

FSC – Forest Stewardship Council

GCC – Global Commodity Chain

GDP – Gross Domestic Product

GPN – Global Production Network

GVC – Global Value Chain

NGO – Non-Governmental Organization

PFDs – Private Forests Districts

PPE – Personal Protective Equipment

RNP – Regia Nationala a Padurilor (Romsilva) (*National Forest Administration*)

SDG – Sustainable Development Goals

SPN – Socially Progressive Network

TAF – Tractor Articulat Forestier (*Articulated Forest Tractor*)

TNC – Transnational Company

3. Abstract

(DE)

Diese Arbeit untersucht die Auswirkungen der Integration in globale Warenketten (GCC), der wirtschaftlichen Aufwertung, der Governance von Wertschöpfungsketten und von Netzwerken auf die soziale Aufwertung von Holzfällern im Kreis Alba, Rumänien. Die Studie zielt darauf ab zu bewerten, ob diese Faktoren die soziale Aufwertung beeinflussen und, wenn ja, wie sie die Arbeitsbedingungen der Beschäftigten verändern. Durch eine umfassende Literaturrecherche, Interviews mit verschiedenen Interessengruppen und eine Inhaltsanalyse zeigen die Ergebnisse, dass diese Faktoren zwar miteinander verknüpft sind, aber nicht alle zur sozialen Aufwertung der Arbeitnehmer in dieser Fallstudie beitragen. Für Beschäftigte in registrierten Unternehmen besteht ein klarer Zusammenhang zwischen der Legalisierung der Tätigkeiten, der Unternehmensgröße, dem Aufwertungspotenzial und der sozialen Aufwertung in Bezug auf formelle Beschäftigung und Einkommensstabilität. Für informelle Arbeitskräfte bleiben die Bedingungen jedoch schlecht, mit unregelmäßigem Einkommen und illegaler Beschäftigung. Die Legalisierung der Tätigkeiten wird als wichtiger wirtschaftlicher Schritt für die Zukunft betrachtet. Die Arbeit erörtert die zahlreichen Nuancen dieses Themas im Detail, einschließlich des potenziellen Einflusses des Möbelsektors auf die soziale Aufwertung von Holzfällern.

(ENG)

This thesis explores the impact of inclusion in global commodity chains (GCC), economic upgrading, value chain governance and networks on the social upgrading of wood logging workers in Alba County, Romania. The study aims to assess whether these factors influence social upgrading and, if so, how they affect worker conditions. Through a comprehensive literature review, interviews with multiple stakeholders, and content analysis, the findings reveal that while these factors are interconnected, not all contribute to the social upgrading of workers in this case study. For workers employed by registered companies there is a clear correlation between the legalization of operations, the scale of business and upgrading potential, and social upgrading in terms of formal employment and income stability. However, for informal workers, conditions remain poor, with irregular income and illegal employment, with the legalization of operations seen as a big economic future step. The thesis discusses the many nuances in detail, including the potential influence of the furniture sector on social upgrading for wood logging workers.

4. Introduction

4.1 Forest industry

With globalization leading to a significant acceleration of trade in forest products, the supply chains are getting more dispersed (Beck-O'Brien et al. 2022:7). As low-cost advantages fade due to increasing labor costs and economic development, manufacturing units relocate to newly competitive regions (Hansen et al. 2014:7). Emerging economies, such as China, which is at the moment the biggest hardwood importer from the US, have become major players in international trade (Cashore et al. 2013:29, Beck-O'Brien et al. 2022:7). All this has led to an interdependent global forest products market, marked by intense competition between countries and regions (Cashore et al. 2013:29). The forest industry is marked by a high degree of fragmentation, with numerous small-scale enterprises operating with low barriers to entry (Hansen et al. 2014:6).

Romanian forest sector

Forest area statistics vary, with the National Institute of Statistics reporting 6.6 million hectares and the National Forest Inventory indicating 6.9 million hectares (PwC 2022:2). Romanian forests are mainly found in the mountains (59.70%) and hills (33.80%) (Nicolescu 2022:39).

Romania's annual allowable cut for forests is capped at 23 million m³ due to an imbalanced age-class distribution and limited forest accessibility (Nicolescu 2022:42). The country ranks seventh in the EU for wood production, with 2021 removals at 20 million m³, predominantly broadleaved species (PwC 2022:2). Deforestation remains a significant problem in various counties, leading to illegal logging activities, including subsistence theft, wood processor theft, and export-related theft, potentially exacerbated by corruption and poverty (Nita 2015:798). The average annual volume logged in the period before 1989 was 25 million m³. After 1989 the average volume dropped to 15 million m³ (Tobescu 2015:3).

The Romanian forestry sector is dominated by micro-enterprises with a maximum of 10 employees (84%), followed by small (14%) and medium-sized enterprises (2%). Only 23 companies fall into the category of large enterprises (with more than 250

employees or a turnover of more than €50 million). Large firms have activities in the manufacture of veneer and wood panels (11 firms), primary wood processing (7 firms) and furniture manufacturing (5 firms) but not logging. The majority of micro-enterprises are active in primary wood processing (2391 firms - 32% of all micro-enterprises), logging (1984 firms - 27%) and intermediaries in wood trade (1198 firms - 16%) (Panaite et al. 2022:148). Sources estimate that approximately 4,800 private logging companies are involved in wood logging in Romanian forests with most of these companies having an annual logging potential of less than 10,000 m³ (Nicolescu 2022:47).

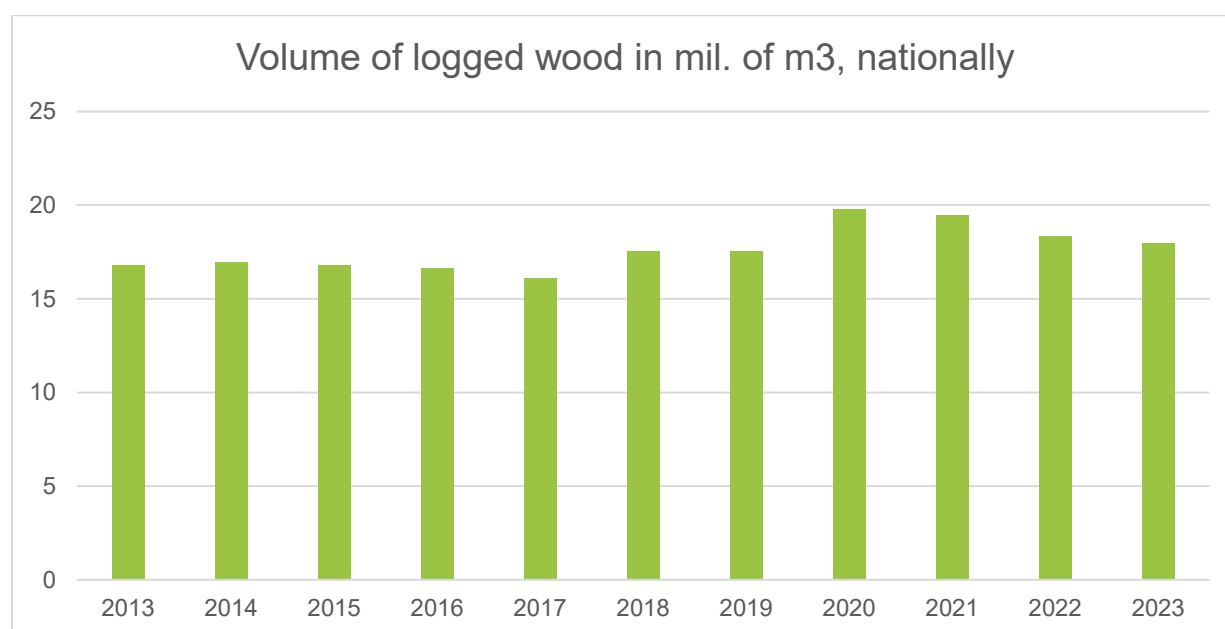


Figure 1. Logging evolution in Romania (INS, 2015-2024)

The forest sector in Romania makes a substantial economic contribution with a turnover of approximately €6.1 billion in 2020, which increases to €7.36 billion when considering the pulp and paper industry (Badea & Tobescu 2022:28). This accounts for about 3.4% of Romania's GDP (Badea & Tobescu 2022:28). The sector directly employs over 157,000 people, and when considering indirect and induced effects, it supports over 330,000 jobs out of 5.5 million nationally (EURES 2024). The most important sectors are manufacturing of furniture, manufacture of paper and paper products, manufacture of wood and products of wood, forestry and logging (PwC 2022:8).

Currently, Romania's national forest area spans approximately 6,900,962 hectares, divided equally between public and private ownership. Half of the forested land is public property managed by the National Forest Administration – Romsilva, while the other half is private property owned by the state, administrative-territorial units, communal organizations, and individual landowners (Greenpeace, 2016).

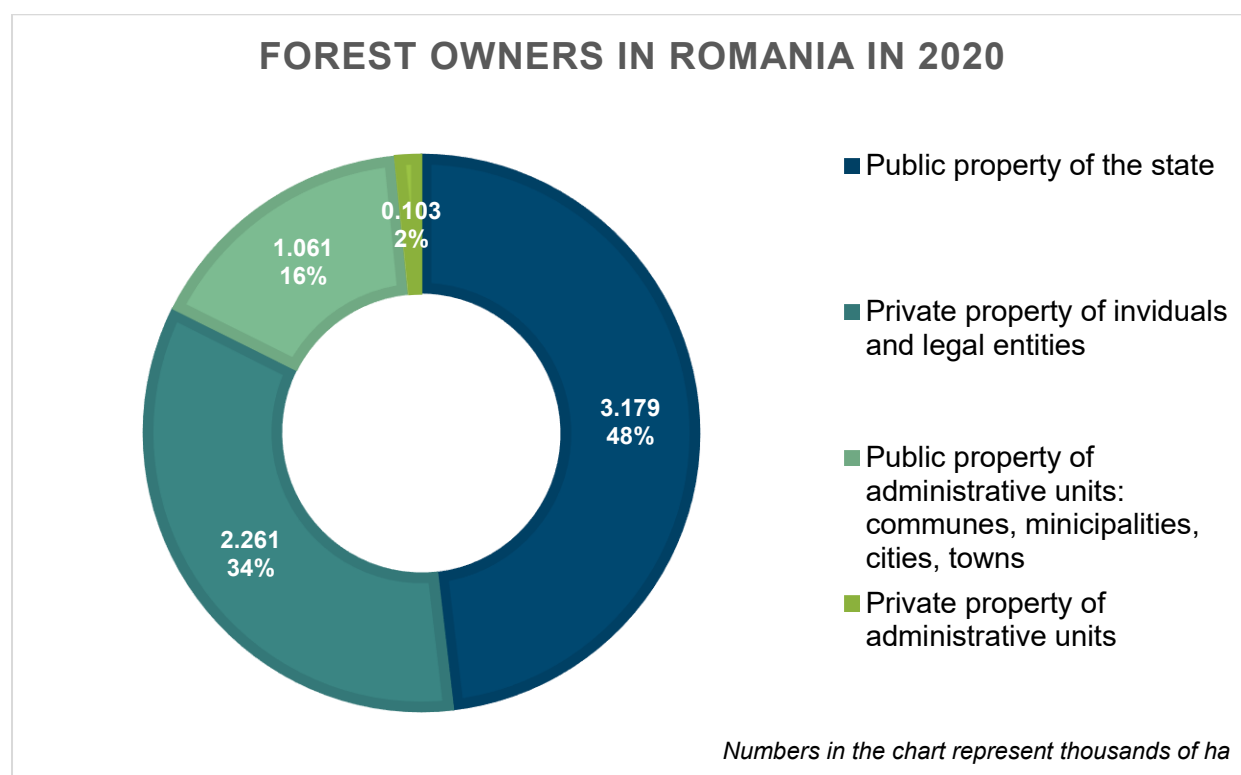


Figure 2. Forest Owners in Romania 2020 (Forest Condition Report 2020, Ministry of Waters, Forests and Environment)

One of the biggest problems in the sector is represented by the risky nature of wood logging, problem that is exacerbated by the low level of mechanization of the sector. Economic constraints often prevent the companies from investing in modern machinery, leading to reliance on cheaper, locally made equipment like skidders (Mederski et al. 2021 as cited in Halalisan et al. 2022:9). Safety regulations are frequently ignored, particularly regarding chainsaw usage (Banciu et al. 2018 as cited in Halalisan et al. 2022:9; Borz et al 2014 as cited in Halalisan et al. 2022:9), possibly due to insufficient knowledge, distrust, or perceived task difficulty. Personal protective equipment usage is also problematic, with non-compliance often cited in audit reports (Halalisan et al. 2022:9).

4.2 Problem statement and significance of the study

Enhancing the economic and social welfare of workers and communities associated with Global Value Chains (GVCs) poses a challenging developmental issue, drawing significant interest from researchers, policymakers, and donor groups (Gereffi & Lee 2016:26). All this is particularly pressing when put into the light of increasing evidence of child labor, exposed workers, and dreadful working conditions (Lund-Thomsen and Lindgreen 2014 as cited in Gereffi & Lee 2016:26; Lund-Thomsen and Nadvi 2010 as cited in Gereffi & Lee 2016:26).

Gereffi & Lee pose the question of what circumstances facilitate the integration of both economic and social advancements within GVCs. Social upgrading refers to the enhancement of workers' rights and entitlements, as well as the improvement of the quality of their employment (Barrientos et al. 2011 as cited in Gereffi & Lee 2016:26). Upgrading, when successful, is an important factor that contributes to economic and social upgrading: According to the literature, advancing within GVCs or transitioning to higher-value activities has become crucial for economic development and job creation in today's fiercely competitive and geographically dispersed global economy (Cattaneo et al. 2013 as cited in Gereffi & Lee 2016:25). While inclusion in GVCs seems to be the most studied way towards the enhancement of economic and social welfare of workers, it does not mean, however, that it is the only way.

4.3 Research objectives

The objective of this research is to investigate the factors influencing social upgrading in the wood logging sector. Through a case study involving 10 interviews with various stakeholders in the sector, this study aims to examine how factors such as economic upgrading, value chain governance structures (including Forest Stewardship Council (FSC) certification), or collaborations interact to shape the social and labor conditions of workers. The research also focuses on the gap between the formal safety regulations and enforcement mechanisms versus the actual behaviors of workers, seeking to understand the reasons behind these behaviors. By situating these

dynamics within the broader context of the global commodity chain of wood, the study aims to determine whether and how these factors ultimately make a difference in the lives of wood logging workers, influencing their well-being, rights, and working conditions. This research highlights the complex interplay between economic, organizational, and social dimensions, particularly in relation to labor conditions and safety practices.

Research question:

How does economic and social upgrading of the logging sector workers in Alba county, Romania, change when the inclusion into global commodity chains exists and what are the reasons or contributing factors?

- What type of chain governance is represented in the Romanian furniture and logging sectors?
- How does the production process look like?
- What safety regulations and enforcement mechanisms exist in the Romanian logging sector, and what are the actual behaviors of employees regarding compliance with these regulations? What are gaps or weaknesses that hinder effective enforcement of the regulations?
- How does global commodity chain inclusion impact employees' working conditions?

4.4 Logging and furniture industries

The furniture sector has a special relevance in this case because it is the sector that can best capitalize on wood as a resource. Capitalization on wood as a resource, meaning adding significant value to wood, that also promotes sustainable practices by balancing environmental concerns with economic benefits through efficient resource use, is a desirable outcome and has been a recurring theme for the majority of my interview partners (interviews 1, 2, 4, 5, 6, 7, 8, 9). Regardless of specialization, age, education level or socio-economic background, the majority of the interviewees made clear that capitalization is needed in this sector, and in both logging as well as furniture sectors, attempts to achieve this were underway in one form or another.

Besides this, there are a number of possible scenarios on how the furniture industry can affect the social upgrading of wood logging workers.

First, in the cases when the furniture industry demands higher quality wood or more sustainable practices, this can incentivize logging companies to invest in modern equipment that ultimately leads to safer and more efficient work processes that benefit workers. Conversely, if the furniture industry is characterized by intense cost competition and low-value production, this could push logging operations towards less desirable practices, with minimal attention to workers' health and safety.

Second, value chain governance structures can have a significant impact on social upgrading in the wood logging sector. For example, furniture companies that are regulated by international standards, such as FSC, may require better labor conditions and health and safety measures from their suppliers, including logging operators. In contrast, if chain governance structures are weak or focused primarily on cost reduction, there may be little incentive for wood logging companies to invest in worker welfare.

The value chain governance in my case study, following the definitions offered by Gereffi et al. (2005), seems to be modular due to suppliers producing goods according to the detailed specifications of buyers but managing their own process technologies and capital investments. This seems to be valid for both furniture and logging sectors. They handle their responsibilities without needing high levels of coordination from the buyer, and in the case of the furniture components manufacturer an initial sample of the specific furniture component is needed upon which the buyer agrees to start production. However, the chain governance type between the furniture components manufacturer and the buyer also contains elements of a captive governance type: high dependency on large, dominant buyers (with 90% of the supplier's orders made by one single buyer) which leads to high switching costs for the supplier.

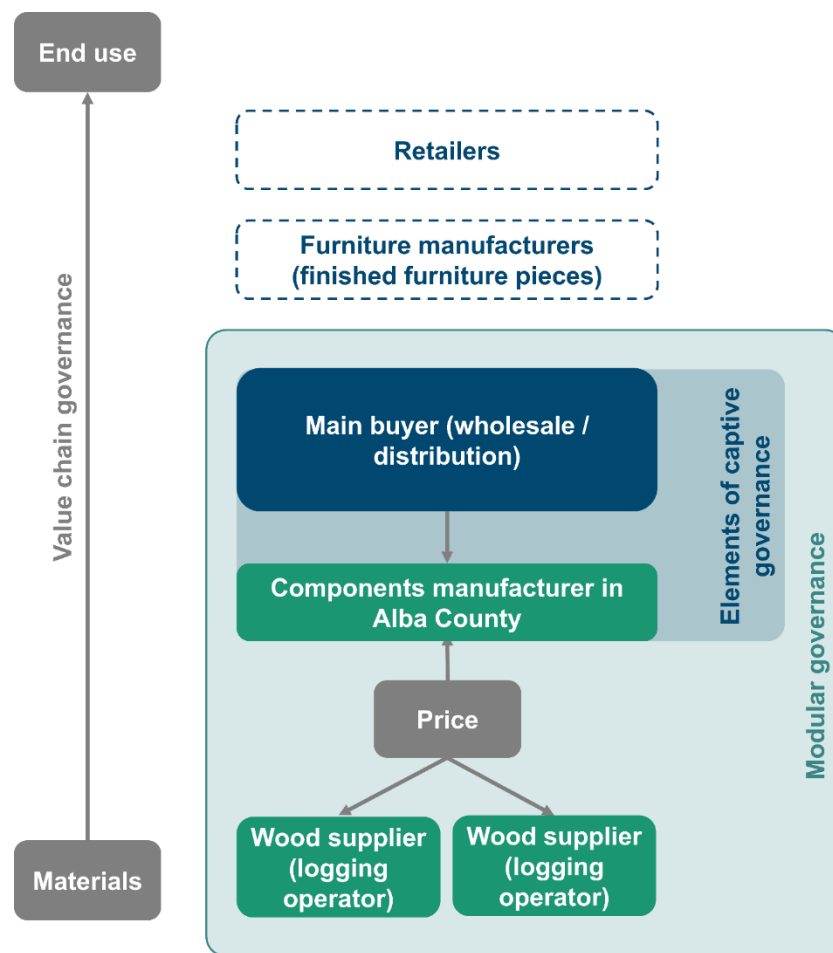


Figure 3. Value chain governance furniture components manufacturer in Alba county

In the following chapters I will illustrate the cases of wood logging and furniture industries when it comes to both social and economic upgrading. As we will see in the literature review, both types of upgrading need to be considered because they are deeply interconnected, this making a clear delineation impossible. For this purpose, the concept of Global Commodity Chain (GCC) will be explained and used in accordance with each resource mentioned here. The aspects of economic and social upgrading (upgrading, chain governance, etc.) will be showcased with examples from the literature. Certification is another relevant aspect of the forest industries that can greatly influence economic and social upgrading. Finally, the existing literature on labor in the forest industries will be presented together with the main challenges in that area.

