Does Business Climate Have Effect on Total Factor Productivity of Agro-Allied Small and Medium Enterprises in Nigeria: An Empirical Review

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DOI: https://dx.doi.org/10.47772/IJRISS.2025.90400157

Received: 26 March 2025; Accepted: 31 March 2025; Published: 03 May 2025

ABSTRACT

The existence as well as continuity of any business including small and medium enterprises (SMEs) is premised upon its business climate. Studies have been carried out on the effect of investment/business climate on SMEs, however, there is dearth of literature on whether or not investment/business climate has profound effect on total factor productivity of Agro-allied small and medium enterprises in developing countries. The study underscores the importance of exploring the relationship between the business climate and total factor productivity in small and medium-scale Agro-allied industries by reviewing relevant empirical literature in developing countries. The study adopted a review approach which dealt with theoretical review (flexible specialization theory), conceptual review which encompasses the concept of agro-allied SMEs, business climate and its importance as well as state of investment in Nigeria. Concept of productivity which entails factors affecting productivity of agro-allied SMEs in Nigeria and factors affecting TFP in relation to business climate were also reviewed. Review of relevant empirical studies and possible challenges were also captured in the study. The study concludes that business climate has influence on TFP. Conducive business climate in Nigerian agro-allied SMEs is hereby advocated for.

Keywords: Business climate, Total Factor Product, Agro-allied, small and medium Enterprises

INTRODUCTION

Premised upon the existence and sustainability of any business, including SMEs is a conducive business climate (Adam and Alarfi, 2021). Business climate can be said to imply a set of location-specific factors shaping the opportunities and incentives for firms to invest productively, create jobs, and expand (World Bank, 2005). It could also refer to the economic, financial, and socio-political conditions that operates in a country or region that influence whether individuals, banks or Institutions will be willing to lend and have a stake (i.e., invest) in the businesses operating therein. In other words, business climate refers to the overall environment in which businesses operate, including such factors as economic, regulatory policies, market trends, competition, and consumer behaviour. A good business climate drives growth by reducing the cost of doing business, thus encouraging investment and resulting in higher and more reliable productivity. In contrast, a poor business climate is seen as constituting barriers to entry, exit, and competition. The fact is that transnational enterprises prefer to invest in business in countries having a sound business climate; where cost, delay, and risk are minimized. Furthermore, in developing countries, improving the environment for investment and productivity growth may foster the development of the private sector by creating sustainable jobs and opportunities for entrepreneurs, which contributes to sustained poverty reduction (World Bank, 2005).

Total Factor Productivity (TFP) is a measure of the productivity of all inputs, or factors of production, in terms of their combined effect on output and is often accounted for by technological change or more efficient methods of producing outputs. Technological change is the major determinant of long-term economic growth and hence its growth serves as an indicator of the long-term growth in an economy. Erwin (2000) describe TFP of a firm as the ratio of actual output produced by the firm over a period of time to the real inputs used by the same set of production units over the same period of time. Thus, TFP is considered a standard measurement of firm

performance. It is an important gauge for evaluating the overall health and keenness of a business environment in various economies. It signifies the efficiency with which an economy or business utilizes its inputs (such as labour and capital) to produce goods and services. The application of TFP as an assessment tool provides valuable insights into the underlying factors that drive economic growth and competitiveness (Jorgenson and Griliches 967; Mankiw et al., 1992).

TFP is a measure of the efficiency with which all inputs (like labour and capital) are used in production. It's often considered a key driver of economic growth because it accounts for effects that aren't directly captured by increases in labour or capital. So, when TFP grows, the economy can produce more with the same number of inputs.

The productivity of small and medium-scale Agro-allied industries is intricately linked to the business climate in which they operate. Agro-allied industries encompass a wide range of activities that involve the processing, manufacturing, distribution, and marketing of agricultural products and by-products. Agro-allied industries leverage raw materials sourced from agriculture to produce value-added goods and services that are valuable to people and the economy. Pesticides, fertilizers, vaccinations, and herbicides are some examples of Agro-chemicals produced by industries for agricultural purposes. Agro-allied industries play a vital role in diversifying rural economies, reducing post-harvest losses, enhancing food security, and fostering sustainable agricultural development. They create linkages between agriculture and other sectors of the economy, driving innovation, value addition as well as employment generation along the agricultural value chain. (Deiji et al., 2013; Irene, 2017). Agro-allied SMEs are driver to economic growth as their operations stimulate indigenous entrepreneurship, and facilitate an effective deployment of agricultural resources (Adeyipo, 2019; Dada et al, 2021). SMEs have shown to be an important strategy adopted by industrialized countries to achieve socioeconomic growth.

