

Assessing the Growth and Sustainability of Algeria's Wood and Cork Industry: Challenges and Opportunities

تقييم نمو واستدامة صناعة الخشب والفلين في الجزائر: التحديات والفرص

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Received: 12, 13th 2024

Accepted: 01, 03th 2025

Published : 05, 25th 2026

Abstract:

This study aimed to analyze the current state and potential growth of Algeria's wood and cork industry within the context of global market trends and sustainability practices. Utilizing a combination of quantitative data on production capacity, employment dynamics, and economic contributions, as well as qualitative assessments of sustainable practices and technological advancements, the research highlights the challenges and opportunities faced by the sector.

The findings conclude that while the industry has demonstrated resilience and an upward production trend, significant improvements in efficiency and sustainability are necessary to enhance its economic impact. Furthermore, the study emphasizes the importance of strategic investments and long-term planning to position Algeria as a key player in the international wood market while preserving its valuable forest ecosystems.

Keywords: wood industry; cork production; sustainable practices; economic growth; Algeria.

JEL Classification Codes Q23; L73; O13; D24; M21

المخلص: هدفت هذه الدراسة إلى تحليل الحالة الراهنة والإمكانات المستقبلية لصناعة الخشب والفلين في الجزائر في سياق الاتجاهات العالمية للسوق وممارسات الاستدامة. من خلال استخدام مجموعة من البيانات الكمية حول قدرة الإنتاج، وديناميكيات التوظيف، والمساهمات الاقتصادية، بالإضافة إلى تقييمات نوعية للممارسات المستدامة والتطورات التكنولوجية، تسلط البحث الضوء على التحديات والفرص التي تواجه هذا القطاع.

تخلص النتائج إلى أنه على الرغم من أن الصناعة قد أظهرت مرونة واتجاهًا تصاعديًا في الإنتاج، إلا أن هناك حاجة ملحة لإجراء تحسينات كبيرة في الكفاءة والاستدامة لتعزيز تأثيرها الاقتصادي. علاوة على ذلك، تؤكد الدراسة على أهمية الاستثمارات الاستراتيجية والتخطيط طويل الأمد لوضع الجزائر كلاعب رئيسي في السوق الدولية للخشب، مع الحفاظ على نظمها البيئية الغابية القيمة.

الكلمات المفتاحية: صناعة الخشب؛ إنتاج الفلين؛ ممارسات الاستدامة؛ النمو الاقتصادي؛ الجزائر.

رموز تصنيف JEL : Q23; L73; O13; D24; M21

1. Intorduction

Algeria's wood and cork industry plays a significant role in the country's economy, contributing to both local employment and the export market. With vast forested areas and a rich tradition of craftsmanship, Algeria has the potential to further develop its wood and cork sectors.

Algeria is home to various types of wood, including oak, pine, and cedar, which are harvested sustainably to ensure the preservation of forest ecosystems. The cork oak tree, predominant in the Kabylie region, is a vital resource for cork production. also for insulation and flooring materials.

1. The Economic Importance of the Wood Industry Worldwide

The Economic Importance of the Wood Industry Worldwide

The wood industry continues to grow and evolve, driven by the increasing demand for sustainable building materials and innovations in forest management. The global market value of the wood industry is expected to reach \$174.3 billion by 2024, with a compound annual growth rate (CAGR) of 1.1% from 2023 to 2028.

In the United States, the wood products manufacturing industry is projected to reach \$9.7 billion by 2024. Meanwhile, the European wood market is expected to reach \$67.8 billion, with a CAGR of 0.79% until 2029. The Asia-Pacific region remains the largest producer of wood, valued at \$916 billion.

Globally, wood production amounts to approximately 4 billion cubic meters annually, with wood pulp production exceeding 195.79 million metric tons in 2022. The United States is the largest producer, contributing 19% of industrial wood, while it consumes 20% of global wood production.

Economically, the global forestry sector contributed over \$663 billion to the global GDP in 2015. The value of global wood exports is estimated at \$188 billion in 2022, while the value of imports reached \$257.7 million in 2023.