5. Literature review

5.1 Review of relevant literature

Literature has been identified on the topics of upgrading, value chain governance and networks and their impact on social upgrading of the wood industry workers. In this chapter, all these topics will be presented.

Upgrading

Bair defines upgrading as the process through which local firms which access international markets (via GCCs) can actively ‘increase the benefits they derive from participating in them’ (Bair 2009:29). By trying to change how they are linked to these chains, they reposition themselves in the chain.

In their article focusing on furniture producers in South Africa within the global value chain, Kaplinsky et al. (2002) pose two overarching inquiries: How do buyers contribute to the upgrading endeavors of their global suppliers and to what extent can countries like South Africa upgrade their operational capabilities (Kaplinsky et al. 2002:1163)? According to the authors, buyers play a crucial role in connecting producers to end customers, and across industries some upgrading initiatives led by buyers have been noticed, especially in the cases of outsourcing, where TNCs actively support their suppliers when it comes to the growth of their manufacturing capabilities so they can focus on other activities in the chain such as design, branding marketing, etc. Value chain analysis is used in this case to illuminate challenges encountered by lower-wage economies, given South Africa’s role as a model for other sub-Saharan economies and its economic similarities to Latin American counterparts. The furniture sector serves as a pertinent case study with broad sectoral implications due to its resource- and labor-intensive nature, prevalent in both developing and high-wage economies. (Kaplinsky et al. 2002: 1160, 1163).

Three main buying agents facilitate the access of wood furniture producers to end markets: major transnational retailers, small-scale retailers directly purchasing from a few suppliers, and specialized medium-sized buyers such as importing agents procuring from various countries and distributing mainly within a specific region or country (Kaplinsky et al. 2002:1163).

The text discusses various forms of support that buyers can provide to suppliers, including setting expectations for quality, price, and delivery, offering training, financial assistance, collaboration, and supply chain optimization. Upgrading within the value chain can involve enhancing products, improving processes, and functional upgrading in design, branding, and marketing. Buyers, particularly large-scale and specialized ones, can play a significant role in supporting suppliers with upgrading efforts. However, buyers guard their buying function as essential for their competitive edge, and the buyers which also have a focus on design only encourage upgrade by minor design changes. These buyers take measures to prevent suppliers from getting knowledge in this area. In the particular case of South African producers, the authors highlight the challenges such as immiserizing growth, by which 'the expansion of economic activity which realizes declining real living standards' (Kaplinsky et al. 2002:1159) is meant, reliance on price competitiveness, poor quality, unreliable delivery, and limited capacity development. The concentration pattern in South African furniture firms, influenced by import-substituting industrialization, may hinder their upgrading capacity, focusing on large batch production rather than innovation (Kaplinsky et al. 2002: 1163, 1166-1173). In this context, firms die and jobs are lost, automatically leading to worsening social conditions of the people. Even the companies that survive cannot automatically improve working or social conditions for their workers, as all their resources may be directed on the act of surviving itself.

Klooster and Mercado-Celis (2016) with their approach employed in a region influenced by Global Production Networks (GPNs) uncover upgrading tactics that might go unnoticed in studies focusing solely on the hierarchical or north-south expansions of GPNs. They use the concept of a sustainable production network (SPN), explained as a 'network embedded commodity chain' focusing on generating and distributing value to workers, communities and environment in order to support social well-being. For community forest enterprises in Oaxaca, Mexico, value chain upgrading has primarily involved vertical integration. Over the span of 50 years, communities have gained control over their forests, enhanced personnel skills, developed logging and milling capabilities, acquired wood-drying kilns, and established furniture factories in cases like Textitlán, Ixtlán, and Pueblos Mancomunados. These communities have also formed a consortium owning factory outlet stores and a furniture brand, representing another form of upgrading.

Additionally, groups of carpenters have improved their equipment, production, and marketing capacity. Collaborating with larger forest-owning communities, they process certified wood into school furniture under a shared contract with the state government, while also catering to local markets. This work suggests that the actors within the Oaxaca network successfully promoted economic upgrading as a crucial strategy to address the social upgrading of the workers, meaning better pay and better working conditions, among others, as well environmental upgrading. This form of collaboration extends beyond the interests of individual firms, emphasizing social and environmental upgrading as integral parts of a broader strategy. However, there exists further potential for innovation, especially when it comes to design, as Oaxaca's artistic talent has yet to introduce new crafts or design elements, or merge existing craft traditions into new product lines (Klooster & Mercado-Celis 2016:1897).

In Ghana, the government has identified furniture and wood processing as promising paths towards industrialization and diversification. Nevertheless, Ghana has struggled to develop a vibrant furniture sector, despite its historically positive performance (Dinh et al. 2013:342). The main challenges faced by Ghana's furniture sector include a fragile supply chain, limited access to financing, and a lack of coherent government policy, all this leading to a lack of upgrading. The majority of Ghana's wood is exported as raw logs, while domestic wood is costly. High transportation and energy expenses, coupled with stiff competition from inexpensive Asian imports, have led to a significant decline in sales for local small and medium-sized producers. Additionally, most firms lack the necessary machinery and skilled workforce to produce furniture meeting the design and quality standards demanded by international markets. This is relevant when considering the fact that Ghana's wood industry generates 10% of the country's export earnings, indicating a significant comparative advantage. Insufficient capital and high business operation costs further hinder sector growth. (Dinh et al. 2013: 342 – 343). In this particular case, expansion of industries like wood processing and furniture manufacturing requires access to financing, technical expertise, and managerial skills often facilitated by Foreign Direct Investment (FDI), of which little is attracted (Dinh et al. 2013: 345). Workers in Ghana's forest and furniture industries face difficult conditions. Many firms operate informally, relying on small-scale or even illegal wood suppliers, suggesting insecure employment and limited worker protections. This informality, combined with inefficient production methods, constrains

the industry's competitiveness and exposes workers to economic instability (Dinh et al. 2013: 345-346).

How chain governance, power relations and networks come together

When it comes to value chain governance, there is no unified definition. Besides the buyer-driven and producer-driven categories, the concept differs also when talking about different types of chains (Bair 2009:21). The following cases highlight both opportunities and challenges that the aspects of chain governance and power relations as well as networks posit to economic and social upgrading in the forest industries.

Murphy and Schindler (2011) offer a fresh perspective on global production networks (GPN) by using empirical methods to redefine how trans-local relationships influence regional development. Their article focuses on lower-tier suppliers in Bolivia's wood industry, examining two distinct production networks: one serving high-volume buyers like transnational corporations (GPNs) and the other catering to low-volume international buyers (brokerage networks) (Murphy & Schindler 2011:62). The processes of value creation, enhancement, and capture rely on the level of network embeddedness, which results from a gradual establishment of trust among network participants (Hess 2004 as cited in Murphy & Schindler 2011:65), meaning the more trust there is between participants, the more value they get from their collaboration. Power dynamics play a crucial role in fostering this trust by facilitating control mechanisms and creating interdependencies that raise the costs associated with switching suppliers or buyers (Murphy 2006 as cited in Murphy & Schindler 2011:65).

In GPNs, value creation occurs as entrepreneurs establish close relationships with representatives from TNCs or major wholesalers. These interactions highlight the logistical, production (such as scale), and quality capabilities of Bolivian firms. Concerning value enhancement, suppliers within GPNs endeavor to enhance their capacities to meet the performance standards and functional requirements set by leading TNCs. For GPN firms, enhancing logistics management and obtaining internationally recognized product certifications are particularly crucial (Murphy & Schindler 2011: 72).

The brokerages act as intermediaries between wood suppliers and international buyers, and are involved in the trade of sawn wood, decking or specialty wood products. Most brokers work with limited capital and depend on subcontracting or

leasing agreements with transport providers, wood extractors, and value-added processors, such as decking manufacturers (Murphy & Schindler 2011:74). Unlike GPN firms, brokerage firms find traditional relational strategies, such as formal contracts and legal agreements, showcasing their strengths in production scale, quality etc., challenging due to their lack of capital and technical expertise. Instead, they rely more on informal interactions such as long-term, personal, face-to-face interactions to establish business connections. In terms of value enhancement, these firms focus on securing wood supplies, finding quality international buyers, and adding value to wood products (Murphy & Schindler 2011: 75, 79).

The Bolivian institutional and political context poses challenges for firms in GPN due to decentralization of forest control (with non-firm actors such as communities in control of more wood resources) and strained relations with the government. Similarly, brokerage networks encounter obstacles like technological, logistical, and institutional challenges, as well as weak regulation, support, and poor self-organization. Firms and regions involved in brokerage networks will struggle to capture additional value unless they address major technological (such as dry-kiln capacity), logistical (such as wood transportation), and institutional challenges (such as corruption). Despite these challenges in chain governance among others, networks and trans-local relationships contribute to the creation of successful businesses and international market ties, contributing in turn to regional development in the Global South (Murphy & Schindler 2011: 78, 80-82).

Another article by Murphy (2012) focuses on how Bolivian suppliers establish close relationships with both domestic and international buyers, a concept termed as achieving alignment of interests through power relations, social performances, trust, and effective management of local factors in Bolivia (Murphy 2012:209). Fundamentally, the development of networks involves negotiations over the terms and conditions of a relationship. Power comes into play as individuals in business seek to reconcile their interests to attain their respective goals or objectives (Latour 1986, Emirbayer 1997, Murdoch 2006 as cited in Murphy 2012:211).

Besides GPN firms and brokerage firms, another network type identified by Murphy (2012) is particularly relevant for highlighting the usefulness of local linkages and comprises carpenters and furniture makers organized in cooperatives and

associations, although not yet internationalized. This network is crucial due to the Bolivian government's focus on industrial development through small-scale enterprises. Associations enable members to pool resources, share information, access technology or machinery, rent premium market space, and attract attention from foreign donors, NGOs, or state-led industrial development programs. While competition is intense within associations, the collective benefits outweigh individual costs, and the associative firms primarily serve local markets with regular clients, lacking exposure to international buyers (Murphy 2012:224).

One thing is clear so far: networks and relationships are crucial to the existence of businesses, and can contribute significantly to economic and social upgrading. However, in this particular example, the diverse needs of Bolivia's forestry sector highlight the risk that the policies targeting one type of production network may inadvertently harm others. Thus, there is a need for policymakers to understand these different networks before acting. Historically, Bolivia's neoliberal policies promoted GPN firms, while the Morales government has shifted focus to associative networks for pro-poor development, with other types of firms in between these two extremes. The Bolivian state has not yet developed a cohesive, inclusive policy for its wood industry, which is concerning given the vulnerability of its forests and the economy's reliance on minimally processed hardwood exports. This study emphasizes small-scale firms in low-income contexts, offering insights into globalization's impact on the Global South and highlighting the importance of examining diverse, often overlooked business strategies. More importantly, it contributes to the understanding of urgent economic, political and social issues that the Global South is facing (Murphy 2012:229). For the workers, all of this can be translated into deeper economic inequalities, decreased job security and overall less community well-being.

Yet another case where value chain governance is a positive influence, is illustrated by the three communities in Mexico's Oaxaca region – Textitlán, Ixtlán, and Pueblos Mancomunados. Their collaboration stems from shared interests, backgrounds, and approaches. Following several months of profitable sales, the communities opted to formalize their partnership through an integradora (ICOFOSA), a legal consortium aimed at enhancing the competitiveness of small and medium-sized enterprises by offering administrative support, joint procurement, and collective sales (Klooster & Mercado-Celis 2016:1895). The certified communities of ICOFOSA advocated for

making FSC certification a requirement for the school furniture contract, emphasizing its importance in promoting sustainable forest management and avoiding illegal logging. State and federal forest departments also supported certification for similar reasons, considering it crucial for preventing environmental degradation. This requirement serves as a form of supply chain governance, shielding government promoters of rural development and furniture buyers from negative associations with illegal logging. ICOFOSA business managers highlight the role of certification in their community forest enterprises' growth, despite acknowledging its associated costs and the fact that furniture prices are still determined by wood quality rather than certification status (Klooster 2011 as cited in Klooster & Mercado-Celis 2016:1896). This study further emphasizes the significance of examining the institutional frameworks that facilitate the integration of production networks (Ponte and Cheyins 2013, Bitzer et al. 2012, Glin et al. 2012 as cited in Klooster & Mercado-Celis 2016: 1899). Within the case study presented, these institutional structures encompass community organizations and ownership, both formal and informal cooperative agreements such as the integradora consortium, a collectively shared brand, assistance and guidance from NGOs, governmental contractual agreements, as well as compliance with global standards and certification like the FSC. These institutions play a crucial role in governing the network, ensuring coordinated production efforts, and fostering a more equitable distribution of the network's generated value (Klooster & Mercado-Celis 2016:1899).

Ahmad and Rodd (2018) explore the negative effects of power dynamics within the wood production network, focusing on wood furniture actors in Indonesia within global production networks. Using the wood legality assurance system under the European Union Forest Law Enforcement Governance and Trade (FLEGT) initiative, it shows how legality verification reinforces existing power imbalances and creates new elite control (Ahmad & Rodd 2018:47).

Although small operators face simplified legality requirements compared to larger counterparts (Maryudi et al. 2015 as cited in Ahmad & Rodd 2018:49), many find the registration process burdensome in terms of time and financial investment, deterring them from pursuing legality verification. Thus, smaller companies 'rent' the certification from certificate-holding bigger companies, a practice that even though violates regulations, it is very much reality. In essence, every time smaller manufacturers

export their wood products, they pay for the use of a bigger company's certificate. This practice is regarded as much cheaper than actually obtaining legality certification themselves, even though the smaller manufacturers expose themselves in the process (Ahmad & Rodd 2018:48-50).

Importantly, certificate-holding companies under the SVLK (Indonesian legality assurance system – *Sistem Verifikasi Legalitas Kayu*) require sensitive business data from smaller companies using their certificates to comply with regulations. Consequently, they obtain information on sales prices and client details, which in turn opens up new financial opportunities for larger firms, either by outpricing their smaller competitors or attracting clients to purchase from them directly. This also introduces a new form of market control over smaller manufacturers, a fact confirmed by some smaller manufacturers, who noted a disconnection from their international buyers under SVLK, as market transactions now occur through intermediaries rather than directly (Ahmad & Rodd 2018: 49-51). The legality system has already contributed negatively to economic and social well-being through several companies closing down (Ahmad & Rodd 2018: 50), and risks are present for the ones who still stand. Even if not all smaller operators close down or are not taken out of business, their business conditions can still degrade, as their dependency on big companies is increasing and bargaining power is declining. The workers will, in turn, experience job insecurity, if not outright job loss, which significantly contributes to the degradation of their economic and social well-being.

Forest Stewardship Council (FSC) certification

As we will see in the next section, certification can be a powerful tool to pursue economic and social upgrading. In the following pages, I explore both benefits and drawbacks of certification schemes such as FSC identified in the literature.

Taylor (2005) examines two market-driven initiatives, Fair Trade coffee and Forest Stewardship Council certification, which leverage market dynamics to pursue social and environmental objectives. These initiatives encounter the shared challenge of maintaining their original goals while operating within mainstream markets. Using a global commodity chain approach with reference to Mexico and insights from economic sociology embeddedness theory, the analysis explores value chain

governance structures influenced by social, cultural, and organizational factors (Taylor 2005:129).

The Forest Stewardship Council (FSC) faces a tension between its primary goal of protecting threatened forests and the pressure to supply large quantities of certified wood products to buyers in northern regions. Founded in 1993 as a response to consumer movements against tropical deforestation (Counsell & Loraas 2002 as cited in Taylor 2005:134), FSC represents a unique collaboration between environmental organizations, the wood industry, and forest product users (Fern Foundation 2001 as cited in Taylor 2005:134). It sets guidelines for sustainable forest management, accrediting and auditing third-party certification agencies (FSC 2003, Gerez Fernandez & Alatorre Guzman 2003 as cited in Taylor 2005:134). While often seen as an environmental conservation tool, FSC certification also emphasizes the social and economic aspects of sustainable forestry (Bass et al. 2001, Molnar 2003, Rametsteiner & Simula 2002 as cited in Taylor 2005:134). Principles such as safeguarding resource rights of local communities and ensuring their benefits from forestry underscore FSC's commitment to social and economic sustainability (Taylor 2005: 132, 134-135).

FSC certification primarily focuses on forest production conditions and impacts, with forest producers bearing the costs. However, contrary to expectations, consistent price premiums for certified wood products have not emerged, especially in global South markets. Large global retailers (e.g. IKEA, B&Q, HomeDepot) dominate the certified wood products market, but they show little interest in increasing consumer demand for certified wood. Most certified forests are now found in Northern temperate and boreal forests rather than in the threatened Southern tropical forests that certification initially aimed to protect. Critics fear that FSC's growth strategy prioritizes delivering large quantities of certified wood products, favoring big producers with well-managed forests. Certification benefits include risk management, especially for communities and indigenous groups, helping them in their struggle for more secure land (Gerez Fernandez & Alatorre Guzman 2003, Madrid & Chapela 2003, Molnar 2003, Robinson 2000 as cited in Taylor 2005: 138), but the benefits primarily accrue to well-managed and powerful participants (Kruegener 2000 as cited in Taylor 2005:138). Despite these benefits, most of the value-added generated by certification is captured elsewhere in the commodity chain, with no significant price premium for certification expected in the

near future. Retailers have continuously hesitated to offer a premium, citing consumers' unwillingness to pay extra for certified forest products. Additionally, certification is increasingly seen as a basic requirement for market entry and an essential element of buyers' standards for "acceptable quality." Despite FSC's emphasis on incorporating community and indigenous group operations, communal forestry encounters notable obstacles in obtaining certification (Molnar 2003 as cited in Taylor 2005:138; Taylor 2005:136, 138). This is reinforced also by Murphy and Schindler (2011), who show that in Bolivia mainly conventional GPN firms can afford FSC certification and that this certification in turn brings them advantages: the companies can treat their workers better and they can enter European markets easier. Furthermore, it is far easier for these companies to sell to large retailers (e.g. B&Q) (Murphy & Schindler 2011: 73).

In the case study by Klooster and Mercado-Celis on an Oaxacan furniture production network, individuals are developing an alternative competitive approach centered on community institutions and forest certification, as previously mentioned. This stands in stark contrast to the grim situation prevailing in Mexico's forestry and furniture production sectors, where the prevailing tendency is to transfer the environmental burdens of forest management externally and reduce the share of the network's value benefiting workers (Klooster & Mercado-Celis 2016:1892-1893). Supporters of community forestry anticipated that forest certification would enable domestic producers, especially communities, to enter the global wood market (Anta Fonseca 2004, Gerez Fernández and Alatorre-Guzmán 2005 as cited in Klooster & Mercado-Celis 2016:1894). Although its direct impact on markets in Oaxaca was limited, certification facilitated the collaboration of state and federal rural development programs and NGOs, which in turn helped communities upgrade their sawmills, improve board classification skills, and acquire wood kilns (Klooster 2006 as cited in Klooster & Mercado-Celis 2016:1894). By 2005, these efforts had enabled some communities in Oaxaca to transition into furniture manufacturing.

