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Article

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INTERROGATING THE ROLE OF AFRICA'S MANUFACTURING OUTPUTS IN THE GLOBAL MANUFACTURING SECTOR, 2018-2024

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Abstract

African countries have been participating in the manufacturing sector of the global economy; but the results have been suboptimal because they cannot minimally meet their domestic consumption needs. The aim of the study is to interrogate the role Africa in the global manufacturing sector between 2018 and 2024. The study adopted secondary research method in obtaining data. The documents scrutinized include: the World Bank Open Data on Manufacturing, UNCTAD annual reports, academic journals, bulletins, textbooks, scholarly papers, and internet materials. The generated narrative data was analyzed through critical discourse method. While, empirical data generated from verifiable sources, was computed by the researcher and presented in tabular and graphical forms and analyzed using descriptive and explanatory methods, and drawing inference where appropriate. The study established that the African region with 2% of the world manufacturing outputs and in the second to the last position, has seriously underperformed. By way of recommendation, Africa has to adopt deliberate economic policies and strategies of relying heavily on indigenous strategic thinking and techniques for the evolution of unique products, goods and services that can meet domestic consumption needs as well as that of exports.

Keywords: Africa, Manufacturing Outputs, Global Economy, Indigenous Strategic Thinking, Global Economy.

JEL Classification: N10, N20, N60, O1, O19, O47, O57, P0, P16, P33.

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Introduction

The general economic development of the northern hemisphere hinged heavily on industrialization which triggered manufacturing for most part of the 19th and 20th Centuries. This generated enormous wealth for them during the industrial revolution up to the point the 'China-shock' set in. Though African countries have been into the manufacturing business since their political independence, yet they could hardly meet their domestic needs, talk less of massive exports. The poor performance of the African region in this regard, has been wrongly attributed to their colonial past. It was wrongly held that the human capital (slaves) and material resources of African colonies, were plundered with reckless abundance; which aided in the economic development of the Western Europe and North America that made them to dominate global political and economic affairs up to the end of the 20th Century. However, what will Africa say about the current global manufacturing leadership of China, which was once colonized by Japan?

The problem of Africa so far is not the resources, but the political will to succeed in the nascent global manufacturing vogue. Where there is the political will, the economic will, certainly will be there to harness and direct all resources to the manufacturing production process that will generate enormous production activities with the accompanying employment generation and wealth creation for the African populace. As long as the African region fails to adopt the manufacturing vogue, it will continue to be the weeping continent of the world. Africa can do it the 'China way' or the 'Asian way' (Felipe, 2018; Wolde, 2022; Harb & Basil, 2023; Krusse, et-al, 2023; Xu & Pal, 2022; Diodato, et-al, 2022; Chaponniere & Lautier, 2020).

With visionary governmental frameworks at the helm of affairs in the African region, such as the current 'Sahelian Three'; that is Barkina Faso, Mali and Niger, who are determined to attaining industrial and manufacturing development; African contribution to industrial outputs would have qualitatively increased. The rest of African countries should therefore embark on deliberate policies of promoting the consumption of locally manufactured products and goods by first relying on direct domestic investment (DDI) supported by government. Leveraging heavily on the expertise of their local indigenous technicians, engineers and technologies, African countries can develop generic versions and pro-type of medicines, automobiles and even aeronautics with initial large domestic markets. By shrinking foreign plunders and self-inflicted retreat by the West in terms of population, technologies, industrialization and manufacturing; Africa should take advantage of its vast resources (land, population, minerals, etc.), to launch out in all global economic fronts; with specific focus on manufacturing. This will make their unique manufactured products, goods and services to be acceptable in the global market (Shameem, & Jayaprasad, 2020; Rocha, 2018; Liu et-al, 2020; Iqbal, 2022; Joshi, 2021).

