

Effects of Academic Research Outcome on Entrepreneurial Innovations Among Tertiary Institutions

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Abstract

Research output serves as tangible evidence of a productive lecturer, and in the context of Nigeria, it holds great potential for addressing the country's numerous social, environmental, and economic challenges. This study examines the relationship between academic research outputs and entrepreneurial innovation within the context of Nigerian universities. Despite the increasing emphasis on research productivity, the translation of academic outputs into entrepreneurial innovation remains limited, particularly in developing economies. This study aims to identify key factors influencing this translation process. A survey research design was adopted, with data collected from 303 academic staff across the Faculties of Management Sciences and Social Sciences at the University of Jos. Data were analysed using multiple regression techniques to evaluate the impact of research-related factors on entrepreneurial innovation. The findings reveal a statistically significant positive relationship between academic research outputs and entrepreneurial innovation. Key determinants include access to research infrastructure, institutional support mechanisms, mentorship opportunities, and administrative efficiency. The results further indicate that inadequate funding, bureaucratic bottlenecks, and weak university-industry collaboration hinder the effective commercialization of research outcomes. The study concludes that strengthening institutional frameworks, improving infrastructure, and fostering collaboration between universities and private sector actors are critical for enhancing innovation outcomes. It recommends the development of

structured mentorship programs, transparent reward systems, and policies that promote research commercialization. This research contributes to the literature on academic entrepreneurship by providing empirical evidence from a developing country context and offers practical insights for policymakers and university administrators seeking to promote innovation-driven growth.

Keyword: Academic research output, entrepreneurial innovations, Academic Entrepreneurship.

1. Introduction

The pursuit of knowledge and innovation is a cornerstone of academic research and its impact extends far beyond the confines of academia. One of the most significant effects of academic research outcomes is their potential to fuel entrepreneurial innovations, driving economic growth, and transforming industries. When academic research is successfully translated into practical application, it can lead to the development of novel products, services, and processes that disrupt market and create new opportunities. This, in turn, can have a profound impact on society, improving lives. and shaping the future. By examining the effects of academic research outcomes on entrepreneurial innovations, we can gain a deeper understanding of the complex dynamics between knowledge creation, innovation, and entrepreneurship, ultimately unlocking new avenues for growth, progress, and societal impact. Research output serves as tangible evidence of a productive lecturer, and in the context of Nigeria, it holds great potential for addressing the country's

numerous social, environmental, and economic challenges. Nigeria currently faces a range of pressing social issues, including the persistent threats of war, terrorism, kidnapping, tribalism, rape, and high divorce rates (Okwuwada, 2023). Furthermore, Nigeria is grappling with significant environmental issues such as climate change, loss of biodiversity, and pollution (Haider, 2019). Research efforts focused on these issues can help assess the extent of environmental degradation, identify key drivers, and propose sustainable strategies for mitigating and adapting to these challenges. By generating evidence-based knowledge, researchers can inform policy makers, raise awareness among the public, and foster the implementation of effective environmental conservation measures. Universities thrive in society as communities dedicated to learning and the personal development of their members. One of their major purposes is “the development and maintenance, through teaching, learning and research, of a broad and advanced knowledge base” (Bergan & Damian, 2010). Furthermore, lecturers are well aware of this because their academic visibility and personal growth on the job is ‘hinged’ to their research output. Beyond this, the lecturers’ job responsibilities clearly identify and include embarking on research studies regularly as research reports are highly valued in the academia (Tom & Ndaeyo, 2024). Therefore, to keep pace with their job responsibility demands, lecturers explore and utilize necessary and professionally acceptable means to remain relevant within the system by deploying available resources to assist them and ease the process of research. This is what makes Research Gate a veritable platform for research scholars. It has potentials for connecting the lecturers with other scholars and keeping them abreast with new and latest developments in their various fields of specialization and areas of research interest. In recent years, there has been a growing recognition of the importance of academic research in driving technological innovation and economic development. Academic institutions play a crucial role in generating knowledge and conducting research that can address societal challenges and drive economic growth. However, there is a need to bridge the gap between academic research and

