Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 4 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189

http://amresearchreview.com/index.php/Journal/about

# To gauge critical significance of advanced manufacturing industries on economic contribution in Saudi and American market

**Jahanzaib Abdul Sajid (Corresponding Author)**
MBA Finance, Department of business Administration, Virtual University of Pakistan. Email - jazzykhan011@gmail.com

**Sarmad Ansari**
MS (SZABIST), MBA (Greenwich University).
Email: sarmadansarivisa@gmail.com

**Mohammad Nawaz**
Department of Science, Jamiya Milia College, Karachi, Pakistan
Email: mohammadnawaz994@yahoo.com

## ABSTRACT

In this paper, the contribution of advanced manufacturing industries to the economic development and competitiveness of the United States and Saudi Arabia are assessed in a quantitative manner relying on the latest data (2020-2026). The findings indicate that manufacturing comprises approximately 9.5 per cent of the GDP in the United States and the overall output is approximately 2.95 trillion and Saudi Arabia has a greater relative contribution of 15.57 per cent, which demonstrates that the country has been diversifying. According to an employment study, manufacturing occupies 8.4 percent of total number of employees in the United States (approximately 12.6 million employees) and 7.1 percent in Saudi Arabia and unemployment in Saudi Arabia is gradually declining at a rate of about 3.5 percent. The United States has a technological gap in that high-tech manufacturing constitutes 41% of total manufacturing as compared to 18% in Saudi Arabia. Similarly, in the US, the R&D expenditure is 3.5% GDP that is way higher than Saudi Arabian expenditure of 0.9 indicating a more powerful capability to innovate. Manufactured goods are approximately 62 percent of total exports of the United States in export statistics as compared to Saudi Arabia which is at a lower 24 percent as it is an oil dependent country. The trends in industrial growth also indicate that the United States has a modest growth rate of 0.5% as compared to the high rate of 8.9% in Saudi Arabia, which indicates high industrial growth. Overall, the results of the research suggest that high-technology manufacturing is one of the effective methods to enhance productivity, create jobs, and make a country competitive, and the United States is technologically developed, but Saudi Arabia has a large growth potential because of the diversification policies.

Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 4 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189

http://amresearchreview.com/index.php/Journal/about

**Keywords—** United States, Saudi Arabia: High Tech Manufacturing, Economic Growth, Manufacturing Competitiveness, Employment, Research and Development, Economic Diversification, Supply Chain Resilience**.**

## 1. Introduction

Advanced manufacturing industries have become a key catalyst of economic transformation in the developed and emerging economies. The modern world system has seen nations like the United States and Saudi Arabia focusing more on advanced manufacturing as a strategic means to increase their economic competitiveness, decrease reliance on traditional industries and encourage sustainable development. They are radically transforming these sectors, both in terms of the introduction of automations, artificial intelligence, robotics, and production systems of high precision engineered products, and in changing the global value chains and production systems (Alkandi, 2025).

The recent trade and industrial statistics and the results of Trading Economics indicate that high-value sectors such as machinery, electronics, vehicles and pharmaceuticals dictate the composition of imports and production of the United States and, therefore, the nation is very dependent on technologically-intensive production environments. This structure restates the value of high-level production as a not only production mechanism but also as an important means of trade competitiveness and industrial might.

In the US, the trend of reshoring manufacturing power, particularly in semiconductor fabrication and strategic supply chains, is echoed in the policy frameworks, such as the CHIPS and Science Act. These include complex multi-billion-dollar funding deals that combine federal subsidies, tax credits and spending of private money. This huge industrial investment helps to strengthen the national production scale, enhance national security and generate many jobs. It is noteworthy that the multiplier effects of infrastructure investments and manufacturing investments are large and their ability to generate a large number of employment opportunities and spillover impacts on other related industries are immense (Osei et al., 2025).

Conversely, the Saudi Vision 2030 that seeks to diversify Saudi Arabia economy by avoiding reliance on oil but enhancing sophisticated manufacturing, localizing supply chain, and foreign direct investment, informs the industrial transformation of Saudi Arabia. To become a competitive manufacturing hub in the Middle East, the Kingdom is also making huge investments in industrial clusters, smart factories and technology-based systems of production. This displacement will most probably result in high-skilled employment among the locals and the increase of the level of productivity and innovativeness (Alfalih, 2024).

The effect of advanced manufacturing on the economy is not confined to the contribution of direct output only. It drives productivity growth through streamlining of the processes, promotes innovation through investment in research and development and the resiliency of the supply chain. In addition, it enables countries to climb the global value chain, by specializing in high value and knowledge-based production. Sustainability is also important, since the latest manufacturing technologies minimize the amount of waste material and energy, which help to harmonize growth of industries

Online ISSN 3007-3197
Print ISSN 3007-3189
http://amresearchreview.com/index.php/Journal/about

with environmental concerns (Singh et al., 2024).

In this paper, therefore, the contribution of developed manufacturing sectors to the economic growth and competitiveness in United States and Saudi Arabia will be critically evaluated. Specific attention is given to the development of new industries, employment of local communities, and the financial processes of the large-scale manufacturing projects, in particular, in the context of the U.S. setting. This paper will attempt to provide detailed commentary on the way in which advanced manufacturing is a source of sustainable economic transformation and international competitiveness, by taking into account the above dimensions (Larabi, 2025).