The reports also indicates that 50% of sawmills worldwide utilize automation, reflecting a trend toward improving efficiency. Additionally, the value of smart forests is expected to reach \$8,326.1 million by 2027, with a CAGR of 11.6%. Overall, the workforce in the wood market is anticipated to reach 4.80 million by 2024.

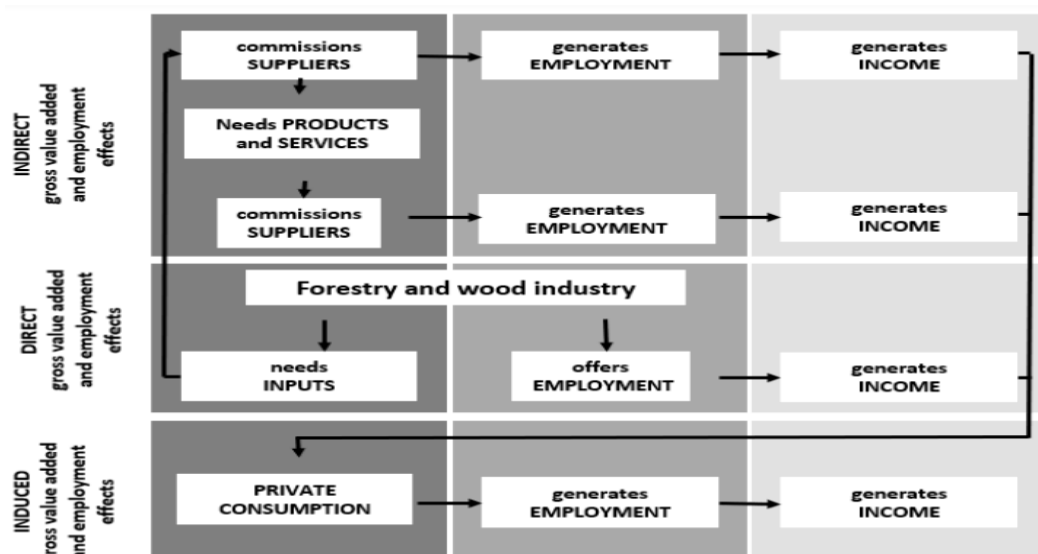
As the industry faces challenges like deforestation and climate change, there

is a growing emphasis on sustainability. Companies are increasingly adopting eco-friendly practices, such as responsible sourcing and reforestation efforts. These initiatives not only help preserve forest ecosystems but also appeal to environmentally conscious consumers.

Technological advancements are transforming the wood industry, enhancing productivity and product quality. Innovations in processing techniques, such as precision milling and digital design, are allowing for greater customization and efficiency. Furthermore, the integration of artificial intelligence and data analytics is improving supply chain management and forecasting.

These statistics and trends highlight the significance of the wood industry in the global economy and emphasize the necessity of adopting sustainable practices to ensure the continuity of this sector. As the demand for sustainable materials rises, the wood industry is well-positioned to meet these challenges while contributing positively to the environment and the economy.