practical implementation, particularly in developing countries like Nigeria. Nigeria, as the largest economy in Africa, has made significant strides in its research and development (R&D) efforts. However, the translation of academic research outcomes into entrepreneurial technological innovations that can benefit institutions and society at large remains a challenge. Research output measured through academic papers or books has been accepted as a more quantifiable, straightforward and objective means to measure a country’s knowledge stock (Hatemi-J et al., 2016; Inglesi-Lotz and Pouris, 2013; Pouris and Pouris, 2009). Ivey et al. (2015) argue that traditional metrics such as publications and citations should not be the only ones used to measure research output and impact, respectively. They add that research output and impact should also reflect the demonstrable contribution of an institution’s research to the society and the economy. The role that research plays in development has been widely recognized (Nyangaga et al., 2010; United Nations Development Programme (UNDP), 2001). Mosha (1986) stated that in relation to national development, African universities’ main roles are ‘the pursuit of learning and preparation. It is argued that entrepreneurial innovation is key to the survival and high performance of SMEs in all economies globally and ultimately the growth of a nation’s economic status. Ademiluyi (2019) opined that consolidation of entrepreneurial innovative skills and technology offers advantages over competitors and is therefore seen as essential for a firm to survive in the turbulent business environment. Linguli and Namusonge (2015) argued that entrepreneurial innovation has positive effect on enterprise performance. Despite studies acknowledging that entrepreneurial resources are critical to the performance of enterprises, the studies did not conceptually narrow down to entrepreneurial resources like access to finance, entrepreneurial innovation and technological innovation that are deemed critical to the operational performance of manufacturing firms (Khan, Rathore & Sial, 2020; Khan, et al., 2021)

The exceptional teaching, research and service environment which earn universities the reputation of academic excellence is created and maintained

primarily by the academics, in other words lecturers. The lecturers achieve this through their commitment to professional updating which is assessed by the quality and quantity of their research output. Research output is therefore particularly important within the academia. Besides, Borg (2013) opines that good teaching cannot be possible without research, as research remains an essential aspect of assessment for academic positions and promotions. Akai (2023) maintain that quality research output is of utmost importance within the university environment as it is a major criterion used for “ranking world-class Universities.” University lecturers are aware of all these. Hence, as part of their duties and job responsibility, they embark on research on regular basis. In the light of this, it behoves lecturers to discover and avail themselves to applications, platforms, networking sites, web-based research tools, and software programmes that have the potentials to facilitate research and enhance quality research output. Hindrances to research productivity among Nigerian institution cannot be over-emphasized, lack of or inadequate funding, which is a major hindrance to research output among Nigerian lecturers. Insufficient financial resources allocated to research activities severely limits the capacity of lecturers to carry out high-quality research projects. This limited funding negatively affects access to research materials, equipment, and facilities (Akomolafe, & Adesua, 2016), and restricts opportunities for attending conferences, workshops, and other knowledge-sharing events (Munajat Zurainan, Mat Nazir, & Md Sabri, 2021; Ugwu, Onyekachi, Anibueze, Onyekwere & Nwokeoma, 2021). Without adequate funding, lecturers and students face significant challenges in conducting rigorous research, publishing in reputable journals, and making impactful contributions to knowledge creation. Infrastructure challenges pose a significant hindrance to research output among Nigerian lecturers. Inadequate infrastructure, such as unreliable power supply, limited internet connectivity, and outdated research facilities (Aghimien et al., 2020; Ugwu, 2021), severely impacts the ability of lecturers to conduct research effectively. For instance, a study conducted by the Nigerian Universities Commission (NUC) revealed

that over 70% of universities in Nigeria experience frequent power outages, which disrupt research activities and delay data collection and analysis (Jacob, Jegede, & Musa, 2021). Previous research in Nigeria has shown that a significant number of lecturers reported a lack of access to mentors who could assist them in navigating the complexities of the research process (Idubor & Adekunle, 2021). Without proper mentorship, lecturers may struggle to design robust research studies, analyze data effectively, and disseminate their findings in reputable journals (Idubor & Adekunle, 2022). The lack or adequate recognition and reward system is a major hindrance to research output among Nigerian students and lecturers (Jacob, Jegede, & Musa, 2021). The absence of a robust system that acknowledges and rewards research achievements can demotivate lecturers from investing significant efforts into research activities (Manzoor, Wei, & Asif, 2021). Against this backdrop, this study examines effects of academic research outcome on entrepreneurial innovations among tertiary institutions.