### 1.1 Problem Statement and Research Gap

The high-technology production has become a core of economic competitiveness in the world economy, but there are immense disparities in capacity of countries to utilize this sector to bring about sustainable economic growth. Despite the United States establishing a strong base of high-value manufacturing industries such as semiconductors, aerospace and high-value electronics, it continues to grapple with vulnerability of the supply chain, dependence on offshoring and complexity of finance of large industrial activities. Even though the policy interventions such as the CHIPS and the Science Act have been implemented, it remains necessary to comprehend how the advanced manufacturing financing frameworks directly impact on job creation, industrial reshoring, and economic resilience in the long-run (Hejazi & Habani, 2024). On the other hand, Saudi Arabia remains in the transitional phase and tries to diversify its economy that is oil-dependent with such programs as Saudi Vision 2030. Although the industrial development is hugely being invested in, there is a paucity of empirical evidence regarding the role of advanced manufacturing in creating employment in the locality, innovation potential and competitiveness of the emerging markets (Wiredu et al., 2025).

The existing literature is largely that of either developed or developing economies individually: little is done to compare economies of different levels through maturity of the industrial revolution. Moreover, the financial tools (semiconductor fabrication investments, supply chain localization and public-private partnerships) that underpin advanced manufacturing growth are not critically examined. The relationship between large scale manufacturing investments and the multiplier effects in job creation in them has also been done little.

Thus, the current research will fill an important research gap by providing comparative analysis of the economic role of advanced manufacturing sectors in the United States and Saudi Arabia, especially in terms of the economic competitiveness, employment of local citizens, and the development of the financing systems of advanced manufacturing.

### 1.2 Research Questions

The research questions in this research include:

1. What is the role of advanced manufacturing industries in economic development and competitiveness in the United States and Saudi Arabia?
2. How has advanced manufacturing affected employment (especially to locals) in

Online ISSN 3007-3197
Print ISSN 3007-3189



the two economies?

3. What role do financial mechanisms, such as financing of big-scale industrial projects and government support play in the development of advanced manufacturing industries?

### 1.3 Research Objectives

The primary purpose of the study is to critically analyze the contribution of advanced manufacturing industries in the economic growth and competitiveness in the United States and Saudi Arabia.

The particular aims are:

- To explore the role of advanced manufacturing industries in the world in terms of economic growth and competitiveness.
- To investigate the process of the advanced manufacturing producing high-skilled jobs to the local populations.
- To assess the influence of financial structures, such as government policies and the private investment, on the development of the advanced manufacturing, especially in the United States.

### 1.4 Significance of the Study

The study is highly academic and practical as it provides a comprehensive account of how advanced manufacturing industries affect the economic development in the developed and developing economies. Focusing on the United States and Saudi Arabia, the research is valuable in offering some comparative data regarding different industrial policies, policy frameworks and economic performance (Al-Somali et al., 2024).

At the policy level, the findings of this research may help governments and policy makers to come up with effective industrial strategies that would enable them to improve on their competitiveness, innovation and sustainable development. In particular, the analysis of the role of such programs as the CHIPS and the Science Act and Saudi Vision 2030 may assist in planning how to invest in the population most effectively and encourage the participation of the private sector.

At the economic level, the paper states that the high level manufacturing financing including semiconductor fabrication programs and supply chain localization are important in the scale industrial development. It also highlights that such investments have the potential of creating jobs, which is very vital in dealing with unemployment and improvement of skills in the workforce.

This study adds to the current body of knowledge in the academic field by filling the gaps in the comparative analysis, finances structure, and employment effect of advanced manufacturing. It provides a foundation through which more research may be undertaken on the subject of industrial change, diversification of economies and how the role of industries as technology-driven is changing to the global economies (Almutairi, 2024).

## 2. Literature Review

Al-Somali et al. (2024) test the potential of organizational cybersecurity systems to enhance sustainable business performance in Saudi Arabian SMEs. The study notes that

Online ISSN 3007-3197
Print ISSN 3007-3189



technological infrastructure and particularly cybersecurity resilience is a major determinant in continuity of operations and trust in digitalized manufacturing environments. The advanced manufacturing landscape of automation and interconnection is a major building block to economic competitiveness, and cybersecurity is a key element. This is specifically true of the economies such as Saudi Arabia, which centre the digital transformation on the industrial diversification policies. The findings suggest that the presence of effective cybersecurity policies is not only effective in protecting the industrial systems, but also in economic sustainability and productivity in the long-term.

Wiredu et al. (2025) learn the relation between the strategies of the circular economy and the board capital and innovation capacity in creating sustainable development in emerging markets. The outcome of their findings is centered around the fact that innovation-oriented governance systems can effectively offer companies the expertise of adopting contemporary manufacturing methods. The study aligns with the general economic perspective that developed manufacturing creates efficiency of resources, waste elimination as well as sustainable growth of the industry. The principles of the circular economy and high-tech production are likely to make economies more competitive and contribute to the achievement of environmental objectives in diversifying economies, such as Saudi Arabia.

Hejazi and Habani (2024)explore the effects of green supply chain integration on the business performance of Saudi manufacturing industry. The analysis indicates that resilience in supply chain and innovation are important mediators in improving the performance of firms. Manufacturing sectors such as semiconductors and electronics are high-tech industries, which rely heavily on efficient and strong supply chains. The findings can be transferred to the United States where the latest turmoil has highlighted the need to have localized and technologically advanced supply chains. This justifies the fact that, advanced manufacturing does not only boost productivity, but also national economic resilience.

Larabi (2025) examines how resource orientation, technological innovation and strategic flexibility contributes to firm performance. The research underlines that companies that use cutting-edge technologies and are flexible enough to adjust to market dynamics and global competition are in a better position to react to shifts in the market and competition. This is especially important in high-technology industries where there is a constant change of technology, and one has to adapt to that. In the case of the United States as well as Saudi Arabia, strategic flexibility and innovation plays a pivotal role in the creation of new industries and their competitiveness in the global arena.

