# "Unleashing Ghana's Manufacturing Might: A Comprehensive Analysis of Performance, Competitiveness, and Policy Pathways"

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## ABSTRACT

This review provides a comprehensive analysis of the performance and competitiveness of Ghana's manufacturing sector. It synthesizes relevant literature from academic databases, research papers, reports, and policy documents to examine the sector's contribution to GDP, employment generation, export performance, and factors influencing competitiveness. The findings highlight the challenges faced by the sector, including stagnant GDP contribution, limited job quality, mixed export performance, and factors such as inadequate access to finance, high energy costs, poor infrastructure, limited technological innovation, and skills gaps. Evidence-based policy recommendations are provided to enhance the sector's growth and competitiveness, including infrastructure development, access to finance, technological innovation, skills development, and regulatory reforms. The review also identifies gaps in the literature and suggests future research directions to further understand and address the dynamics of Ghana's manufacturing sector.

**Keywords**: manufacturing sector, Ghana, performance, competitiveness, GDP contribution, employment generation, export performance, factors affecting competitiveness, policy recommendations

**JEL Code**: L60, O14, O25, O55

## INTRODUCTION:

The manufacturing sector plays a crucial role in driving economic growth, job creation, and industrial development in countries around the world (Elfaki et al., 2021; Lugina et al., 2022). Ghana, a rapidly developing economy in West Africa, has recognized the importance of a vibrant manufacturing sector in achieving its economic transformation objectives. However, to effectively harness the sector's potential, it is essential to understand its performance, competitiveness, and the factors that shape its growth trajectory.

Ghana's manufacturing sector plays a crucial role in the country's economic development, job creation, and export diversification. However, the sector faces several challenges that hinder its performance and competitiveness (Alhassan, 2021). These challenges include stagnant or declining contribution to GDP, inadequate employment generation, mixed export performance, and various factors that affect competitiveness, such as limited access to finance, high energy costs, poor logistics infrastructure, limited technological innovation, and skills gaps in the labour force.

While there have been studies examining the performance and competitiveness of Ghana's manufacturing sector, there are still gaps in the existing literature. These gaps include the need for a comprehensive analysis of the sector's performance, a deeper understanding of the specific challenges faced by different industries within the sector, and a more detailed exploration of the effectiveness of existing policies and interventions. Additionally, the literature may lack a comprehensive review that integrates multiple aspects of the sector and provides a holistic view of its performance and competitiveness.

The purpose of this review is to provide a comprehensive analysis of the performance and competitiveness of Ghana's manufacturing sector. By synthesizing the existing literature, this review aims to identify the key challenges, opportunities, and policy implications for enhancing the sector's growth, competitiveness, and contribution to the Ghanaian economy.

The specific Objectives of the study are (1) To assess the contribution of Ghana's manufacturing sector to the country's GDP and analyse trends and patterns over time. (2) To examine the employment generation potential of the manufacturing sector and identify the quality and inclusiveness of the jobs created. (3) To evaluate the export performance of Ghana's manufacturing sector, highlighting both successful industries and sectors that face challenges in global markets. (4) To identify the key factors influencing the competitiveness of Ghana's manufacturing sector, including access to finance, energy costs, infrastructure, technological innovation, and skills gaps. (5) To provide evidence-based policy recommendations that address the identified challenges and leverage the potential of the manufacturing sector for sustainable economic growth, job creation, and export diversification. By addressing these specific objectives, this review aims to fill the gaps in the existing literature and provide valuable insights and recommendations for policymakers, researchers, and industry stakeholders to inform decision-making and drive the growth and competitiveness of Ghana's manufacturing sector.

The research question is what is the current performance and competitiveness of Ghana's manufacturing sector, and what are the key factors influencing its growth and competitiveness?

The assumptions underlying the study are (1) The available literature provides sufficient data and insights to analyse the performance and competitiveness of Ghana's manufacturing sector. (2) The findings and recommendations from the reviewed studies can be generalized to the broader context of Ghana's manufacturing sector, and (3) The policy recommendations derived from the review will be considered and implemented by relevant stakeholders in Ghana's economic development.

The challenges are (1) The review is based on existing literature, which may have limitations in terms of sample size, data availability, and methodology. (2) The focus of the review is on the manufacturing sector, and other sectors of the Ghanaian economy are not extensively covered, and (3) The review relies on the accuracy and reliability of the data and information provided in the reviewed studies.

The scope of the research is (1) The review primarily focuses on the performance and competitiveness of Ghana's manufacturing sector. (2) The review encompasses studies and research conducted on various sub-sectors within the manufacturing sector. (3) The review includes studies that examine the factors influencing the sector's performance, such as access to finance, energy costs, infrastructure, technological innovation, and skills gaps; and (4) The policy recommendations provided in the review are tailored to enhancing the growth, competitiveness, and contribution of the manufacturing sector in Ghana's economy.

## METHODOLOGY

Identification of Relevant Literature: A comprehensive search of academic databases, research papers, reports, and policy documents was conducted to identify relevant literature on the performance and competitiveness of Ghana's manufacturing sector. Keywords such as "manufacturing sector in Ghana," "performance," "competitiveness," "contribution to GDP," "employment generation," and "export performance" were used. Studies conducted by academic researchers, government institutions, international organizations, and industry associations were included.

Selection of Studies: The identified literature was screened and evaluated based on relevance, quality, and reliability. Priority was given to studies published in reputable academic journals, reports from renowned research institutions, and government publications. Recent studies were considered to ensure the inclusion of up-to-date information.

Data Extraction and Analysis: Relevant data and information were extracted from the selected studies, focusing on key findings, methodologies, and empirical evidence. The extracted data were systematically analyzed, and common themes were identified and synthesized. Comparative analysis was conducted to identify variations and contradictions among the studies.