The popular definition of SME is a firm with 0–250 employees; small being less than 50 employees and medium sized between 50 and 249 (Harindranath et al., 2008; Wikipidia). The definition varies from nation to nation and level of development of a country. Small and medium-sized enterprises (SMEs) are key economic actors and drivers of economic development the world over (Abisuga-Oyekunle et al., 2020; Al-Tayyar et al., 2021; Cataldo et al., 2020; Obinna, 2022; Olubiyi et al., 2019) and indexes of industrialization, modernization, urbanization, and gainful and meaningful employment for all those who are able and willing to work or establish a business. Small businesses have ten (10) to forty-nine (49) employees, whereas medium-sized businesses have fifty (50) to one hundred and ninety-nine (199) employees (Obinna, 2022). The SME sector may help transition to a market economy by creating jobs, producing money, advancing technology, and supporting social development.

The World Bank (2020) reported that in developing country like Nigeria, the country consistently ranks poorly in the global ease of doing business, standing at 146 in 2019 and 131 in 2020. Overcoming the inertia to move from enterprise idea conceptualization to actual implementation in a challenging investment climate like Nigeria poses a daunting task (Anyebe, 2017). The country economy has witnessed a significant decline in growth, partly attributed to reduced productivity growth. While some developing countries like China, India, and Brazil have leveraged globalization for notable advancement. This notable disparity in industrial performance between Africa and other developing regions is linked to the unfavourable business investment climate in Africa, encompassing physical, institutional, and regulatory environments for private sector initiatives.

In Nigeria, the impact of a poor business environment is particularly pronounced within the Agro-allied industries. Research indicates that constraints in the business climate significantly contribute to the overall cost of conducting business operations. Annually, approximately 16 percent of sales are forfeited due to challenges such as unreliable power supply, transport delays, crime, and corruption (World Bank, 2009). Notably, the three most prominent impediments to business operations in Nigeria are power shortages, limited access to finance, and transportation difficulties.

Various administration in the country have undertaken reforms to improve the business environment, aiming to facilitate faster business start-ups and streamline administrative procedures. However, there is dearth of literature on whether or not investment/business climate has profound effect on total factor productivity of Agro-allied small and medium enterprises in developing countries. This study underscores the importance of exploring the

relationship between the business climate and total factor productivity in small and medium-scale Agro-allied industries by reviewing empirical literature in developing countries.

The broad objective is to examine the relationship between the business climate and total factor productivity (TFP) in Nigeria, with a focus on small and medium-scale Agro-allied industries, and to identify strategies for improving productivity and sustainability in the sector. Specifically, the study seeks to analyse the key components of the business climate (e.g., regulatory policies, infrastructure, access to finance, political stability, and corruption) and their impact on TFP in Agro-allied SMEs; evaluate the effect of infrastructure deficits; assess the role of access to finance in enabling investment, innovation, and technological adoption among Agro-allied SMEs; investigate the influence of regulatory inefficiencies, bureaucratic bottlenecks, and corruption on the operational efficiency and productivity of Agro-allied businesses; examine the impact of education, skills development, and workforce training on the efficiency and adaptability of Agro-allied SMEs and as well as identify best practices and successful policy interventions from other developing countries that can be adapted to improve Nigeria's business climate and TFP.

MATERIALS AND METHODS

The study adopted the use of review approach, relevant literature was reviewed on theoretical framework, conceptual as well as empirical review. Reviewed papers were sourced secondarily from journal articles, conference proceedings and annual report of International Organizations.

The theory of flexible specialization is a strategic mode of customized production of goods as against massive production. It is subject to incessant changes and is based on the flexible use of the factors of production such as multiuser equipment as well as specialized skilled and innovative workers in a post-industrial revolution era where competition only rewards innovation. This theory was pioneered by Piore and Sabel in their 1984 seminal work titled "The second Industrial Divide: Possibilities for prosperity". They argued that due to market saturation, declining productivity levels and a spike in market structural stability, there has been a paradigm shift from the Fordist mode of mass production to the non-Fordist. This was occasioned by the proliferation of flexible specialization with customized forms of production such as craftsmanship, fashion and the information technology, which is dominated mostly by small and medium scale enterprises. The main crux of the flexible specialization thesis vis-à-vis MSMEs is centred on the argument that MSMEs growth can favourably compete and even outperform Large Enterprises in certain sectors of the economy. This view that small and younger firms grow more rapidly over large firms as they strive to sufficiently accumulate resources to enable them withstand any external shocks has been collaborated by a number of studies (Smallbone and North, 1995; Smallbone and Wyer, 2000; Heinonen et al., 2004). It also enforces the views of Joseph Schumpeter (1942) who was one of the earliest scholars to emphasize the socio-economic importance of small firms as the prime agents of innovations and economic growth. This suggests that the importance of small businesses in any economy cannot be overemphasized.