Theoretical Framework

The manufacturing theory and comparative advantage theory have been adopted and utilized as frameworks for the study as outlined and treated below:

Manufacturing Theory: Manufacturing Theory is the study of how businesses make use of resources to process and eventually produce goods or services for sale. It is a branch of economics that explains how businesses decide what to do with resources of raw materials and labour at its disposal to efficiently produce goods or services with comparative competitive advantage over other businesses or trading partners. In international economic relations, manufacturing and international trade theory refers to the economic concepts

that explains why countries specialize in producing certain goods based on available resources and comparative advantage over other entities, that attracts greater benefits to them.

The theory identifies three factors that are very essential to the transformation of raw materials into finished goods and services; which include resources, capital and labour. Though this study concurs with this position; but would like to add that the fourth important factor in manufacturing - is a very disciplined politico-economic conditions. With a very disciplined government presiding over a very disciplined citizenry, there will be no wastages; where all efforts and resources will be judiciously directed at the qualitative and quantitative production of goods and services in which the country or region has comparative competitive advantage in the international market (Alting, 1978; Gandolfo, 1986; Daniel & Brown, 2004; Zhao, et-al, 2006; Zhang & Sharifi, 2007; Watson, 2017; Murdock, 2020; Katina, 2024).

Comparative Advantage Theory: The second theory adopted as framework for the study is the Comparative Advantage Theory. Comparative advantage relates to how much productive and cost-efficient a country is over another country in the harnessing of vital resources in the production of finished goods and services. Furthermore, the theory of comparative advantage which is generally known as Heckster-Ohlin theory, is a classical country-based theory which states that countries will gain comparative advantage if they produce and export goods that requires resources or factors that they have in great supply; and cheaper production factors. The differences in factor abundance and the factor intensity of goods must be in favor of the country that possessed them. The CAT states that countries can benefit from international trade by specializing in producing goods where they have a lower opportunity cost compared to other countries. In another word, it is the ability of a country to produce a particular good or some goods or services at lower opportunity cost than its trading partners. Furthermore, comparative advantage also describes the economic reality of the gains from trade for individuals, firms, or nations; which arise from differences in their endowments or technological progress. The theory emphasizes that countries with advantage in the differences in factor abundance and the factor intensity of goods, often attains absolute advantage where they become more productive, and cost-efficient than other countries (Alting, 1978; Rodrik, 2013; Szirmai & Verspagen, 2015; Rocha, 2018; Liu et-al, 2020; Wolde, 2022; Xu & Pal, 2022; Krusse, et-al, 2023; Busse, et-al, 2024).

This study aligns with the above position because the African region naturally endowed and blessed with vast land, abundant and cheap labor, mineral resources and water resources; if well harnessed and directed at the manufacture of unique products, can launch the continent out onto global manufacturing explosion for the rest of the 21st Century. This is the main reason for the adoption of this theory as a framework for the study.

Methodology

The study adopted secondary data analyses. The documents scrutinized include: UN-Trade Statistical Data annual reports, World Bank Group Open Data and BRICS-JSP. Other documents scrutinized include published materials such as textbooks, academic journals, scholarly papers, and internet materials. The generated narrative data was analyzed through critical discourse method. While, empirical data generated from verifiable secondary sources were computed by the researcher and presented in tabular and graphical forms; and analyzed through descriptive and explanatory methods drawing inference where appropriate.