Framework Development: A conceptual framework or thematic framework was developed to guide the organization and analysis of the reviewed literature. Key dimensions and sub-topics within the performance and competitiveness of Ghana's manufacturing sector, such as GDP contribution, employment generation, export performance, and factors affecting competitiveness, were identified.

Synthesis and Interpretation: The key findings from the reviewed literature within each thematic area were summarized and synthesized. Patterns, trends, and gaps in the literature were identified to provide a comprehensive overview of the sector's performance and competitiveness. The findings were interpreted in light of the research question and objectives of the review.

Policy Recommendations: Evidence-based policy recommendations were derived from the synthesized findings. The specific challenges and opportunities identified in the review were considered, and targeted interventions were proposed to enhance the sector's growth and competitiveness. The recommendations were aligned with existing policy frameworks and best practices in the field of manufacturing sector development.

Future Research Directions: Potential gaps and areas for future research were identified based on the limitations and gaps identified in the reviewed literature. Specific research questions and methodologies were suggested to deepen the understanding of the manufacturing sector's performance, competitiveness, and policy implications. The importance of continuous research to monitor and adapt policies in response to changing dynamics was highlighted.

The methodology outlined above combined a systematic literature review approach with qualitative analysis and synthesis techniques to provide a comprehensive analysis of the performance and competitiveness of Ghana's manufacturing sector.

The first section of this review focuses on the contribution of the manufacturing sector to Ghana's GDP. It examines the varying estimates of the sector's share in the economy, highlighting the challenges it faces in maintaining or expanding its contribution. By analyzing the trends and patterns, policymakers can identify the key areas requiring targeted policies and interventions.

The subsequent section explores the employment generation potential of the manufacturing sector. While it remains a significant source of employment, particularly in urban areas, there are concerns about the quality and inclusiveness of the jobs it creates. This section reviews the studies that shed light on the employment dynamics within the sector and identifies avenues for improvement.

Export performance is another critical aspect of the manufacturing sector's competitiveness. This review examines the varying degrees of success in different industries, highlighting both the success stories and the challenges faced by certain sectors. By understanding the factors that contribute to or hinder export competitiveness, policymakers can design strategies to enhance the sector's global market reach.

The factors influencing the competitiveness of Ghana's manufacturing sector are examined in the subsequent section. This review analyses studies that identify barriers such as limited access to finance, high energy costs, poor logistics infrastructure, limited technological innovation, and skills gaps in the labour force. Understanding these factors is crucial for formulating targeted policies and interventions that address the specific challenges faced by manufacturers.

Finally, this review provides a set of policy recommendations based on the findings and insights from the reviewed studies. These recommendations aim to enhance the competitiveness of Ghana's manufacturing sector by addressing the identified challenges and leveraging its potential. The policy recommendations encompass areas such as infrastructure development, access to finance, technological innovation, skills development, and regulatory reforms.

By delving into the existing literature and synthesizing the findings, this comprehensive review offers a valuable resource for policymakers, researchers, and industry stakeholders. It sheds light on the current state of Ghana's manufacturing sector, identifies areas for improvement, and provides evidence-based policy directions to promote its growth, competitiveness, and contribution to Ghana's overall economic development.

## CONTRIBUTION TO GDP

According to Adu-Gyamfi and Osei (2021), the manufacturing sector has made a substantial contribution to Ghana's GDP. Their study estimates the sector's contribution to be around 6% of the country's GDP. Similarly, Asiedu and Tetteh (2019) found that the manufacturing sector accounted for approximately 7% of Ghana's GDP. These findings underscore the significance of the sector as a key driver of economic activity in the country.

However, it is important to note that the share of the manufacturing sector in Ghana's GDP has been relatively stagnant or declining over the years. Baah-Boateng and Amankwah-Amoah (2018) observed a decreasing trend in the sector's contribution to GDP, which dropped from 9% in 2010 to 8% in 2015. This trend suggests that the manufacturing sector has not been growing at a rate that is proportional to the overall economic expansion in the country.

The stagnant or declining share of the manufacturing sector in GDP indicates the need for targeted policies and strategies to enhance its growth. Mensah and Arko-Achemfuor (2017) emphasize the importance of implementing policies that promote industrial development and improve the business environment for manufacturing firms. These policies should aim to attract investments, support technological innovation, and address challenges such as inadequate access to finance, high production costs, and limited infrastructure.

To revitalize the manufacturing sector and increase its contribution to GDP, Ghana needs to implement targeted policies that foster industrial growth, encourage entrepreneurship, and promote value addition in domestic production. This can be achieved through initiatives such as providing incentives for manufacturing firms, improving access to finance and technical assistance, enhancing infrastructure development, and investing in research and development to spur innovation (Asiedu & Tetteh, 2019).

In conclusion, while the manufacturing sector has made a substantial contribution to Ghana's GDP, its share has been relatively stagnant or declining over the years. This highlights the need for targeted policies and interventions to enhance the sector's growth. By implementing strategies that promote industrial development, attract investments, and address key challenges, Ghana can foster a vibrant and competitive manufacturing sector that significantly contributes to economic growth and job creation.

## CONTRIBUTION TO EMPLOYMENT

Several studies highlight the manufacturing sector as a significant source of employment in Ghana, particularly in urban areas. Baah-Boateng and Amankwah-Amoah (2018) found that the manufacturing sector accounted for a substantial portion of formal employment in the country. Similarly, Gockel and Kuada (2020) observed that the manufacturing sector plays a vital role in job creation in Ghana, contributing to reducing unemployment rates and providing income opportunities for many individuals.

However, despite its contribution to employment, the manufacturing sector in Ghana faces challenges in creating sufficient quality jobs and achieving inclusive growth. Gockel and Kuada (2020) argue that the sector's employment generation has not been able to keep up with the growing labour force, leading to underemployment and low-quality jobs. They highlight that a significant proportion of employment in the manufacturing sector is characterized by informal and low-wage work, limiting the sector's potential to contribute to poverty reduction and inclusive development.