2 Statement of the Problem

Despite the significant research and development efforts in Nigeria and its potential to drive entrepreneurial innovation, there is a notable gap in effectively transforming academic research outcomes into entrepreneurial technological innovations for institutional benefit. This problem is characterized by several key challenges; Hindrances to research productivity among Nigerian institution cannot be over-emphasised, lack of or inadequate funding, which is a major hindrance to research output among Nigerian lecturers. Academic institutions often face financial constraints, which hinder their ability to invest in translating research outcomes into practical applications. The lack of adequate funding prevents the development and commercialization of innovative technologies, limiting their potential impact on institutions and the wider economy. Insufficient financial resources allocated to research activities severely limits the capacity of lecturers to carry out high-quality research projects. This limited funding negatively affects access to research materials, equipment, and

facilities. Without adequate funding, lecturers and students face significant challenges in conducting rigorous research, publishing in reputable journals, and making impactful contributions to knowledge creation. Infrastructure challenges pose a significant hindrance to research output among Nigerian lecturers and students (Ugwu, 2021). The lack of inadequate recognition and reward system is a major hindrance to research output among Nigerian students and lecturers (Jacob, Jegede, & Musa, 2021). The absence of a robust system that acknowledges and rewards research achievements can demotivate lecturers from investing significant efforts into research activities (Manzoor, Wei, & Asif, 2021). There is a prevailing mindset within academic institutions that prioritizes publishing research papers over commercializing research outcomes. This lack of an entrepreneurial culture hampers the exploration of entrepreneurial opportunities by researchers and discourages active engagement with industry stakeholders. The absence of modern infrastructure, such as research parks, incubators, and technology transfer offices, poses a significant barrier to transforming research outcomes into marketable products or services. The lack of such infrastructure limits collaboration between academia, industry, and government and restricts the necessary resources for technology commercialization. Effective collaboration between academia, industry, and government is essential for successful technology transfer and commercialization. However, in Nigeria, there is often a lack of efficient collaboration mechanisms, hindering the transfer of knowledge and expertise from academia to industry. This limited collaboration restricts the potential for research outcomes to be transformed into practical applications. These challenges necessitate this research in order to bridge the gap between academic research and entrepreneurial technological innovations for institutional benefit in Nigeria. Overcoming these barriers, can help academic institutions to play a more active role in driving economic development, creating job opportunities, explore strategies and interventions that can facilitate the transformation of research outcomes into practical applications and establish a more conducive

environment for technology transfer, commercialization and contributing to the overall societal progress. The research programmes of universities are to aid the social, economic, and technological advancement of the country. Yusuf (2012) noted that the roles of higher institutions' research in national development cannot be overemphasized. However, research in Nigeria's higher institutions (universities, polytechnics, monotechnic, and colleges of education) has yet to make real impact on the technological development of the country and the socio-economic well-being of its citizenry. For instance, research in science have been seen as a one of the key pivotal to drive the vehicle of the nation successfully to the destination of among the advanced countries of the world (Ojelade, Adams & Aregbesola, 2021). Ebele, Aregbesola & Adams (2014) noted that for developing countries to ensure quality standard of living for citizens, research in science and technology must be taken very serious and paramount among the students, lecturers, and researchers in higher institutions. This necessitates Nigeria as a nation with her wealth of resources and knowledge to be awake to the clarion call of research in higher institution to develop manpower, and to think outside the box as a producer not a consumer. The capacity of academics across higher institutions in Nigeria to carry out meaningful research is lacking. Many universities, polytechnics and colleges of education lecturers lack the basic ability, skill and motivation to carry out standard research in many fields. They are equally handicapped to access any grants or research funds either within or outside their institutions due to lack of capacity. The situation is compounded by lack of credible and timely data absence of legal frameworks for research, low uptake and implementation of research results, academic corruption including protracted supervision of postgraduate students and low computer literacy amongst scholars. Despite the increasing reliance on empirical research across disciplines, many studies have been undermined by poor validity, leading to flawed conclusions. The problem often stems from the inappropriate or inadequate application of statistical methods, which compromises the accuracy and relevance of findings.

When validity is not assured, the entire foundation of a study can be questioned, potentially affecting decisions based on the research (Adugna et al., 2024). Given the importance of deriving meaningful insights from research, scholars have increasingly turned to statistical methods to enhance the validity of their studies, particularly in areas where results directly influence policy-making, education, health, and business strategies (Biomedical & 2022, 2022). This article aims to highlight the critical role that statistical analysis plays in ensuring research validity and to provide insights into how researchers have successfully overcome these challenges.