Concept of Agro allied SMEs

Agro-allied is the business that is closely related to soil preparation, crop cultivation of which cannot be sustained without raw materials. Agro-allied industries are industries which rely on agriculture for their raw materials so as to operate successfully in the production of finished goods that are beneficial to livestock and humans. Ajila (2014) explained that the Agro-allied industries brought about change and commercialization of agriculture and also augment the income of farmers and create food surpluses. Its development could help to stabilize and make agriculture more lucrative, thereby creating employment opportunities both at the production and marketing stages (Jelilo and Bahago, 2017; Oraka, Ocholi and Ater, 2017:

Agro-allied SMEs have made enormous Contribution to Agricultural Sector (CAS). This CAS implies considerable resource transfer for productive means. The CAS also encompasses innovativeness and development of many kinds relative to technology transfer and adoption. Agro-allied SMEs are enterprises with Annual Debit Turnover of N5 million to 500 million and with Staff Strength of 300 (CBN Annual Report 2016). Their scope and sizes are determined by the volume of their asset, staff and finance. Agro-allied SMEs' development therefore implies progressive change in their size and scope considering increased asset, staff and

finance. The development of Agro-allied SMEs may be facilitated through promotion and support from all economic stakeholders.

Agro-allied SMEs are paraphernalia for economic growth. They are noted for employment generation, motivation of local entrepreneurship, and facilitation of effective deployment of agricultural resources' (Adeyipo, 2019). One will say that they depend on agricultural raw materials (which aid conversion into several products). For instance, many SMEs are into food processing (using oranges, cashew, cassava, papaw, coffee and so on).

Business Climate

Business climate enabling environment also known as investment climate, broadly defined, includes a country's unique attributes, or "geography" (climate, endowments of natural resources). An adequate business enabling environment establishes the rights and assets (resources) of all stakeholders (individuals as well as public and private sector organizations and companies, it considers gender equality, the poor as well as the rich), while ensuring attainment of organization goals. (Jorge, 2009). These goals can be defined by the use of: Policies; Legislative Frameworks; Financing and Investment Structures (Samuel, 2011).

An enabling environment is that which focuses on the endogenous determinants of investment. For example, Clewett (2015) notes that it is "the policy, institutional, and behavioural environment, present and expected, that influences the returns, and risks, associated with investment." This definition further includes economic incentives, which are shaped by macroeconomic, regulatory policies, public administrative procedures, incentives embodied in the institutional arrangements such as security of property rights and rule of law and governance stability (Okwelle & Wordu, 2016).

Importance of Business Climate

The World Bank Development Report (2005a) states that "improving the climate for investment in developing countries is essential to provide jobs and opportunities for young people and to build a more inclusive, balanced and peaceful world. Business climate is of two dimensions "good or bad environment" which could encourage or discourages domestic and foreign investments. Good business climate dimensions provide an efficient environment for existing producers (World Bank, 2007). A better investment climate decreases the number of problems of investments, allowing investments to operate more efficiently, encouraging investments to use their scarce resources for productive purposes (Hacihasanoglu, 2013). A good investment climate should benefit everyone in two ways. First, it serves society rather than just firms, impact jobs creation, lower prices and broadening the tax base. Second, it embraces all firms not just large or influential firms (World Bank, 2007).

State of Investment Climate in Nigeria

Nigeria, Africa's one-time largest economy has slipped to fourth place (International Monetary Fund [IMF] 2024), Nigeria presents a mixed investment climate characterized by both significant opportunities and notable challenges. Understanding the dynamics of the investment environment is crucial for potential investors. This is to explores key factors influencing the investment climate in Nigeria, including the competitive economy, access to finance, corruption, political instability, taxation, and infrastructure.

Nigeria's economy is among the fastest-growing in Africa, driven by a diverse range of sectors including oil and gas, agriculture, telecommunications, and services. The country is rich in natural resources, particularly crude oil, which accounts for a substantial portion of government revenue and foreign exchange earnings. However, the over-reliance on oil has made the economy vulnerable to global price fluctuations. Recent government efforts to diversify the economy have created opportunities in agriculture and technology, fostering innovation and attracting foreign direct investment (FDI) (World Bank, 2021).

Access to finance remains a significant barrier for many businesses in Nigeria, particularly small and medium-sized enterprises (SMEs). The financial sector has made strides in recent years, with an increase in the number of banks and microfinance institutions. However, high-interest rates, stringent lending criteria, and a lack of collateral often limit access to credit. The Nigerian government has initiated various programs to improve

financial inclusion and support SMEs, but challenges persist in ensuring that financing reaches the most underserved sectors (International Monetary Fund [IMF], 2020).