Results and Discussion

Manufacturing Outputs of the African Region, 2018 and 2024 (\$tr): Thirty-nine (39) African countries featured on the World Bank Open Data manufacturing table for the period covered by the study. The total cumulative manufacturing outputs with \$2,161,326,035,222tr, which represents a mere 2% of the world total manufacturing outputs for the period of the study; the thirteen-nine (39) countries have underperformed. However, there is an emerging development in this regard, 39 out of 53 countries of Africa have keyed into the nascent global manufacturing vogue. This indicates that over 73% of African countries are currently manufacture-driven despite their individual scores of zero (0%) percent of the world total for the period of the study. The African cumulative annual average stands at \$308,760,005,031.7tr, which represents 2% of the world cumulative annual average of \$15,265,232,388,571.4tr, whereas, the African cumulative country average stands at \$55,418,462,441.6tr. Egypt leads the continent with \$450,397,989,361tr; followed by Nigeria in the second position with \$408,560,750,140tr; Algeria is third with \$327,301,764,008tr; and South Africa is fourth with \$323,114,351,976tr. Morocco stands alone in the fifth position with \$139,820,704,332tr. Thirty-four (34) African countries whose manufacturing outputs performances fall below \$100,000,000,000tr are in the fifth position . With focused leaders, Africa can be the next rising manufacturing giant of the world based on the abundant raw materials and cheap labour on the continent (Katina, 2024; Busse, et-al, 2024; UNCTAD, 2025). This is as presented in Table 1:

Table 1: Manufacturing Outputs of the African Region, 2018 - 2024 (\$tr)

SN	Countries	Cumulative	ACAA	ACCA	WCAA
1.	Egypt	450,397,989,361	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
2.	Nigeria	408,560,750,140	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
3.	Algeria	327,301,764,008	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
4.	S/Africa	323,114,351,976	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
5.	Morocco	139,820,704,332	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
6.	Kenya	57,524,882,002	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
7.	Ghana	53,423,867,536	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
8.	Uganda	45,558,393,267	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
9.	Tunisia	44,981,282,845	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
10	Cameroon	39,065,321,396	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
11	Angola	38,591,790,992	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
12	Tanzania	38,354,219,026	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
13	Ethiopia	37,304,287,498	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
14	Zimbabwe	29,883,700,868	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
15	Gabon	28,431,675,922	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
16	Senegal	27,209,762,803	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
17	Zambia	17,969,180,961	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
18	Congo DR	15,175,778,074	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
19	Guinea K.	13,191,369,779	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
20	B/Faso	12,897,386,925	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
21	E/Guinea	11,043,222,549	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
22	Benin	11,042,922,783	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
23	Mauritius	10,390,350,785	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
24	Namibia	9,961,095,367	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
25	Mali	8,382,478,534	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
26	Madagascar	8,27,902,798	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
27	Rwanda	7,365,625,685	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
28	Niger	7,130,633,364	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
29	Botswana	7,091,150,447	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
30	Libya	4,034,000,000	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
31	Mauritania	3,811,023,022	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4

32	Togo	3,245,568,840	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
33	CAR.	3,103,012,661	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
34	Lesotho	2,672,453,334	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
35	Chad	1,671,914,636	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
36	Djibouti	810,950,291	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
37	S/Leone	541,501,474	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
38	Guinea Bissau	411,067,291	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
39.	Gambia	352,374,740	308,760,005,031.7	55,418,462,441.6	15,265,232,388,571.4
	African	2,161,320,035,222	2,161,320,035,222	2,161,320,035,222	106,856,626,720,00
	World	106,856,626,720,000	4,645,946,292,173.9	7,632,616,194,285.7	106,856,626,720,000

Source: Generated by the Researcher in 2025 as adapted from UNCTAD, 2025; World Bank Group, 2025.

Africa’s Manufacturing Outputs Compared with other Regions: Africa’s manufacturing outputs performance among other regions of the world is not so impressive, because it occupies the eight position with \$2,161,326,035,222tr (2% of world total), and is second to the last on the regional manufacturing outputs rung. The Middle East is in the last position with \$2,124,978,846,171tr (2%). Asia leads other regions with \$49,902,700,015,725tr representing 47% of the world manufacturing total for the period of the study. The Asian region has overwhelmingly outperformed the African region by 2,309%. With this wide gap between Asia and Africa; is there anything African countries have gained from their over four decades strong economic relations with China the Asian regional leader. Three other regions have outperformed the African region as follows: Western European region which is placed second with \$16,880,381,849,062tr (16%) has outperformed Africa by 781%, North America which is third with \$15,796,978,230,442tr (14%) has also outperformed Africa by 731%; while Oceania which is in the fourth position with \$6,934,304,053,500tr (6%) has as well outperformed the African region by 477.3%; and the miscellaneous manufacturing outputs of Others is placed in the fifth position with \$6,934,304,053,500tr (6%) Eastern Europe, which is sixth with \$3,851,301,464,270tr (4%) has also outperformed Africa by 178.2%, and finally the Latin America region which is seventh with \$2,747,368,978,621tr (2%) has similarly outperformed Africa by 127%. With this poor performance in a very vital sector of the world economy, Africa has to wake up to the stark reality that manufacturing is not only a vogue, but the currency for economic development by assertive and aspiring countries/regions of the world. It is either you manufacture, or be prepared for an oncoming modern servitude (Chaponneiere, & Lautier, 2020).