1.2 Objectives of the Study

- i. To determine the effect of academic research outcome on entrepreneurial innovations
- ii. To Identify the key factors that influence the translation of academic research outcomes into entrepreneurial innovation.

1.3 Research Question

- i. What is the effect of academic research outcome on entrepreneurial innovations?
- ii. What are the key factors that influence the translation of academic research outcomes into entrepreneurial innovation?

1.4 Research Hypotheses.

H01: There is no significant effect between academic research outcome and entrepreneurial innovations.

H02: There is no significant effect between key factors that influence the translation of academic research outcomes and entrepreneurial innovation

1.5 Significance of the Study

The study aims to bridge the gap between academic research and the commercialization of technological innovations. Transforming research outcomes into entrepreneurial ventures can contribute to economic growth in Nigeria. This can lead to job creation, increased productivity, and improved competitiveness in the global market. Nigeria has a wealth of academic research and intellectual property that has the potential to drive technological

advancements. Hence, promoting the transformation of research outcomes into entrepreneurial ventures can facilitate the development and adoption of innovative technologies that can address societal challenges and improve the quality of life in Nigeria. Transforming academic research outcomes into entrepreneurial ventures also have institutional benefits which include increased revenue generation for academic institutions through licensing and commercialization of intellectual property. It can also enhance the reputation and visibility of academic institutions both nationally and internationally. Fostering collaboration between academic institutions, industry, and government agencies can facilitate knowledge transfer and create a conducive environment for the commercialization of research outcomes. This can lead to the development of strong partnerships and networks that can further drive innovation and entrepreneurship in Nigeria. The study also aligns with the Sustainable Development Goals (SDGs) by promoting sustainable development through technological innovations and transforming research outcomes into entrepreneurial ventures, it addresses societal challenges such as poverty, healthcare, education, and environmental sustainability. The study holds great significance for Nigeria as it has the potential to unlock the untapped potential of academic research and drive technological innovations that can contribute to economic growth, societal development, and institutional benefit.

2. Literature Review

2.1 Theory of Entrepreneurship/ Innovation

The Triple Helix Model was proposed by Henry Etzkowitz and Loet Leydesdorff in the 1990s. They introduced the concept in their book titled "The Triple Helix: University-Industry-Government Innovation in Action" published in 1997. The model has since gained significant attention and has been widely used in the fields of innovation studies and science policy. The Triple Helix Model emphasizes the importance of collaboration and interaction between academia, industry, and government in driving innovation and economic development. In the context of transforming academic research

outcomes into entrepreneurial ventures, this model recognizes the complementary roles and interactions between these three sectors. The theory asserted that academia plays a crucial role in generating knowledge and research outcomes that have the potential for commercialization and technological innovation. It is through academic research that new ideas, technologies, and innovations are developed. Academic institutions have the expertise, resources, and facilities necessary for conducting research and generating intellectual property. Industry, on the other hand, provides the resources, market orientation, and commercialization capabilities needed to transform research outcomes into entrepreneurial ventures. Industry partners can bring the necessary funding, expertise in product development, marketing and distribution networks, and market insights to successfully commercialize the technological innovations and the Government has a role in creating an enabling environment for the transformation of research outcomes into entrepreneurial technological innovations. This includes setting policies and regulations that support innovation, providing funding mechanisms and incentives for commercialization, and fostering collaboration between academia and industry. In Nigeria, the Triple Helix Model can be particularly relevant as it can help foster collaboration and knowledge exchange among these three sectors. It can facilitate the creation of strong partnerships and networks that can drive the transformation process and help address potential challenges such as limited funding, bureaucratic hurdles, and risk-averse organizational cultures that may hinder the transformation of research outcomes into entrepreneurial ventures. Nigeria can create a collaborative environment that promotes the commercialization of research outcomes, fosters technological innovation, and brings about institutional benefits such as increased revenue generation, job creation, and improved competitiveness in the global market. This theory provides frameworks and insights for understanding the dynamics, challenges, and opportunities involved in transforming academic research outcomes into entrepreneurial technological innovations for institutional benefit in Nigeria. It helps identify key

factors and strategies that can facilitate the transformation process and enhance the impact of academic research on economic development and societal well-being.