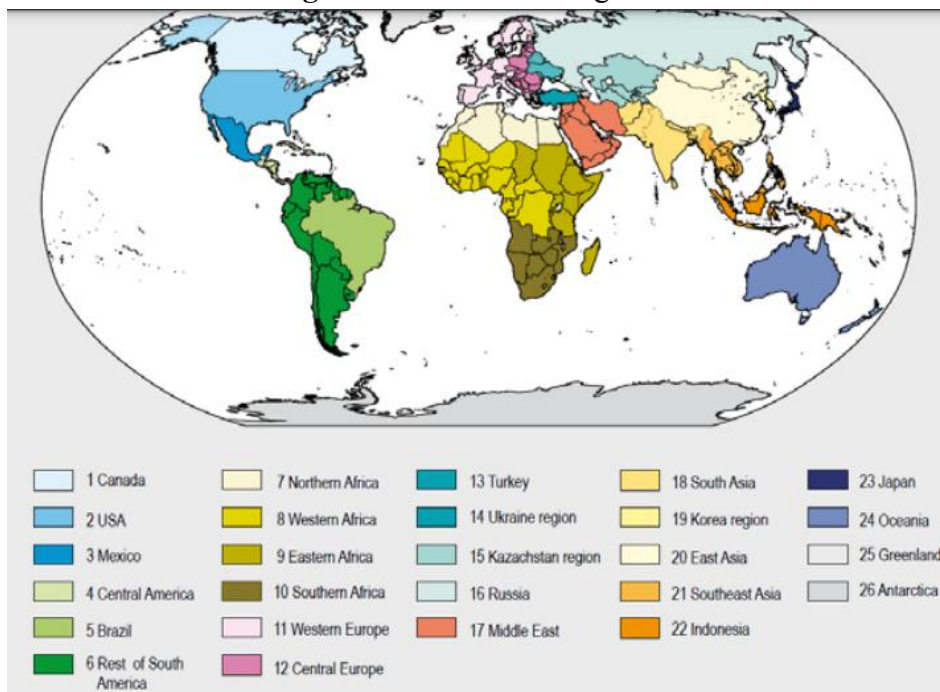
Fig.2 Direct, indirect and induced effects.



Source: (Econmove GmbH, 2023, p. 9)

From fig.1 we can describe the scheme as follows:

- The multiplier measures direct, indirect, and induced effects in the forestry and wood industry, indicating sector integration with the economy.
- Higher multipliers reflect stronger interconnections, while smaller multipliers may signify reliance on imports or fewer intermediate inputs.
- Sectors like education can have low multipliers despite their significance, primarily due to wage-based costs.
- Manufacturing sectors typically have multipliers around 1.5, with larger countries often exhibiting slightly higher values.
- Service sectors usually show lower multipliers due to requiring fewer inputs and being more value-intensive.

Fig.2 Classification of regions.

Source: (E.J. M.M. Arets & al., 2011, p. 9)

2. The Wood Industry in north Africa

The timber industry in North Africa has shown varied economic contributions across the region. From 1990 to 2019, the forest sector contributed an average of 2.5% to the GDP, with Mauritania leading at 1.58%, followed by Egypt (0.25%), Morocco (0.23%), Tunisia (0.19%), Algeria (0.15%), and Libya (0.06%).

Since 2015, growth in other sectors has outpaced forestry, raising concerns about reliance on imports and slow plantation forest expansion. In 2011, the sector employed approximately 102,000 individuals, representing 1.1% of the regional labor force, predominantly in Algeria, Morocco, and Tunisia.

The timber industry also provides non-timber forest products (NTFPs), such as cork and medicinal plants, contributing to local economies. Despite challenging climatic conditions, North African forests are rich in biodiversity, playing crucial roles in environmental conservation, rural development, and resilience to climate

change impacts (African Development Bank Group, 2022, p. 16).

3. The Wood Industry in Algeria

3.1. Natural Resources Potential in Algeria's Forest Zones

Algeria features three main forest zones:

- Coastal and Sub-Coastal Areas: This region includes the eastern coastal chains and is well-watered, hosting dense and beautiful forests of cork oak and Zeen oak.
- Tellian Atlas Reliefs: These areas are less rainy and encompass significant forest massifs of Aleppo pine and holm oak (Monts de Tlemcen, Sidi Bel Abbès, Saida, Tiaret), as well as Atlas cedar found in the highest peaks of Babors, Blidean Atlas, Djurdjura, and Ouarsenis.
- Saharan Atlas: This zone includes large Aleppo pine massifs in the Aurès-Nemencha, Hodna, Ouled Nail, and Djebel Amour regions, as well as the majority of Algeria's cedar forests, situated at altitudes above 1200 meters.

The forest coverage rate varies significantly, from approximately 50% in Kabylie (central and eastern regions) to 2% in the southern zone, with a national average of 11%.