This is as presented in Table 2 and Figure 1 below:

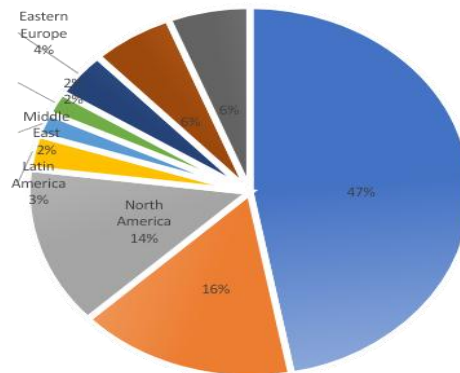
Table 2: Summary of Manufacturing Outputs of the Eight Regions, 2018-2024 (\$tr)

SN	Region	Cumulative	RCAA	RCCA	WCAA
1.	Asia	49,902,700,015,725	7,128,957,145,103.6	2,772,372,223,095.8	15,265,232,399,571.4
2.	Western Europe	16,880,381,849,062	1,205,741,560,647.4	937,798,991,614,.6	15,265,232,399,571.4
3.	North America	15,796,978,230,442	2,256,711,175,777.0	686,825,140,454	15,265,232,399,571.4
4.	Latin America	2,747,368,978,621	392,481,282,660.1	249,760,816,238.2	15,265,232,399,571.4
5.	Middle East	2,124,978,846,171	303,568,406,595.8	177,081,570,514.2	15,265,232,399,571.4
6.	Africa	2,161,326,035,222	308,760,005,031.7	55,418,462,441.6	15,265,232,399,571.4
7.	Eastern Europe	3,851,301,464,270	276,426,693,691.3	154,798,948,467.1	15,265,232,399,571.4
8.	Oceania Regions	6,934,304,053,500	990,614,864,785.7	577,858,671,125.0	15,265,232,399,571.4

9.	Others	6,438,620,999,588	919,902,999,941.1	536,551,749,965.6	15,265,232,399,571.4
	Regions Total	106,856,626,720,000	15,796,978,230,442	15,796,978,230,442	106,856,626,720,000
	World Total	106,856,626,720,000	4,645,946,292,173.9	7,632,616,194,285.7	106,856,626,720,000

Source: Generated by the Researcher in 2025 as adapted from UNCTAD, 2025; World Bank Group, 2025

Fig. 1: Africa’s Manufacturing Outputs Compared with other Regions, 2018-2024 (\$tr)



Source: Generated by the Researcher in 2025 as adapted from UNCTAD, 2025; World Bank Group, 2025

Major Findings, Conclusion/Recommendations

Summary of major findings, conclusion and recommendations derived mainly from the analysis are hereby presented below:

Major Findings: From the analysis so far, the following major findings have been sieved:

- i. The study has established that Africa with only 2% of the world manufacturing outputs and second to last position on the region ladder, has underperformed.
- ii. The study also established that Africa has underperformed in monetary value for the period covered, but there is an emerging hope for the continent where 73% of countries of Africa featured on the world manufacturing outputs table.
- iii. The study has further established that the world regional leader the Asian region, has overwhelmingly outperformed the African region by 2,309%.
- iv. It is also revealed that apart from the Asian region, Africa has been outperformed by other regions as follows: Western European region by 781%; North America region by 731%; Oceania by 477.3%; Eastern Europe by 178.2%; and Latin America region by 127%.