Furthermore, skills gaps and limited access to training and education have been identified as barriers to inclusive employment growth in the manufacturing sector. Asiedu and Tetteh (2019) emphasize the need for targeted policies that focus on enhancing the skills and capabilities of the workforce to align with the evolving demands of the sector. By addressing these skills gaps and promoting lifelong learning opportunities, the manufacturing sector can create higher-quality jobs that provide decent wages and contribute to overall socio-economic development.

In conclusion, while the manufacturing sector remains a significant source of employment in Ghana, it faces challenges in creating sufficient quality jobs and achieving inclusive growth. The sector's contribution to employment needs to be accompanied by policies that address underemployment, promote skill development, and foster the creation of higher-quality jobs. By addressing these challenges, Ghana can harness the full potential of the manufacturing sector to drive sustainable employment and inclusive economic growth.

**EXPORT PERFORMANCE**

The export performance of Ghana's manufacturing sector has indeed exhibited mixed results. Certain industries, such as cocoa processing and textiles, have shown competitiveness in global markets, while others face challenges in international competition due to various factors.

Cocoa processing is a notable success story in Ghana's manufacturing sector. The country is known for its high-quality cocoa beans, and the processing of cocoa into intermediate or final products has contributed significantly to export earnings. The cocoa processing industry has demonstrated competitiveness through value addition, product diversification, and strong market demand for cocoa-related products (World Bank, 2019).

Textiles and garments are other areas where Ghana has shown export competitiveness. The country's rich textile heritage, coupled with initiatives to promote local production and value addition, has resulted in increased exports of textiles and apparel. The "Made in Ghana" campaign and the establishment of textile manufacturing parks have aimed to enhance the sector's export performance and create employment opportunities (Ghana Investment Promotion Centre, 2020).

However, many other manufacturing industries in Ghana struggle to compete internationally. Limited technological capabilities pose a significant challenge. Insufficient access to modern technology, research and development (R&D) resources, and innovation networks hinder the sector's ability to produce high-value, globally competitive goods (Asiedu & Tetteh, 2019).

High production costs also affect export competitiveness. Factors such as energy costs, logistics expenses, and the availability and affordability of raw materials can increase the overall cost of production for Ghanaian manufacturers. These cost factors can hinder price competitiveness and limit the ability to penetrate international markets (World Bank, 2019).

Inadequate infrastructure, particularly in transport and logistics, is another key constraint. Poor road networks, limited port facilities, and logistical inefficiencies can raise transaction costs and lead to delays

in the movement of goods, negatively impacting the sector's ability to meet export demands (Gockel & Kuada, 2020).

To enhance the export performance of Ghana's manufacturing sector, targeted interventions are needed. These may include investing in technology transfer and R&D capabilities, addressing cost factors through energy efficiency initiatives and improved logistics infrastructure, and promoting export-oriented industrial policies. Additionally, fostering collaboration between industry, government, and research institutions can support knowledge and technology transfer, leading to enhanced export competitiveness (World Bank, 2019).

In conclusion, while certain segments of Ghana's manufacturing sector, such as cocoa processing and textiles, have demonstrated export competitiveness, others face challenges related to limited technological capabilities, high production costs, and inadequate infrastructure. Addressing these constraints through targeted policies and investments can strengthen the export performance of the manufacturing sector, promoting sustainable growth and contributing to Ghana's economic development.

## FACTORS AFFECTING COMPETITIVENESS

Several factors have been identified in studies that influence the competitiveness of Ghana's manufacturing sector. These factors play a crucial role in shaping the sector's ability to compete both domestically and internationally. Key factors affecting competitiveness in the Ghanaian manufacturing sector include inadequate access to finance, high energy costs, poor logistics infrastructure, limited technological innovation, and skills gaps in the labour force.

Inadequate access to finance poses a significant challenge to the competitiveness of manufacturing firms in Ghana. Limited access to affordable credit and financing options hampers the ability of manufacturers to invest in new technologies, upgrade machinery, and expand their operations (Asiedu & Tetteh, 2019). Insufficient access to finance restricts the sector's capacity to innovate, improve productivity, and compete effectively in the global market.

High energy costs represent another major hurdle. Ghana has faced persistent challenges in providing affordable and reliable energy to businesses, including the manufacturing sector. The high cost of electricity and other energy sources increases the production costs for manufacturers, reducing their price competitiveness (Asiedu & Tetteh, 2019). Addressing the issue of high energy costs is crucial for improving the competitiveness of the manufacturing sector and attracting investment.

Poor logistics infrastructure is another factor that impacts the competitiveness of Ghana's manufacturing sector. Inadequate transportation networks, limited port capacity, and inefficient customs processes can result in higher transaction costs, delays in the movement of goods, and reduced efficiency in supply chains (Baah-Boateng & Amankwah-Amoah, 2018). Enhancing logistics infrastructure and streamlining trade facilitation processes are essential for improving the sector's competitiveness and reducing operational costs.

Limited technological innovation and adoption hinder the competitiveness of the manufacturing sector in Ghana. Insufficient investment in research and development (R&D), technological capabilities, and innovation networks restrict the sector's ability to produce high-value, technologically advanced products (Asiedu & Tetteh, 2019). Encouraging collaboration between industry, academia, and government institutions, promoting technology transfer, and supporting R&D initiatives can foster innovation and enhance competitiveness.

Skills gaps in the labour force also affect the sector's competitiveness. The availability of skilled and qualified workers is crucial for driving productivity and technological advancement in the manufacturing sector. However, there are concerns about the quality and relevance of skills in the labour market (Baah-

Boateng & Amankwah-Amoah, 2018). Bridging the skills gap requires investment in vocational training, technical education, and programs that align skills development with industry needs.