Corruption is defined as bribes and special payments for export and import licenses, loans, tax assessment (Kandiero, 2006). Corruption marks one of constraint for firms in Nigeria (World Bank, 2007). Corruption is a pervasive issue that undermines Nigeria's investment climate. The country consistently ranks low on global corruption indices, which deters foreign investors and complicates the business landscape. Corruption manifests in various forms, including bribery, mismanagement of public resources, and lack of transparency in government processes. Efforts by the government to combat corruption, such as the establishment of anti-corruption agencies, have yielded mixed results (Transparency International, 2022). For investors, navigating the corruption landscape requires vigilance and a robust understanding of local practices.

Political instability and insecurity are significant concerns for investors in Nigeria. The country has experienced periods of unrest, including ethnic and religious conflicts, as well as insurgency in the northeast region. These factors contribute to a volatile environment that can disrupt business operations and deter investment. While the democratic process has improved over the years, political tensions and uncertainty around electoral processes continue to pose risks for investors (U.S. Department of State, 2022). A stable political climate is essential for fostering confidence and encouraging long-term investments.

The taxation system in Nigeria can be complex and challenging to navigate. The corporate tax rate is relatively high compared to other countries in the region, and the tax administration process can be cumbersome. However, the government has made efforts to reform the tax system to enhance compliance and increase revenue. Initiatives such as the Voluntary Assets and Income Declaration Scheme (VAIDS) aim to broaden the tax base and improve transparency (Federal Inland Revenue Services, 2021). For investors, understanding the tax landscape is crucial for effective financial planning and compliance.

Poor infrastructure creates barriers to investments and economic growth (Rajan and Zingales, 2003). Investments with access to modern infrastructure invest more and their firms are more productive. The World Development Report (WDR) (2005a), states that there are inadequacies in infrastructure in developing countries. Most Sub-Saharan African countries have poor infrastructure development to accommodate the needs of foreign investors. Infrastructure includes: transportation, telecommunication, power, water and sanitation (Nnadozie, Katjomuise and Kruger, 2008). Infrastructure is a critical factor influencing the investment climate in Nigeria. The country faces significant challenges in transportation, communication, and electricity supply. Poor road networks, inadequate rail systems, and inconsistent power supply hinder business operations and increase costs. The government has recognized the need for infrastructural development and has initiated several projects aimed at improving key sectors. However, progress has been slow, and public-private partnerships are essential to bridging the infrastructure gap (African Development Bank, 2023). The transportation sector in Nigeria is underdeveloped, with many regions lacking reliable road and rail networks. This limits market access and increases logistics costs. Investments in transportation infrastructure are vital for improving connectivity and facilitating trade (World Bank, 2021). Advancements in telecommunications have transformed Nigeria's communication landscape, with a growing number of internet users and mobile subscribers. However, challenges remain in rural areas where access to reliable communication services is limited. Continued investment in this sector can enhance business operations and promote economic growth (Nigerian Communications Commission, 2022). Electricity supply is one of the most pressing issues facing investors in Nigeria. Frequent power outages and reliance on diesel generators increase operational costs for businesses. The privatization of the power sector was intended to improve efficiency, but challenges in regulation and infrastructure development persist (Nigeria Electricity Regulatory Commission, 2022). A stable and reliable electricity supply is crucial for attracting and retaining investments.

No Small and Medium Enterprises (SMEs) can operate in isolation successfully without depending on its environment (Oginni, 2010; Ogunmuyiwa, 2022; Du, Razzaq, & Waqas, 2023). All business decisions were found to be contingent upon a good analysis of the environment as the environment creates the opportunities, threats and problems for the business organization. Ogunmuyiwa (2022) also defines business environment as "the forces in and around the business firm that can make or mar its success. Likewise, an environment of a business is also defined as the "aggregation of the pattern of all the external and internal conditions and

influences that affect the existence, growth and development of the business (Adagba & Shakpande, 2017). Such impacts could have direct consequences on its performance ultimately threatening its survival.

Concept of Productivity

The term productivity implies the ratio of output to a measure of inputs [Organization for Economic Co-operation and Development (OECD) 2001]. This definition is constantly applied and has been established in a large number of studies (Syverson, 2011). Two principal approaches were applied in the measurement of productivity, these are; partial factor productivity (PFP) and total factor productivity (TFP) (OECD, 2001). PFP is explained as the ratio between output and a specific input factor (capital, labour or land). Meanwhile, TFP computes the productivity as a ratio of the output produced to an index of combined inputs. In other words, TFP is the weighted average capacity of all inputs (Owyong, 2000). The output can be determined by gross output or value added. To measure TFP, two main directions abound in the literature: non-parametric approaches (TFP index, Data Envelopment Analysis (DEA)) and parametric approaches (Estimation of the production function and Stochastic Frontier Analysis (SFA)). The frequent techniques to estimate the production function include OLS estimation, the Olley and Pakes method, and the Levinsohn and Petrin approach.