Singh et al. (2024) is about the potential of additive manufacturing to increase supply chain resilience and sustainability. The paper describes a strategic integration model, which demonstrates how 3D printing (and other technologies) can reduce the cost of production, waste, and enable localization production. These are the capabilities that are vital as far as reshoring projects in the United States are concerned which is providing high level manufacturing as a way of reducing reliance on international manufacturing. Additionally, additive manufacturing is also helping in the creation of employment in the high skills sectors which also aid in the growth of the economy.

Online ISSN 3007-3197
Print ISSN 3007-3189



Alfalih (2024) investigates the relationship between foreign direct investment, unemployment rate and oil prices in Saudi Arabia. The results show that economic changes in the price of oil have a great influence on the level of employment which will mean that the economies that are dependent on oil are vulnerable. This underscores the importance of high-level production as one of the diversification policies in Saudi Vision 2030. By developing high value production sectors, Saudi Arabia will have the capability of reducing the unemployment rate and creating consistent, highly skilled jobs to the locals.

Osei et al. (2025) discuss the contribution of governance and financial strategies and technological innovation to the development of sustainable production in key economies, such as the United States. The research points out that availability of finance and efficient governance systems are indispensable in the scaling up of advanced manufacturing sectors. The CHIPs and the science act are some of the programs in U.S which demonstrate how the model of public- private financing can be used to foster industrial development. The research supports the hypothesis that big investment in new-tech production has robust multiplier effects on employment and economic results.

Alkandi (2025) explores the relationship between green practices, green marketing and business performance with a focus on stress of corporate social responsibility as a mediator. The study reveals that environmental friendly activities enhance reputation and competitiveness of companies. The production process of the high-end manufacturing is as well being incorporated with the use of green technologies and waste reduction mechanisms to achieve its sustainability. This is especially applicable to both the developed and the emerging economies that aim at balancing industrial development and environmental sustainability.

Sayed and Nefzi (2024) investigate the role of intellectual capital in Saudi banking sector as a sustainable performance. Even though this is a study in the finance discipline, this research shows the importance of knowledge, skills and innovation in the economic performance. Flexible manufacturing sectors are largely reliant on human capital, and thus workforce development is an important aspect of economic competitiveness. In the case of Saudi Arabia, human capital investment is needed to facilitate the shift to the knowledge-based industrial economy.

Alkandi and Helmi (2024) test the effect of strategic agility on organizational performance using innovation capabilities that mediates their effect. The paper has determined that businesses that can adapt to the technological and market changes fast are more successful. It is especially applicable to high-technological manufacturing where technological upheaval is an unending thing. Agility and innovation should be prioritized by both United States and Saudi Arabia to enable them to compete in international markets (Islam et al., 2025).

Asiri et al. (2024 use their article to explore the integration of sustainable technology with the big data analytics into Saudi SMEs. The research concludes that the use of digital technologies can greatly increase operational efficiency and decision-making abilities. In the high-technology decisions of the manufacturing industry, big data, artificial intelligence, and smart systems play a significant role in optimization of manufacturing processes and the quality of the manufactured goods. This technology infrastructure is conducive to the economic growth through boosting productivity and

Online ISSN 3007-3197
Print ISSN 3007-3189



making it possible to produce high-value industries (Alquraish, 2025).

## 3. Research Methodology

The chapter gives the methodology that was applied in the analysis of the economic significance of the advanced manufacturing industries in United States and Saudi Arabia. The study follows Research Onion paradigm that is a systemic approach in selecting the appropriate research strategies, methods and techniques (Kumar & Albashrawi, 2022).

### 3.1 Research Philosophy

The paper adheres to the pragmatism philosophy that allows the integration of both qualitative and quantitative designs in addressing the multi-pronged economic and industrial issues. This study would best apply pragmatism since it focuses on the practical implications and application in the real world where it employs the higher manufacturing industries and their economic value. The philosophy enables the researcher to incorporate statistical analysis of data with policy and industry information in such a way that a researcher has the complete image of the research problem.

### 3.2 Research Approach

The deductive research approach is applied in this study, as in this study, we have applied the available theories which are related to economic development, industrial competitiveness and high-tech manufacturing. The paper begins by outlining already known theoretical frameworks, such as innovation-driven growth, and industrial diversification, and testing them within the context of the United States and Saudi Arabia. This process makes it possible to test and assess the theoretical assumptions based on empirical evidence and real-world data to develop and test them (Adebayo et al., 2026).

### 3.3 Research Strategy

This study employs a comparative case study approach in its study of the role of advanced manufacturing in two different economic settings. The United States is an advanced economy that has an established base of advanced manufacturing compared to Saudi Arabia that is still in the state of industrial transformation. In this kind of approach, the policies, financial mechanisms, and industrial results can be researched in up to depth in the two countries.

### 3.4 Research Design

It is a mixed method research design that comprises of both qualitative and quantitative data. The quantitative data include trade, employment and industry output data, the qualitative data include policy analysis, industry reports and scholarly literature. This design will ensure that a full evaluation on the advanced manufacturing and its economical implications will be done, particularly in terms of competitiveness and job creation and industrial development (Adebayo et al., 2026).

Online ISSN 3007-3197
Print ISSN 3007-3189



### 3.5 Data Collection Methods

The study is based on the secondary data collection instruments, which are based on reliable and contemporary sources. These include:

- Government publications and policy reports (e.g. industrial strategies and economic plans)
- Global databases and statistical sites like Trading Economics.
- Peer-reviewed articles and academic journals.
- Reports in the industry in the field of advanced manufacturing, semiconductors, development of supply chains.

Secondary data is appropriate since the research is macroeconomic and much information on the performance of industry and economic indicators exist.