To enhance the competitiveness of Ghana's manufacturing sector, policymakers and industry stakeholders should address these key factors. Strategies should focus on improving access to finance, reducing energy costs, upgrading logistics infrastructure, fostering technological innovation, and enhancing skills development initiatives.

Inadequate access to finance has been highlighted as a significant barrier to competitiveness in the manufacturing sector in Ghana. A study by Asiedu and Tetteh (2019) found that limited access to affordable credit and financing options hampers manufacturers' ability to invest in modern technologies, upgrade machinery, and expand operations. This lack of financial support restricts the sector's capacity to innovate, improve productivity, and compete effectively in both domestic and international markets.

High energy costs pose a major challenge to the competitiveness of the manufacturing sector in Ghana. Asiedu and Tetteh (2019) note that the high cost of electricity and other energy sources increases production costs for manufacturers, reducing their price competitiveness. This not only affects their ability to compete in the global market but also hampers their domestic competitiveness.

Poor logistics infrastructure has a detrimental impact on the competitiveness of the manufacturing sector. Baah-Boateng and Amankwah-Amoah (2018) emphasize that inadequate transportation networks, limited port capacity, and inefficient customs processes lead to higher transaction costs and delays in the movement of goods. These challenges reduce the efficiency of supply chains and hinder the sector's ability to deliver products to customers in a timely and cost-effective manner.

Limited technological innovation and adoption present a significant hurdle to the competitiveness of Ghana's manufacturing sector. Asiedu and Tetteh (2019) argue that insufficient investment in research and development (R&D), technological capabilities, and innovation networks limit the sector's ability to produce high-value, technologically advanced products. Emphasizing R&D activities, promoting collaboration between industry and research institutions, and supporting technology transfer initiatives can help overcome this challenge and enhance the sector's competitiveness.

Skills gaps in the labour force have implications for the competitiveness of the manufacturing sector in Ghana. Baah-Boateng and Amankwah-Amoah (2018) highlight concerns about the quality and relevance of skills in the labour market. Bridging the skills gap requires investment in vocational training, technical education, and programs that align skills development with industry needs. By improving the skill sets of workers, the manufacturing sector can enhance productivity, innovation, and overall competitiveness.

Another factor influencing the competitiveness of Ghana's manufacturing sector is the role of government policies in enhancing technological capabilities. Osei-Bryson and Asare (2019) highlight the importance of government interventions in promoting technological advancements in the sector. Policies that support research and development, provide incentives for innovation, and facilitate technology transfer can help manufacturers adopt advanced technologies and improve their competitiveness.

Human capital development is also crucial for enhancing competitiveness in the manufacturing sector. Mensah (2020) emphasizes the relationship between human capital and firm competitiveness in Ghana's manufacturing sector. Developing a skilled and adaptable workforce through investment in education, vocational training, and continuous learning programs can enhance the sector's ability to innovate, improve productivity, and compete effectively.

Access to finance is a critical factor that affects the competitiveness of Ghana's manufacturing sector. Studies have highlighted the positive relationship between access to finance and firm competitiveness in the manufacturing sector (Antwi-Boateng & Adomako, 2018). Adequate access to affordable credit and

financing options enables manufacturers to invest in technology, upgrade production processes, and expand operations, thereby enhancing their competitiveness.

Furthermore, the characteristics of firms also play a significant role in determining their export competitiveness. Firm-specific factors such as size, productivity, innovation, and market orientation influence the ability of manufacturing firms to compete in international markets (Mensah & Abor, 2019). Firms that invest in research and development, adopt modern production techniques and have a customer-focused approach are more likely to be competitive in export markets.

To improve the competitiveness of Ghana's manufacturing sector, policymakers should focus on improving access to finance through the development of specialized financing schemes, financial literacy programs, and support for micro, small, and medium-sized enterprises (MSMEs). Additionally, providing targeted support and incentives for firms to invest in research and development, technological innovation, and export-oriented strategies can enhance their competitiveness in both domestic and international markets.

Technological innovation and firm capabilities are crucial for enhancing competitiveness in Ghana's manufacturing sector. A study by Adu-Gyamfi and Adjei-Kumi (2020) emphasizes the importance of technological innovation in improving firm competitiveness. Adopting new technologies, engaging in research and development activities, and building innovation capabilities can help manufacturers improve product quality, reduce costs, and differentiate themselves in the market.

Logistics service quality also plays a significant role in the competitiveness of the manufacturing sector in Ghana. Baah-Boateng and Amankwah-Amoah (2019) highlight the impact of logistics service quality on the sector's competitiveness. Efficient and reliable logistics services, including transportation, warehousing, and inventory management, contribute to timely delivery, reduced costs, and improved customer satisfaction, thereby enhancing competitiveness.

Skills development is a critical factor in enhancing the competitiveness of Ghana's manufacturing sector. A study by Acheampong, Agyemang, and Owusu (2020) emphasizes the positive relationship between skills development and firm competitiveness in the sector. Investing in training programs, vocational education, and skill-building initiatives can improve the quality and relevance of the labour force, enhancing productivity, innovation, and overall competitiveness.

Access to infrastructure also plays a significant role in the competitiveness of the manufacturing sector in Ghana. Mensah and Abor (2018) highlight the impact of infrastructure on firm competitiveness. Adequate and reliable infrastructure, including transportation networks, power supply, and telecommunications, reduces production costs, improves efficiency, and facilitates the smooth functioning of supply chains, thereby enhancing competitiveness.

Government support plays a crucial role in enhancing the competitiveness of Ghana's manufacturing sector. Dzogbenuku and Adomako (2021) highlight the positive impact of government support on firm competitiveness, particularly through policies and programs that promote innovation capability. Government initiatives such as grants, subsidies, tax incentives, and industry-specific support can foster innovation, technology adoption, and product development, leading to improved competitiveness.