2.1 Concepts of research outcome

Research information moves very quickly in this age of social media and online platforms. The scholarly practice of not releasing or publicizing research outcomes (and their importance and application) until after formal peer-reviewed journal publication has largely disappeared. Researchers are keen to promote their work, and a key aspect of the likely impact is prominent reporting of the study's practical applications. The issue of identifying, presenting, and managing practical outcomes of sport-science research starts at the creation or formulation of a study. Identifying the possible practical application(s) is typically required for research grant applications and for ethics submission to an institutional review board. Equally important is identifying the likely beneficiaries of the research the "who," in many cases the coaches, athletes, and support staff but often includes other researchers, as well as sporting organizations. Research is the process of arriving at dependable solutions to problems through the planned and systematic collection, analysis, and interpretation of data. Research is oriented towards discovering the relationships that exist among the phenomena of interest to a researcher (Osuala, 2001). Others have defined research as the search for knowledge, truth, similarities, and relationships and finding solutions to problems through the systematic collection, analysis, and interpretation of data. Research is an activity that involves observation and description of the characteristic properties of objects or events for the purpose of discovering relationships between variables and developing generalization that may be used to predict future occurrences. Research involves identification of problems, gathering new data, finding solution to a problem through carefully designed procedures and logical analysis Okeke (2004). Research therefore is an intensive and extensive search for solutions to problems in a society. The problem could be in education, business, agriculture, medicine, engineering,

politics, etc. Approaches may differ but essentially the aim is the same; to provide new insights of understanding or attempt to provide solutions that could be temporal, intermediate or permanent. The overarching goal is to promote development on targeted fronts

Formulating and outlining an implementation plan should be a feature of (most) publications and the research study from which the article is derived. Implementation science is more established in health-care settings, and there are recent calls for more attention to this issue in sports medicine and exercise science. Internal and external grant applications are increasingly requiring a detailed statement of the implementation plan and “how” the outcomes can be applied. Graduate students also need to document these arrangements in their thesis (dissertation) proposal. The days of a research outcome(s) simply denoted as “a peer-reviewed publication” are now receding. Universities, faculties, and research programs, as well as researchers and research students, need to promote their research outcomes as relevant, implementable, and impactful. The benefits and practical application of a peer-reviewed publication vary widely and are made on a case-by-case basis for each article. A study showing a large positive outcome will be of real interest to the beneficiaries, and the practical applications can be fast-tracked. However, studies that show a trivial outcome, or, infrequently, a negative outcome, are less likely to require a statement on the practical application. These studies can still be published, of course, as null and negative outcomes adding to the body of knowledge in sport and exercise science, and in practice they are important so that coaches and athletes understand what works or not. To assist beneficiaries, the most suitable time frame for implementing practical applications the “when” should be determined. A rule of thumb that can be followed is to identify the time course of implementation as either this week (immediate), this month (soon), or next season (later). For example, simple outcomes that are effective, don’t require any resources, and are largely risk free can be implemented quickly. Other study outcomes might require internal discussions, planning, resourcing, and trialing. Another

consideration is whether the training program or athlete preparation is at a critical stage, with all parties (athlete, coach, practitioner) acknowledging that this is not the best time to be making changes. An obvious example is the period immediately prior to competition, when new initiatives and distractions should be kept to a minimum. Other long-term research outcomes might require several months or more to implement. This might relate to undertaking new initiatives in the off and/or preseason phase (away from competition) or be due to the fact that additional resources, equipment, and financing are required. Purchase of new equipment or modification to facilities requires permission, funding, resourcing, and often pilot work to ensure a smooth implementation into an athlete’s or team’s preparation. Interventions in the digital space, including software and hardware applications, machine learning, and, increasingly, artificial intelligence, will require practitioner training and/or upskilling and time for development, evaluation, and implementation. Often a limiting factor is timing, particularly for training related interventions. The time course varies widely, but typically an intervention aimed at substantially improving one or more aspects of fitness or conditioning (eg, a strength/power program in the gym, a field-based interval-training program, or modifications to an altitude-training intervention) will require careful advance programming. The degree of generalizability (more common in quantitative research) and transferability (more common in qualitative research) is also a consideration. Generalizability can be defined as is the degree to which the results of a study can be applied to a broader context, perhaps different sports or training/competition environments. Results that are more generalizable can be applied to different sports, across different ages and experience of athletes, and even position-specific and event-specific settings.