Furthermore, through an examination of strategies aimed at enhancing overall value generation and bettering value distribution to workers, human communities, and forest ecosystems, this paper introduces the notion of a Socially Progressive Network (SPN), encompassing both value-generation and value-distribution strategies aimed at directing adequate value upstream to workers, human communities, and ecosystems.

This study suggests that progressive stakeholders within the Oaxaca network successfully advocated for economic upgrading as an essential approach to sustain and expand the advantages derived from social and environmental upgrading (Klooster & Mercado-Celis 2016:1899).

The FSC standards incorporate health and safety (H&S) requirements as crucial indicators of sustainable forest management. Initially, in the 2010 version, Principle 4 of the FSC standard emphasized H&S requirements for certified entities (Soil Association as cited in Halalisan et al. 2022:2). In the latest version, these requirements are highlighted in Principle 2, focusing entirely on health and safety criteria (FSC 2015 as cited in Halalisan et al. 2022:2). Compliance with International Labour Organization (ILO) conventions is mandatory for FSC forest management certification (FSC 2002 as cited in Halalisan et al. 2022:2). Specifically, adherence to two ILO codes of practice regarding safety and health in forestry work and guidelines for labor inspection in forestry is required by the FSC standard. Since 2002, FSC certification has been the sole scheme for forest management in Romania, with widespread adoption and over 2.6 million hectares of forest and over 800 certified companies (Halalisan et al. 2022:2).

Social and economic upgrading

While the above-explored dynamics of upgrading, value chain governance, or networks in the forestry value chains are complex, connections can still be observed, with all these factors decidedly having an influence on economic and social upgrading and with FSC standing out in this particular context. However, what factors influence which type of upgrading is not particularly delineated and whether economic upgrading automatically leads to social upgrading is a highly relevant question, especially when it comes to the forest industries.

Bernhardt and Pollak (2016) focus on economic and social upgrading in four different manufacturing GVCs: apparel, wood furniture, automotive, and mobile phones (Bernhardt & Pollak 2016:1220). The global wood furniture sector has witnessed a shift in production concentration towards China (Kaplinsky & Readman 2005 as cited in Bernhardt & Pollak 2016:1229), which significantly increased its market share between 2000 and 2012. Out of 35 sampled countries, seven (Romania included) have achieved economic upgrading, mostly emerging economies along with Germany.

Among these, half (Asian economies in the sample group and Poland), have also experienced social upgrading, marked by increases in real wages and employment. However, in some developed countries, real wages increased while employment opportunities in the sector decreased, possibly indicating specialization in higher-value products rather than failed upgrading (Bernhardt & Pollak 2016: 1229-1230).

Overall, achieving both economic and social upgrading concurrently has been rare in Bernhardt and Pollak's sample. However, the analysis indicates that when economic upgrading occurs, it tends to be accompanied by social upgrading, suggesting a positive relationship between the two. This relationship varies across different GVCs, with the automotive industry showing the strongest correlation and the wood furniture sector exhibiting weaker ties, mainly because many countries experienced social upgrading without economic improvements. Romania stands out as having achieved economic and social upgrading across all GVCs except for furniture, where social upgrades were not observed (Bernhardt & Pollak 2016:1238-1240).

Social upgrading and labor

When it comes to social upgrading in particular, as Gereffi and Lee (2016) state in their article, labor, and more specifically, working conditions are crucial components. In the next pages, the focus falls on labor in the forest industries and the main challenges will be highlighted.

In developed EU nations like Sweden, Finland, and Spain, which boast extensive forested regions, the forestry workforce is notably smaller compared to former communist bloc countries. For instance, Sweden manages over 2,500 hectares of forest per employee, while Hungary's coverage is merely 136 hectares per employee. Despite ranking 8th in forested area within the EU, Romania ranks 2nd in the number of forestry workers, with over 44,000 individuals employed. Sweden, with a forested area almost five times larger than Romania's, employs a workforce four times smaller in forestry activities (Ciornei & Munteanu 2020:443-444).

Global trends indicate a push to decrease employment numbers due to advancements in technology, and this trend is evident in the forestry sectors of Sweden and Finland. Analysis of workforce structure reveals that the forestry sector still relies on a lower-skilled workforce, which is particularly susceptible to the impacts of technological advancements. New technologies require employees with enhanced capabilities and

skills, placing lower-skilled workers at greater risk of displacement (Ciornei & Munteanu 2020:447).

In European countries, forest industries, and logging in particular, persists as one of the top three most perilous sectors. An article by Cabeças (2007) aims to delineate the health and safety challenges and solutions within forestry operations in the EU, with a specific focus on Portuguese operations. The author makes it clear though, that making cross-country comparisons is challenging due to significant disparities in accident reporting definitions and quality among countries (Blombäck et al. 2003 as cited in Cabeças 2007:19). The safety and health situation is particularly problematic among self-employed individuals, farmers, and contractors (Porschen 1997 as cited in Cabeças 2007:19). In the UK, while the number of fatal accidents among directly employed forest workers decreased between 1990 and 1997, fatalities among contractors saw an increase (ILO 2001, Blombäck et al. 2003 as cited in Cabeças 2007:19). According to data from statutory accident insurance institutions for agriculture and forestry in Germany, fatal accidents per 1,000 injuries are three times more likely in forestry compared to construction and twice as likely compared to agriculture. In Austria, there were a total of 1,830 accidents in the forestry industry in 2002, including 23 fatal accidents. In Latvia, the accident rate has risen, with five fatal accidents and five serious accidents reported annually. Sweden recorded 27 fatalities among self-employed forest workers from 1990 to 2001, with falling trees being the primary cause (55%), followed by accidents involving vehicles (17%), and machinery-related accidents (14%) (Cabeças 2007: 21).

The prevention of health and safety issues is limited by the implementation of safety regulations by either governmental bodies or companies, along with the provision of first aid kits and certain personal protective gear, such as safety helmets, which may or may not be utilized. In such circumstances, it is anticipated that the safety status within forestry operations will continue to be concerning. This scenario has been prevalent in the majority of industrialized nations (ILO 2000 as cited in Cabeças 2007: 27).

Another study is focusing mainly on developed countries, where health and safety issues in forest logging operations have reached visibility in the scientific and technical community (Albizu-Uriónabarrenetxea et al. 2013:394). Training efforts for health and

safety among self-employed workers are challenging, requiring concerted endeavors to instill healthy habits for their well-being, particularly since they lack the oversight of a controlling company. Organizing courses for forest owners becomes crucial for imparting necessary training (Tobisch et al. 2005, Wilhelmson et al. 2005 as cited in Albizu-Uriónabarrenetxea et al. 2013:396). While some training programs have proven effective in reducing accident frequency and severity (Bell 2004, Neely and Wilhelmson 2006, Tobisch et al. 2005, Albizu et al. 2010 as cited in Albizu-Uriónabarrenetxea et al. 2013:396), others fail to demonstrate significant differences in accident rates between trained and untrained companies (Bell and Gruschecky 2006, Thelin 2002, Bell 2004 as cited in Albizu-Uriónabarrenetxea et al. 2013:396). Rapid employee turnover renders training programs ineffective in some cases (Bell and Gruschecky 2006, Albizu et al. 2010 as cited in Albizu-Uriónabarrenetxea et al. 2013:396), exacerbated by a lack of specific training for immigrant workers and a general disinterest in learning among forestry workers (Blombäck et al. 2003, Thelin 2002 as cited in Albizu-Uriónabarrenetxea et al. 2013:36).

Research on the usage of Personal Protective Equipment (PPE) in forestry logging reveals widespread misuse or non-use of prescribed equipment, particularly visual and auditory protectors and gloves. Discrepancies exist between countries, with Spain displaying deficiencies in preventive equipment while New Zealand mandates comprehensive safety gear for operators (Ambrosio et al. 2001, Bates et al. 2001 as cited in Albizu-Uriónabarrenetxea et al. 2013:397-398). Although the efficiency of helmets has been questioned, especially in fatal accidents, they remain vital for mitigating light blows (Driscoll et al. 1995 as cited in Albizu-Uriónabarrenetxea et al. 2013:397-398). However, the adoption of PPE can induce changes in work methods, potentially leading to riskier behaviors due to perceived protection, as evidenced by increased twisted joints despite reduced injuries (Salminen et al. 1999, Klen 1997 as cited in Albizu-Uriónabarrenetxea et al. 2013:397-398). Additionally, PPE imposes physical burdens such as reduced visibility and increased clumsiness, necessitating ongoing research to minimize associated risks (Albizu-Uriónabarrenetxea et al. 2013:397-398).

Axelsson (1998) makes it clear that the impact of mechanization on reducing accident risks in forestry has been significant. However, when it comes to health hazards, the situation is more nuanced. Mechanization has introduced new risks, with around fifty

percent of logging-machine operators experiencing symptoms of Repetitive Strain Injury (RSI), which is damage to muscles, tendons or nerves due to repetitive motions, especially in the areas of the neck, shoulder, arms, and cervical spine (Axelsson 1998:28). This has become the most prominent health issue in Swedish forestry during the 1990s, prompting extensive preventive measures. A new approach to work organization is necessary, involving tasks expansion, job rotation, and modified shift schedules. The aim is twofold: to mitigate the risk of RSI by minimizing operators' time spent in the cab, and to simultaneously increase productivity by improving working conditions (Axelsson 1998: 30).

Another paper focusing on the occupational accidents of either employees or contractors of the Forest Service Region (FSR) in Slovakia between 2000-2017 reveals a significant correlation between the volume of logged wood and the frequency of severe and fatal accidents experienced by contractors in forest logging, ranging from moderate to strong (Jankovský et al. 2019: 2, 14). Furthermore, the authors observed a consistent incidence rate of accidents throughout the year. Occupational accidents within the FSR tend to affect either young and inexperienced workers or older individuals with reduced situational awareness. To mitigate these risks, it is imperative to enhance mechanization in forest logging, ensure that workers (both employees and independent contractors) are adequately trained in safe practices, and incentivize adherence to safety protocols (Jankovský et al. 2019:14).

Existing health & safety regulations in Romania

The Association of Foresters in Romania, ASFOR, is the employers' and professional association, representative at national level of economic operators in forest exploitation and wood industrialization. They have put together a guide on the work protection or safety measures specific to logging activities that details all the aspects of forest exploitation in accordance with Labor Protection Law No. 90/1996, general rules on labor protection and specific occupational safety rules for forestry (Musca et al. 2023: 15).

While there is a clear list on PPE (Musca et al. 2023: 27-29), there is only one mention about poor weather conditions included in Art. 17 in the section regarding the safe usage of chainsaws: *'no tree felling in bad weather (wind, dense fog or heavy rain)'* (Musca et al. 2023: 39). The use of PPE is by law mandatory and alcohol is strictly forbidden as clearly stated in Art. 17b): *'It is forbidden to use saws by operators who*

are under the influence of alcohol, are fatigued or have inhaled or ingested drugs that may adversely affect the coordination of movements or cause impaired vision or hearing.' and c) *'It is forbidden for the operator to use the saw without full protective equipment and without a medical kit.'* (Musca et al. 2023: 36). In the Labor Protection Law No. 90/1996 the mandatory wear of PPE is mentioned under Chapter 2 'Technical equipment, personal protective and work equipment, protective food and hygienic materials' Art 12-17 (Romanian Legislative Portal – Law 90/96).

Accidents, hazards and work-related diseases are covered in the Labor Protection Law No. 90/1996 Chapter 3 'Obligations to implement labor protection measures' Art 18 and Art 19 as well as Chapter 5 'Accidents at work and occupational diseases' Art 24-33. These articles cover aspects such as mandatory health testings prior to hiring personnel and making sure that the person hired is fit to perform possibly dangerous jobs, mandatory availability and wear of PPE, stopping any activity that can lead to injury or disease, the obligation of the employer to manipulate the environment and the equipment in such a way as to minimize or reduce completely the danger to the employees, the obligation of the employee to report any work-related disease, accident or any irregularity that might lead to an accident including the ones of technical origin, obligation of the employer to inform, train and take measures so that the employees are working safely, and many more. Regarding work-related diseases, aspects such as reporting, preventative measures for work-related disease as well as investigation into the causes of the disease are mentioned, but nothing is mentioned regarding any kind of support in these situations (Romanian Legislative Portal – Law 90/96).

In terms of environmental protection, there are 3 specific articles, two compulsory and one with more wiggle room: Art. 5 *'It is compulsory to comply with the measures specific to the geographical area formulated by the environmental institutions concerning the protection of fauna, flora and water.'*, Art. 6 *'In the operation of chainsaws, the use of fuels and lubricants classified as 'bio' is recommended wherever possible.'*, and Art. 7 *'It is compulsory to dispose of waste, store it in authorized places and handle fuels and lubricants without damaging the environment.'* (Musca et al. 2023: 31).

5.2 Gaps in existing research

It is clear that upgrading, chain governance, and networks are all factors that influence both economic and social upgrading. From the case studies discussed throughout this literature review, we can see that these factors can contribute to creating more job opportunities, better specializations, better working conditions, improvements in the quality of employment, increased productivity, and so on. We have also seen, however, that the opposite can be true as well.

As soon as we take a deeper dive along the value chain, and while keeping in mind the social upgrading component, one of the biggest pain points of the forest industries becomes clear: labor, more specifically the still lethal dangers of working in logging. Despite FSC certification that clearly includes health and safety requirements as part of the responsible forest management, and despite the increase in certified companies, health and safety concerns remain difficult to manage.

While differences exist between countries when it comes to health and safety in logging, it is nonetheless a relevant issue, regardless of economic and social development. In the case of Romania, the low degree of mechanization, outdated equipment and very limited capacities for upgrading in this direction, and the unwillingness of workers to adhere to safety regulations and use PPE discourage investments even further in the above-mentioned aspects (Halalisan et al. 2022).

Ultimately, while factors such as economic upgrading, value chain governance, networks, and FSC certification have been studied individually, and mentions of workers' well-being or labor conditions have been made, a comprehensive examination that brings these elements together to explore their combined impact on social upgrading in the wood logging sector has yet to emerge. There remains a gap in understanding whether a tangible connection exists between these aspects. This master's thesis aims to address this gap by investigating the relationship between these factors and their influence on the labor conditions and well-being of wood logging workers of Alba County in Romania.

6. Theoretical framework

The theory chapter establishes the conceptual framework for understanding the dynamics of the Romanian wood value chain and its broader implications. Key concepts such as the Global Commodity Chain (GCC) are introduced to analyze the interconnected nature of production, trade, and governance within the industry. This chapter also delves into economic and social upgrading, as well as value chain governance, shedding light on the power dynamics and relationships between different actors in the chain.

6.1 Global Commodity Chain, Global Value Chain, Global Production Network

The concept of a "commodity chain" originates from Wallerstein's world-systems theory, which is an extension of dependency theory (Raikes et al. 2000:392). In exploring whether and to what extent a capitalist world-economy served as an organizing force and structural reality in the 16th, 17th, and 18th centuries, Hopkins and Wallerstein introduce the concept of "commodity chains" (Hopkins & Wallerstein 1986:159).

Global commodity chains serve as the connective tissue between various actors worldwide, facilitating not only interpersonal connections but also access to global markets. Describing the intricate web of actors and processes involved in global production, Hopkins and Wallerstein conceptualize commodity chains as networks of labor and production leading to the creation of finished goods (Hopkins & Wallerstein 1986:159 as cited in Bair 2009:2; Bair 2009:9). In order to build this chain they describe, they start at the end with the last operation and move towards the beginning, the raw materials. Their approach involved focusing on tracking economic flows between countries—such as trade, migration, and capital investment and thus addressed the issue of 'the existence of a complex division of labor, and of the real economic alternatives at each point of the chain' (Hopkins & Wallerstein 1986:159, 160).

From Hopkins and Wallerstein's concept of commodity chains, a big body of literature has developed on international trade and production networks, and the concept itself has developed and transformed, each of its versions with its own particularities (Bair

2009:1, 2). Concepts such as Global Commodity Chains (GCC) and Global Value Chains (GVC) are used alternately and while there are differences between them and original commodity chain concepts by Hopkins and Wallerstein, they are still connected through a common intellectual heritage. The GCC framework evolved from, albeit with modifications, world-systems theory, while GVC analysis emerged from, albeit also with significant modifications, the GCC framework (Bair 2009:7).

In defining a method in order to study GCCs, Gary Gereffi proposed three dimensions that could be analyzed: '(1) (...) the process of transforming raw materials and other inputs into final products); (2) a territoriality, or geographical configuration; and (3) a value chain governance structure, which describes both the process by which particular players in the chain exert control over other participants and how these lead firms (or "chain drivers") appropriate or distribute the value that is created along the chain.' (Gereffi 1994 as cited in Bair 2009:9). This framework defines how lead agents control market access and information to integrate subordinate agents. Gereffi explains that being part of a global commodity chain (GCC) can give smaller producers indirect market access at lower costs and help them advance within the chain by acquiring technological knowledge and skills (Gereffi 1999:39 as cited in Raikes et al. 2000:393, 394).

Raikes et al. (2000) write that while Northern firms may outsource to developing countries for cheap labor, a more significant reason is the "organizational flexibility" it provides to lead firms. Gereffi et al., and Porter, argue that cheap labor is a "lower-order" factor in competitiveness for subordinate firms, compared to "higher-order" factors like 'proprietary technology, product differentiation, brand reputation, customer relations, and continuous industrial upgrading' (Gereffi et al. 1994:6 as cited in Raikes et al. 2000:396; Porter 1987 as cited in Raikes et al. 2000:396). From this perspective, GCCs provide a foundation for firms to participate in world trade and improve their position. They serve as valuable competitive assets but also act as mechanisms of exclusion for those unwilling to accept the conditions and costs associated with chain membership. This highlights the power of lead firms to integrate weaker actors for low-value-added tasks or to exclude them altogether (Raikes et al. 2000:396).

The GCC framework links actors across different regions—not just to one another, but also to global markets. These chains serve as the infrastructure of international trade,

and analyzing them uncovers cross-border flows and intermediate production and exchange processes that are hidden by statistics focused solely on final product trade (Bair 2009:9). This framework distinguishes between producer-driven and buyer-driven chains, shedding light on varied coordination and control patterns in global industries. The rise of buyer-driven chains, especially in light manufacturing, mirrored the integration of many developing nations into global markets as exporters of consumer goods (Bair 2009:10).

Another relevant term that was identified in the literature is Global Production Network (GPN). The "Manchester school" of GPNs is closely aligned with the commodity chain tradition. Developed as a relational and geographic approach to the global economy (Hess and Yeung 2006:1196–1997 as cited in Bair 2009:4), the GPN framework emerged in dialogue with and critique of the GCC framework, particularly Gary Gereffi's work (Czaban and Henderson 1998, Dicken et al. 2001, Henderson et al. 2002 as cited in Bair 2009:4). Proponents of the GPN approach argue that GCC research often overlooks spatial dimensions, whereas GPN analysis emphasizes multiscale dynamics alongside localized network analysis (Hess and Coe 2006, Hess and Yeung 2006 as cited in Bair 2009:4). Despite efforts to distinguish GPN from GCC, much GPN research consists of detailed case studies, akin to global commodity chain analyses (Bair 2008 as cited in Bair 2009:4). For this reason, I shall also use in my research the term 'global commodity chain'.