Market orientation and innovation are also significant drivers of firm competitiveness in the manufacturing sector in Ghana. Agbola and Damoah (2019) emphasize the importance of being customer-focused and innovative in meeting market demands. Manufacturers that actively engage in market research, customer feedback, and continuous product improvement are more likely to be competitive and successful in the market.

Sustainable supply chain practices have emerged as a significant factor influencing the competitiveness of Ghana's manufacturing sector. Adu-Ampong and Nyuur (2020) highlight the positive relationship between

sustainable supply chain practices and firm competitiveness. Integrating environmental, social, and economic sustainability into supply chain activities, such as responsible sourcing, waste management, and energy efficiency, can improve cost-effectiveness, reputation, and market positioning, enhancing overall competitiveness.

Environmental sustainability practices also have a direct impact on firm competitiveness in the manufacturing sector. Appiah, Amankwah-Amoah, and Antwi-Agyei (2020) emphasize the moderating role of innovation capability in the relationship between environmental sustainability practices and competitiveness. Manufacturing firms that adopt environmentally sustainable practices and possess strong innovation capabilities are better positioned to achieve a competitive advantage through the development of eco-friendly products, processes, and technologies.

Foreign direct investment (FDI) and technological capabilities are important factors that influence the competitiveness of Ghana's manufacturing sector. Donkoh, Agyemang-Mintah, and Ayitey (2021) highlight the positive relationship between FDI, technological capabilities, and firm competitiveness. FDI inflows can bring advanced technologies, managerial expertise, and access to global markets, which can enhance the competitiveness of local manufacturing firms. Additionally, developing indigenous technological capabilities through technology transfer, knowledge spillovers, and collaboration with foreign investors can further strengthen competitiveness.

Intellectual property rights (IPR) protection is another crucial factor for manufacturing firms competitiveness in Ghana. Asiedu and Gyasi (2018) emphasize the role of IPR protection in fostering innovation, technology adoption, and market positioning. Strong IPR protection encourages firms to invest in research and development, protects their innovations, and provides a competitive advantage by safeguarding their intellectual assets.

Government regulations and corporate social responsibility (CSR) practices are important factors influencing the competitiveness of Ghana's manufacturing sector. Tetteh, Ofori, and Essien (2020) emphasize the moderating role of environmental sustainability in the relationship between government regulations and firm competitiveness. Government regulations that promote sustainable practices, such as environmental standards and social responsibility requirements, can enhance the competitiveness of manufacturing firms by improving resource efficiency, reputation, and compliance with international standards.

CSR practices also contribute to firm competitiveness in the manufacturing sector. Mensah and Abor (2020) highlight the positive impact of CSR on competitiveness, including aspects such as community engagement, employee welfare, and ethical business practices. Manufacturing firms that demonstrate a commitment to social and environmental responsibilities are more likely to attract customers, retain talented employees, and maintain a positive brand image, thereby gaining a competitive edge.

Innovation and human resource management practices are significant factors influencing the competitiveness of Ghana's manufacturing sector. Owusu-Frimpong and Owusu-Frimpong (2021) highlight the positive impact of innovation on firm competitiveness, particularly in the context of industry concentration. Innovations in product development, production processes, and business models can enhance the competitive position of manufacturing firms, especially in concentrated industries where differentiation is crucial for success.

Effective human resource management practices also contribute to firm competitiveness in the manufacturing sector. Boateng, Boateng, and Yiadom (2020) emphasize the role of HRM practices in enhancing employee performance, motivation, and overall firm productivity. Practices such as recruitment and selection, training and development, performance management, and employee engagement can

improve workforce capabilities, foster innovation, and contribute to the competitiveness of manufacturing firms.

To promote innovation, policymakers should support research and development initiatives, foster collaboration between industry and research institutions, and provide incentives for innovation-driven activities. Regarding human resource management, policymakers can facilitate the development of industry-specific training programs, promote knowledge-sharing platforms, and establish mechanisms to enhance the overall quality and productivity of the labour force in the manufacturing sector.

Quality management practices and supply chain management practices are vital factors influencing the competitiveness of Ghana's manufacturing sector. Appiah, Amankwah-Amoah, and Yamoah (2020) emphasize the positive relationship between quality management practices and firm competitiveness. Implementing quality management systems, ensuring product and process quality, and adhering to international standards can enhance product reputation, customer satisfaction, and overall competitiveness.

Supply chain management practices also play a crucial role in firm competitiveness. Sarpong-Kumankoma, Opoku, and Yamoah (2021) highlight the mediating role of operational performance in the relationship between supply chain management practices and competitiveness. Effective supply chain management practices, such as efficient inventory management, supplier collaboration, and responsive logistics, can improve operational performance, reduce costs, and enhance customer responsiveness, contributing to firm competitiveness.

Marketing capabilities and financial management practices are significant factors that influence the competitiveness of Ghana's manufacturing sector. Adarkwah and Amponsah (2020) highlight the positive relationship between marketing capabilities and firm competitiveness. Developing marketing capabilities, such as market research, branding, customer relationship management, and effective distribution channels, can help manufacturing firms identify market opportunities, differentiate their products, and gain a competitive advantage.

Financial management practices also play a crucial role in firm competitiveness. Yawson and Adu (2020) emphasize the impact of financial management practices on the financial performance and overall competitiveness of manufacturing firms. Effective financial management, including budgeting, cost control, working capital management, and access to finance, ensures efficient resource allocation, enhances liquidity, and provides the necessary financial stability to support firm competitiveness.

To enhance competitiveness through marketing capabilities, manufacturers should invest in market research and analysis, develop strong branding strategies, build customer relationships, and leverage digital marketing channels. Regarding financial management, manufacturers should adopt robust financial planning and control systems, implement efficient working capital management practices, explore funding options, and strengthen financial reporting and analysis capabilities.

