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UNIVERSITIES AS REGIONAL ECONOMIC ANCHORS:
A Case Study of Pwani University and the Technical University of Mombasa, Kenya

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ABSTRACT
This case study examines the role of higher education institutions as regional economic anchors in the Kenyan coastal region. Focusing on Pwani University (PU) and the Technical University of Mombasa (TUM), the research analyzes how their transition to fully chartered universities in 2013 has catalyzed urban transformation, human capital development, and infrastructure development. Utilizing a qualitative comparative case study design and documentary analysis including the Auditor-General's reports and County Integrated Development Plans, the study identifies a significant "multiplier effect" despite institutional financial challenges. Findings suggest that these universities stabilize local economies against seasonal fluctuations in tourism and provide the research infrastructure necessary for Kenya's Blue Economy. Despite extensive research on Kenyan universities, limited research has been done to examine universities as economic anchors in the coastal region. The paper concludes by recommending the establishment of similar university anchors across all coastal counties to mitigate regional inequality.
KEYWORDS: *Regional Development, Higher Education, Anchor Institutions, Blue Economy, Case Study.*

INTRODUCTION
Kenya's coastal region stretches approximately 600 kilometers, characterized by a rich cultural and commercial tapestry shaped by centuries of Indian Ocean trade (Maitha & Wabuke, 2017). The origins of Kenyan universities can be traced to the colonial period (1895-1963), when early technical and vocational institutions formed the foundation of the country's higher education system. Historical analyses show that colonial authorities and missionary groups established technical training centers in the early 20th century, with policies such as the Fraser Commission of 1909 shaping vocational and industrial education for Africans (Mackatiani & Ejore, 2023). These institutions later evolved into a broader network of postsecondary and university-level establishments, contributing to national development, innovation, and regional equity, as documented in contemporary reviews of Kenya's technical and higher education policy evolution (Osumbah & Wekesa, 2023). This study focuses on two major institutions: The Technical University of Mombasa (TUM) and Pwani University (PU). Both received full charters in 2013, positioning them as central drivers of regional economic transformation (Brennan, 2009; Omalenge, 2019; PU, 2014).

In recent years, Kenya's university system has expanded significantly across regions, with both public and private universities established to increase access and support national development goals. Studies on university expansion highlight the rapid growth of institutions across counties, driven by rising demand for higher education and government policy reforms aimed at decentralizing university education (Okoth, 2024).

The coastal region stretches from Lamu in the north, near Somalia to Lunga Lunga which borders Tanzania to the south. Despite its geographic size and economic significance, the coastal region only hosts two major universities (Mbuthia et al., 2020). This study focuses specifically on universities located along the Kenyan coast, namely, the Technical University of Mombasa (TUM) and Pwani University (PU).

Kilifi County is centrally located within this maritime belt, about 60 kilometers north of Mombasa, Kenya's largest port city and a primary regional commercial hub (Maitha & Wabuke, 2017). Kilifi occupies a unique position between the urban centers of Mombasa and Malindi, blending rural sceneries with rapidly growing beach settlements and emerging urban corridors.

According to the Pwani University strategic plan, Pwani University (PU) is strategically situated on the outskirts of Kilifi town along the Mombasa-Malindi highway. This location serves as an important knowledge hub, linking major coastal towns and positioning the university as a central driver of both educational access and regional economic transformation (Pwani university strategic Plan [PU], 2014).

TUM of Mombasa County is one of Kenya's oldest higher education institutions, originating from the Mombasa Institute of Muslim Education (MIOME) established in the late 1940s through funding from the Sultan of Zanzibar and the Bohra community (Brennan, 2009). It later transitioned into Mombasa Technical Institute (MTI) in 1966 and later to Mombasa Polytechnic in 1976 (Omalenge, 2019) before being awarded full university status (Charter) in 2013 (Brennan, 2009; Omalenge, 2019). PU located in Kilifi County, began as the Kilifi Institute of Agriculture (KIA) in 1984. It was upgraded to a constituent college of Kenyatta University (KU) in 2007 and later granted a full university charter in 2013, making it the second major public university serving the coastal region (Badamana & Kahindi, 2023; PU, 2014).