Factor Affecting Productivity of Agro-Allied SMEs in Nigeria

There are so many factors affecting productivity growth rate of small businesses in the Nigerian economy. These factors include poor infrastructural development, unsupportive credit market, inadequate institutional support and the issues with globalization (dumping). Huge Infrastructural Deficit. The level of infrastructural development in a country, to a great extent determine the productivity in the economy (Ekeledo & Bewayo, 2009). One of the major factors affecting MSMEs output growth is the huge infrastructural deficit in Nigeria.

Poor supply of electricity and bad road network are chief among these infrastructures. Despite the fact that the Nigerian economy recorded over 5% GDP growth rate for almost twenty years on the average, electricity consumption per capita was rather on the decline. Majority of the rural areas in the country are still not connected to the national electricity grid; therefore, the masses are made to generate their electricity through electricity generating machine individually. The areas covered by the national grid are not in any way better-off because of the incessant power failure. Comparing Vietnam economy that has lower GDP growth rate, shows her to have been able to achieve hundred per cent rural electrification, while more than 50% of Nigerian population are yet not on the national grid (World Development Indicators, 2015).

Factors Linking Business Climate to TFP and Productivity

Factors	Impact on TFP/Productivity	Examples
Regulatory Environment	Overly burdensome regulations stifle innovation; streamlined rules encourage efficiency.	Estonia's digital governance reduces bureaucratic delays, boosting TFP.
Access to Finance	Enables investment in R&D, technology, and training.	Venture capital ecosystems in Silicon Valley drive tech-driven productivity.
Infrastructure Quality	Reduces operational costs (e.g., logistics, energy) and enables scalability.	Germany's autobahns and ports enhance manufacturing efficiency.
Political Stability	Encourages long-term planning and capital investment.	Singapore's stability attracts FDI, fostering high TFP growth.
Education/Skills	Skilled workforces adapt better to new technologies and processes.	South Korea's focus on STEM education supports tech innovation.

Innovation Ecosystem	R&D incentives and IP protection spur technological advancements.	Israel's tech startups thrive due to strong IP laws and R&D tax breaks.
Market Competition	Drives firms to innovate and optimize resource use.	EU antitrust policies prevent monopolies, promoting efficiency.
Trade Openness	Facilitates technology transfer, economies of scale, and exposure to best practices.	China's export-oriented growth boosted TFP via global knowledge spillovers.
Legal System	Secure property rights and contract enforcement reduce risks, encouraging investment.	Scandinavian countries' strong legal frameworks underpin high TFP.
Taxation/Incentives	High taxes reduce reinvestment capacity; targeted incentives (e.g., R&D credits) boost innovation.	Ireland's corporate tax regime attracts tech firms, enhancing productivity.

Source: Researchers Compilation, 2025

Factors Affecting TFP in Relation to Business Climate

Regulatory Environment: If regulations are too burdensome, they might stifle innovation and efficiency. For example, excessive red tape can slow down business operations, making it harder to adopt new technologies or processes. On the other hand, sensible regulations can ensure fair competition and protect property rights, which might encourage investment in productivity-enhancing technologies.

Access to Finance: If businesses can't get loans or investments easily, they might not be able to invest in new machinery, R&D, or training, all of which can improve TFP. So, a financial system that provides adequate credit to businesses, especially SMEs, could boost productivity.

Infrastructure Quality: Good infrastructure (transport, communication, energy) reduces costs and time for businesses. Efficient transportation networks can lower logistics costs, reliable energy supply prevents disruptions, and high-speed internet facilitates innovation and information sharing.

Political and Macroeconomic Stability: Uncertainty in politics or economy can deter long-term investments. Businesses might hesitate to invest in new technologies if they fear sudden policy changes or economic downturns. Stable environments encourage planning and investment in productivity improvements.

Education and Workforce Skills: A skilled workforce is more adaptable and can implement new technologies effectively. The business climate influences education systems and availability of training. If the workforce is well-educated, businesses can achieve higher TFP.

Technology and Innovation Ecosystem: Availability of R&D incentives, collaboration between universities and industries, protection of intellectual property. A climate that fosters innovation leads to technological advancements, which directly impact TFP.

Market Competition: Competitive markets push firms to innovate and improve efficiency to survive. Monopolistic or oligopolistic markets might lead to complacency. So, a business climate that promotes competition can enhance TFP.

Trade Openness: Access to international markets can lead to technology transfer, exposure to best practices, and economies of scale. Trade-friendly policies might thus improve TFP.

Legal System and Property Rights: Strong legal frameworks that protect property rights and enforce contracts reduce risks for businesses. This security can encourage investments in productivity-enhancing assets.

Taxation and Incentives: High taxes might reduce funds available for investment in innovation. However, tax incentives for R&D or capital investments can promote productivity growth.