Despite all these variations in terminology and areas of emphasis among researchers, there is a growing agreement that the concept of the network is essential for grasping the complexity of the global economy, especially in terms of its geographical dimensions. Networks are not a recent development; rather, they capture the fundamental structural and relational principles by which the production, distribution, and consumption of goods and services have long been organized (Coe et al. 2008:272). Furthermore, Coe et al. (2008:272) state that production networks are inherently dynamic, constantly evolving both in their organizational structure and geographic reach. As a result, their spatial and temporal characteristics are highly variable and dependent on specific conditions (Coe et al. 2008:272).

6.2 Value chain governance

The concept of 'governance' is fundamental to the global value chain approach. It refers to the idea that certain firms within the chain establish and/or enforce the rules and conditions under which other firms operate. Without governance, a value chain would simply consist of a series of market-based transactions (Humphrey & Schmitz 2001:20). Governance can be implemented in various forms, and different segments of the same chain can be governed in distinct ways. It is relatively straightforward to identify examples of governance in inter-firm relationships within global value chains. A notable example is how major UK supermarkets control their fresh-vegetable supply chains. They not only specify the types of products they want to purchase—including specific varieties, processing methods, and packaging—but also dictate processes, such as the quality systems that suppliers must implement. These requirements are enforced through auditing and inspections, and ultimately by deciding whether to retain or drop a supplier. This illustrates that governance in value chains involves the exercise of control throughout the chain. At any stage in the chain, the production process—broadly defined to include aspects such as quality, logistics, and design—is governed by specific parameters. The four key parameters that define what is to be done are: 1. What is to be produced, referred to as product definition. 2. How it is to be produced, which includes defining production processes such as technology, quality systems, labor standards, and environmental standards. 3. When it is to be produced. 4. How much is to be produced (Humphrey & Schmitz 2001:21-22). Governance comes into play when certain firms in the chain operate according to parameters set by others. In such cases, governance structures may be needed to communicate these parameters and ensure compliance. In essence, governance refers to the inter-firm relationships and institutional mechanisms that enable the coordination of activities within the chain outside of market forces (Humphrey & Schmitz 2001:22).

Gereffi, Humphrey and Sturgeon (2005) identified five types of value chain governance, each characterized by different levels of coordination, power asymmetry, and dependency between firms: Markets, modular, relational, captive and hierarchy. **Markets** involves low-cost, flexible linkages between firms where transactions can occur repeatedly over time but switching to new partners is relatively easy and

inexpensive for both parties. In **modular chains**, suppliers produce goods according to the detailed specifications of customers but manage their own process technologies and capital investments. They provide 'turn-key' services, which means they handle a broad range of responsibilities without needing high levels of coordination or customization from the buyer. **Relational value chains** are characterized by complex interactions and high levels of mutual dependence between buyers and sellers, often requiring trust, reputation, or family and ethnic ties to manage the relationship. The relationships are often supported by spatial proximity but can also function over large distances. In **captive chains**, small suppliers are heavily dependent on large, dominant buyers, leading to high switching costs. These suppliers are "captive" because they are closely monitored and controlled by the lead firms. **Hierarchy** is defined by vertical integration, where a single firm controls most aspects of production and management. The governance is characterized by managerial control from top to bottom, often from headquarters to subsidiaries (Gereffi et al. 2005:83-84).

6.3 Economic & social upgrading

The impact of developing countries' involvement in GCCs on both firms and workers has been a topic of extensive academic and policy discussions. While much focus has been placed on the economic benefits that supplier firms in developing countries can gain from integrating into GCCs, far fewer studies have examined how these economic benefits affect the workers (Rossi 2013:223). The extensive literature on GVCs and GPNs highlights that supplier firms in developing countries can benefit from participating in GPNs through **economic upgrading**. This process involves acquiring knowledge and skills that lead to higher value-added production. Economic upgrading can occur in several ways: by enhancing the efficiency of the production process (process upgrading), by developing more advanced products (product upgrading), by shifting to higher value-added activities within the firm's operations (functional upgrading), or by moving into an entirely higher value-added production chain (chain upgrading) (Gereffi 1999, Humphrey & Schmitz 2000 as cited in Rossi 2013:223). This approach to economic upgrading is seen as a path to development that emphasizes skills and value addition, as opposed to relying solely on developing countries' comparative advantage of low labor costs. **Social upgrading** is defined as the process

of improving workers' rights and entitlements as social actors by enhancing the quality of their employment (Barrientos et al. 2011 as cited in Rossi 2013:224; Rossi 2011 as cited in Rossi 2013:224). This definition emphasizes the importance of achieving rights and decent working conditions, moving away from viewing labor as merely a commodity used as a productive factor alongside capital (ILO 1944 as cited in Rossi 2013:224; Sen 1999, 2005 as cited in Rossi 2013:224). Social upgrading consists of two main components: Measurable standards and enabling rights. Measurable standards are easily quantifiable, observable during factory visits and social audits, and more straightforward to address through policy interventions due to their visible outcomes (Barrientos & Smith 2007 as cited in Rossi 2013:224). Measurable standards include categories such as wages, physical well-being (e.g., health and safety, working environment, working hours), and employment security (e.g., type of contract). Enabling rights are more challenging to measure and quantify. These rights include freedom of association and collective bargaining, the right to freely choose employment, non-discrimination, and having a voice. These rights represent the full expression of workers' rights and entitlements as social actors and reflect more balanced power relations between workers and management within the framework of sound industrial relations. Their enforcement, therefore, heavily depends on institutions and actors beyond the factory level (Amengual 2010, Locke et al. 2009, Posthuma & Nathan 2010 as cited in Rossi 2013:224).

7. Methodology

7.1 Qualitative methods employed in the thesis

This thesis employs a range of qualitative research methods to explore the research question in as much detail as possible. The methods include a literature review, case study analysis, interviews and content analysis. These methods were thought out with the purpose of understanding more complex phenomena, gaining insights into participants' perspectives.

Literature Review

The literature review serves as the foundational method for this research. Upon examining existing articles, papers, reports, books and other academic sources that are relevant to the topic of study, the literature review identifies gaps in the current knowledge base, situates the research within the broader academic discourse, and provides a theoretical framework to guide the study. This method helps in understanding the key concepts, theories, and debates that underpin the research area, framing the subsequent qualitative methods and shaping the research questions.

Case Study

The case study method was employed to provide an in-depth analysis of the particular case central to the research topic. This method allows for an intensive exploration of the case in its real-life context, in an attempt to capture the complexities that may not be obvious through other research approaches. The reason for a case study is it enables a holistic understanding of the case, offering insights into how and why certain events occur.

Interviews

Interviews are a core qualitative data collection method used in this thesis to gather detailed insights from participants. Semi-structured interviews are conducted to allow for flexibility in exploring participants' perspectives while ensuring that key topics are covered. The semi-structured format allows for follow-up questions and probing, which can reveal deeper layers of meaning. Ten interviews have been conducted in total, out of which three wood logging worker interviews, three experts with different focuses in the forest industries, one furniture industry expert on a national level, one furniture

company based in Alba County and finally, two interview covering the administrative aspect of Romanian forests. All these stakeholders provide insights from their respective fields that contribute substantially to a more holistic view in my attempt to answer the research question.

Content Analysis

The content analysis in this thesis focuses on analyzing interview transcripts and documents to uncover underlying themes and patterns related to the research question. By examining the frequency and context of key terms, content analysis helps in identifying trends, relationships, and meanings that contribute to a deeper understanding of the phenomenon under study. The process includes familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. The findings are then interpreted in relation to the existing literature and theoretical framework (Krippendorff 2019: 24, 88-90).

7.2 Challenges and limitations

One particular limitation was the difficulty of gaining access to the wood logging workers for interviews. All three workers who have been interviewed are from Alba county and the interviews have been obtained through a personal connection. This represented an immense advantage given that I did not know these workers personally and it would have been highly unlikely I would get to know them if not for the above-mentioned connection, who had already reached a certain level of trust with the workers through years-long professional collaboration. Unfortunately, this lack of trust for unknown or outside persons has also prevented me from getting more than the three interviews. The workers were generally nervous about giving an interview to a person they have not yet met and this reflected acutely also during the interview, when they answered the questions succinctly, with limited elaboration even when prompted. Despite these challenges, I do believe the workers answered truthfully and to their best knowledge. I also believe I have gathered enough material to create an image on the situation of the workers and to be able to make several connections.

8. Case study background

8.1 Overview of the case study region

Located centrally in Romania and in the western part of the Central Region, Alba county covers an area of 6,242 square kilometers, which constitutes 2.6% of the country's territory, making it the 16th largest county and placing it in the category of medium-sized counties. As of January 1, 2022, the population stands at 325,703 inhabitants out of 21,980,500 nationally, with an urbanization rate of 58.0%. In terms of land use, forests are predominating, with 36.5% of the land being forests and other land with forest vegetation (ANDRC 2022:2).

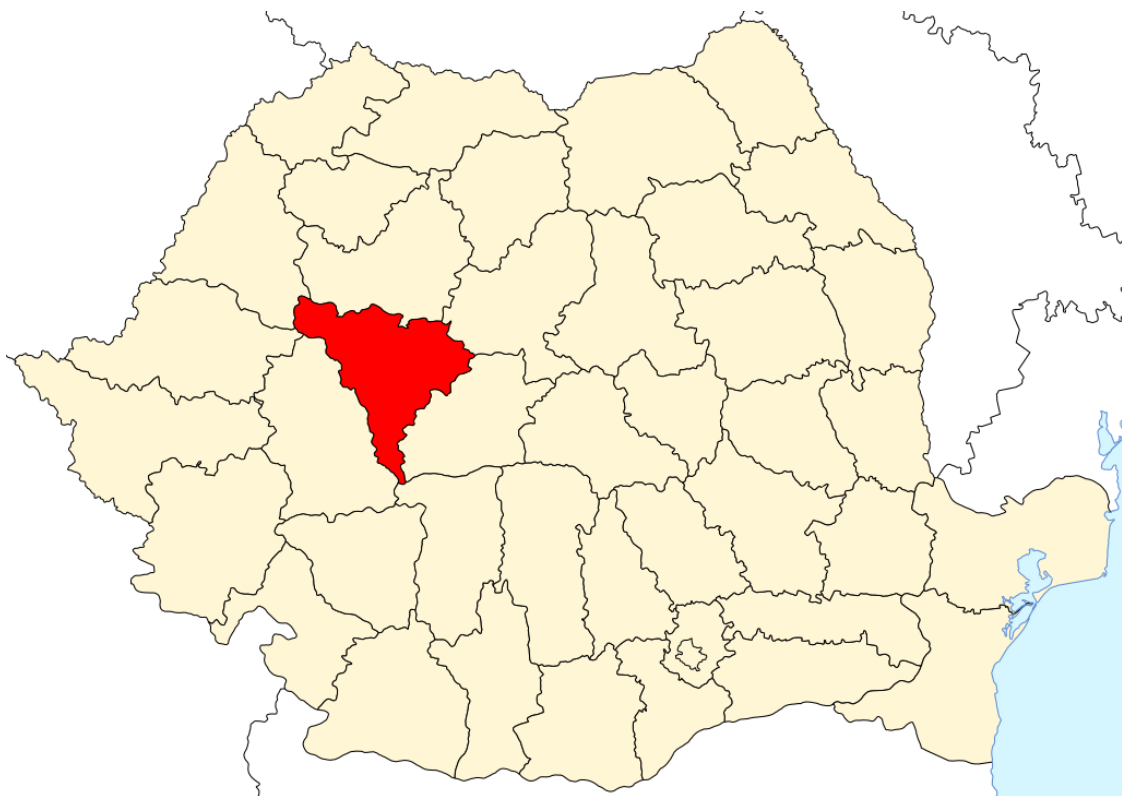


Figure 4. Map of Alba county (Wikimedia Commons)

8.2 Historical background and logging process

Starting cautiously in the 1990s and gaining momentum notably after 1994, Romania embarked on extensive privatization initiatives. Initially focused on the textile and food sectors, privatization expanded significantly from 1994 to encompass public utilities such as telecommunications, gas distribution, the wood industry, ports, and major banks.

The privatization of the wood industry sector, however, took more than a decade to near completion (Ioras & Abrudan 2006:364-365).

The restitution process after the fall of communism was problematic due to the absence of a clear system. New forest owners received land without support or guidance, facing automatic costs like guarding payments and legal obligations, but lacking the means to capitalize on the land beyond logging and selling the timber. By law, the forest owner needs to sign a guarding contract with the forest district, either private or state, regardless of the forest surface. This guarding contract means that the responsibility of supervizing the forest, establishing if any theft or illegal logging has taken place, and the involvement of authorities such as police in such cases as well as the paperwork lies with the forest district. Depending on the value of the contract, that is how much the contract costs for the owner, the owner plans wood sales to cover this cost. For individuals, there is a fixed annual price per hectare (60 RON which is ~12 EUR), while for legal entities, the price is determined through negotiations. This is in stark contrast with owning agricultural land, which through leasing alone generates a specific amount without the owner having to work or pay anything for it. Given these financial burdens, forest owners often turn to logging to capitalize on their land. Issues arise when the land is in protected areas, where owners face expenses but no means of income. In such cases, some resort to illegal logging or eventually selling the land. (interview 1, 10).

In the first step, the wood designated for logging is marked by the forest district. This process establishes the volume of wood, wood types, extraction distance, and its value. For municipal forests, the owner (in this case, the municipality) is required to put the service of transporting the wood to the primary platform or the sale of the wood up for auction. In contrast, forest commons (composesorates) or private forest owners are not required to auction this service; they can assign it directly.

The forest district organizes the auctions and collaborates with the auction winners and the forest owner to set terms and conditions for the logging operations. If the

logging company purchases the wood, it can sell it further. However, if it only provides services, the forest owner is responsible for selling the wood from the primary platform. The marking of wood for logging is based on a forest management plan prepared for a 10-year period. This forest management plan is mandatory by law and it details, for each plot, the type of work, the volume of wood that can be logged annually, and the management goal, meaning how the plot should look at the end of the period. All of this means that regardless of ownership or owner type, be it private or public, individual or company, municipality or composesorate, the forest cannot simply be cut, and all these steps need to be followed before any logging takes place.

8.3 Socio-economic context

The gross domestic product (GDP) of Alba county in 2019 amounted to 17.23 billion RON at current prices. The structure of the GDP reveals the predominance of the services and industry sectors, which account for 52.5% and 36.8% of the total, respectively. Agriculture, which includes forestry and fishing, contributes only 5.8% to the GDP, while the construction sector accounts for 5%. There is a clear decline regarding the contribution of agriculture, forestry and fishing to Alba county's GDP across the years, as it can be observed in the figure below (ANDRC 2022:15). This decline can be attributed to the economic diversification, meaning the increasing importance of services and construction sectors coupled with the low productivity of the agriculture, forestry and fishing itself. Despite the fact that agriculture, forestry and fishing employ a significant portion of the county's population, the productivity is low due to factors such as low degree of mechanization (Goschin & Goschin 2014:5). On a national level agriculture, forestry and fishing contributed in 2019 only 4.1% to the country's GDP, fact confirming a higher importance of the sector in Alba county (INS, 2021).

		2000	2005	2010	2015	2019
GDP	Mil. RON current prices	1.266,47	4.477,3	9.247,26	11.678,02	17.233,36
Structure of the gross added value						

Agriculture	%	15	13	6,9	6,8	5,8
Industry	%	38,1	35,3	41,5	38,4	36,8
Construction	%	3,8	5	6,3	4,8	5
Services	%	43,1	46,7	45,3	50	52,5

Figure 5. Contribution of agriculture, forestry and fishing to Alba county's GDP (ANDRC 2022:15)

Currently, the main pillars of Alba County's industry include the automotive components and subassemblies industry, the wood processing industry, the food industry, and the concrete prefabricates industry.

The main companies based in Alba County by turnover are:

- Manufacture of bearings, gears, gearboxes, and mechanical transmission components: STAR ASSEMBLY SRL (ranked 1st nationally in this activity), BOSCH AUTOMOTIVE S.R.L. (ranked 3rd nationally), and VCST AUTOMOTIVE PRODUCTION ALBA SRL (ranked 9th nationally).
- Manufacture of veneers and wood panels: KRONOSPAN TRADING S.R.L. (ranked 1st nationally in this activity) (ANDRC 2022:19).

8.4 Actors

A short overview of the main actors in the forest industry as well as actors that are relevant for my research is presented in the next pages.

Romsilva

Besides the government, with its Ministry of Environment, Water and Forests, Romsilva is the player with the biggest influence in the forest industries. Romsilva is a state-owned commercial company and is in charge of forestry control, with representative forestry institutions in each county. Romsilva is structured in the following way: *'They start at the level of the forestry district, then at the county level they have a forestry directorate, so several forestry districts are subordinated to the county forestry directorate, which in turn is subordinated to the National Forestry Authority, which is based in Bucharest.'* (interview 9).

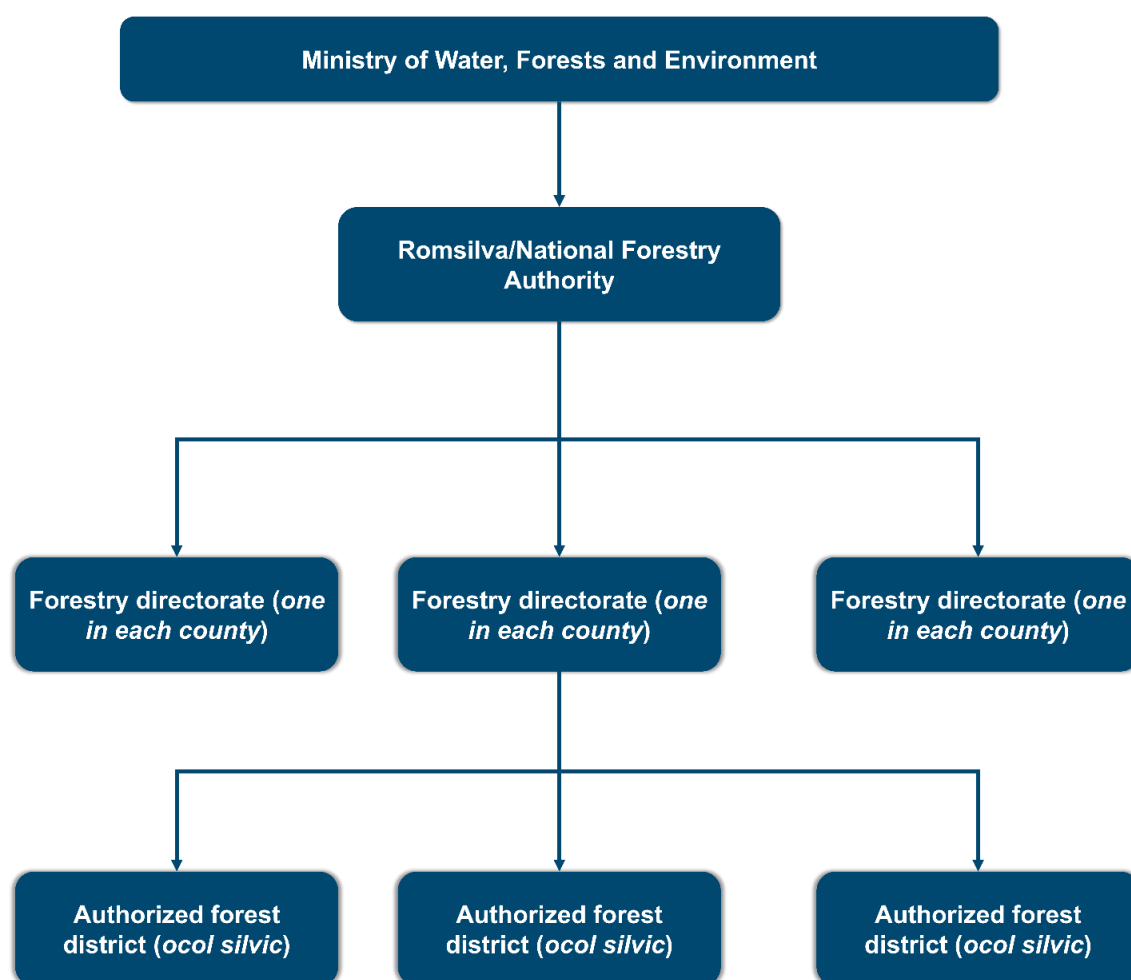


Figure 6. Organization of Romsilva

Private forest districts

There are about 157 private forest districts in Romania and they manage around 38% of the forestry fund. The interviewed private forest district manages 18,500 hectares of forest, covering 11 municipalities. Private forest districts have the same activity as Romsilva forest districts which is ‘the application of the Forestry Code’ (interview 9) that spans from guarding and protecting the forest against illegal logging or fires to artificial regeneration and finally logging (marking the individual trees for logging, paperwork and supervision of the operation). The structure of the district includes the following positions at the central office: Chief of the forest district, chief accountant and engineers by areas of expertise. The field work is managed through two forest area chiefs, each with eight foresters under management. Staff recruitment is dependent on the area of forest managed: a forest district needs to manage a minimum of 6,000

hectares, in order to be able to function in accordance to the national forestry code (interview 9). The organization of the the private forest districts is the same as the organization of state forest districts of Romsilva, but Romsilva does not have any authority on the private forest districts (interview 10). The reason why these forest districts are private is because they are paid by the forest owners, including private individuals, with whom it has contracts, not by the state as is the case for Romsilva forest districts.