Entrepreneurial Innovation

Innovation is characterized by the introduction of new ideas, methods, processes, products or services that bring about significant and positive change. It embodies creativity, as it involves generating novel solutions to existing problems or creating

opportunities (Jin et al., 2022). Innovation is driven by a willingness to take risk and the ability to adapt to the dynamic change in customers' demand and preference which may require collaboration and interdisciplinary thinking. This may occur in different domains, including technology, business, science, and social sectors. For innovation to be successful, it has to be customer centric, aiming to fulfil unmet needs and enhance user experiences. Innovation is a key driver of entrepreneurship and plays a crucial role in the success and growth of businesses, and shaping a dynamic and ever-improving society (Odeyemi et al., 2024; Olowoporoku & Falana, 2020). In the era of disruptive innovation, the importance of strategic management with an entrepreneurial approach has become increasingly evident. The role of entrepreneurial orientation in creating superior and sustainable organizational performance through business model innovation and collaborative strategic relationships is paramount, as demonstrated in the research by Dewi and Ahamat (2018). This approach is particularly relevant in industries facing disruptive changes, such as the hospital industry in Indonesia, which requires entrepreneurial strategies to mitigate challenges posed by policy reforms and payment system changes." The key drivers of entrepreneurial success in the 21st century include a comprehensive understanding of the internal and external business environment, a strong entrepreneurial culture, effective innovation processes, dynamic team dynamics, and efficient resource allocation. The rise of women entrepreneurs and the importance of strategic management in the face of disruptive innovation further underscore the need for adaptability and strategic foresight in achieving entrepreneurial success. The entrepreneurial audit serves as a strategic tool for organizations to assess their innovation efficiency and embark on entrepreneurial renewal. Modern entrepreneurial practices face a myriad of challenges and barriers that can impede the growth and success of new ventures. Understanding these challenges is crucial for entrepreneurs, policymakers, and support organizations to foster a more conducive environment for business development. Entrepreneurs often encounter significant barriers

even before their businesses are off the ground. These include access to capital, navigating bureaucratic processes, and developing a viable business model. The inability to overcome these initial barriers can prevent many promising ideas from ever materializing into successful businesses (Looze & Desai, 2020). According to Price Waterhouse & Cooper's (PwC's), Micro, Small and Medium Enterprises Survey (2021), and SBA (2021), this sector accounts for 99% of total enterprises, 44% of GDP, 44.7% of export, and 48% of employment. For instance, in 2020 over 140 million Chinese SMEs contributed significantly to the country's GDP, tax income, technological innovation, and job creation, as well as in 2021, 1.2 million SMEs contributed significantly to Canada's GDP (Opeyemi, 2024). Entrepreneurial innovation in terms of product innovation, process innovation, marketing innovation, and management innovation significantly impacts SMEs but puts forward a set of complex challenges (Nnorom et al., 2023). On one hand, these innovations can be quite instrumental in enhancing productivity with the help of automation, efficiency, and culture of continuous improvement (Okoli et al., 2021). For instance, process innovation can also help the firm optimize its manufacturing operations to minimize costs and shorten delivery times. Product innovation generates new market space and meets developing market requirements of customers, thus increasing the likelihood of profitability (Ibidunni et al., 2020). Marketing innovation can also assist SMEs by helping them develop branding positions and reach the target market more accurately. Conversely, management innovation can also offer flexibility and responsiveness to changes and variations in the market (Yelmi et al., 2021).

Academic Entrepreneurship

This is the process of starting and running new businesses that are founded on knowledge or technology acquired by scholarly study. Academic knowledge can generate economic value and commercial potential (Meng et al., 2019). According to Komarnicka (2020), it is the culmination of student, PhD, and university staff activities that are focused on and around business activity and aimed at

creating synergies between the business and scientific communities. The procedure is difficult since it involves the entire organization's operational architecture rather than just a single person or small group of people. It is the application of scientific innovation in economic practice, according to Lopes et al. (2018). It involves the commercialization of research findings and the transformation of those findings into innovation.