### 3.6 Data Analysis Techniques

The research uses descriptive and comparative analysis methods. Statistical comparison of such key indicators as GDP contribution, employment rates, manufacturing output is used to analyze quantitative data. Qualitative data are interpreted by means of thematic analysis, which highlights some of the most significant themes, such as innovation, financing mechanisms, and policy effectiveness. The comparative analysis brings out the similarities and differences between the two countries in the aspects of the advanced manufacturing development and economic performance (Adebayo et al., 2026).

### 3.7 Time Horizon

This study is cross-sectional, as it examines the information of the last few years (mainly, 2020-2026) to understand the latest trends and advancements in advanced manufacturing. The method will enable the evaluation of the latest policy effects, such as the CHIPS and Science Act, and Saudi Vision 2030 (Derouez, 2025).

### 3.8 Research Limitations

This research has shortcomings as far as it provides value information. Secondary data may also restrict the access to the latest or extremely specific industry-level data. In addition, it could also affect the comparability of data reporting standards across countries. The study is also more interested in macro-level analysis, which may not be entirely representative of dynamics of firms in developed manufacturing sectors.

### 3.9 Ethical Considerations

The study meets ethical standards because of the sources of data, which are reliable and publicly available. The relevant citation and practices of reference are observed so as to maintain academic integrity. There will be no primary data that will use human subjects hence minimization of ethical risks.

## 4. Results and Analysis

It is a comparative analysis of the advanced manufacturing industries in the United States and Saudi Arabia based on the latest available data (2025-2026). It revolves

Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 4 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189

http://amresearchreview.com/index.php/Journal/about

around economic contribution, job creation, trade structure and growth of industries.

### 4.1 Contribution of Advanced Manufacturing to GDP

**Table 4.1: Manufacturing Contribution to GDP (Latest Data)**

| Country | Manufacturing Output | Share of GDP | Year |
|---|---|---|---|
| **United States** | $2.95 Trillion | 9.5% | 2025 |
| **Saudi Arabia** | SAR 195,753 Million (Q4) | 15.57% | 2025–2024 |

The statistics reveal that the absolute manufacturing output in the United States is much higher and stands at about $2.95 trillion. Nonetheless, its contribution to the overall GDP is relatively lower (9.5) because of the predominance of the services industry. Saudi Arabia, in contrast, has a more prominent relative reliance on manufacturing (15.57% of GDP), as part of its current economic diversification policy (Derouez, 2025).

The manufacturing GDP of Saudi Arabia will increase further in 2026, due to the industrial expansion policies.

### 4.2 Employment and Job Creation in Manufacturing

**Table 4.2: Manufacturing Employment Indicators**

| Country | Employment in Manufacturing | Key Insight | Year |
|---|---|---|---|
| **United States** | 12.69 Million workers | High-skilled industrial workforce | 2025 |
| **Saudi Arabia** | Unemployment Rate: 3.5% | Industrial growth supporting employment | 2025–2026 |

The US has a huge and well skilled workforce in manufacturing, with an estimated 12.69 million employees. These are typically high tech jobs, high paying, and predominantly in semiconductors and high technology equipment (Alfantookh et al., 2023).

In Saudi Arabia, the industrialization process is contributing to the decrease of the unemployment rates (3.5% in 2025). This indicates that high level production may be a significant source of employment of the locals, which is in tandem with national development goals.

The fact that manufacturing investment has a job multiplier effect further boosts its contribution in economic growth.

### 4.3 Industrial Production and Growth Trends

**Table 4.3: Industrial Production Growth (2026)**

| [1] | Country | [2] | Indicator | [3] | Growth Rate | [4] | Year |
|---|---|---|---|---|---|---|---|
| [5] | **United States** | [6] | Manufacturing Output Growth | [7] | ~0.5% YoY | [8] | 2026 |
| [9] | **Saudi Arabia** | [10] | Industrial Production Index | [11] | +8.9% YoY | [12] | 2026 |

The trend of industrial growth between the two economies has contrasting dynamics. The growth in the US is moderate with an indication of maturity and externalities such as tariffs and foreign uncertainties. However, it is steady due to the highly advanced technological base (Alanazi, 2025).

On the other hand, Saudi Arabia has high rates of industrialization growth with

Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 4 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189
http://amresearchreview.com/index.php/Journal/about

industrial production standing at 8.9% in 2026. This has been charged by aggressive industrial policies and investments in diversification programs.

These results indicate that developing economies are more likely to have higher growth rates whereas developed economies are stable and technologically ahead.

### 4.4 Trade Structure and Advanced Manufacturing Imports

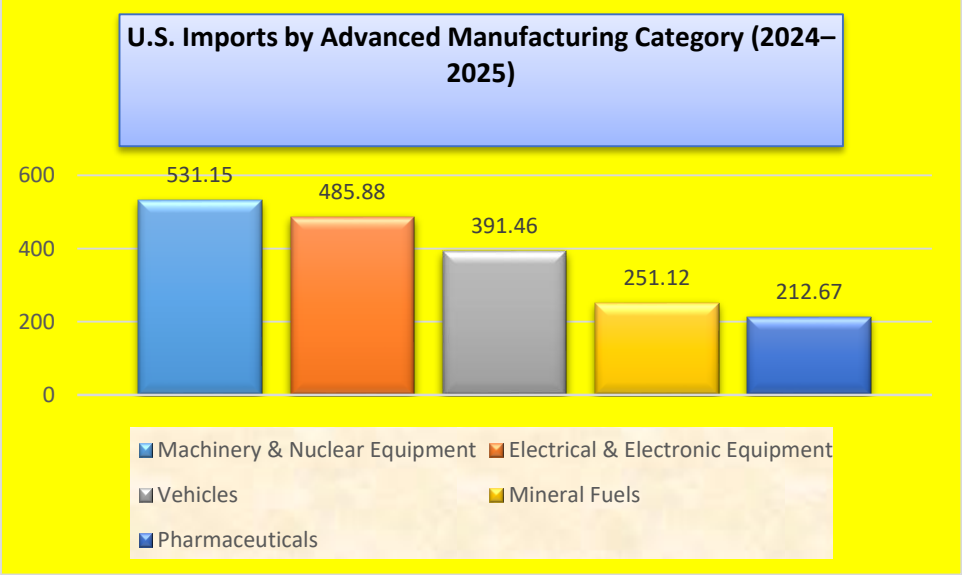
**Table 4.4: U.S. Imports by Advanced Manufacturing Category (2024–2025)**