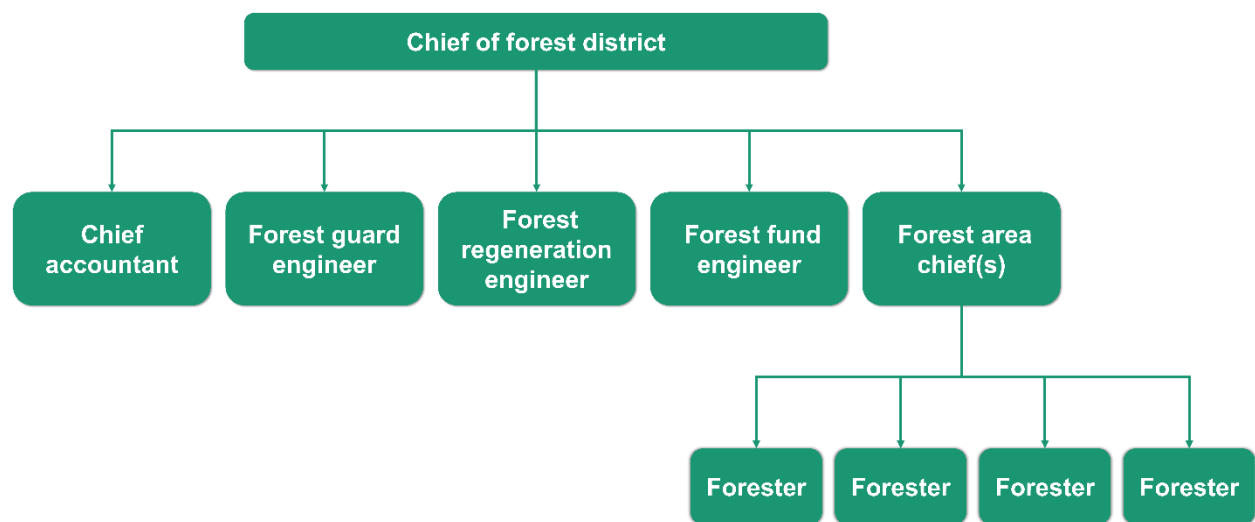


Figure 7. Internal organization of private forest district as well as state forest district.

Companies

Large international companies such as HS Timber and Kronospan dominate the highly fragmented market. They process huge quantities of wood per day, controlling prices and market standards. With their production power and advanced equipment, small local processors have little chance of competition. At present, HS Timber buys quality wood at good prices, while Kronospan processes the low-quality wood into various products such as boards and beams (interview 9).

Wood logging companies and workers

Age as well as level of education of the interviewees differ, with one of them being an university graduate and owning a logging company at 31 years old as well as working himself in the forest, one of them a sole proprietorship, and one of them working in the

forest logging as a second job but on his way to open his own business in this sector as well, both of them in their 40s (interview 6, 7, 8).

The difference between a company (LLC) and a sole proprietorship is that the sole proprietorship is limited to a maximum of 5 employees. Otherwise, they have the same rights: They can participate in auctions, buy, and sell wood, etc. (interview 10).

Generally, the process of obtaining authorization for forestry activities can be done through the forest districts, either private or state owned, or through certified individuals. Activities involving less than 20 cubic meters do not require certification, but those above this threshold do (interview 7).

Forestry policy actors

There are multiple actors involved in the development of the forestry policy as well as forest management and regulation enforcement, as it can be seen in Figure 8. The Ministry of Waters, Forests and Environment issues forest policy, oversees forest management, and coordinates forestry extension. It supervises Romsilva, enforces forestry laws, and funds forest management plans through private companies. Romsilva manages state-owned forests, ensures sustainable ecosystems, enforces regulations, and monitors activities in private forests. The Institute of Forest Research and Management, a branch of Romsilva, drafts forestry laws, provides technical guidelines, and regulates private forest activities. Private forests are legally required to be managed by authorized forest districts, some of which are private and organized under the Association of Forest Administrators. The districts also provide services to municipalities and private owners. The National Forest Guard was established to oversee regional forest management through nine territorial branches. In terms of business associations we have Romanian Foresters Association (ASFOR) which represents over 4,000 private wood harvesting companies, Furniture Producers Association (APMR) representing the furniture sector and who advocate for the privatized forest industry's interests. International NGOs, such as WWF or Greenpeace, are active in Romania since 2001, focusing on forest conservation, combating illegal logging, and protecting natural areas. Their influence has grown in national and international forest policy (Nichiforel & Bouriaud 2022:156-157).

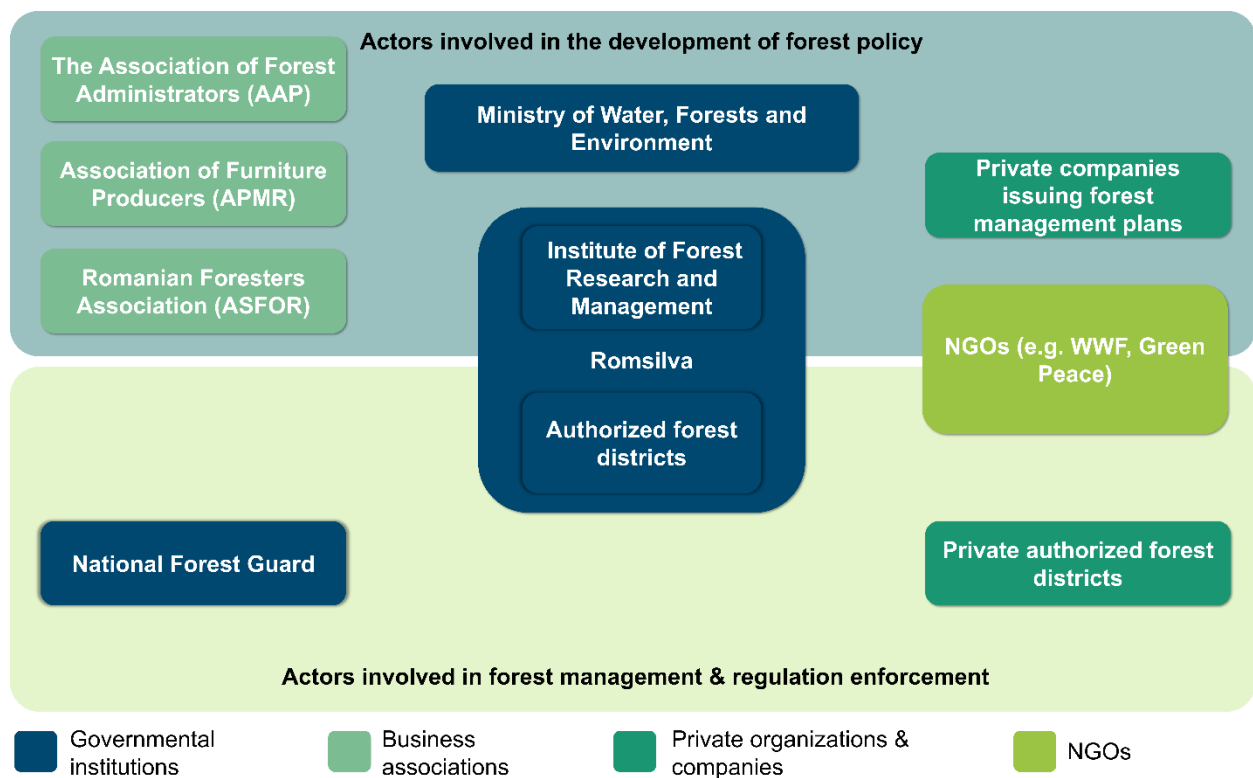


Figure 8. Actors involved in policy development, forest management and regulation enforcement (Nichiforel & Bouriaud 2022:157).

9. Findings

This chapter presents the key themes identified through interviews with various stakeholders in the Romanian forestry sector, including logging workers, NGOs, administrative authorities, and industry specialists. These themes encompass a wide range of interconnected issues such as illegal logging, the insufficient network of forest roads, the influence of large foreign companies, and the critical role of the state in shaping industry dynamics, among many others.

9.1 Relevant aspects of the forest industry

Illegal logging in Romania

Yearly it is estimated that 20 million m³ of wood are logged nationally out of which 374.000 m³ in Alba County. The furniture industry expert disagrees, saying that the number doesn't reach 20 million (interview 5). While one of the interviewees states that the wood consumption and illegal logging needs to be curbed if we are to have any forests in 10 years time, he also states that the need for wood will always be there, highlighting that in Romania there are currently 4 million households dependent on wood for heating (interview 3). On the other hand, another interviewee mentioned that the headlines according to which Romania will be left with no forests is purely 'fake-news': *'You have a logging permit for 1,000 cubic meters and you take out 1,300. The forest is still there, it's regenerating, the forest doesn't disappear, nothing happens.'* (interview 1).

Another interviewee highlights several illegal practices in the forestry sector. He mentions instances where wood volumes are manipulated in records to show less than actual, known as "under-declaration," which is only detectable through rare re-measurements. There have been cases of officials manipulating data to reduce reported wood volumes. Calls to authorities for investigations are often met with delayed, vague, or non-responsive actions, hindering effective law enforcement against illegal logging (interview 1, 3). According to interviewer 3, although companies such as HS Timber and IKEA promote ecological principles on their websites, there are contradictions in their actual behaviors, with these companies being implicated in

practices such as underreporting wood volumes and participating in networks that facilitate illegal activities.

	2009-2011	2013-2014	2015	2016	2018
Cases of illegal deforestation, nationally	31.456	45.509	34.870	9.444	11.419

	2009-2011	2013-2014	2016	2018
Volume of illegally harvested wood in m ³ , nationally	452.842	1.011.892	140.964,85	206.490,39

Figure 9. Illegal logging in Romania (Greenpeace 2009 – 2018).

The data above shows the number of cases of illegal logging that have been identified over the years on a national level through calls either from citizens or NGOs, and the volume of illegally logged wood over the years, according to reports by Greenpeace. Exact figures are difficult to obtain, but official data indicates that between 2008 and 2012, around 8.8 million m³ of wood were logged illegally each year in Romania. This number rose sharply from 2013 to 2018, with an estimated 20 million m³ of wood being illegally harvested annually. Inspection authorities were only able to identify around 200,000 cubic meters of illegally logged wood during the period of 2008-2018, representing just 1% of the total estimated illegal logging activity (Greenpeace 2018).

Forest roads

Romania's forest road accessibility remains poor, with many roads dating back to the communist era, placing the country at the bottom in Europe regarding forest road density. (interview 1). Legally, entities responsible for road maintenance must regularly upkeep and repair them, but financial resources for this are often insufficient. While some regions have implemented usage fees to fund maintenance, these are not widespread (interview 9). New road construction is costly, especially without the necessary materials and equipment (interview 9) and European funds for such projects require upfront payments with reimbursements arriving only after project

completion, posing a challenge due to the bureaucratic process and ongoing financial commitments (interview 9). Alternative funding sources, such as self-generated revenues and collaboration with specialized companies, are deemed essential for developing forest roads. Private forest owners, in particular, can enhance road infrastructure through partnerships, aiming to improve accessibility and forest management, but it is difficult to do so when costs are so high and return on investment so low (interview 9).

Forest roads are mainly located in accessible areas with high-quality trees, leading to the removal of the best specimens, which negatively impacts forest regeneration. This practice lowers the forest's genetic quality, as superior trees that produce the best seeds are cut down, leaving behind less valuable ones (interview 2). Additionally, lacking infrastructure makes reforestation efforts difficult as well as forest fire prevention, highlighting a critical need for improvement in Romania's forest roads (interview 1). While it may sound contradictory to have high rates of illegal logging despite a lacking infrastructure, it can still occur due to small-scale illegal logging in villages, which requires only small machinery such as tractors. Additionally, large-scale illegal logging takes place within official logging sites, enabled by corruption, bribes, legal loopholes, and weak law enforcement.

Impact of large foreign companies

Holzindustrie Schweighofer, now HS Timber, is an Austrian family business that expanded into a major transnational company and in 2002 invested 70 million euros in a large sawmill in Romania, taking advantage of several compelling factors such as abundant and cost-effective high-quality raw materials, affordable labor force, limited competition in the softwood processing sector, clustering opportunities (particularly with an existing MDF factory in Sebes, Alba County), and the country's potential as a substantial future domestic market because of its large population of 22 million residents. HS Timber manufactures sawn wood, beams for prefabricated homes, construction wood, DIY materials, and profiled lumber (Cesaro et al. 2006: 247-249).

Major players like HS Timber and Kronospan are crucial to the wood industry's survival in regions like Transylvania and Braşov through the large employment they offer and market price stabilization due to their capabilities of large scale production (interview

9). Furthermore, the current situation is risky because if these large companies were to close their doors, the wood industry in the county, and possibly the whole region of Transylvania, would suffer severely: *'Now the internationals have come... Well, now the problem is that, having few [wood processors], you realize that they also regulate the market, they regulate it, they control it (...) they set prices, they set standards, they set everything in the end.'*; *'The most serious problem is that if they close the gates, the wood industry at the county level and maybe at the regional level, I am talking about Transylvania here, will fall.'* (interview 9).

Generally, large firms in Romania favor hiring contractors for wood extraction over maintaining a large workforce, as contractors are considered more efficient and cost-effective, helping to avoid issues related to employee management and productivity: *'...better to pay contractors and it [the big company] only handles the wood. It has trucks, it transports [the wood] and it doesn't pay employees. They [employees] were getting injured, so they needed to be looked after, they didn't get the wood out on time. There was a lot of stuff. So [the big company] fired them [the employees]. (...) The contractor comes (...), he says, 'let's get it [the wood] out, we're not sleeping in the forest'.'* (interview 6). However, these large companies present other challenges for small-scale wood logging companies and not only: A strong price competitiveness that ultimately can drive these smaller scale companies out of business: *'(...) we bought the wood for 350 [RON] standing, and at Kronospan it is 220 [RON]. Then you add the cost, add the transportation and... (...) You're actually working with minus 100 [RON] right from the start.'* (interview 6). By not being able to sell the wood they log or needing to sell it at a loss, small-scale companies face an incredibly hostile environment that only increases their chances of going out of business.

State's role

There is a perception that foreign companies receive more encouragement than local ones due to their size and market dominance, but investment incentives were provided to all companies, with certain disadvantaged areas, such as former mining regions, designated for investment to address unemployment and skill gaps. Investors in these zones were exempted from taxes for a certain period as part of this strategy (interview 2). On the other hand, according to another interviewee, the state could have done more to create a balanced environment supporting both large and small companies,

as the lack of support has led to negative effects like job losses and reduced local economic activity. Measures that ensure that large companies don't dominate auctions together with tax incentives to keep small companies afloat could have been provided for them (interview 3). When considering large companies, which are mostly FDI, it is important to note that the success of attracting them relies significantly on coherent and predictable governmental policies and thus, frequent changes in laws or economic visions by different ruling parties can deter investors. Authorities need to focus on long-term strategies and planning to enhance Romania's attractiveness as an investment destination (interview 2).

Politicization of Romsilva

Another key issue is the intense politicization of Romsilva, which enables discriminatory practices such as selectively granting contracts, altering laws, controlling inspections, and even engaging in illegal actions if complaints arise from influential figures, often facilitated through the Ministry of Environment, Water, and Forests (interview 3). Owning more than half of Romania's forests, Romsilva's leadership is changed politically, based on what party is currently in power: *'(...) Romsilva's successive directors have only been politically appointed for short periods and their mandates have been renewed for two months...(...) And currently, Romsilva's general director is appointed only on political criteria, without being evaluated in any way or confirmed, either by his past work, or by an evaluation company, or by an exam organized by Bucharest, [to determine] who is the most suitable man.'* (interview 3). This aspect highlights the depth at which corruption is present in the system, adding more instability to an already volatile political and business environment.

FSC Certification

Chain of Custody (CoC) is the process that ensures certified forest products are traced back to sustainably managed sources, that is certified forests. The FSC CoC system enables the tracking of certified materials from FSC-certified forests all the way to the consumer (FSC 2012 as cited in Halalisan et al. 2013: 306). In Romania, maintaining market access is the most significant benefit of CoC certification, followed by good reputation and international recognition. Companies' opinions reflect a mature

understanding of CoC certification benefits, prioritizing market access and reputation. Exporting companies placed greater emphasis on market access and reputation compared to those focusing on domestic sales (Halalisan et al. 2019:201-202). Important to mention is that certified wood sometimes receives bonuses from specific major processors like HS Timber (12 RON/~2.5 EUR per cubic meter) and Kronospan (10 RON/~2 EUR per ton). The decision to offer a bonus is made strictly by the companies themselves and has nothing to do with any regulation or FSC condition, as the literature has clearly shown that a bonus is normally not a reality in other countries (interview 9).

Certification can be burdensome for forest owners, especially small private ones, due to high costs and extensive documentation requirements such as forest monitoring, beginning with exploitation, followed by control, mandatory reporting, and the submission of an annual report to ensure post-exploitation regeneration activities. Many find that the financial benefits and bonuses do not outweigh these costs: *'So they were unhappy about [the FSC certification process], they said, well, first of all, I don't recover my investment (...), that it gives me 10 lei per cubic meter or per ton more, does it give me an advantage or not, I don't know if it's really an advantage..'* (interview 9). Additionally, FSC-certified forests face stricter oversight from the Forest Guard to ensure compliance with technical norms (interview 4, 9). Maintaining FSC certification incurs an annual fee of around 1500 euros for the company interviewed with regular audits conducted to ensure compliance with FSC standards (interview 4).