2.2 Empirical Review

Studies have empirically established the relationship between innovation dimensions and market share in different sectors of economies, be it developed or emerging economies (Genc et al., 2019; Na et al., 2019; Ntiamoah et al., 2019; Zhang et al., 2019). Omagu et al. (2021) in their study examined the effect of bank innovation capability dimensions on market share of Small and Medium scaled Enterprises in Nigeria. Cross-sectional survey research and stratified sampling technique were adopted with adapted questionnaire. Multiple regression analysis was adopted and the result found that bank innovation capability had positive significant effect on market share. Similarly, Nguyen et al. (2019) studied the influence of innovation on the firm performance and corporate social responsibility of a Vietnamese manufacturing firm. The study used descriptive analysis and correlation matrix for the analytical technique. The result of the study established that the impact of product and process innovation had positive impacts and significant effects on market share. The study agreed to the conclusion by Omagu et al. (2021) who found that product innovation, process innovation and organizational innovation have positive and significant effect on market share. In a related study conducted by Na et al. (2019) that examined the impact of marketing orientation and performance of sharing economic business with focus on marketing innovation in South Korea. The findings revealed that marketing orientation and marketing innovation have a significant effect on market share. Na et al. (2019), agreeing to the findings of Rezvani and Fathollahzadeh (2018) reported that there exists a significant positive correlation between the innovative entrepreneurial activity and the marketing

performance for the SMEs. This corresponds to Na et al. (2019), who also found that marketing innovation had a positive effect on market share. Adamu et al. (2020) examined the effect of marketing innovation on SMEs' performance in Nigeria. Specifically, the study has examined the relation of innovation in product, pricing, promotion, and distribution strategies towards efficiency of small businesses and found out that marketing innovation has a positive and significant relationship with market performance of SMEs. Innovation is the development of a new method, device or machine that, on the market, could change the way in which things happen Bessant & Tidd (2013). This change has to be transformative in bringing improvements Kovacs et al. (2019). There are four main forms of innovations, disruptive, incremental architectural and radical. Radical innovation is the launching of inaugural breakthroughs such as computers. The radical often refers to the magnitude of contribution made to the revenue that is the increase on efficacy, sales and profits of the firm (Hanaysha, et al., 2022). Incremental innovation refers to the systematic evolution of a product or service into newer larger markets. It is typically value addition; example is the Mobile money transfers. According to the Oslo Manual OECD, (2010), innovation is clearly part of a business strategy based on transforming ideas into value. Generally, improved goods, services or processes and can be configured as product, process, marketing and organizational innovation. Innovation is noted to be a necessary ingredient for the sustained success of firms as it protects both tangible and intangible assets against the erosion of the market (Kraus, et al., 2019). In fact, according to Ali, Hao and Aijuan (2020), the ability to innovate is increasingly viewed as the single most important factor in developing and sustaining competitive advantage. Entrepreneurial innovations are the versatile procedures and processes an individual or organizations engage in to and attempt to bring innovative and potentially disruptive new products and technologies to the market. The disruptive type of innovation is majorly a game changer that transforms business practices, it offers to exceed the existing limits of technology solar energy is a good example. It is also the choice they make to, apply,

implement, employ and inject materials, technology, strategies and other resources in the processes and operations of production in an existing, innovation. Firms face challenges in delivering breakthrough innovations with incremental features such that they can easily consume all the enterprise resources leaving space for disruptive innovations by start-ups to take over the market Huynh et al. (2024). According to Ahlstrom (2010), enterprises are better placed by investing, promoting and fostering innovations across the board within their firms. This implies the type of innovation an enterprise adopts is fundamental in the quest for success and growth. Entrepreneurial innovation processes pass through a sequence of stages before the acceptance of a new product (Gomes & Wojahn, 2017). Innovation adoption is the process through which an individual or another decision-making unit passes knowledge of an innovation.

Research gap

Based on the above studies, it was established that most of the studies reviewed adopted systematic literature review through qualitative approach. Also, based on the contextual gap the studies focused on implementation of research result from pure science perspectives. The novel approach of this study is the uniqueness of the research methodology and the focusing of the research outcome to entrepreneurial innovation among SMEs in Jos, Plateau State. these forms the gap needed to be filled by the present study.

3. Methodology

The study adopted the survey research design. The population of the study consists of 7200 and 172 students from social science and management

sciences faculties of University of Jos. Taro Yamane formula for sample size determination was employed to determine the sample size of 379 respondents which include the students and lecturers. Structured and validated questionnaire was used as instrument for data collection while the data collected were computed and analysed using simple percentages, frequency tables, and mean values, as recommended by (Uford & Etim, 2018). Multiple regressions were employed to determine the link between independent and dependent variables, generating an equation explaining the dependent variable in terms of independent factors. The model was expressed as follows:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \epsilon_i$$

Where:

Y = entrepreneurial innovations

X1 = academic research outcome,

X2 = key factors

β_0 represents the intercept (the value of Y when X = 0), and

ϵ_i represents the error term.