Universities and Regional Economic Transformation

The presence of universities around the world has transformed small towns into global economic powerhouses serving as economic anchors. Economic anchors are institutions established and deeply embedded in a place to stabilize, sustain, and stimulate the local economy (Goddard & Vallance, 2013). Historically, Universities have been the primary drivers of city-level economic transformation, a process captured in the Knowledge-based urban Development (KBUD) model (Yigitcanlar et al., 2008).

In the United States of America (USA), research has shown that universities like Harvard and Massachusetts Institute of Technology (MIT) have created a 'cluster effect,' driving the region to transition from a colonial settlement to a global leader in biotechnology and high-tech manufacturing (Porter, 2003). In South Africa, Stellenbosch University transformed a rural settlement into a center of innovation, where the university's research output fueled the regional wine, technology, and tourism industries (Schalkwyk & de Villiers, 2016). In the United Kingdom (UK), the cities of Cambridge and Oxford pioneered the university town model. In this model, institutions provide human capital and stability that attract centuries of private investment, creating an economic advantage that arises when people, firms, and institutions cluster in the same geographic area. Economists refer to this phenomenon as 'agglomeration economies' (Glaeser, 2011).

The above global examples demonstrate that universities can transform rural towns into global economic 'powerhouses', a transition that PU and TUM are undergoing. Anchor institutions such as universities and other higher education institutions act as long-term economic and social stabilizers in their local communities (Harris & Holley, 2016). PU and TUM demonstrate a 'multiplier effect' in which every shilling of university expenditure generates additional local economic activity (Appleseed, 2003; Osumbah & Wekesa, 2023).

Theoretical Framework

This study draws on four interrelated theoretical perspectives to interpret the economic roles of PU and TUM: Anchor Institution Theory, Knowledge-Based Urban Development (KBUD), Agglomeration Economies, and Entrepreneurial University Theory. Together, these frameworks provide a conceptual lens for understanding how universities influence regional economic transformation.

Anchor Institution Theory

Anchor Institution Theory positions universities as stable, place-bound organizations that generate long-term economic and social value through employment, procurement, infrastructure development, and community engagement (Goddard & Vallance, 2013). PU and TUM exemplify this role by providing stable employment, supporting local markets, and serving as reliable institutional partners in regions where economic activity is otherwise volatile.

Knowledge-based Urban Development (KBUD) Model
KBUD explains how universities shape urban transformation by producing knowledge, fostering innovation, and attracting investment (Yigitcanlar et al., 2008). Through this lens, PU and TUM function as knowledge hubs that influence the spatial and economic evolution of Kilifi and Mombasa. Their research activities, academic programs, and partnerships with industry and government contribute to the emergence of knowledge-driven development pathways in the coastal region.

Agglomeration Economies
Agglomeration theory highlights the economic advantages that arise when people, firms, and institutions cluster geographically (Glaeser, 2011). PU and TUM contribute to such clustering by attracting students, staff, suppliers, and service providers, thereby generating spillover benefits for surrounding communities. These dynamics help explain the growth of micro-enterprises, housing markets, and service industries around both institutions.

Entrepreneurial University Theory
The entrepreneurial university perspective emphasizes universities' role in fostering innovation ecosystems through commercialization, industry partnerships, and start-up creation (Etzkowitz, 2008). PU and TUM increasingly engage in grant-funded research, innovation initiatives, and collaborations that bring external resources into the region, reinforcing their roles as active economic agents.

These theories illuminate how PU and TUM stabilize local economies, stimulate knowledge-driven development, attract investment, and generate multiplier effects. They provide a coherent conceptual foundation for analyzing the economic impact of universities in Kenya's coastal region.