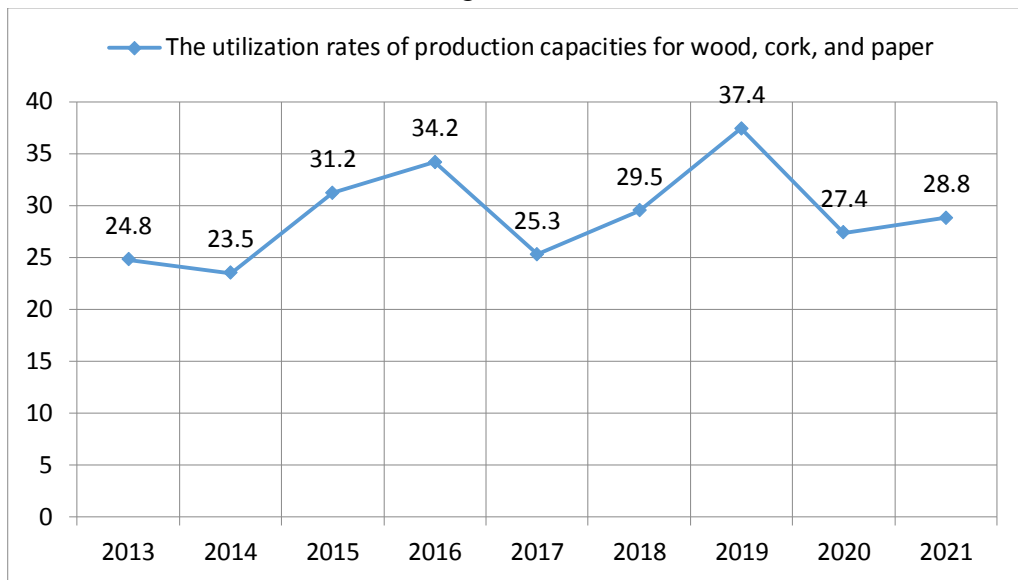
The forest composition includes:

- Natural forests: 1,329,400 ha
- Reforestation: 972,800 ha
- Maquis: 1,844,800 ha
- Grasslands: 2,800 ha

These forests are composed of approximately 50% conifers, primarily Aleppo pine, junipers, and thuja, and 50% broadleaf species, mainly cork oak, holm oak, and a small amount of Zeen oak (TATAR, 2012, pp. 361-362).

3.2. Analysis of Production Capacity Utilization Rates in Algeria

Fig3 The utilization rates of production capacities for wood, cork, and paper in Algeria



Source: (National Bureau of Statistics, 2023, pp. 30-31)

The utilization rates of production capacities for wood, cork, and paper in Algeria show notable fluctuations over the years. In 2013, the utilization rate was 24.8%, which decreased to 23.5% in 2014. However, the following years saw a significant increase, reaching 31.2% in 2015 and 34.2% in 2016.

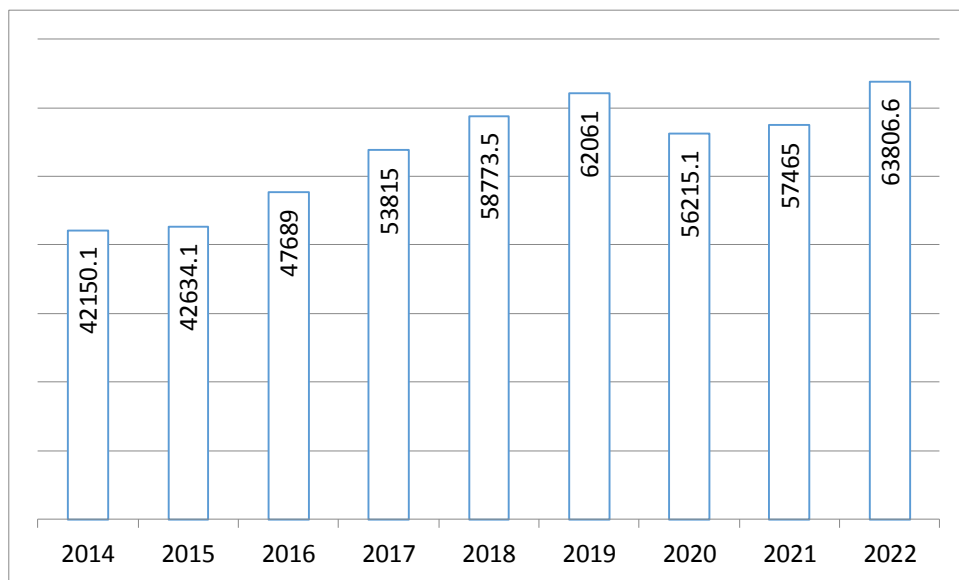
In 2017, the rate dropped again to 25.3%, indicating challenges facing the sector. The rates continued to rise in the subsequent years, peaking at 37.4% in 2019, the highest level during the specified period.