4. RESULTS AND DISCUSSION

H01: There is no significant effect between academic research outcome and entrepreneurial innovations.

H02: There is no significant effect between key factors that influence the translation of academic research outcomes and entrepreneurial innovation

Table 1: Summary of Multiple Regression Analysis of the effect between academic research outcome, key factors and entrepreneurial innovations.

students from social science and management								
N	Model	B	Sig.	T	ANOVA (Sig.)	R	Adjusted R ²	F (4,398)
303	(Constant)	2.473	.011	2.547	0.000 ^b	0.737 ^a	0.537	117.354
	Academic research outcome	.148	.004	2.903				
	key factors	.289	.000	5.385				
	a. Dependent Variable: entrepreneurial innovation							
	b. Predictors: (Constant), academic research outcome, key factors							

Source: Researchers' Field Results, 2025

Table 1 presents the results of a multiple regression analysis investigating the effect between academic research outcome, key factors and entrepreneurial innovations, with the null hypothesis H_{01} and H_{02} asserting the effect between academic research outcome, key factors and entrepreneurial innovations. The following interpretation is based on the provided data. The regression analysis reveals that academic research outcome ($\beta = 0.148$, $t = 2.903$, $p < 0.05$), key factors ($\beta = 0.289$, $t = 5.385$, $p < 0.05$). These results suggest that academic research outcome and key factors are likely to contribute positively to entrepreneurial innovations. This finding suggests that improvements in academic research outcome can also lead to entrepreneurial innovations. The overall model's significance is confirmed by the ANOVA test result ($F = 117.354$, $p < 0.05$), indicating that the collective influence of academic research outcome and key factors leads to entrepreneurial innovations. The value of the coefficient of determination, R , was calculated to be 0.737, which implies that 73.7% of the variability in academic research outcome and key factors can be explained by the independent variables included in the model. The adjusted R -squared value at 0.537 gives even more specificity to this interpretation than the study actually establishes in explaining close to 53.7% of academic research outcome and key factors variability. Thus, the conclusion is that academic research outcome and key factors increase entrepreneurial innovations. This means the null hypothesis H_{01} and H_{02} was rejected which established that there is certain application of research outcome by universities which enhances entrepreneurial innovation.

4.1 Discussion of Findings

Based on the hypothesis one, the result from the multiple linear regression analysis showed a positive significant relationship between academic research outcome and entrepreneurial innovations. Hence, the null hypothesis was not supported and thus the study concluded there is a statistically significant relationship between academic research outcome and entrepreneurial innovations, because as academic research outcome increases, entrepreneurial innovations also increase. This finding is in

agreement with the findings of Huynh et al. (2024), who observe that entrepreneurial innovation hinges on research outcome incubated in tertiary institutions. Based on the hypothesis two, the result from the regression analysis showed a positive significant relationship between key factors that influence the translation of academic research outcomes and entrepreneurial innovation, the null hypothesis was not supported and thus the study concluded that there is a significant relationship between key factors that influence the translation of academic research outcomes and entrepreneurial innovation, the null H_{02} was rejected, while the study accepted. The finding is in line with the proposition of Huynh et al. (2024) who suggested money is the source that businesses used in adapting to new technology.

5. Conclusion and recommendation

Overcoming the stumbling blocks to analyze output among Nigerian lecturer and students calls for a multi-faceted method. Approaches such as growing share, organising mentorship applications, enhancing infrastructure, streamlining bureaucratic procedures, enhancing reputation and rewards, and promoting transparency and integrity by authorities are vital for fostering a subculture of research excellence. These techniques empower academics to triumph over challenges, get admission to sources, collaborate with friends, and stay updated with the present day improvements in their fields. Through concerted efforts, Nigeria can liberate its complete research capability and make a contribution significantly to worldwide research advancements.

5.1 Recommendation

Nigerian institutions should create an enabling environment that supports and values research outcome, thereby promoting knowledge creation and entrepreneurial innovation. It is essential for stakeholders, including academic institutions, research organizations, funding agencies, and authorities, to collaborate and take proactive measures to implement these strategies, ensuring that Nigerian lecturers and students have the necessary support and resources to excel in their research endeavours. Also, university management can

collaborate with private businesses to make access to needed infrastructure available for researches in the Nigerian university system since they act as a bedrock for entrepreneurial innovation.

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