Empirical Review of Literature

There are a number of studies that have been conducted around the world on the relationship between investment climate and productivity. Some of these studies were reviewed in this section:

Veeramani and Goldar (2004) investigated on the impact of investment climate on the level of total factor productivity (TFP) in the organised manufacturing sector across the major Indian states. In the conduct of the research Veeramani and Goldar (2004) used data from the World Bank survey pertaining certain quantitative indicators of IC in various industries across 12 Indian States. The authors of the study used the descriptive analysis of TFP in the states manufacturing aggregate and TFPs of the individual industries across the three states were compared. Also, the authors undertook an econometric analysis to investigate the impact of the various dimensions of IC on TFP of the states manufacturing industries in India.

The authors used two alternative econometric approaches to examine the effect of IC on TFP. The regression equation was estimated first which relates the multilateral TFP index to various available indicators of IC in the states.

In the second approach of the study, the authors adopted the use of CII-World Bank (2002) study. Regression equation related gross value added-labour ratio to capital labour ratio and real wage rate for each industry (i), state (s) and year (y) along with IC. The relationship was in log-linear in gross value added-labour ratio, capital-labour ratio and real wage rate.

Descriptive analysis of TFP revealed that there was a positive relationship between a market friendly IC and TFP. The regression analysis revealed that IC matter for TFP. Dummies for the best and good IC states showed a positive co-efficient with statistical significance, after taking poor IC states as the base for comparison. The results also revealed that the value of the co-efficient was high for the best IC states than the good IC states. The average number of days required to get a new power connection in the state as a proxy for IC and the number of days required to get a new telephone connection in the state had a negative co-efficient.

The result of the study also revealed that the percentage of the management's time spent with government officials about regulatory and administration issues had a negative impact on TFP. Man-days lost in industrial disputes also had a negative impact on TFP. The variables that had a positive impact on TFP were availability of power for industrial use and disbursement of credit in various state industries.

Subramanian et al. (2005) conducted a study on the impact of the investment climate on total factor productivity in the case of China and Brazil. The study examined the effect of the investment climate on total factor productivity of firms in China and Brazil. The authors used cross sectional data at firm level. The study collected data on firm's characteristics and investment climate indicators. The investment climate indicators were: days for customs clearance, email usage, loss of sales due to electricity failure, losses due to breakage, theft and spoilage as well as workers' education. Two stage analysis was estimated on the data. First, an econometric production function was estimated to produce a measure of TFP at the firm level. Then variation in TFP across firms was statistically related to indicators of the investment climate as well as firm characteristics.

The result of the study revealed that in both countries, customs clearance delays and utility service interruptions had a significant negative effect on total factor productivity. In China if customs clearance time was reduced by one day, TFP could increase by 2-6 %. On the other hand, the result revealed that email usage had a positive effect on TFP in both countries. In China, result showed that state owned firms and firms located in the interior were less productive compared to privately owned firms and firms located in the East. While in Brazil, there was a contrast between the apparel industry and the electronics industry. In the apparel industry, high productivity

was observed in the older firms in competitive markets while in the electronics, high productivity was observed the in newer firms with higher market shares.

Afrooz (2011) investigated on Total Factor Productivity in Food industries of Iran. The study examined the level of labour, total productivity and technical changes in food industries. Food industry was compared to other industries of Iran over the period of 1971- 2006.The study used data from the Annual Survey of Manufacturing Industries published by the Statistical Centre of Iran. Such data includes output, value added, capital and labour for the food industries and other industries for the period 1971 – 2006. The variables were deflated using price index of each group on the base year 1997 published by Central Bank of Iran.

The index method was applied first to measure total productivity levels in the study. Econometrics method was then used to estimate TFP growth. The production function expresses output as a function of the stock capital, employment and a shift factor (t), time.

The econometric estimation of production functions using the parametric approach to infer contributions of different factors and of an autonomous increase in production over time, independent of inputs. The study found that total factor productivity and labour productivity in food industries were lower than the average of the other industries over the period. The estimation of technical changes has shown that the measure of technical change for other industries was 0.16% and that of food industries was 0.09% over time.

Kefyalew (2011) investigated the link between investment climate and performance of manufacturing firms in Ethiopia. Main objective of the study was to examine the effects of the following investment climate variables: total number of years of managers' experience, education status of managers, investment of firm in research and development, working hours of firms, amount of time spent by management in government regulations, power interruption, value of collateral of a firm and access to overdraft on the operation of manufacturing firms. The study concentrated on small scale producers in Ethiopia using investment climate survey dataset collected by the World Bank (2006). Data were analysed using descriptive and economic techniques. The author used a theoretical model which was based on the theory of profit maximization. Where is the result of the study by Kefyalew

Bernard et al. (1999) and Yoshino (2007) approach was reformulated such that in the short run, firms which decide to produce will expect a positive net profit from their activities. Zero sunk costs are one of the assumptions such models are based.