Capitalization on wood as a resource

A common theme across interviews has been capitalization on wood as a resource. More processing can significantly boost profits and create tax revenues and jobs, particularly in economically disadvantaged areas with wood processing factories, thus reducing unemployment and providing economic stability (interview 1). Romania has not fully benefited economically from exporting raw wood as opposed to near-final or final products (interview 9). Therefore, capitalization, meaning adding significant value to wood, that also promotes sustainable practices by balancing environmental concerns with economic benefits through efficient resource use is desired (interview 1).

Romania could better capitalize on its wood resources by encouraging more companies to process wood to near-final stages before export, in addition to businesses involved in logging, transport, and the production of furniture and construction materials (interview 9). As we can see from Figure 10, the material flow of the furniture components manufacturer from Alba county, the wood is leaving the country before undergoing more operations that add extra value. Stakeholders are aware of this issue, but it remains underdeveloped, even though attempts to add value when possible exist (interview 6).

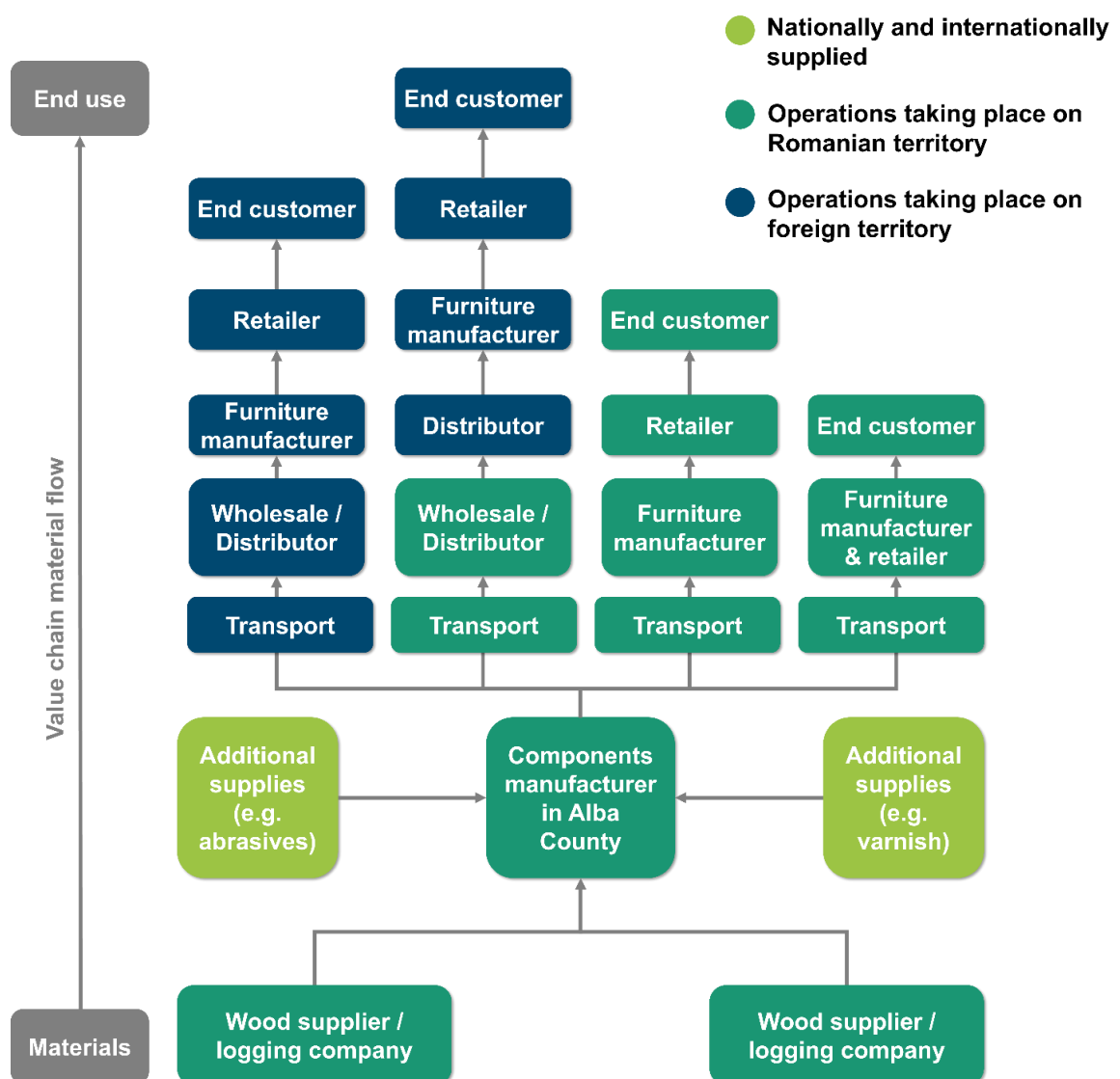


Figure 10. Value chain material flow.

Also relevant for the gaps in the value chain is Figure 11, the information flow. Even if logging or furniture companies are embedded in a global commodity chain, it does not mean that this automatically contributes to their upgrading. As we can see from the graphic, there is no communication between components manufacturers or logging companies and furniture manufacturers, everything going first through the wholesale/distributors. This can have several drawbacks for the furniture components manufacturers as well as logging operators. Profit margins for suppliers and loggers are reduced due to intermediary involvement, and the absence of a direct feedback loop hinders potential process optimization. Additionally, missed opportunities for value addition and wood capitalization arise, as alignment on product quality or market demand is not possible.

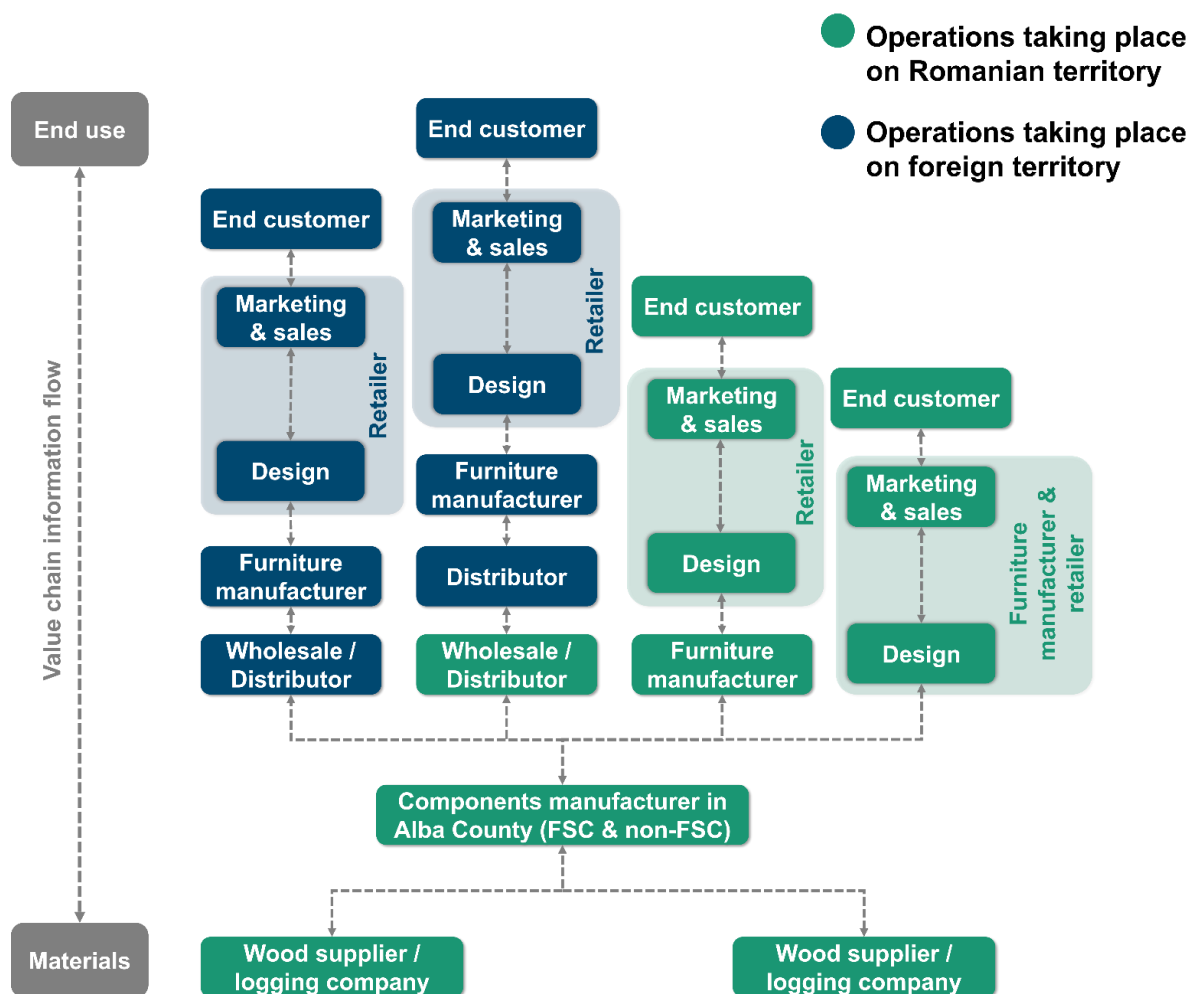


Figure 11. Value chain information flow

Unfortunately, current regulations prioritize selling wood at the highest price through their auction-based system, which can lead to minimal local processing and economic inefficiency (interview 1). Previously, there were restrictions on exporting raw wood from Romania to ensure higher profits from processed products, but these restrictions were lifted in order to not miss out on economic opportunities, especially for exporters focused on selling wood abroad. This change led to contracts with international actors such as China, which in 2022 imported wood products such as sawn wood or logs of approximately \$212 million (interview 9). A call to the government and to the EU for protectionist measures to safeguard local industries was made by the Furniture Producers Association (APMR) (interview 5).

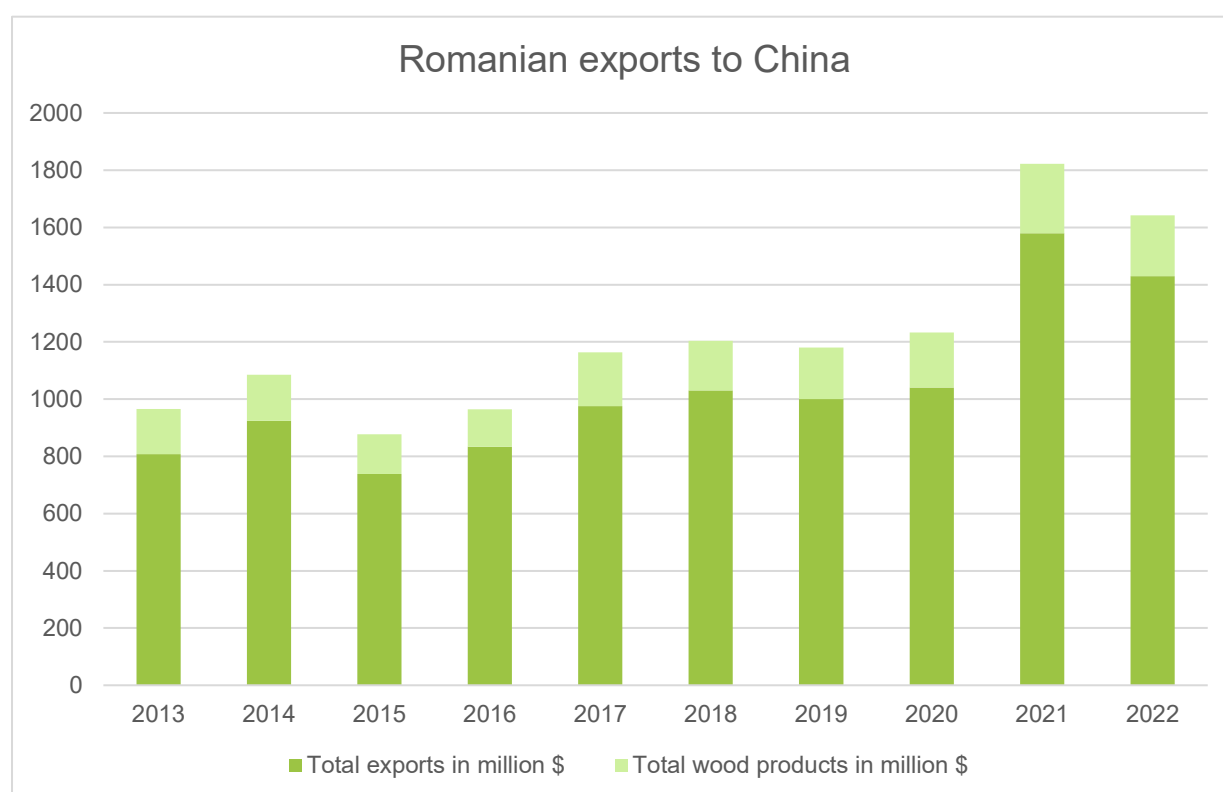


Figure 12. Romanian exports to China (OEC 2022)

9.2 Furniture industry

Traditional furniture industry

In Romania, furniture production has deep historical roots, with each county having its own large production facility during communist times. According to the industry expert,

the business dynamic back then was different, with regular orders coming in. In contrast, today, companies must actively participate in various events to boost their visibility and generate sales: *'[In the context of a governmental project] it was brought to the attention of those who owned furniture companies that they can no longer wait at the gate for customers to come to them and work on commission (...) and they have to go out, show their products on international markets and gain their own markets at a better price.'* (interview 5). Second, out of the 20 million of m³ estimated to be logged yearly in Romania, the furniture industry only uses 10%. Reasons for this low consumption of Romanian wood in the furniture industry are the high price that Romsilva asks for, often over €100 per m³ compared to under €90 per m³ from countries like Austria and Germany (Timber Industry News, 2021), and the fact that the wood is not sorted on quality classes, with logs of low quality bundled together with higher quality ones: *'Consequently, we also import wood from Austria. We work with timber from Austria, wood from Ukraine, wood from Germany. Wherever we [furniture companies] can import good wood at a good price, we import it.'* (interview 5). Third, 90% of the furniture produced in Romania is exported, and only 10% is sold locally. Reason for this is the fact that Romanians cannot afford to buy expensive furniture, going for rather 'basic' furniture, and this only after they have covered other, much more essential expenses such as food, healthcare or education (interview 5).

Activities in the global commodity chain

There are clear attempts to upgrade also by assimilating more functions along the global commodity chain. Regarding other activities, besides the production of furniture, transportation is also done by the furniture companies, and is seen as a common practice, both at international and national level (interview 4, 5). Moreover, high-paying jobs such as designing furniture pieces are encouraged by the Furniture Producers Association to stay local, with furniture producers predominantly working with Romanian designers, exceptions happening occasionally for very high-end furniture, where international designers are contracted to increase the value of the final product: *'(...) including these more sophisticated or higher grade activities... We do internally. We do our best to keep it internally because that's where the added value comes from.'* (interview 5).

Successful collaboration examples

A notable success story involves two companies, one producing body furniture and the other upholstered furniture, which have united their interests for joint projects, enhancing their visibility and opportunities through joint exhibition stands and collaborations. This model has inspired other companies to pursue similar collaborations, albeit slowly: *‘And a few who have realized that they can work together to cover a broader spectrum are planning to do this kind of company.’* (interview 5).

Production

In Alba county, the interviewed company works with Romanian wood, buying it locally either in the county itself or bringing it from another county: *‘[We have suppliers] across the country. Over the years we’ve had one, two, three, about five suppliers.’* (interview 4). Currently, they work with two main suppliers from Romania: one provides FSC-certified wood, and the other supplies semifabricated wood products. The interviewed company in Alba county exports 90% of the furniture as well, the furniture going to countries such as Germany, Italy, France, Belgium, the Netherlands and the UK (interview 4). In Figure 10, a visualization of the material flow can be observed, with the company’s retailers both in Romania and outside of Romania. The company representative stated that monthly, the company produces between 50.000-70.000 furniture pieces, mainly chair or sofa legs and they are sold at a price ranging between 0.50 – 1.68 GBP or ~0.59 – 1.99 EUR per piece. Of course, there are always variations such as orders fluctuations, expenses, actual price per piece, worker fluctuations etc. The exported pieces go mainly to highly specialized furniture manufacturers that generally make the final furniture pieces by order with The final prices of the furniture pieces ranging from a few hundreds GBP to a few thousands GBP. This also means, that the company, as a supplier, has a very strict timeline for producing and delivering the furniture components following the exact requirements of the client.

Technological upgrading and dependence

The largest buyer of the interviewed furniture company is from the UK, constituting over 90% of orders and serving as the mainstay over time. The departure of this buyer would significantly impact the business, signaling a high dependence and adding traits of a captive chain governance, according to Gereffi’s definition (interview 4).

Several years ago, the company had to decide on investments in new equipment to meet this specific buyer’s product demands. They purchased a machine to produce

the product with the decision being based on several factors including *‘on the condition that there was a total of orders to cover our investment. Which did not happen.’* (interview 4). While there is no official obligation from the buyer’s side to assist the supplier in any way, if such agreements are concluded, even verbally, and investments are made but ultimately the orders do not come though for the supplier to be able to cover their investment, the supplier is instantly at a loss. On the other hand, the supplier also admitted that their buyer is an intermediary/distributor, so ultimately the number and size of orders does not depend on them, but on the furniture manufacturing companies. For future investments, though, better calculations and official agreements should be put in place instead of relying on verbal agreements.

9.3 Logging companies and workers

Starting in the business

When asked about their start in this sector, the role of the family is crucial. Two of them had had their first forest equipment, such as tractors, in the family, passed on from their parents: *‘I had the tractor. In the family, yeah. I’ve invested in it, got a winch [device used to wind or unwind a cable, or chain, typically used for pulling logs] and whatnot on it, made it for the woods.’* (interview 7); *‘I had a tractor, my dad bought it when the collective broke down. Then I got a winch for the forest, the kind that you can hitch, like a plow. I worked with it, made some money and with the money I bought another tractor. Mine, with the winch, specifically for the forest.’* (interview 8). The other interviewee took out a loan to buy his first forest tractor: *‘When I first started, I borrowed money, bought a forestry tractor, and then, as I made money, I kept buying.’* (interview 6).

Level of mechanization and technological upgrading

In Romania, forest operations predominantly utilize partially mechanized logging methods, including motorized-manual felling (Moskalik et al. 2017, Mederski et al. 2021 as cited in Halalisan et al. 2022:3). This situation primarily arises due to the prevalence of small to medium-sized companies with limited resources for investing in modern equipment. Chainsaws are commonly employed for tree felling, processing, and various tasks at the tree landing site (Moskalik et al. 2017 as cited in Halalisan et al. 2022:3), contributing to a high rate of workplace accidents, some of which led to

permanent disability or fatality (Suchomel et al. 2013 as cited in Halalisan et al. 2022:3).

When comparing productivity, modern machinery such as harvesters and skidders in other countries can extract significantly more wood, achieving up to 200 cubic meters per day with one operator, whereas the older TAFs in Romania manage only 50 cubic meters per day with 2-3 operators (interview 6). Upgrading efforts are self-financed. Important to note is that the equipment is old, from the '80s, and sometimes requires plenty of investment to make it work but still less than buying it new: *'I bought the tractor, I bought it in bad condition, and I kept refurbishing it. We put MAN engines in in, we put money in.(...) I told you, I got the machine for 200 million [20.000 RON], that's 4,000 euros and I invested another 30,000 or 40,000.'* (interview 6).