| Category | Import Value (USD Billion) |
|---|---|
| **Machinery & Nuclear Equipment** | 531.15 |
| **Electrical & Electronic Equipment** | 485.88 |
| **Vehicles** | 391.46 |
| **Mineral Fuels** | 251.12 |
| **Pharmaceuticals** | 212.67 |

High-value advanced manufacturing industries including machinery, electronics and vehicles dominate the import structure of the United States. This is indicative of how the country has integrated into the global supply chains and how it is dependent on imports which are technologically advanced (Yusuf & Nasrulddin, 2024).

At the same time, the growth of imports (to over $3.44 trillion by 2025) is an indicator of the high domestic demand, and reshoring policies need to be implemented to enhance the economic resilience (Farea & Aljofi, 2025).

In Saudi Arabia, the U.S. imports are specialized in machines, cars, and medical equipment, which contributes to the development of the industries and transfer of technologies of the country.




### 4.5 Manufacturing and Economic Diversification

**Table 4.5: Saudi Arabia Economic Diversification Indicators**

| Indicator | Value | Year |
|---|---|---|
| **GDP** | $1.24 Trillion | 2024 |
| **Projected GDP** | $1.29 Trillion | 2026 |
| **Manufacturing Growth** | 6.3% | 2024 |

Online ISSN 3007-3197
Print ISSN 3007-3189



| | | |
|---|---|---|
| **Manufacturing GDP** | $114 Billion | 2024 |

The information shows that Saudi Arabia is effectively utilizing the high-level manufacturing in diversifying the economy. With the GDP projected to reach up to $1.29 trillion by 2026, the contribution of manufacturing towards a reduced reliance on oil revenues becomes more important.

The industrial policies have been successful as reflected in the high growth rate of the sector (6.3%), and its increasing share with GDP. The advanced manufacturing industries are enabling the development of other industries, as well as, raising their export levels and making their economies more resilient.

Such change is an indication of transition to an economy based on knowledge that is fuelled by technology and innovation (Al-Roubaie, 2025).

### 4.6 Comparative Analysis: Economic Competitiveness

**Table 4.6: Comparative Summary**

| Indicator | United States | Saudi Arabia |
|---|---|---|
| **Manufacturing Output** | Very High ($2.95T) | Moderate but growing |
| **GDP Contribution** | 9.5% | 15.57% |
| **Growth Rate** | Stable | Rapid |
| **Job Creation** | High-skilled jobs | Expanding local employment |
| **Strategy** | Reshoring & innovation | Diversification (Vision 2030) |

The United States is highly competitive in the world market with technological superiority, mass production of industrial goods and high financing systems. Its manufacturing base is further enhanced by policies like the CHIPS and the Science Act. In the meantime, Saudi Arabia is fast improving its competitiveness by expanding its industrialization and diversification in Saudi Vision 2030.

On the whole, high-technology manufacturing is very important in economic development of both countries albeit at varied levels of industrial maturity.

### 4.7 High-Tech Manufacturing Share within Total Manufacturing

**Table 4.7: Share of High-Tech Manufacturing (%)**

| Country | High-Tech Manufacturing Share (%) | Year |
|---|---|---|
| **United States** | 41% | 2025–2026 |
| **Saudi Arabia** | 18% | 2025–2026 |

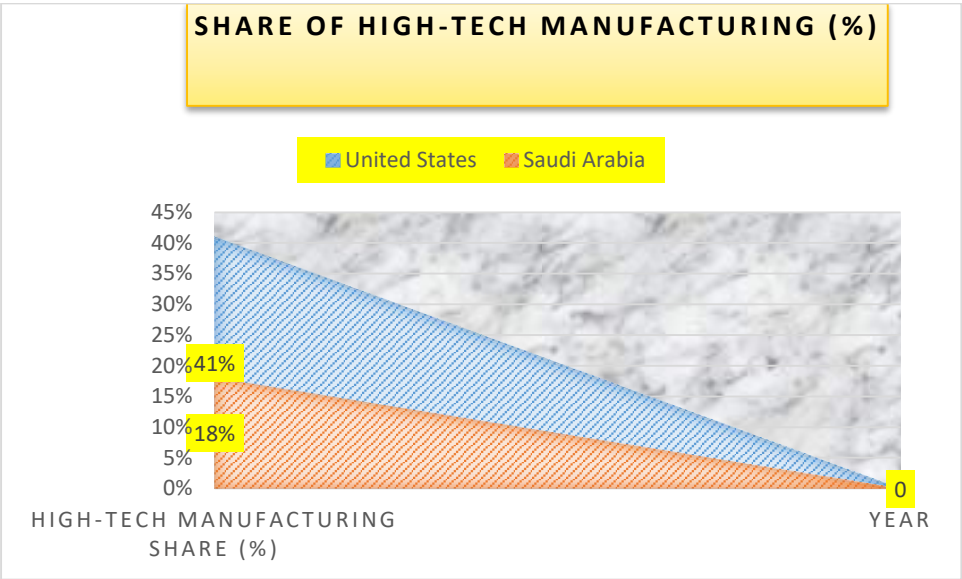
The United States is far more dominant in high-tech manufacturing with a much higher percentage of high-tech manufacturing. This implies a high-tech industrial ecosystem with innovation and research and development.