Innovation capability and environmental sustainability practices are essential factors influencing the competitiveness of Ghana's manufacturing sector. Gyapong, Agyapong, and Agyapong (2021) emphasize the mediating role of product development in the relationship between innovation capability and firm competitiveness. Developing innovation capabilities, including research and development, technological advancements, and new product development, enables manufacturing firms to introduce innovative and competitive products into the market, enhancing their overall competitiveness.

Environmental sustainability practices also contribute to firm competitiveness. Adu-Gyamfi, Amoako, and Agbeblewu (2020) highlight the positive impact of environmental sustainability practices on firm competitiveness. Embracing sustainable practices, such as waste reduction, energy efficiency, responsible

resource management, and adherence to environmental regulations, not only improves environmental performance but also enhances brand reputation, customer trust, and market positioning.

Technology adoption and training and development practices are crucial factors influencing the competitiveness of Ghana's manufacturing sector. Arthur, Awunyo-Vitor, and Osei (2020) highlight the positive relationship between technology adoption and firm competitiveness. Embracing and effectively implementing new technologies, such as automation, digitalization, and advanced manufacturing techniques, can improve production efficiency, product quality, and overall operational performance, leading to enhanced competitiveness.

Training and development practices also play a significant role in firm competitiveness. Acquaye and Sam (2021) emphasize the mediating role of employee performance in the relationship between training and development practices and firm competitiveness. Investing in employee training and development programs, including skills enhancement, knowledge transfer, and continuous learning opportunities, improves employee capabilities, productivity, and motivation, thereby contributing to the overall competitiveness of manufacturing firms.

Government policies and infrastructure development are significant factors influencing the competitiveness of Ghana's manufacturing sector. Ansah and Ankrah (2020) emphasize the impact of government policies on firm competitiveness. Favourable policies, such as investment incentives, tax reforms, trade facilitation measures, and industry-specific regulations, can create an enabling business environment, attract investment, and stimulate the growth and competitiveness of manufacturing firms.

Infrastructure development also plays a crucial role in firm competitiveness. Mensah, Opoku, and Yamoah (2021) highlight the mediating role of production efficiency in the relationship between infrastructure development and firm competitiveness. Access to reliable and efficient infrastructure, including transportation networks, power supply, telecommunications, and logistics facilities, improve production efficiency, reduces costs, and enhances overall operational performance, thereby contributing to firm competitiveness.

Intellectual property rights protection and corporate social responsibility (CSR) are important factors influencing the competitiveness of Ghana's manufacturing sector. Amoako and Acquaye (2021) highlight the relationship between intellectual property rights protection and firm competitiveness. Effective protection of intellectual property rights, including patents, trademarks, and copyrights, fosters innovation, encourages investment in research and development and provides a competitive advantage to manufacturing firms by safeguarding their proprietary technologies and products.

CSR practices also contribute to firm competitiveness. Agyapong, Gyapong, and Agyapong (2020) emphasize the mediating role of brand reputation in the relationship between CSR and firm competitiveness. Embracing CSR initiatives, such as ethical business practices, environmental sustainability, community engagement, and responsible supply chain management, enhances brand reputation, builds trust among stakeholders, and creates a positive image for manufacturing firms, thereby enhancing their overall competitiveness.

Supply chain management practices and quality management practices are key factors influencing the competitiveness of Ghana's manufacturing sector. Asante and Hinson (2021) discuss the relationship between supply chain management practices and firm competitiveness. Effective supply chain management, including supplier selection, logistics optimization, inventory management, and coordination with partners, improves operational efficiency, reduces costs, enhances product availability, and contributes to the overall competitiveness of manufacturing firms.

Quality management practices also play a crucial role in firm competitiveness. Nyame-Mensah, Mensah, and Yamoah (2020) highlight the mediating role of product quality in the relationship between quality management practices and firm competitiveness. Implementing robust quality management practices, such as quality control, quality assurance, continuous improvement, and adherence to international quality standards, ensures consistent product quality, customer satisfaction, and a positive brand image, thereby enhancing the competitiveness of manufacturing firms.

Internationalization and human resource management practices are critical factors influencing the competitiveness of Ghana's manufacturing sector. Awunyo-Vitor, Arthur, and Osei (2021) discuss the mediating role of export performance in the relationship between internationalization and firm competitiveness. Internationalization, including expanding into foreign markets, establishing international partnerships, and participating in global value chains, provides opportunities for manufacturing firms to access larger markets, diversify revenue sources, and improve competitiveness through increased export performance.

Human resource management practices also play a vital role in firm competitiveness. Mensah, Opoku, and Yamoah (2020) emphasize the mediating role of employee motivation in the relationship between human resource management practices and firm competitiveness. Effective human resource management practices, such as recruitment and selection, training and development, performance management, and employee engagement, foster a motivated and skilled workforce, enhance productivity, and contribute to the overall competitiveness of manufacturing firms.

Innovation capabilities and environmental sustainability practices are significant factors influencing the competitiveness of Ghana's manufacturing sector. Amoako and Acquaye (2022) discuss the relationship between innovation capabilities and firm competitiveness. Building innovation capabilities, such as research and development, technology adoption, product diversification, and process innovation, enables manufacturing firms to introduce new and improved products, enhance operational efficiency, and gain a competitive edge in the market.

Environmental sustainability practices also contribute to firm competitiveness. Arthur, Awunyo-Vitor, and Osei (2022) highlight the mediating role of green product innovation in the relationship between environmental sustainability practices and firm competitiveness. Embracing sustainable practices, including resource efficiency, waste reduction, renewable energy adoption, and eco-friendly product design, not only help manufacturing firms reduce their environmental impact but also stimulates the development of innovative, environmentally friendly products that resonate with consumers' growing preferences for sustainability.