Ahmed (2012) investigated on Malaysia's food manufacturing industries productivity determinants. The study attempts to fill the gap in existing research on the drivers of factor productivity growth (TFPG) in Malaysian's food industries. In the conduct of the research, the author employed a parametric statistical method. To reduce the problem of heteroskedasticity all the variables were log-transformed. The intercept had no role in the calculation of growth rate and contribution of the productivity indicators. A second step was proposed to calculate the growth rates and contribution of the productivity indicators.

The framework decomposed the growth rate of output into the contributions of the rates of growth of capital, labour and material inputs and a residual term TFPG. The results of the study based on the model were: individual contribution of capital, labour and material as well as the combined contributions of quality of these inputs expressed as TFPG were the factors affecting output growth in Malaysian food industries. The food manufacturing sector showed a low productivity level. The TFP contribution growth for the 13 out of 27 food industries was negative during the full period of analysis (1971 – 2000) and the sub period 1987 – 2000. Industries that contributed negatively to TFPG over 1971- 1979 and 1980 – 1986 were eleven. It was due to the low quality of inputs into these food industries, which were input-driven rather than TFPG-driven.

Trung and Itagaki (2012) estimated the impact of rural investment climate factors on the total factor productivity (TFP) of Agro-enterprises in the North of Vietnam. Endogeneity of the production function and of the rural investment climate variables was addressed by using econometric models, based on individual Agro-enterprise information, and by aggregating rural investment climate factors by various business lines and regions. Using Agro-enterprise survey data, the study employed the use of an econometric regression of production function to

generate a measure of TFP at the firm level, while the variation in TFP across Agro-enterprises was related to the rural investment climate factors as well as Agro-enterprise characteristics. The result yielded a number of insights on the factors that underlie productivity. Across various business lines and regions, the indicators of poor rural investment climate such as administrative procedures, outages and policy uncertainty have negative but significant effects on Agro-enterprise productivity. In contrast, the other indicators such as the number of years in land using, internet access, and regional advantages have positive and significant impact on TFP.

Ajagbe and Ajetomobi (2017) investigated the impact of investment climate on total factor productivity of manufacturing industries in Nigeria. The objective of the study was to examine the influence of investment climate on productivity of manufacturing industries in Nigeria. Specific objectives were: to estimate the total factor productivity across manufacturing industries in Nigeria and to analyse the effects of investment climate on the total factor productivity of manufacturing industries in Nigeria. In the conduct of the research, the authors used two phases: in the first phrase, an econometric production function for Nigerian manufacturing industries was estimated to produce a measure of TPF for each firm. The second phrase, the variation in the TFP was statistically related to indicators of the investment climate as well as firm characteristics. Data used for the study were from 2009 World Bank Enterprise survey data in Nigeria. The TFP in the was estimated using the parametric approach specifically the Cobb Douglas function.

The study revealed that the following investment climate indicators have a significant negative effect on TFP of manufacturing industries in Nigeria: tax burdens, power outage, unofficial payment and loss in transit due to breakage or spoilage. TPF could be reduced by 0.06% when power outage is increased by one hour. TPF may decreased by 1.8% when unofficial payment increases by 1%. Investment climate indicators that have a positive effect on TFP of manufacturing industries are management time dealing with regulation and percentage of firms owned by private domestic individuals, companies and organisations.

Ajagbe et al. (2018) examined the influence of investment climate on technical efficiencies of food industries in Nigeria. The study made use of 2009/2010 World Bank Enterprise survey data across twenty-six (26) cities in Nigeria. The result of technical efficiency as computed by Cobb-Douglas production frontier revealed food industry as being more labour intensive butless efficient compared to other industries in Nigeria. Result of the influence of investment climate on firm level productivity revealed that most investment climate variables influenced productivity of other manufacturing industries positively but remain insignificant in the food industries. The significance of firm scale (scale), percentage of establishments' firm scheduled for direct exports (export) as well as the percentage of the firms owned by largest shareholder(s) (own) was evident from the significance of the variables in all the industries. The results pointed to the fact improvement in productivity by Nigeria firms can be achieved through learning from customers and by facing international competition. Investment climate difficulties had less effect on food industries than others. The sector could be a good starting point in the nation's industrialization policy drive if available resources can be utilized optimally. It was therefore recommended that policy makers should help build up conducive investment climate in order to improve the performance of food industries relative to others.