Conclusion/Recommendation

From the analysis so far, conclusion can be drawn that Africa with \$2,161,326,035,222tr representing 2% of the world total manufacturing outputs has seriously underperformed. By way of recommendation, the African region should in all honesty seek first visionary leaders who have their countries and continent at heart; who should adopt local strategic thinking and innovating local unique products, goods and services with comparative competitive advantage in the global market. Furthermore, the harnessing of individual countries’ abundant natural endowments such as human, land, water, and minerals is required to

launch-out aggressive manufacturing, which is now a global vogue and a vital economic instrument for attaining economic and political relevance in the world.

References

- Alting, L. (1978). A systematic theory of manufacturing. *Environment and Planning B.*, 5(2): 131-156. DOI:10.1068/b050131. Accessed on 1st March, 2025.
- Busse, M., Dary, S. K. & Wustenfeld, J. (2024). Trade liberalization and manufacturing employment in developing countries. *Structural Change and Economic Dynamics*, 70(1), 410-421. <https://doi.org/10.2016/j.strueco.2024.05.003>. Accessed on 27th February, 2025.
- Cervellati, M.; Meyerheim, G. & Sunde, U. (2023). The empirics of economic growth over time and across nations: Unified growth perspective. *Journal of Economic Growth*, 28, 173-224. Springer. <https://doi.org/10.1007/s10887-022-09216-2>. Accessed on 2nd January, 2025.
- Chaponneiere, J-R. & Lautier, M. (2020). The role of manufacturing sector in Asian economic development. *PROPERCO*, 34. www.proparco.fr. Accessed on 20th January, 2025.
- Diodato, D., Hausmann, R. & Schetter, U. (2022). A simple theory of economic development at extensive industry margin. *Center for International Development (CID) Faculty Working Paper No. 416*, September, 2022. Harvard University, USA.
- Felipe, J. (2018). Asia's industrial transformation: The role of manufacturing and global value chain (PART 1). *Asian Development Bank (ADB) Economics Working Paper Series No. 549*. (July, 2018), 1-36.
- Galor, O. (2009). Comparative economic development: Insights from unified growth theory. *2008 Lawrence R. Klein Lecture*, JEL: F40, 011, 015, 033, 040, J10, J13, NO. 1-54. <https://ssrn.com>, Accessed on 2nd February, 2025.
- Gandolfo, G. (1986). The Heckscher-Ohlin Model. In: *International Economics*. Springer, Berlin, Heidelberg, 76-106. <https://doi.org/10.1007/978-3-662-07976-8-4>. Accessed on 30th January, 2025.
- Jehle, G. A., & Renny, P. J. (2011). *Advanced macroeconomic theory*. (3rd Ed.), PEARSON – *Financial Times*, Prentice Hall Harlow, England. www.pearsoned.co.uk. Accessed on 5th February, 2025.
- Joshi, J. (2021). Competitiveness, manufacturing and infrastructure: The Asian paradigm. *SAGE Journals: Journal of Development Policy and Practice*, 6(1), 78-107. <https://doi.org/10.1177/245513332199420>. Accessed on 14th February, 2025.
- Katina, P. F. (2024). System theory as the foundation for advanced manufacturing management. *Advance Manufacturing*, 1(1), 1-22. <https://doi.org/10.55092/am20240001>. Accessed on 19th February, 2025.
- Kotresh, S. & Patil, R. (2015). Digital manufacturing: A Review. *International Journal of Engineering Research and Technology (IJERT)*, Special Issue 2015. *NCERAME – 2015 Conference Proceedings*, 3(17), 1-10. www.ijert.org. ISSN: 2278-0181. Accessed on 1st February, 2025.
- Kruse, H, Mensah, E. & Sen, G. (2023). A manufacturing renaissance? Industrialization in the developing world. *IMF Economic Review*, 71(2), 439-473. Doi.10.1057/s.41308-022-00183-7. Accessed on 14th January, 2025.
- Lee, Y. S. (2020). New general theory of economic development: Innovative growth and distribution. *Review of Economic Development*, 24(2): 1-33 (April, 2020).