Saudi Arabia, on the other hand, has a lower percentage (18%), which indicates that although it has made progress, Saudi Arabia remains at the early phase of moving towards high-value production. Nonetheless, this also shows a great potential of future growth as the investments in the industries that are technology intensive grow.

Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 4 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189

http://amresearchreview.com/index.php/Journal/about




### 4.8 Manufacturing Employment as Percentage of Total Employment

**Table 4.8: Manufacturing Employment Ratio (%)**

| Country | Manufacturing Employment (%) | Year |
|---|---|---|
| **United States** | 8.4% | 2025 |
| **Saudi Arabia** | 7.1% | 2025–2026 |

In both economies, manufacturing jobs make up of a middle proportion of total jobs. The relatively low percentage is indicative of the capital-intensive and automated manufacturing process in the United States, where productivity is high but labor demands are relatively small.

The employment share is a little bit low and rising in Saudi Arabia as a result of the policies of industrial expansion. This trend indicates that production is turning out to be a significant source of employment, especially to the local communities.

### 4.9 R&D Expenditure as Percentage of GDP

**Table 4.9: R&D Spending (% of GDP)**

| Country | R&D Expenditure (%) | Year |
|---|---|---|
| **United States** | 3.5% | 2025–2026 |
| **Saudi Arabia** | 0.9% | 2025–2026 |

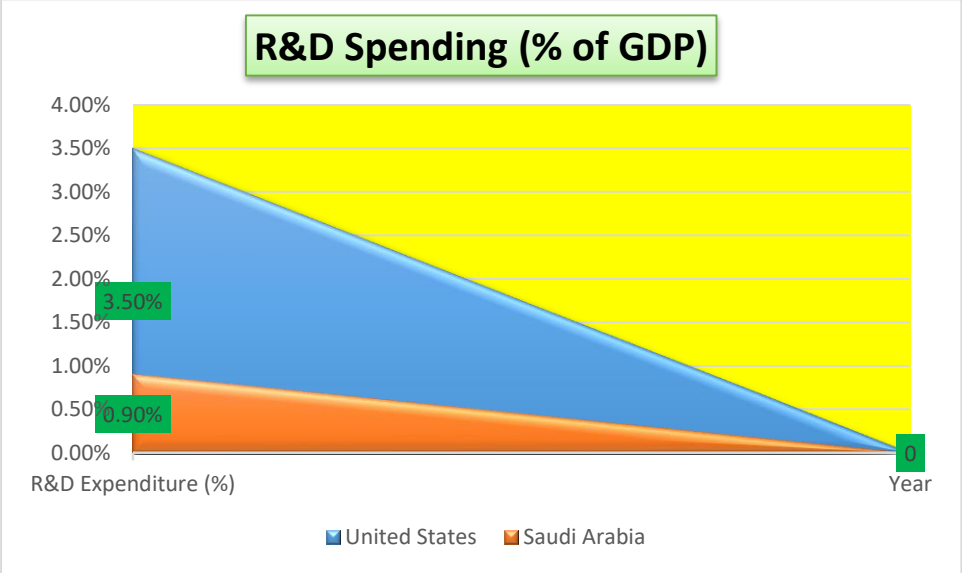
One of the major forces of high-tech manufacturing competitiveness is research and development (R&D) investment. A much larger share of GDP (3.5 percent) is devoted by the United States to R&D to sustain a steady stream of innovation and technological leadership.

Comparatively, Saudi Arabia does not spend much on R&D (0.9%), and this can restrain the rate of technological development. Nonetheless, more investment through national transformation programs is likely to increase the capacity of innovation in the next few years.

Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 4 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189

http://amresearchreview.com/index.php/Journal/about




### 4.10 Export of Manufactured Goods as Percentage of Total Exports

**Table 4.10: Manufacturing Export Share (%)**

| Country | Manufacturing Exports (%) | Year |
|---|---|---|
| **United States** | 62% | 2025 |
| **Saudi Arabia** | 24% | 2025–2026 |

In the United States, manufactured goods have a significant portion of exports with about 62 percent of total exports comprising of manufactured goods. This demonstrates the high level of the country in the value chains of manufacturing in the world and its production of high value products.

Saudi Arabia in its turn, exports more manufacturing products (24%), and the export of oil remains dominant in its trade pattern. Nonetheless, the increasing proportion of manufacturing exports is an upward trend towards diversification of the economy and reduced hydrocarbon-reliance.

## 5. Discussion

The chapter is a critical analysis of the findings in Chapter 4 and how it relates to the existing literature and theories on advanced manufacturing and economic development in the United States and Saudi Arabia.

The results show that the high-tech manufacturing makes a significant contribution to the economic competitiveness of the two countries, but at different levels of maturity. High-tech production (41%), supported by high R&D expenditure (3.5% of GDP) is very much dominated by the US. This is in line with the views of Larabi (2025) who asserts that strategic flexibility and technological innovation are significant sources of firm and national performance.

Saudi Arabia, on the other hand, has a smaller yet increasing proportion of high-tech manufacturing (18%), in line with its status as a transitional country. This aligns with the conclusions of Wiredu et al. (2025), who emphasize the role of the innovativeness capacity and governance in the creation of competitive industrial systems in new

Online ISSN 3007-3197
Print ISSN 3007-3189



economies. The discussion argues that the U.S. is geared towards maintaining technological superiority; Saudi Arabia is proactively developing its industry base.