Besides acquiring the necessary certification and officially registering their own companies, the interviewees also invest in more equipment to increase productivity and thus be able to cater to a more diversified pool of clients, even taking sometimes riskier investments: *'I've actually started to build a sawmill and have a place to cut wood. (...) We'll get some extra value out of the wood.'*; *'Now I've ordered a pallet machine. Chopping wood, setting up. So you're at least trying to get into another [activity] branch or something. Give the wood some value.'*; *'I bought a drill, it cost me 10,000 euros, to split the thick wood, to make it thin, to be able to take it to the people. And then I said in 5 years I will recover my investment. I risked. I won't recover it in 5 years. And it sits there. I paid for the machine.'* (interview 6); *'Yes, I want to start with the company. I want to get one of those trailers with a grapple on it, so I don't have to depend on anyone anymore. [Once I have the certificate, I will take a larger quantity] of wood. Then I have permission on the company.'* (interview 8).

State support and EU investments

In terms of support and investments, they all agreed that there is no support or incentives from the government (interview 6,7,8). There is a perception that the state, with its regulations, has not adequately supported the forestry sector, making it difficult for small processors to thrive especially due to heavily bureaucratic processes (interview 9). They are particularly disillusioned by the absence of investment in the forestry sector and the difficulty in accessing European funds. Previous attempts to secure funding for projects, including modern equipment and green energy initiatives,

have been unsuccessful, further contributing to their disappointment: *'They're just asking for the paperwork, get me the paperwork, get me the paperwork, balance sheets, everything. I prepared them, I brought them. I went there 4-5 times and didn't make it.'* (interview 6). Reasons for failure in such cases could also be a lack of understanding of the criteria and the qualifications necessary to access such assistance due to intransparency of the bureaucratic system coupled with lack of patience especially when dealing with such bureaucratic processes.

Operations and risks involved

All three of the interviewees log wood from the forest and transport it to the desired location if needed. All of them highlighted the risky nature of the job, any operation such as cutting the tree or pulling the tree trunk with tractors, being dangerous on its own: *'When you cut down [a tree], you run the risk of a splinter falling from another tree or even from the one [you cut down] or not ducking where you should.'* (interview 6); *'Both the tractor and the fellings, all [operations] are risky.'* (interview 7); *'Well, the felling is the most risky.'* (interview 8). Weather plays a crucial role and despite bad weather, sometimes, they still go and work in the woods: Besides reduced visibility and too high or too low temperatures, roads are also very affected by the weather, causing the forest tractors to get stuck or to fall over (interview 6,7) making it even more clear how forest roads can have a great impact on the worker's safety.

In terms of accidents or hazards, the weather has been cited as the most important factor, but lack of attention from the workers as well as the refusal to wear personal protective equipment also play a role, with two cases being discussed where these reasons were highlighted as the causes of the accidents: *'It happened to me. I was standing in the woods with just my hat on, and I was chopping wood, and a dry branch fell and hit me on the head. I mean, it cracked my head a little bit, you know? (...) If I had my helmet on, it wouldn't have cracked my head.'* (interview 6); *'Someone got hit by a branch, but it was his own fault. Besides this, no. There were no [accidents]. He got hit by a piece of wood and it bruised a little bit his back.'* (interview 8).

Alcohol consumption and worker reliability

Forestry work faces significant challenges, particularly in finding workers willing to engage in the demanding tasks required, a situation that has worsened compared to

the past (interview 7). An important fact to take in consideration in this sector is the challenge of finding reliable people coupled with alcohol consumption at work: *'You don't often find reliable people in the wood sector... With drinking, that sort of thing. You don't find them... [or] rarely. No, they drink. (...) You don't really have anyone to work with anymore. (...) It's hard work, yes, they can't cope.'* (interview 7); *'I have problems with the boys for drinking. In this sector I can tell you.. So in this sector... Drinking on the job is the norm. (...) He woke up at 7 in the morning, had 2-3 coffees and a beer.'* (interview 6); *'And people who are serious and want to work, they come today, you give them the money, they get drunk in the evening, and tomorrow they're no good. There's no point taking them in the forest anymore.'* (interview 8). Alcohol consumption at work is regarded as normal in this field, significantly undermining labor safety in an already hazardous environment.

Trust and reputation

The owner of the logging company had at the moment of the interview around 70% of his clients as private individuals/households, meaning he logs and transports the wood directly to the person's home. The rest of his clients are big or small companies and tourism facilities. In this particular case, the inclusion in the global commodity chain is obvious, either by selling to countries such as China directly or indirectly through other national distributors: *'I've worked with the Chinese. (...) Well, for example, I work with Romanian companies, but he [the client] takes wood to another country. (...) I had an unloading point in Deva, and then, from Deva, the wood went to Serbia. I worked with a guy from Sibiu, who sends it to Germany.'* (interview 6). However, when dealing directly with the Chinese clients, the interviewee made clear that there is a lack of trust, and that reputation plays a big role in this particular business. Having heard that the specific Chinese client eventually fails to pay for the amount of wood chosen, the interviewee stopped this particular collaboration, preferring to do business with partners that have a better reputation: *'Well, the third time it was certain [that I wouldn't get the money], not that I was afraid. It happened to others before. Yes, the people who bought wood from me, they've been through this, you know? And then I gave it [the wood], and I heard [what happened], and since then I stopped.'* (interview 6).

The two other interviewees have as clients strictly households and here, reputation plays a big role as well. Living in the rural areas of Alba county, their reputation as reliable people logging wood is how they get to earn either their whole living or simply

make extra money. Word travels fast and in both cases they are known in their village to bring wood to the people if needed: *'I bring wood to the people, to the owners, that sort of thing.'* (interview 7); *'Because back there in Tibru [village], I'm the only one who deals with wood. And so the people know.'* (interview 8).

Cooperation among small firms and competitiveness with large companies

Small firms in Romania struggle with cooperation due to a lack of unity and mutual understanding. Individuals within these businesses often desire leadership roles, leading to a fragmentation of the sector: *'It's a constant fight here in this sector'* (interview 6). Furthermore, cooperation among small, village-based operators is considered impractical and costly, particularly because moving forestry equipment around is more expensive than keeping it in one spot: *'One to two days, we log [wood] in Tibru, one to two days we log [wood] in Cricău, we move again, it's not worth it.'* (interview 8).

Employment status, salaries and retirement

The interview partner who owns his logging company is the only one who has registered employees, 5 in total, paying taxes and a fixed salary each month to his employees, regardless of the amount of work (interview 6). Out of the 5 employees, he also has employees 'on paper', such as his wife, who technically occupies administrative functions but who in reality does not do any working hours: *'Secretarial work, as it were. But for the most part, pretty much everything company-related, I do. It's just... They're employed on paper only.'* (interview 6). Workers officially earn a gross salary of 3,500–3,700 RON (~740 EUR) but often receive an equivalent amount in cash due to high income taxes. Employers register workers with the minimum salary to reduce taxes and therefore compensate informally with cash. This system provides health insurance and pension rights but impacts future pensions since higher registered salaries yield better pensions and benefits. Workers in logging benefit from a reduced retirement age—three months less for every year worked—if categorized under high-risk employment (interview 10). The 'if' in this case is very important as this is unfortunately not the norm and even if it is, despite official early retiring, typically between ages 40 and 45 due to the physically demanding nature of the work (interview 6, 7, 8), many continue to work informally past retirement. Romania's official retirement age remains 65 (interview 10).

The self-employed interview partner, on the other hand, works irregularly with two other people, who are not officially employed and the salaries differ according to the amount of work – payment is done on a daily basis upon a verbal agreement: *‘No, I pay them by the day. By the day, yes. (...) It also depends on how long you’re in the forest during the day... In winter it’s short days. You don’t work much. It’s different in summer.’* (interview 7). The third interviewee works in logging as a second job. Due to the nature of his primary job, working shifts of 24h and then having 72h of free time, he prefers to use his free time to earn extra money from logging, also working together with 2 other people and another person who has a registered company. When it comes to paying the people he works with he says he pays them *‘By the day, by the week... (...) When they don’t need money, I give them wood, or.... We help each other like this. This boy with me, him I pay. He’s with me all day. The rest, who come, or are friends, I do something for them, or I give them wood, or... That’s how we agree. (...) If there’s a lot of work, the people will get more. If not, they get as much as they work. You can’t pay them a lot without working.’* (interview 8).

Perspectives on the future

In the current economic challenges, the view on the future is divided: cautious optimism on the one hand, with wishes to bring additional staff or fund further purchases from personal earnings (interview 8), resignation and acceptance of the situation with all its problems without necessarily pursuing development (interview 7), and the most bleak of all: *‘Now in 2024, many companies... They will be bankrupt, that’s clear. So with all the other companies I’ve talked to, that I know a bunch of, they’re crying. Especially those who have many employees. (..) It’s tough.’* (interview 6). Differences in perspectives stem from operational scale and legal obligations. Businesses with employees face greater financial strain during crises, struggling to meet payroll and tax requirements amid reduced wood availability due to the ongoing land restitution process, higher costs of labor and transportation, and global market impacts like the Ukraine war (Timber Industry News, 2021). By contrast, individual operators serving local clients within their village are less affected, as local demand remains stable, and customers are unlikely to source wood elsewhere. It is important to note that these observations specifically pertain to the small-scale operators in my case study and do not apply to large operators, who operate under entirely different

conditions in terms of financial resources, technical capabilities, efficiency and even access to wood as a resource.

Awareness and current behaviors regarding safety regulations

Awareness of safety regulations is high, primarily due to a desire to avoid fines during inspections. Operators generally know basic safety rules regardless of education, age, or operation size (interviews 6, 7, 8), with much of this knowledge likely coming from collaboration with peers rather than formal legal study. In terms of safety equipment they all expressed how important it is to have the full equipment on hand, meaning safety helmet, gloves, boots with iron insertions, pants with metallic insertions, first aid kit, fire extinguisher: *'When you get in the machineries, you have to use it [PPE].'* (interview 6); *'Of course a helmet is mandatory, yes. Gloves, boots, everything you need when using a chainsaw...'* (interview 7). In terms of wearing the equipment, however, the situation looks different. They all agreed that the boots with iron insertions and gloves are the most important and these two components are also worn all the time. However, the helmet or the pants with metallic insertions are almost never worn. Reasons for this are the fact that they are not comfortable to be worn, especially the helmet that does not stay put on the head, and the visibility is reduced with the helmet which in turn can get problematic especially when felling down trees: *'But helmets and such are still not worn.'* (interview 7); *'... in Romania we don't really wear [PPE]. That's how we are, we work and we don't wear [PPE]. We usually don't.'* (interview 6); *'Well, we don't use it, it's uncomfortable. Through the branches and such...'* (interview 8). In terms of measures for ensuring compliance with safety regulations both the company owner and the self-employed worker actively participate in logging alongside employees but fail to lead by example or enforce PPE use. Instead, they adopt the same unsafe practices as their workers, further discouraging PPE compliance.

Safety regulations enforcing mechanisms

When PPE is worn, however, there is a very specific reason behind it, namely inspections: *'But if we have inspection, then we put them [PPE] on as it's the law.'* (interview 8). In these situations, the workers use the PPE accordingly, wear helmets and everything required by the law. Also the expiry dates of first aid kits and fire

extinguishers are checked and if there are any irregularities, fines of minimum 5.000 RON, which is approximately 1.000 EUR, will be applied. However, inspections from these or other authorities are not the norm, and they occur more frequently in case of official complaints, instead of on a regular basis: *'Complaints, that sort of thing, besides this they don't do anything else.'* (interview 7). As it happened, one of my interviewees did have several complaints in 2024: *'We've had inspections this year from everything on earth. So we have equipment in every machine. We have first aid kits, helmets..'* (interview 6). Worker's certificates will also be checked during these inspections, with fines applying again, if any of the required certifications are missing: *'..to have certification, because if you don't, they won't forgive you.'* (interview 6).

10. Discussion

10.1 Approach

In my research focusing on Alba County as a case study, I conducted ten interviews with a diverse range of specialists in the forest industries, wood logging workers, NGOs, and administrative authorities in Romania. In addition to these interviews, I carried out a literature review and performed content analysis to identify key patterns and insights related to the economic and social upgrading of logging sector workers, particularly focusing on the impact of inclusion in global commodity chain. The central aim of the research was to examine how global commodity chain inclusion affects the economic and social upgrading of workers in the Romanian logging sector, and to identify the factors contributing to these changes.

10.2 Main results and implications for social upgrading

Relevant aspects of the forest industries

Romania's forest industry is marked by a variety of complex challenges and dynamics, which have profound implications for the workers within the sector. A significant issue facing Romania's forests is **illegal logging**, which has been a persistent concern for years. While estimates of the country's annual wood logging and consumption figures differ, there is widespread consensus that illegal activities, such as under-declaring wood volumes and overloading transport vehicles, are undermining sustainable forest management. Despite environmental concerns, enforcement of logging regulations remains weak, with inspections covering only a fraction of wood transports and fines insufficient to deter repeat offenses, where large foreign companies like HS Timber and IKEA are involved as well (interviews 1, 3, 5, 9).

The challenges in forest management are compounded by the poor state of Romania's **forest roads**, which remains underdeveloped. The quality is also an issue: Poor quality roads can increase the likelihood of accidents and workers can be exposed to steep slopes, unstable ground, or harsh weather, all of which can make operations more dangerous (interview 1, 2, 6, 7, 9,).

The **impact of large foreign companies**, such as HS Timber, is double-edged. On the one hand, these companies bring investment, economic growth, and job creation.

They also introduce technological upgrades and knowledge transfer, improving productivity within the local wood sector. On the other hand, their dominance can put smaller, local businesses at a disadvantage, limiting their ability to compete for raw materials and challenging their long-term viability (interview 6, 9). While foreign direct investment (FDI) has benefits, it can also lead, in my opinion, to stagnation in terms of job quality, as workers may find themselves trapped in low-skill, low-wage positions without opportunities for advancement. Additionally, the fiscal incentives that attract foreign companies, such as tax exemptions (Rusu & Grad-Rusu 2015:194), could be better allocated to improve public services like healthcare and education, which would, in turn, benefit the population's overall social well-being.

State involvement in the forestry sector has been marred by inefficiencies, political interference, and corruption. **Romsilva**, the state-owned company responsible for managing Romania's forests, has faced criticism for its politicized leadership appointments, poor governance and corruption within the organization (interview 3). These issues have undermined the efficiency of forest management and contributed to instability within the sector (interview 2, 3, 5).

Another challenge in the sector is the certification of sustainably sourced wood, particularly under the **FSC** system. While FSC certification ensures traceability and market access, and could potentially facilitate the social upgrading of logging workers, the process is burdensome for small forest owners due to high costs and extensive documentation. Large companies like HS Timber and Kronospan offer small bonuses for certified wood, but these incentives are limited and do not fully compensate for the costs involved in obtaining certification (interview 4, 9).

Lastly, the **capitalization** of Romania's wood resources remains inefficient. While Romania has the potential to create high-value wood products, the current auction system prioritizes the sale of raw wood, which limits the ability of local processors to add value within the country. A shift toward higher-value processing is not only desired by my interviewees, but would also enhance profits, create jobs and stimulate economic growth in underdeveloped regions (interview 1, 2, 6, 9).

Social upgrading implications

The various challenges within Romania's forestry sector imply that the social upgrading of logging workers remains a distant goal. While foreign investment has brought economic growth, it has often done so at the expense of local workers, who

remain in low-skilled, low-paying jobs with few prospects for advancement. The lack of adequate infrastructure, both in terms of forest roads and professional training, further limits the potential for workers to improve their skills and career trajectories. The concentration of power within large foreign companies like HS Timber also creates dependency, which undermines the bargaining power of local businesses and workers alike. The reliance on these companies for employment and market access leaves workers vulnerable to shifts in the global economy, which could have destabilizing effects if these companies were to withdraw or reduce operations.

Furniture industry

Romania's furniture industry, once seen as thriving under centralized production during the communist era, now faces numerous challenges. Most of Romania's high-quality furniture is exported, as the local population struggles with affordability. The industry also suffers from a lack of efficient resource management, hindering its competitiveness (interview 5). Romanian furniture companies are working to add value by **integrating functions** such as transportation and design within the country, retaining skilled jobs (interview 4,5). However, the lack of resources to organize and form effective business opportunities, has slowed the adoption of collaborations, despite existing examples of **successful partnerships** (interview 5).

Sustainability is also a key issue, with **FSC certification** being an expensive but essential process for ensuring responsibly sourced wood. However, for many small companies, the cost and paperwork make it difficult to obtain and maintain certification, even though it opens up access to international markets (interview 4, 9). Furniture companies like the one in Alba County, which sources FSC-certified wood, depend heavily on **international buyers**, further highlighting the sector's vulnerability to global market fluctuations. **Technological upgrades**, while beneficial, have not always paid off, as the interviewed company faced financial losses when expected orders did not materialize (interview 4). This situation underscores the need for better planning and formal contracts in investments, which remain a risk for many businesses.

Social upgrading implications

The current state of Romania's furniture industry points to a mixed picture for the social upgrading of logging workers. On the positive side, the furniture industry's efforts to retain high-skilled jobs within Romania definitely contributes to capitalization on wood

as a resource, but until a more equitable distribution of value is specifically targeted, logging workers will not necessarily achieve better working conditions and job security. Collaboration between furniture companies and the push for FSC certification may lead to a more sustainable approach to forest management, which could ultimately enhance the working environment and safety standards for logging workers, but only if done on a massive scale and only if this specific goal is targeted.

Logging companies and workers

Family legacy and financial risk play a significant role in the establishment of forestry businesses. For some, starting small with inherited equipment or taking out loans to purchase machinery helped them gradually expand operations. However, financial literacy, risk tolerance, and access to capital are crucial elements that separate those able to scale up from those who remain constrained by limited resources (interview 6,7,8).

Mechanization in the forestry sector is still low, with small to medium-sized companies relying on partially mechanized methods like chainsaws and outdated tractors. While modern machinery offers higher productivity, its cost remains out of reach for most operators. Some businesses invest in upgrading their old equipment or diversifying into sawmills and pallet production to increase their added value and resource capitalization, but these moves are not without significant risks (interview 6,7,8).

Despite the industry's potential for growth, operators in Romania face substantial barriers in accessing **state support and EU funding**. Bureaucratic hurdles and unclear funding criteria make it difficult for many forestry businesses to secure financial aid, even when aiming to invest in modern, environmentally friendly machinery (interview 1, 6, 7, 8).

The **risks** inherent in **forestry operations** are high, ranging from the dangers of tree felling and equipment operation to harsh weather conditions that impact safety. Many workers also face the challenge of **alcohol consumption** on the job, which undermines both safety and productivity (interview 6,7,8).

Trust and reputation are essential for maintaining stable business relationships. For some businesses, international clients offer opportunities, but a bad reputation has led to discontinued partnerships. Smaller operators, which mostly serve local clients, rely on reputation for their business, making personal relationships crucial (interview 6,7,8).

There is a fragmented approach regarding **cooperation and collaboration**, which could otherwise improve resource sharing and bring more value despite the high competitiveness.