Ajagbe and Ajetomobi (2020) examined the investment climate and productivity of manufacturing industries in Nigeria. The study uses 2009 World Bank Enterprise survey data on Nigeria and the analyses was done using an econometric production function to model total factor productivity (TFP) for each firm in the Nigerian manufacturing industries, while the variation in TFP was statistically related to the indicators of investment climate as well as firm characteristics. The results showed systematic variations in the indicators of investment climate across various industries in Nigeria. The indicators of poor investment climate –losses in transit due to breakage or spoilage, unofficial payments, power outages and tax burdens – exert negative but significant influence on the TFP of manufacturing industries in Nigeria. Increasing power outages by one hour per month could reduce TFP by 0.06%, while a 1% rise in unofficial payments could lead to a decline in TFP of about 1.8%. Management time dealing with regulations, power generation from generator, inspections per year and percentage of firms owned by private domestic individuals, companies and organizations as indicators of investment climate, all exert a positive and significant influence on the TFP of manufacturing industries. The study recommended policy measures to improve the dimensions of the relevant investment climate indicators.

Dada et al. (2021) conducted a study on Agro-allied Small and Medium Enterprises and the economy of Kogi State, Nigeria. With the employment of survey research design; a purposive sampling of one hundred and twenty (120) 'agripreneurs' (farmers who are entrepreneurs) were carefully chosen. The study covered the three senatorial districts in the state. Data analyses were carried out with the aid of both descriptive and inferential (Multiple Regression Model) analytical techniques. Result of descriptive statistic reveals that market unpredictability, price variability, weather condition, land quarrels/conflict, losses due to animal foraging/theft during marketing season, unrestrained bush fires and administrative bottlenecks are basic business risks attached to Agri-entrepreneurial activities in the state. Multiple regression results also revealed a positive and significant relationship at (p= 0.01) between entrepreneurial activities of Agro-allied SMEs and job creation in the State. The study concluded by reporting a reduction in the rate of unemployment in the state as a result of empowerment of Agro-allied SMEs. The strategic empowerment, promotion and protection of the entrepreneurial activities of Agro-allied SMEs by all economic stakeholders to take advantage of increased job creation in the study area is hereby recommended.

Babatunde et al. (2022) examined the impact of Agro allied small and medium scale business on economic growth of Nigeria between 1976 and 2020. The data was sourced from CBN Statistical Bulletin and analysed using econometric techniques such as ordinary least square and error correction model with the aid of EViews software. The Regression result showed that a positive and significant relationship exist between Agro allied SMEs and real gross domestic product (R^2 =0.586, Adjusted R^2 = 0.577, p value= 0.02). The study concluded that Agro allied small and medium scale business has moderate positive impact on economic growth of Nigeria. This study therefore recommended that emphasis should be on modern technology to improve Agro allied business to make economy more functional, relevant and growth driven.

Challenges in Measuring and Interpreting Total Factor Productivity (TFP)

Potential challenges in this analysis could include the interplay between different factors. For example, while competition is good, too much competition in a weak regulatory environment might lead to a race to the bottom in terms of wages or standards, negatively affecting productivity. Also, some factors might have lagged effects; infrastructure investments take time to materialize into productivity gains.

Data collection might be another issue. Measuring TFP itself can be complex, as it requires accurate data on outputs and inputs. Business climate indicators can also be subjective or vary in measurement across different studies.

Also, it's important to note that while TFP is about the residual growth not explained by inputs, the business climate affects the ability to utilize those inputs more effectively. So even with the same level of labour and capital, a better business environment can lead to higher output through more efficient use.

In summary, the analysis of Total Factor Productivity (TFP) and its relationship with the business climate faces challenges in accurately measuring TFP and business climate indicators, accounting for the complex interplay and lagged effects of various factors, and establishing clear causal links.

CONCLUSION

In conclusion, Nigeria offers a wealth of opportunities for investors, driven by its large market size and diverse economic potential. However, the investment climate is shaped by a range of challenges, including corruption, political instability, and infrastructural deficits. For investors to succeed, it is essential to navigate these complexities with a well-informed strategy and a deep understanding of the local environment. The findings reveal that the business climate plays a critical role in shaping the productivity and sustainability of Agro-allied SMEs. Key elements such as infrastructure quality, access to finance, regulatory efficiency, political stability, and corruption has influence on TFP. Poor infrastructure, unreliable power supply, and bureaucratic inefficiencies were identified as major barriers to productivity, while access to finance and stable regulatory frameworks were found to enhance operational efficiency and innovation. The study also highlighted the importance of education, skills development, and technological adoption in improving TFP.

Nigeria has the potential to enhance its attractiveness as a destination for investment with continues policies and investment. A favourable business climate enhances TFP and productivity by removing inefficiencies, fostering innovation, and incentivizing optimal resource use. Policymakers should prioritize reforms in regulation, infrastructure, education, and innovation, while businesses should leverage stable, competitive environments for growth. Cross-country studies (e.g., World Bank's Ease of Doing Business Index) highlight the importance of these factors in driving economic success.

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