Comparative Analysis of Case Institutions
To understand the distinct roles played by these institutions, table 1 summarizes their primary economic paths:

Table 1. ***Comparative Analysis of Economic Roles Across PU and TUM.***

Feature	Pwani University (PU)	Technical Univ. of Mombasa (TUM)
Primary Economic Context	Rural-to-Urban / Agricultural	Urban / Industrial / Maritime
Key Research Focus	Agriculture & Health (KEMRI)	Engineering & Port Logistics
Student Population	~8,000	~15,000+
Economic Role	Economic stabilizer Seasonal tourism stabilizer	Labor force for the Blue Economy
Key Grant Success	AgriENGAGE (€994,811)	Technical Vocational Subsidies

Methodology
This study adopts a qualitative comparative case study design. Data were gathered through Documentary Analysis, using institutional records, Office of the Auditor-General (OAG) financial statements, and County Integrated Development Plans (CIDPs) for Kilifi and Mombasa, respectively.

RESULTS AND ANALYSIS

Measurement of Economic Impact
The economic impact of universities can be measured and compared across regions in many ways. Scholars develop several standard (Models) methods to capture the economic impact of universities.

Direct Effects
One of the most widely used methods is the input-output **model** that includes direct effects. Direct effects refer to the expenditure by the university, such as salaries, construction and procurement. These expenditures flow from the university to the local economy, forming the first level of the input-output level (Appleseed, 2003; Drucker & Goldstein, 2007; Siegfried et al., 2007). For example, according to the office of the Auditor-General [OAG] (2023), PU faced a negative working capital of Kenyan shillings 61,723,000. Its liabilities were Kenya shillings 282,169,000, exceeds its assets of Kenya shillings 220,446,000. Despite the negative working capital, PU's existence has been dependent on continued support from the Government, thus acting as a conduit for national funds into the Kilifi region. Without government supplement, the "Direct effect" (Salaries for staff) leads to a localized depression in Kilifi Town's

retail and real estate sectors. Even though PU is insolvent, it continues to generate value by providing a marketplace for local vendors and landlords; however, because this multiplier is fragile (cited by the OAG as "Material uncertainty"), any delay in capitation may create an immediate "liquidity drought" (when there is not enough cash circulating in the local economy) for Kilifi businesses.

To conceptualize these direct effects, Table 2 presents the government funding allocations to PU and TUM between 2021 and 2025. These allocations illustrate the extent to which both institutions rely on national transfers to sustain operations, with PU having a lower and more volatile funding profile reinforcing its financial vulnerability. In contrast, TUM's consistently higher allocations reflect its larger student population and its strategic role in the coastal industrial and maritime economy.

Table 2. ***Government funding allocations for Pwani University and Technical University of Mombasa, 2021-2024***.

Year	Total Amount	
	Pwani University (PU)	Technical University of Mombasa (TUM)
2025	KES 1,097,987,390.00	KES 1,743,959,478.00
2024	KES 585,479,510.00	KES 1,643,820,201.00
2023	KES 1,342,120,505.00	KES 2,082,721,505.00
2022	KES 1,219,105,289.00	KES 1,662,347,917.00
2021	KES 1,147,885,469.00	KES 1,577,825,553.00

These funding disparities explain why PU functions as a stabilizer in a rural economy, while TUM operates as a growth-oriented institution aligned with Kenya Blue Economy agenda.

Indirect Effects

These are expenditures by businesses that supply the university. These include vendors providing food and services, construction companies and contractors, local suppliers of furniture and ICT equipment, transport operators, printing shops, and maintenance firms. The existence of these businesses is due to the university's existence. Even though PU is financially strained, it continues to function as a major institutional buyer. This means that indirect effects are highly sensitive to PU's financial stability (Appleseed, 2003; Drucker & Goldstein, 2007; Siegfried et al., 2007).

Induced Effects

Induced effects are the spending by university employees and students in the local economy. (Appleseed, 2003; Drucker & Goldstein, 2007; Siegfried et al., 2007). The spending includes food and groceries, rent and housing, transport, retail purchases, entertainment and services, among others. Without the government supplement, the induced effect (student economy) would collapse. This means students would leave the university, university employees would not be paid, consumption would drop, and local businesses would lose their primary customers. Kilifi's economy is deeply dependent on PU's population (8,000) and hundreds of staff. Historically, Kilifi's economy has been dependent on seasonal, unstable tourism which was seasonal and unstable (Wanyonyi et al., 2018). Most hotel workers experienced seasonal layoffs due to low tourist numbers (Sindiga, 1999), but university employees provided a stable middle-class consumer base that sustained the local retail sector, like supermarkets, transport and professional services throughout the year (Appleseed, 2003; Goddard & Vallance, 2013). Because induced effects depend on salaries and students' presence, they are affected by delays in government funding, strikes, closures and fee payment disruptions (Kariuki & Mwaura, 2022).