- Lewis, W. A. (1954). Economic development with unlimited supplies of labour. *Manchester School*, 22(2), 139-191. <https://doi.org/10.1111/j.1467-9957.1954.tb00021.x> Accessed on 21st January, 2025.
- Liu, X., Mattoo, A., Wang, Z., & Wei, S. (2020). Services development and comparative advantage in manufacturing. *Journal of Development Economics*, 144(10), 24-38. <https://doi.org/10.1016/j.jdeveco.2019-102438>. Accessed on 20th January, 2025.
- Murdock, C. W. (2020). Why Ricardo's Theory of comparative advantage regarding foreign trade doesn't work in today's global economy. *5 U BOLOGNA Law Review*, No. 59, 59-79. <https://laweconomics.luc.edu/facpubs>. Accessed on 28th February, 2025.
- Robinson, B. B. (2013). Top five Asia Pacific economies: Integration, conflict, vulnerability and crisis, 2010-2020. In: Adam Lowther (Ed) *The Asia Pacific century: Challenges and opportunities*. Alabama, USA: Air University Press.
- Rocha, L. (2018). Manufacturing as a driver of economic growth. *PLS Quarterly Review*, 71(285), 103-138.
- Rodrik, D. (2013). Unconditional convergence in manufacturing. *Quarterly Journal of Economics*, 128(1), 165-204. [Doi.10.1093/qje/qjs047](https://doi.org/10.1093/qje/qjs047). Accessed on 10th January, 2025.
- Szirmai, A. & Verspagen, B. (2015). Manufacturing and economic growth in developing countries, 1950-2005. *Structural Change Economic Dynamics*, 34(1), 46-59. [Doi.10.1016/j.struceco.2015.06.002](https://doi.org/10.1016/j.struceco.2015.06.002). Accessed on 15th January, 2025.
- UNCTAD (2025). BRICS investment report, 2023. *UNCTAD-United Nations Publications*, Geneva, Switzerland. <https://unctad.org/webflyer/global-investment-trends-monitor-no-41>. Accessed on 31/01/2025.
- Watson, M. (2017). Historicising Ricardo's comparative advantage theory, challenging the normative foundations of liberal political economy. *New Political Economy*, 22(3), 257-272. <https://doi.org/10.1080/13563467.2016>. Accessed on 28th February, 2025.
- Wolde, A. M. (2022). Analysis of mult-country manufacturing value-added (MVA) using a dynamic policy model. *Journal of Economics and International Finance*, 14(3), 32-45. [DOI:10.5897/JEF2022.1171](https://doi.org/10.5897/JEF2022.1171). Accessed on 23rd January, 2025.
- World Bank Group (2025) World Bank Open Data on World Manufacturing, 2012-2024. *World Bank Publications* Washington DC, USA.
- Xu, Z., & Pal, S. (2022). The effects of financial liberalization on productivity: Evidence from India's manufacturing sector. *Journal of Management Science and Engineering*, 7(4), 578-588. <https://doi.org/10.1016/j.jmse.2022.04.001>. Accessed on 2nd February, 2025.
- Zhang, Z. & Sharifi, H. (2007). Towards theory building in agile manufacturing strategy – a taxonomy approach. *Engineering Management, IEEE Transactions on* 54(2), 351-370.
- Zhao, X., Sum, C. C., Qi, Y., Zhang, H., & Lee, S. T. (2006). A taxonomy of manufacturing strategies in China. *Journal of Operations Management, IEEE Transactions on* 54(2), 351-370.