The results indicate that high-level manufacturing is a part of job creation in both economies though at varying characteristics. In the United States, 8.4% of total employment is in manufacturing, which is a highly automated and capital-intensive industry. This is in line with Singh et al. (2024), who state that more sophisticated manufacturing technologies like additive manufacturing decrease the dependency on labor and enhance productivity.

In Saudi Arabia, manufacturing (7.1) on the other hand, is rising with the country diversifying its economy. This is in line with Alfalih (2024) which highlights the importance of the non-oil sectors in lowering unemployment. As highlighted in the debate, advanced manufacturing in Saudi Arabia is more labor consuming than in the U.S., where high skills and high wage employment is focused on.

The comparative analysis has revealed that the difference in the R&D investment between the two countries is huge. United States is on the forefront with 3.5% of GDP, which strengthens its industrial ecosystem based on innovation. This has been supported by Osei et al. (2025) which acknowledges that financial strategies/governance is important in facilitating technological innovation.

Saudi Arabia, in contrast, makes less investment (0.9%), which restricts its potential to be innovative. However, Asiri et al. (2024) and Sayed and Nefzi (2024) point to the growth in the value of digital technologies, big data, and intellectual capital in improving performance. The discussion proposes that to shift to high-value manufacturing and global competitiveness, Saudi Arabia needs to invest more in R&D.

The results reveal the importance of supply chain resilience, particularly disruption at the global level. Advanced manufacturing is a powerful importation in the United States, and it underpins the need to resort to reshoring strategies. It is on the side of Hejazi and Habani (2024) who emphasize the significance of the supply chain integration and resiliency in performance improvement.

Supply chain localization is one of the elements of industrial strategy in Saudi Arabia. The results are consistent with those of Alkandi (2025), which relates sustainability practices to better business performance. As the discussion suggests, the two countries are actively adopting sustainability in the manufacturing process, but Saudi Arabia is yet to have its capabilities.

One of the important conclusions of this research is that financial structures are vital in enhancing advanced manufacturing. Within the US, industrial growth in terms of the utilization of policies such as the CHIPS and Science Act demonstrate how industrial development is driven by the public-privacy partnerships. This conforms to Osei et al (2025) that highlights the role of financial strategies in helping to promote sustainable production.

Saudi Vision 2030 government-led investments are the main focus of industrial growth in Saudi Arabia. As the discussion has revealed, the U.S. model presupposes a complicated system of financing structures and private capital, and the Saudi Arabian one is even more state-oriented and indicates the economic system and the level of development.

Overall, the discussion demonstrates that one of the indicators of economic

Online ISSN 3007-3197
Print ISSN 3007-3189
http://amresearchreview.com/index.php/Journal/about

development is advanced manufacturing, competitiveness and sustainability. However, its intensity is not homogenous but depends on such factors as technological potential, investments and policy frameworks. The United States is a mature innovation-oriented paradigm and Saudi Arabia is an innovation-oriented paradigm with a fast evolution.

## 6. Conclusion and Recommendations

### 6.1 Conclusion

The paper has critically addressed the contribution of the advanced manufacturing industries to the economic development, as well as the competitiveness in the United States and Saudi Arabia. The findings confirm the great extent of contribution of advanced manufacturing to the economic growth in terms of improved productivity, innovation and employment.

The high level of manufacturing globally has been fronted by the US with the existence of high rates of R&D investment, technological development and sophisticated financial systems. Its focus on the high technology industries and reshoring policies enhance the economic sustainability and competitiveness.

Saudi Arabia on the other hand is undergoing an industrial revolution and production with high technology is one method of diversifying its economy and reducing its dependency on oil revenue. Although there has been an observed improvement in terms of industrial development and job creation, other aspects such as innovation capability and technological development has been an issue.

All in all, the paper finds that, with proper policies in place, investment and innovation, advanced manufacturing is not only an economic producer but also a strategic means of long-term economic change.

### 6.2 Recommendations

**1. Increase Investment in R&D and Innovation**

Saudi Arabia is expected to boost its R&D expenditure tremendously so as to facilitate the ability to innovate, and help in creation of high-technology manufacturing sectors. The public-private partnerships are one of the means by which this can be achieved.

**2. Strengthen Advanced Manufacturing Financing Mechanisms**

Both nations and particularly the United States need to continue developing advanced forms of financing, which use government subsidies, individual funds and institutional finances to fund mega industrial projects such as semiconductor fabrication.

**3. Promote Workforce Development and Skills Training**

Governments should invest in education and vocational training services so as to equip labour force with skills that are required in advanced manufacturing. This is particularly essential to Saudi Arabia in order to maximise local jobs.

**4. Enhance Supply Chain Localization and Resilience**

The two economies should strive to improve the domestic supply chains to reduce dependence on imports and improve the economic resilience. This involves promoting domestic manufacturing and assisting SME in the manufacturing ecosystems.

Online ISSN 3007-3197
Print ISSN 3007-3189
http://amresearchreview.com/index.php/Journal/about

**5. Integrate Sustainability into Industrial Strategies**
Sustainable manufacturing policies need to focus on sustainable manufacturing policies such as energy efficiency, waste reduction and the principles of the circular economy to guarantee long-term environmental and economic gains.

**6. Encourage Technology Transfer and International Collaboration**
Saudi Arabia has to endeavor to make agreements with the global leaders in the production industry so that it can accelerate the transfer of technology and industrialization. The collaboration with developed economies such as the United States can promote knowledge sharing and innovation.

**6.3 Final Reflection**
The capacity of countries to establish and maintain high-level manufacturing sectors is becoming more critical in determining the future of global economic competitiveness. Whereas the developed economies are concerned with innovation and efficiency, they should emphasize on capacity building and diversification. The gap will dictate the success of the industrial transformation plans in the long term all over the world.