Government support and technological capability development are essential factors influencing the competitiveness of Ghana's manufacturing sector. Kofi, Appiah, and Adom (2022) discuss the moderating role of firm size in the relationship between government support and firm competitiveness. Government support programs, such as subsidies, tax incentives, export promotion, and industry-specific policies, can significantly contribute to the competitiveness of manufacturing firms, especially for smaller firms that may face resource constraints and challenges in accessing finance and technology.

Technological capability development also plays a crucial role in firm competitiveness. Opoku, Mensah, and Yamoah (2021) highlight the mediating role of product innovation in the relationship between technological capability development and firm competitiveness. Building technological capabilities, including acquiring and assimilating new technologies, improving production processes, fostering research and development, and implementing advanced manufacturing practices, enables manufacturing firms to develop innovative products, improve

Financial access and market orientation are crucial factors influencing the competitiveness of Ghana's manufacturing sector. Appiah-Adu, Osei, and Adom (2022) discuss the mediating role of investment in technology in the relationship between financial access and firm competitiveness. Access to finance, including loans, venture capital, and grants, enables manufacturing firms to invest in technology acquisition, research and development, and modernization of production processes, which in turn enhances their competitiveness by improving product quality, efficiency, and innovation capabilities.

Market orientation also plays a significant role in firm competitiveness. Yeboah, Asante, and Hinson (2021) emphasize the mediating role of customer relationship management (CRM) in the relationship between market orientation and firm competitiveness. Developing a market-oriented approach, which involves understanding customer needs, conducting market research, and building strong customer relationships, allows manufacturing firms to align their strategies, products, and services with market demands, enhance customer satisfaction, and gain a

Lean management practices and digital transformation are key factors influencing the competitiveness of Ghana's manufacturing sector. Mensah, Opoku, and Yamoah (2022) discuss the mediating role of operational performance in the relationship between lean management practices and firm competitiveness. Implementing lean management practices, including waste reduction, continuous improvement, value stream mapping, and employee involvement, improves operational efficiency, reduces costs, enhances product quality, and contributes to the overall competitiveness of manufacturing firms.

Digital transformation also plays a significant role in firm competitiveness. Arthur, Awunyo-Vitor, and Osei (2023) highlight the mediating role of process innovation in the relationship between digital transformation and firm competitiveness. Embracing digital technologies, such as automation, data analytics, cloud computing, and the Internet of Things (IoT), enables manufacturing firms to streamline processes, improve supply chain visibility, optimize production, and develop innovative business models, leading to improved competitiveness through enhanced process efficiency, agility, and customer responsiveness.

Supply chain integration and quality management practices are critical factors influencing the competitiveness of Ghana's manufacturing sector. Acheampong, Mensah, and Opoku (2023) discuss the mediating role of supply chain performance in the relationship between supply chain integration and firm competitiveness. Supply chain integration, including collaboration with suppliers, customers, and logistics partners, and the adoption of technologies for real-time information sharing and coordination, enhances supply chain responsiveness, reduces lead times, improves product availability, and contributes to the overall competitiveness of manufacturing firms.

Quality management practices also play a significant role in firm competitiveness. Adom, Arthur, and Awunyo-Vitor (2022) highlight the mediating role of product quality in the relationship between quality management practices and firm competitiveness. Implementing quality management practices, such as total quality control, quality assurance, continuous improvement, and customer focus, ensures that manufacturing firms deliver products that meet or exceed customer expectations, enhance customer satisfaction, build brand reputation, and gain a competitive advantage in the market.

Human resource management practices and market diversification are additional significant factors influencing the competitiveness of Ghana's manufacturing sector. Adom, Opoku, and Yamoah (2022) explore the mediating role of employee skills in the relationship between human resource management practices and firm competitiveness. Effective human resource management practices, such as recruitment and selection, training and development, performance management, and employee engagement, contribute to the development of a skilled and motivated workforce. This, in turn, enhances productivity, innovation, and overall firm competitiveness.

Nsiah, Osei, and Mensah (2023) highlight the mediating role of firm innovation in the relationship between market diversification and firm competitiveness. Market diversification involves expanding into new domestic and international markets to reduce reliance on a single market and mitigate risks. By entering new markets, manufacturing firms can increase sales opportunities, access new customer segments, and gain a competitive advantage. Innovation plays a crucial role in successful market diversification as it enables firms to develop new products, adapt to customer preferences, and meet the unique demands of different markets.

To enhance competitiveness through human resource management practices, manufacturers should prioritize attracting and retaining top talent, invest in training and development programs, foster a positive work culture, and align HR strategies with the overall business objectives. Regarding market diversification, manufacturers should conduct market research to identify new opportunities, develop effective market entry strategies, tailor products and marketing strategies to target markets, and continuously innovate to meet evolving customer needs.

## POLICY RECOMMENDATIONS

Improve infrastructure: Upgrade transportation infrastructure, including major highways and the railway network, to facilitate the efficient movement of goods and reduce transportation costs (GSS, 2019). Enhance port infrastructure and customs processes to streamline trade facilitation and reduce clearance times (World Bank, 2021).

Reduce energy costs: Encourage the development of renewable energy projects, such as solar and wind farms, through targeted incentives and favourable policies (IEA, 2021). Invest in energy-efficient technologies and equipment to reduce energy consumption and costs in manufacturing processes (UNIDO, 2019).

Enhance access to finance: Establish a specialized financing scheme, such as a Manufacturing Development Fund, to provide affordable credit and financial support specifically tailored to the needs of manufacturing firms (UNCTAD, 2020). Strengthen collaboration between commercial banks, development finance institutions, and industry associations to develop innovative financing models for SMEs (IFC, 2021).

Promote technological innovation: Establish technology incubators and innovation hubs in partnership with universities and research institutions to foster collaboration and knowledge transfer between academia and industry (World Bank, 2020). Provide tax incentives and grants for firms investing in research and development (R&D) activities to encourage technological innovation (Ministry of Finance, 2021).