Human Capital and Labor Market Effects.

Each year, universities increase human capital through improvements in skills and wages, employment rates, and long-term regional income growth as emphasized by Moretti (2012) and Abel and Deitz (2012). For example, PU had an overpayment of students' school fees of Kenya shillings 3,858,846 from sponsors for students who had already graduated, deceased, or transferred. This money is supposed to be reinvested into the economy, but it is trapped in the university's accounts due to non-compliance (OAG, 2023). As outlined in the PU Strategic Plan 2023-27 (2023), the institution prioritizes human capital development as a core pillar for stimulating the local economy in Kilifi.

Research, Innovation, and Knowledge Outputs.

Universities establish research collaborations with stakeholders and new organizations within the university that commercialize ideas, technologies, or research. These start-ups may be founded by either students, faculty, researchers or alums (Drucker & Goldstein, 2007; Eskowitz & Leydesdorff, 2000). For example, PU receives government financial backing, which acts as a channel for national funds into Kilifi region and helps PU attract foreign research grants. Since the government spends money to keep PU alive, the university uses the "live status" to attract millions of dollars in foreign currency from internal donors such as the Swedish International Development Agency (SIDA) and the European Commission (EC), which would never enter the Kilifi economy. These institutions rarely grant money to unstable institutions like PU without a sovereign guarantee. The government's backing ensures PU will not become bankrupt if a project hits a snag. This is why PU could secure the AgriENGAGE grant of € 994,811. The European Union (EU) trusts that the Kenyan government will maintain PU's infrastructure for the 3-year project (Pwani University Research Division [PURD], 2025; Etzkowitz & Leydesdorff, 2000).

Institutional Stability and Innovation Clusters

Innovation clusters are concentrations of innovative actors like firms, research institutions and skilled workers that gather in a single area to collaborate, compete and share knowledge, leading to higher levels of innovation and productivity (Mazur et al., 2016; Porter, 2003). For example, according to the AOG (2023) report, there were "no material issues" regarding the effectiveness of internal controls and risk management (Section 135). Economically, this is important because it suggests that, while PU is underfunded (due to the liquidity crisis), its internal systems are not mismanaged. The internal stability is what allows PU to continue to function as a reliable collaborative partner for global organizations like Kenya Medical Research Institute (KEMRI)-wellcome Trust and Technical University of Munich (PURD, 2025).

Social Capital and Community Outreach

The impact of these universities extends beyond the financial benefits into "Social Capital." PU's partnership with the KEMRI-Wellcome Trust provides high-level medical research that directly informs local public health policy (PU, 2014). Similarly, TUM's community outreach in technical-vocational training equips local youth with the skills needed for the Mombasa port expansion, effectively bridging the gap between academia and the local labor market.

Economic Development Indicators Before, During and After PU's Transition.

PU started as Kilifi Institute of Agriculture (KIA) in 1987, offering certificate courses in Agriculture. It later hosted master's and PhD students from other national universities while conducting outreach programs that transferred agricultural technologies to the surrounding communities (Wanyonyi et al., 2018). By 2007, KIA had graduated about 4,000 students from its initial cohort intake of 200 students. During this time, the economic impact in the region was moderate because the institution was small and had limited capacity to stimulate economic growth (PU, 2014).

2007 to 2017 were critical years for KIA. During this period, KIA transitioned from an agricultural Institute to Pwani University College (PUC), moving from certificate training to admitting its 200 first-degree cohort in 2007, shifting from a localized training center to a major economic anchor for Kilifi (Wanyonyi et al., 2018). PUC was chartered in 2013 and became Pwani university (PU, 2014). PU experienced a surge in formal employment and an increase in students and staff, stabilizing the economy against seasonal tourism fluctuations (Wanyonyi et al., 2018; PU, 2014). Most hotel workers experienced seasonal layoffs due to low tourist numbers (Sindiga, 1999), but university employees provided a stable middle-class consumer base that sustained the local retail sector, like supermarkets, transport and professional services, throughout the year (Appleseed, 2003; Goddard & Vallance, 2013).