## References

1. Al-Roubaie, A. S. (2025). Impact of emerging technologies on economic diversification: the case of Saudi Arabia. *Journal of Business and Socio-economic Development*, *5*(4), 402-416.
2. Farea, M. M., & Aljofi, A. A. (2025). The Influence of External Market Drivers on Global Value Chain Participation in Saudi Arabia: The Mediating Role of Technological Advancements. *Sustainability*, *17*(9), 3946.
3. Yusuf, N., & Nasrulddin, V. (2024). Significance of international trade and national GDP as two integral components of sustainable economic development in Saudi Arabia. *Journal of the Knowledge Economy*, *15*(1), 2298-2317.
4. Alanazi, B. S. (2025). A Statistical Model for Analyzing the Impact of GDP Components on the Manufacturing Sector in Saudi Arabia. *Statistics, Optimization & Information Computing*, *13*(3), 1035-1045.
5. Alfantookh, N., Osman, Y., & Ellaythey, I. (2023). Implications of transition towards manufacturing on the environment: Saudi Arabia's Vision 2030 Context. *Journal of Risk and Financial Management*, *16*(1), 44.
6. Alfantookh, N., Osman, Y., & Ellaythey, I. (2023). Implications of transition towards manufacturing on the environment: Saudi Arabia's Vision 2030 Context. *Journal of Risk and Financial Management*, *16*(1), 44.
7. Derouez, F. (2025). Technological advancements and economic growth as key drivers of renewable energy production in Saudi arabia: an ARDL and VECM analysis. *Energies*, *18*(9), 2177.
8. Adebayo, T. S., Özkan, O., Ahmed, Z., & Olanrewaju, V. O. (2026). How do high-tech industry, energy efficiency (gas and oil), and social globalization affect load capacity factor in Saudi Arabia? A Time-varying quantile regression. *Energy & Environment*, *37*(2), 730-757.

Online ISSN 3007-3197
Print ISSN 3007-3189
http://amresearchreview.com/index.php/Journal/about

9. Kumar, V., & Albashrawi, S. (2022). Quality infrastructure of Saudi Arabia and its importance for vision 2030. *Mapan*, *37*(1), 97-106.
10. Alquraish, M. (2025). Digital transformation, supply chain resilience, and sustainability: A comprehensive review with implications for Saudi Arabian manufacturing. *Sustainability*, *17*(10), 4495.
11. Islam, M. S., Islam, M. M., Ahmed, F., Rehman, A. U., Alam, M. F., & Islam, M. A. (2025). Exploring nexus between oil price shocks and copper production: analysing the role of mineral prices and geopolitical factors in Saudi Arabia. *Computational Economics*, 1-38.
12. Almutairi, N. T. (2024). Does investment in human capital via education stimulate economic growth in an oil-rich country? A case study of Saudi Arabia. *Journal of the Knowledge Economy*, *15*(1), 2933-2955.
13. Al-Somali, S. A., Saqr, R. R., Asiri, A. M., & Al-Somali, N. A. (2024). Organizational cybersecurity systems and sustainable business performance of small and medium enterprises (SMEs) in Saudi Arabia: The mediating and moderating role of cybersecurity resilience and organizational culture. *Sustainability*, *16*(5), 1880.
14. Wiredu, I., Zhu, N., Agyemang, A. O., & Borgi, H. (2025). Driving circular economy strategies for sustainable development: The role of board capital and innovation capacity in emerging markets. *Business Strategy and the Environment*, *34*(5), 5544-5562.
15. Hejazi, M. T., & Habani, M. A. (2024). Impact of green supply chain integration management on business performance: a mediating role of supply chain resilience and innovation the case of Saudi Arabian manufacturing sector. *Cogent Business & Management*, *11*(1), 2392256.
16. Larabi, C. (2025). The role of resource orientation, technology innovation, and strategic flexibility in driving firm performance. *Management & Sustainability: An Arab Review*.
17. Singh, S., Misra, S. C., & Singh, G. (2024). Leveraging additive manufacturing for enhanced supply chain resilience and sustainability: a strategic integration framework. *Global Journal of Flexible Systems Management*, *25*(2), 343-368.
18. Alfalih, A. A. (2024). The impact of oil prices, foreign direct investment and trade openness on unemployment rates in an oil-exporting country: The case of Saudi Arabia. *Heliyon*, *10*(3).
19. Osei, A., Zhu, N., Borgi, H., & Cobbinah, J. (2025). Empowering sustainable production: Firm governance, finance strategies, and tech-innovation in advancing circular economy for SDG 12 in the US, China and Japan. *Sustainable Development*, *33*(4), 5282-5307.
20. Alkandi, I. (2025). Nexus between green practices, green marketing, and business performance: the mediating role of corporate social responsibility in emerging economy. *Discover Sustainability*, *6*(1), 329.
21. Sayed, O. A., & Nefzi, A. (2024). The impact of intellectual capital on sustainable performance: banking sector in Saudi Arabia. *Sustainability*, *16*(11), 4528.
22. Alkandi, I., & Helmi, M. A. (2024). The impact of strategic agility on organizational performance: the mediating role of market orientation and innovation capabilities

Online ISSN 3007-3197
Print ISSN 3007-3189



in emerging industrial sector. *Cogent Business & Management*, *11*(1), 2396528.

23. Asiri, A. M., Al-Somali, S. A., & Maghrabi, R. O. (2024). The integration of sustainable technology and big data analytics in Saudi Arabian SMEs: A path to improved business performance. *Sustainability*, *16*(8), 3209.