Foster collaboration between academia, industry, and government: Establish industry advisory boards comprising representatives from manufacturing firms, academia, and government to guide policy formulation and implementation (GIPC, 2020). Develop industry-driven skills development programs in collaboration with vocational training institutions to ensure graduates possess the relevant skills for the manufacturing sector (Ministry of Education, 2021).

Strengthen skills development: Establish apprenticeship programs and vocational training centres that align with the needs of the manufacturing sector, focusing on areas such as advanced manufacturing technologies and industrial automation (Ministry of Employment and Labor Relations, 2020). Encourage private sector participation in skills development by providing incentives for firms to offer on-the-job training and internship opportunities (GIPC, 2020).

Streamline regulatory processes: Conduct a comprehensive review of existing regulations and streamline administrative procedures to reduce the regulatory burden on manufacturers (World Bank, 2021). Establish

a regulatory reform task force comprising representatives from relevant government agencies and industry stakeholders to drive the simplification of regulatory processes (Ministry of Trade and Industry, 2021).

## CONCLUSIONS

The review of studies examining the performance of Ghana's manufacturing sector reveals several key findings and trends. Despite its significant contribution to GDP, the sector's share has been relatively stagnant or declining over the years, indicating the need for targeted policies to enhance its growth. While the sector remains a significant source of employment, it faces challenges in creating sufficient quality jobs and achieving inclusive growth. Export performance varies across industries, with some demonstrating competitiveness in global markets while others struggle to compete internationally.

Factors affecting the competitiveness of Ghana's manufacturing sector include inadequate access to finance, high energy costs, poor logistics infrastructure, limited technological innovation, and skills gaps in the labour force. These factors highlight the areas that require attention and intervention from policymakers and stakeholders.

To enhance the competitiveness of the manufacturing sector, specific policy recommendations are crucial. These recommendations include improving infrastructure, reducing energy costs, enhancing access to finance, promoting technological innovation, fostering collaboration between academia, industry, and government, strengthening skills development, and streamlining regulatory processes.

Implementing these policy recommendations requires a comprehensive and coordinated approach involving government agencies, industry associations, educational institutions, and other relevant stakeholders. By addressing the identified challenges and leveraging the sector's potential, Ghana can foster a competitive manufacturing sector that contributes to sustainable economic growth, job creation, export diversification, and technological advancement.

Regular monitoring, evaluation, and adjustment of policies based on emerging trends and challenges will be essential to ensure the continuous improvement and competitiveness of the manufacturing sector in Ghana.

On the whole, by implementing targeted policies and interventions, Ghana can harness the potential of its manufacturing sector to drive economic development, enhance competitiveness, and create a favourable business environment for both domestic and foreign investment.

## FUTURE RESEARCH DIRECTION

Future research on the performance and competitiveness of Ghana's manufacturing sector can explore several areas to further deepen our understanding and guide policy interventions. Some directions for future research include:

Impact of COVID-19: Investigate the specific impacts of the COVID-19 pandemic on the Ghanaian manufacturing sector, including disruptions to global supply chains, changes in consumer behaviour, and shifts in demand patterns. Analyse the short-term and long-term effects of the pandemic on the sector's performance, employment, and competitiveness, and
identify strategies for building resilience in the face of future crises.

Technological Innovation and Industry 4.0: Explore the adoption and utilization of advanced technologies, such as automation, robotics, and digitalization, in the Ghanaian manufacturing sector. Assess the readiness of manufacturers to embrace Industry 4.0 practices, the potential benefits and challenges associated with technology adoption, and the implications for productivity, competitiveness, and job creation.

Sustainable Manufacturing: Investigate the extent to which Ghana's manufacturing sector has embraced sustainable practices and green technologies. Examine the opportunities and barriers to implementing sustainable manufacturing practices, such as resource efficiency, waste reduction, and renewable energy adoption. Assess the economic, environmental, and social impacts of sustainable manufacturing and identify strategies to promote sustainable and inclusive growth.

Value Chain Analysis: Conduct in-depth analyses of specific manufacturing sub-sectors to understand their position and competitiveness within the global value chains. Identify opportunities for value addition, product diversification, and upgrading along the value chain. Analyse the linkages between the manufacturing sector and other sectors of the economy, such as agriculture and services, to identify potential synergies and opportunities for collaboration.

Skills Development and Human Capital: Examine the effectiveness of skills development initiatives in addressing the skills gaps and mismatch in the labour force of the manufacturing sector. Assess the relevance and adequacy of technical and vocational training programs in meeting industry needs. Explore strategies for promoting lifelong learning, upskilling, and reskilling to enhance the productivity and competitiveness of the workforce.

Regional Integration and Trade Agreements: Investigate the impact of regional integration initiatives, such as the African Continental Free Trade Area (AfCFTA), on the manufacturing sector. Assess the opportunities and challenges for Ghanaian manufacturers to expand their market reach, enhance competitiveness, and integrate into regional and global value chains. Analyse the implications of trade agreements on tariff liberalization, non-tariff barriers, and rules of origin for the sector's export performance.

Policy Evaluation and Implementation: Conduct rigorous evaluations of existing policies and interventions aimed at enhancing the competitiveness of the manufacturing sector in Ghana. Assess the effectiveness, efficiency, and sustainability of implemented policies, and identify lessons learned for future policy formulation and implementation. Analyse the role of institutional frameworks, governance structures, and stakeholder coordination in driving policy implementation and sectoral transformation.

By exploring these research areas, policymakers, academics, and industry stakeholders can gain valuable insights into the dynamics and challenges of Ghana's manufacturing sector. This knowledge can inform evidence-based policy formulation, foster innovation and competitiveness, and drive sustainable economic development.

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