In 2020, the rates declined to 27.4%, then slightly increased to 28.8% in 2021. These fluctuations reflect the impact of economic, political, and environmental factors on the industry.

Overall, the data suggest that the wood, cork, and paper sector in Algeria requires effective strategies to enhance sustainability and improve production capacity utilization.

3.3. Development of total production of the wood industry

Fig.4 Development of total production of the wood industry (unit: million Algerian dinars)



Source: (National Bureau of Statistics, 2023, pp. 40-41)

The total production of the wood industry in Algeria shows a generally upward trend from 2014 to 2022, reflecting growth in the sector. In 2014, production was 42,150.1 million Algerian dinars, which slightly increased to 42,634.1 million in 2015. A significant rise occurred in 2016, with production reaching 47,689 million dinars.

The growth continued in 2017 and 2018, with production increasing to 53,815 million and 58,773.5 million dinars, respectively. However, in 2020, production experienced a decline to 56,215.1 million dinars, likely due to external economic factors or disruptions in the market.

Following this dip, production rebounded in 2021, reaching 57,465 million dinars, and further increased to 63,806.6 million dinars in 2022. This recovery indicates resilience in the wood industry, suggesting that the sector is adapting and responding to challenges.

Overall, the data highlights the growth potential of the wood industry in Algeria and the importance of strategic investments and policies to sustain this upward trajectory.

3.4. Employment in the wood industry

Table.1 Employment Types in Algeria (1990, 2000, 2005)

Year	Permanent Employment	Temporary Employment (in EEP)	Total Employment
1990	25,000	23,000	48,000
2000	20,500	28,050	48,550
2005	13,437	82,434	95,871

Source: (FAO, 2010, p. 45)

This table illustrates the changes in employment types in Algeria over the years, highlighting a decline in permanent employment and a significant increase in temporary employment, particularly by 2005. Total employment saw an overall increase from 1990 to 2005.

4. Conclusion

In summary, Algeria's wood and cork industry finds itself at a critical juncture, poised for significant growth and development. The global shift towards sustainable materials and technological advancements presents both challenges and opportunities for the sector. By tapping into its rich forest resources and skilled labor, Algeria can enhance its role in the international market, driving local employment and boosting export potential.

The emphasis on sustainability is not just a trend but a necessity for the industry's future. By adopting eco-friendly practices and investing in innovative technologies, Algeria can ensure its wood and cork sectors thrive economically while also contributing to environmental conservation. As the global demand for responsibly sourced materials grows, Algeria has the opportunity to emerge as a key player in sustainable forestry.

Furthermore, the analysis of production capacity and employment dynamics highlights the need for strategic interventions to improve efficiency and create stable jobs. While fluctuations in production rates underscore existing challenges, the overall upward trend in total production indicates the sector's resilience and potential for growth.

Moving forward, a coordinated approach that prioritizes sustainability, technological innovation, and regional collaboration will be essential for the wood industry in Algeria and North Africa. By embracing these strategies, the industry can not only secure its economic contributions but also ensure the preservation of valuable natural resources for future generations. Ultimately, a commitment to addressing the challenges ahead will be crucial for the long-term viability and success of Algeria's wood and cork industry.

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