The **employment** situation in the sector is also varied, with some workers employed informally and others registered officially with the associated benefits. Those working in companies embedded in global commodity chains tend to have formalized work contracts which means more stable incomes and social security benefits. In contrast, those in informal arrangements receive lower wages and lack job security. Legal employment marks a significant milestone for many businesses, as it signals a transition from informal, often precarious work conditions to more stable, formal employment (interview 6, 7, 8, 10).

Despite legal possibility for early **retirement** under harsh working conditions, many workers continue in the field without formal contracts (interview 6, 7, 8, 10).

The issue of **safety regulations** remains a concern, with logging businesses and workers aware of the need for PPE, though compliance is inconsistent. While some businesses ensure their workers meet safety standards during inspections, PPE usage is often avoided due to comfort issues and the lack of enforcement of regulations outside inspection periods (interview 6,7,8).

Social upgrading implications

While legal employment and formal business practices, such as those companies embedded in global commodity chains, provide greater economic security and benefits like social security and pensions, informal work arrangements continue to exist and these workers often face precarious conditions such as lower wages, no benefits, and limited opportunities for advancement.

The expansion of logging companies, particularly through mechanization and technological upgrades, can lead to higher incomes for workers, but this depends heavily on financial resources. As businesses grow and formalize their operations, workers benefit from more stable employment and better social protections. However, the fragmented nature of the industry and the challenges faced by small companies in accessing financing and government support limit the potential for widespread social upgrading.

10.3 Strengths and limitations

It is important to acknowledge the specificities and limitations of this research: First, the case study focuses on three small-scale operators, with only one showing greater development potential. All three are village-based, which makes sense considering that they work in the forest, starting from low conditions with limited or very limited capacity for growth. The small number of worker interviews is also a factor to consider. Nevertheless, it is worth noting that all this only reinforces the point made by the literature, namely that the sector is highly fragmented, with many small-scale operators involved (Hansen et al. 2014:6). On the other hand, despite the low number of logging operators, I do believe the interviews provided a solid informational basis and offered interesting insights into this field of work. The diversity in interview partners also represents a strength in my opinion, as the different roles brought different perspectives that together help create a clearer image on the complex dynamics that shape Romania's forest industry, as well as the problems that the industry is facing.

11. Conclusion

In this chapter, I begin by comparing the findings of my research with existing literature to identify both alignments and discrepancies concerning social upgrading for logging workers in Romania. I then examine the governance type of the furniture and logging sectors and bring together the dynamics contributing to it and the implications this has on social upgrading. Finally, I discuss the role of integration into global commodity chains and its impact on social upgrading.

11.1 Factors influencing social upgrading and comparison with literature

State's role and ownership changes

Like in Mexico, in Romania ownership changes have been one of the factors influencing the industry as well. However, in Mexico, the accent lay on communities gaining control of their forests, while in Romania, after the fall of communism, the privatisation process started, by which forest land was restituted to anyone with a claim (Klooster & Mercado-Celis 2016). While the communist past is gone, its heritage, such as a lack of long-term business experience and the absence of inherited practices, remains. This represents a fundamental hurdle to be overcome if any type of development in this sector, that will ultimately lead to social upgrading for wood logging workers, is to take place.

Despite a historically good performance of the wood and furniture sectors both in Romania, during communism, and Ghana, the sectors fail to develop to their full potential. The government policy plays an important role in this case, and there are similarities between the two countries, such as limited access to funding, better-priced wood exports and costly domestic wood (Dinh et al. 2013), which, in the case of Romania, is caused by market scarcity due to the stringent forestry laws that do not allow a higher quantity of wood to be logged on a yearly basis. Coupled with this is also Romsilva's auction-based system, which prioritizes selling wood at the highest price.

Similar to Bolivia, the Romanian forestry sector's diverse needs are not met by the existing policies, and the risk of harming small-scale operators through these policies is high (Murphy 2012). Of course, that is not to say that the big companies do not face

difficulties when dealing with the state and its policies, but the resilience of such companies is also much higher than the resilience of a small-scale operator.

These findings are in a clear contrast with cases such as Mexico, where all actors, including the government, through contractual agreements, successfully collaborated to address social upgrading of the workers through economic upgrading and a better distribution of the value. In this case, a broader, more cohesive strategy that went beyond interests of individual firms was a deciding factor (Klooster & Mercado-Celis 2016).

Collaboration and value creation

Similar to Mexico, there are successful collaboration examples in Romania as well, albeit very few in the furniture industry, such as the case where two Romanian companies opened a joint furniture shop with the purpose of diversifying their buyers and avoid future problems by being dependent on one buyer alone. Cases like these are similar to the one of Mexico, where the three communities of Textitlán, Ixtlán, and Pueblos Mancomunados united their efforts for more value and a more equitable distribution of said value (Klooster & Mercado-Celis 2016). Another way to create value in the furniture sector is through participation in world-class furniture fairs, which contributes significantly to the establishment or maintenance of business relationships and ultimately sales, which in turn contribute to value creation, similar to the conventional GPNs of Bolivia, where close relationships with major TNCs are fostered (Murphy & Schindler 2011). Romanian furniture companies also try to enhance value through design capabilities and high quality materials as well as association with world-renowned furniture designers in special cases. Similarly to the Bolivian example, taking over logistical responsibilities such as transportation, and obtaining international certifications such as FSC, are also important factors contributing to added value (Murphy & Schindler 2011).

In the wood logging sector, however, no such collaborations have been mentioned in my case study, fact that could be attributed to different factors including the small scale of their operations, very limited capacity development or low degree of self-organization. This is in stark contrast to the case of Bolivia, where cooperatives and associations of small-scale enterprises became reality, and where the benefits of such associations outweighed the individual costs, despite the strong competition (Murphy 2012).

Central to successful collaborations that lead to value creation are trust and reputation. The logging companies in my case study work with limited capital, similarly to the brokerages in Bolivia (Murphy & Schindler 2011). Should formal contracts or legal agreements not be the norm, trust and reputation are of essence, especially for the village-based operators who cater predominantly to the village population. However, even when legal agreements and formal contracts exist, reputation still matters, as illustrated by the example of one of my interview partner's end of collaboration with a Chinese company. Ultimately, collaboration, trust and reputation are relevant due to this simple fact: Fewer business relationships means less opportunity for value creation and in turn, less possibility for improved working conditions.

Impact of large companies

Romania's wood industry faces significant challenges due to its dependence on large companies like Kronospan and HS Timber. Dependency on large-scale buyers highlights the risks of power asymmetries, as these companies often dictate unfavorable terms, squeezing out smaller competitors and reducing the overall resilience of the industry. In the case of the furniture components manufacturer I interviewed, the costs of switching are high, showing heavy reliance on one single buyer.

As mentioned before, notable companies like HS Timber and IKEA initially came to Romania for wood processing but later became forest owners by purchasing forests from private owners with restored property rights. This trend of vertical integration is different from the case of Mexico, where the forest enterprises of communities were the ones to upgrade on the value chain by vertical integration (Klooster & Mercado-Celis 2016). Also important to note is that large companies externalize risks by favoring contractors for wood extraction rather than maintaining large in-house workforces, which reduces costs and management challenges. This could potentially lead to even lower chances for social upgrading of logging workers, as their employment will continue to be informal, their wages or benefits low or inconsistent, and low or inexistent possibilities for skills development. The increasing labor and raw material costs also affect the ability of companies to invest and upgrade, and with limited capacity development and taking the impact of large companies in consideration, price competitiveness becomes the norm or else businesses risk to not be able to sell their inventories. These factors paint a similar picture to the industries of South Africa and

Ghana, where sector growth is also hindered and challenges in economic advancement continue (Kaplinsky et al. 2002, Dinh et al. 2013). By focusing on price competitiveness, companies focus less or not at all on working conditions or sustainable practices in the forest industries, since there is no budget to improve the employment type, benefits or working conditions.

From an international point of view, rising labor and material costs have eroded the global competitiveness of Romanian furniture production, while rigid contractual agreements with major clients exacerbate financial pressures during market fluctuations. Furthermore, local producers struggle to compete with international rivals, such as China and the war in Ukraine has disrupted the Romanian furniture industry by cutting off access to the Russian market, where Romania traditionally held a strong export presence.

Mechanization and upgrading

In the case of Romania, mechanization has been very slow compared to western or northern countries, with the logging sector still relying on outdated technology. Similar to Ghana, the Romanian wood processing sector is low on mechanization with low capacity of technical upgrades (Dinh et al. 2013). Due to this low mechanization, chainsaws are predominantly used for tree felling and processing and are a big contributor to accidents (Halalisan et al. 2022). There is also a gap between low-skilled and mechanized production. The majority of enterprises, which are small and micro-enterprises, do not have the means to invest in a mechanized production, thus their efficiency remains low. The few big companies, on the other hand, are highly efficient due to their high degree of mechanization and capacity for large scale production.

FSC

The fact that there is a price premium from big companies on FSC certified wood in Romania might sound like a positive thing, especially since the literature is lacking this particular aspect so far. In reality, however, the fact that this price premium is offered only by the big companies that have enough capacity and resources to do so, only reinforces Taylor's findings that the benefits of FSC certification are collected mainly by the same big companies (Taylor 2005:136, 138). As already noted, FSC certified

wood is a must in Western markets, and the profits these companies make with the FSC certified wood far outweigh the small price premium they pay for it in countries like Romania. In a more positive light, it could be argued that the price premium somewhat encourages the certification of woods, which is still seen as beneficial. At the same time, however, the same companies that offer the price premium have the power to influence the market and could very well insist on making FSC certification mandatory for their suppliers, who in turn would have to either comply immediately or risk not being able to sell their wood anymore. In contrast to Mexico, where FSC certification facilitated the collaboration of state and all other actors, thus encouraging technological upgrades for the communities and ultimately contributing to the social upgrading of the workers (Klooster & Mercado-Celis 2016), in Romania, besides the clear conditions pertaining to labor safety, the FSC certification does not otherwise impact the social upgrading of logging workers, as the price premium is too small to affect their wages. Even if the premium were substantial, there is no assurance that workers would benefit from it, as it might solely go to the forest owner, with no impact on the logging company or its employees.

PPE

Similar to the conclusion of Cabeças (2007), the enforcement of safety regulations in the Romanian logging sector is limited to the governmental institutions, which, as it turns out, represents a real hurdle to overcome if any improvement on working practices in this field of work is desired. In Romania, similar to other countries, widespread misuse or non-use of PPE such as helmets remains the norm. My interviewees even offer the same reasons identified in the literature for this misuse or non-use: Reduced visibility, discomfort, increased clumsiness (Albizu-Uribe et al. 2013:397-398). The gaps are clear in the enforcement of the safety regulations. Without proper motivation from inside the company to wear PPE, the workers themselves will continue the non-use of it. Adding to this the fact that inspections are the only tool that makes operators wear PPE, effective enforcing of safety regulations becomes hard, if not impossible, as inspections cannot happen every day and for every company.

Similarities can be noted with other industries, though, and authors of a study in the steel industry, also a high-risk industry, found that workers often view danger as unavoidable and part of their job, requiring both tolerance and risk management. Many of the participants in the study believe that ensuring safety rests on their individual

responsibility, as they cannot rely on companies or supervisors to oversee safe practices. The study also found that over time, experienced workers may become complacent or nonchalant, underestimating risks due to familiarity. Routine work further exacerbates this issue by creating "blindness to flaws," where workers overlook hazards because they are accustomed to their environment. This combination of personal responsibility, complacency, and routine can lead to higher risk-taking behaviors and safety oversights (Nordlöf et al. 2015:131), and can very well be reasons why this happens in the logging sector as well.

11.2 Value chain governance in the furniture and logging sectors

The combination of modular and captive value chain governance for the furniture components manufacturer, meaning handling their own process technologies and investments coupled with high dependency on one buyer adds layers of pressure to the furniture components manufacturer in Alba county. First, as we have already seen, every time the supplier makes an investment, the risk of losing is high, as it cannot guarantee that the investment will be covered without the support of the buyer in the form of enough orders. While risk is normal in every company that makes an investment, it is important to remember the dependency on one single buyer that makes the resilience of the supplier very precarious, as there are either very few or none other buyers to compensate for any made investments. Second, this low resilience is illustrated also when thinking about the vulnerability of the supplier in the face of shifting buyer priorities or changes in buyer demands that can even lead to abrupt closures. Third, due to the power asymmetry, where the supplier has little bargaining power due to its dependence on the single buyer, the buyer can dictate strict terms such as pricing or timelines. These strict terms can be worsened in such an unpredictable economic environment such as the one in Romania, where increasing labor costs, for instance, make the original contracts with the buyer even less profitable.

At this point the supplier needs to reduce costs in order to still be able to meet competitive pricing. Besides the internal cost-cutting, these measures can also translate to little or no encouragement for things outside of the company's direct action radius such as sustainable practices or fair working conditions from their wood

suppliers, the logging operators. While it is not the responsibility of the furniture components manufacturer to interfere with the working conditions of a logging operator, in a value chain where the governance focuses on sustainable practices instead of price competitiveness or cost-cutting, working conditions and thus social upgrading could be strongly encouraged and value could be more equitably distributed, similar to the case of Mexico (Klooster & Mercado-Celis 2016).

For the logging operators in my case study on the other hand, the modular value chain governance means managing their own process technologies and investments, but unlike the furniture components manufacturer, they are not dependent on one buyer and their switching costs are not high. However, they are still operating in a sector dominated by large companies that, due to their high rate of mechanization and efficiency, can afford to lower the prices, thus exacerbating price competitiveness. Additionally, the stringent forestry laws that limit the yearly amount of logged wood and Romsilva's auction-based system of selling the wood have managed to create a wood scarcity which drove the prices of Romanian wood up. As a consequence, the small operators are forced to focus on price competitiveness as well. It is no surprise then, that formal employment is seen as such a major economic milestone for them: It's a sign that business is thriving and there are extra resources that can go into offering formal employment and the entailing benefits to the workers. In situations such as the one described above, where price competitiveness and cost-cutting are the norm, formal employment becomes less of a priority. The same can be said about investments in mechanization and technological upgrades: Where there are no funds, the focus lies on survival rather than investments for increased efficiency. All these factors explained above can contribute to social upgrading of the logging workers but in my case study, the chain reaction for such an outcome is simply not there. The chain reaction in this case study works more in a negative way: The communist heritage, lack of cohesive policies, lack of state support and corruption, lack of infrastructure, poor law enforcement and the dominance of big companies and international dynamics set the background for a chain governance that is focused on price competitiveness and cost-cutting, exacerbating power asymmetries, dependence and low resilience of the small operators which in turn make investments and mechanization unfeasible thus only perpetuating the current working and social conditions of logging workers.

Also similar to Bolivia, there exists an inability for the small operators to address capitalization on wood without technological investments (Murphy & Schindler 2011), even though it is greatly desired and occasionally pursued, often at a loss. In these conditions (e.g. without proper investments), the wood is minimally processed before being exported, representing one of the biggest gaps in production in Alba county.

11.3 Social upgrading and inclusion in the global commodity chain

Similar to Ghana, the workers in Romania face harsh conditions: informal and insecure employment, and limited worker protections which expose workers to economic instability (Dinh et al. 2013). Bernhard & Pollak (2016) suggest a positive relationship between economic upgrading and social upgrading, meaning that social upgrading tends to accompany economic upgrading. In my case study, the logging operators interviewed seemed to confirm this: The scale of operations and, in this case self-financed, economic upgrading of the company significantly impact social upgrading of workers, particularly in terms of employment type and income. Therefore, one of the most significant contributing factors to social upgrading is the legal form of employment. Workers in companies embedded within global commodity chains tend to have more stable, formal employment, offering them better access to social security, pension benefits, and consistent income. However, this formalization of employment does not necessarily need to be tied to inclusion in global commodity chains, as companies outside these chains can also offer legal and stable employment arrangements.

Despite the economic benefits for workers in companies integrated into the global commodity chain, no significant differences in social upgrading—beyond economic factors—were observed compared to those outside the chain. While inclusion in global commodity chains means the chances for formalized employment are higher, aspects like health, safety, and welfare remain mostly unaffected by inclusion. Issues such as lax PPE usage, overlooked alcohol consumption, and weak safety enforcement persist across both inclusion and non-inclusion. Although the literature suggests measures like PPE use, task expansion, job rotation, and modified shifts to improve worker well-being and reduce risks (Axelsson 1998), these measures do not exist in this case

study. Additionally, alcohol consumption creates a strange dynamic between workers and employers, with employers tolerating it due to labor shortages in this field, driven by harsh conditions and either informal jobs lacking protections and benefits or formal jobs offering minimal benefits, and the economic necessity of maintaining operations. Simply put, if there are no workers to work with, there is not business either.

Enabling rights mentioned in the theoretical part, such as freedom of association, collective bargaining, and non-discrimination are simply not on the radar of both companies and workers. This isn't due to active disregard but rather the extremely low standards and a need of immediate, quantifiable outcomes. Collective bargaining practically doesn't exist, as finding workers for this sector is already challenging. No statement can be done regarding discrimination, particularly in cases of informal employment where contracts don't exist, leaving trust and employer reputation as deciding factors. Workers retain the freedom to seek other jobs and poor worker behavior, like alcohol consumption, is often overlooked due to high labor demand. Regarding operations and tasks, the situation is very straightforward: Skills and experience are the deciding factors for what a worker actually does in the forest.

11.4 Recommendations

These findings emphasize the importance of legal employment and formalization within the sector as the primary driver of economic benefits for workers, but also indicate that other factors, such as working conditions, professional development, and worker well-being, must be specifically targeted in order to achieve substantial social upgrading across the industry. Romanian logging workers face persistent challenges due to the lack of significant reforms in infrastructure, and worker protections, leading to slow and uneven social upgrading.

A cohesive policy that supports both small and large companies is fundamental to achieve any progress towards a diversified and resilient industry. Investments in education, training, and mechanization, alongside better enforcement of safety regulations and incentivized PPE use, are vital as well. Finally, the modernization of the forestry sector, including the creation of forest roads, is important for enhancing the working conditions and social upgrading of logging workers.

11.5 Further research

It would be valuable to conduct further research into the largest companies in the wood logging sector, examining whether global commodity chain inclusion exists, investments and upgrades are feasible, whether they have already been implemented, and what impact these changes have had on workers' social upgrading. Additionally, it is important to explore whether further economic upgrading for these companies leads to corresponding social upgrading for workers. Even when focusing solely on wages, this remains a pertinent question, as labor conditions do appear to be a significant challenge everywhere in this sector. Another relevant inquiry is whether bigger logging companies address enabling rights after improving more visible aspects like income, work environment, and physical well-being. Ultimately, more specific aspects such as informal employment, retirement and post-retirement activity, as well as alcohol consumption could be researched more in detail in order to gain deeper insight on how they could be improved or prevented.

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13. List of interviews

Interview 1: National Forest Manager at WWF-Romania. Silviculture studies.

Interview 2: Scientific researcher at the Biodiversity Center of the Romanian Academy. 'Alliance for the Forest' NGO. Silviculture studies among others and years of experience in forest matters including legislation.

Interview 3: Forest engineer and an investigator with the organization 'Agent Green'. Experience with forest management and large-scale companies in the sector.

Interview 4: Representative of local company Alba county manufacturing furniture components.

Interview 5: Representative of the Furniture Producers Association Romania. Furniture industry insights on a national level.

Interview 6: Owner of logging company in Alba County.

Interview 7: Sole proprietorship; logging worker.

Interview 8: Logging worker.

Interview 9: Director of private forestry office Iezerul-Trascau.

Interview 10: Forester at private forestry office Iezerul-Trascau.