PU has continued to expand its infrastructure, research capacity, and academic programs while being guided by its strategic plan (2014-2024). Currently, PU hosts about 8,000 students while operating multiple schools like sciences, agriculture, health, business, and humanities (PU, 2014). Kilifi has evolved into a university town, with improved transport networks, new commercial centers, and expanded real estate. The presence of PU has increased land value and stimulated private investment (Kilifi Municipality, 2023; County Government of Kilifi, 2024).

Economic Impacts

The PU and TUM have impacted the region in many ways. The immediate impact is on manpower development and work. For example, PU employs academic, administrative, and technical staff, consistent with its status as a public university chartered in 2013 and operating multiple faculties (Badamana & Kahindi, 2023; Beeson & Motgomery,

1990). Economic development in the local region is felt. For example, support for local hostels, food vendors, transport operators and retail businesses (Osumbah & Wekesa, 2023). Student needs spur growth locally, such as spending and contributions to local economic circulation. It is evident that thousands of PU students contribute to Kilifi's economy through rent, food purchases, transport, and entertainment. This aligns with national analyses showing that university student populations stimulate local micro-enterprises and service sectors (Osumbah & Wekesa, 2023).

PU's presence in the Kilifi region has brought about an increase in the student population of about 8,000 which has expanded informal markets, especially in housing and food vending, an effect observed in coastal counties with growing tertiary institutions (Kilifi County Government, 2019). Additionally, the university has triggered county-level investment in roads, water and electricity. Kilifi County's development plans identify higher education institutions as catalysts for infrastructure upgrades **(**Irungu, 2025). For example, the university's recent expansion of its agricultural research center which included labs, demonstration farms and information and communication Technology (ICT) infrastructure, reflects capital development in the region (Irungu, 2025).

TUM has contributed economically to Mombasa County in many ways also. For example, since its establishment, the student population has increased enormously stimulating micro-enterprises such as food kiosks, photocopying services, salons, and mobile money agents (Mombasa County government, 2018). Additionally, the student population has contributed significantly to Mombasa's service economy through rent, food, transport, and entertainment spending. Finally, TUM and PU have been the epicenter of development in the region, and their impact has been felt in the surrounding areas. In the same vein, research has shown that TUM and PU have helped reduce disparities in professional and technical training (Osumbah & Wekesa, 2023).

Currently, PU and TUM have generated measurable employment, infrastructure development, research output, and human capital development. This begs the question: What would happen if each coastal county, that is, Kwale, Kilifi, Mombasa, Taita-Taveta, and Lamu hosted a fully chartered public university, grounded in Kenyan higher-education research, county development plans, and global university-impact studies? This question gets to the heart of regional development economics because TUM and PU have already generated measurable employment, infrastructure growth, research output, and human capital development across the region. Studies on university expansion in Kenya show that higher education institutions act as regional economic anchors, generating employment, stimulating local markets, and enhancing human capital in their surrounding communities (Osumbah & Wekesa, 2023). Extending this model so that each coastal county hosts at least one fully-fledged public university would likely amplify these effects across the entire coastal belt.

Integration of SACCOs and PU's Impact

According to Kahindi (2020), the growth of financial savings and credit cooperative societies (SACCOs) in Kilifi function in compliment with PU. While SACCOs provide essential funding for local investment, PU provides skilled capital (Graduates and trained staff) necessary to manage and govern SACCOs effectively. Kahindi further explains that Kilifi's economy suffers because its institutions are weak; however, the presence of PU in Kilifi strengthens those institutions by educating people, creating jobs, and supporting community development. Her findings give evidence of PU's role in improving the region. Ultimately, this suggests that PU presence in the region is not just an academic priority, but a strategic economic necessity for breaking the cycle of poverty in Kilifi.

DISCUSSION

Challenges and Limitations

Although PU and TUM function as critical economic anchors in the coastal region, their impact is constrained by several structural challenges. These limitations, financial fragility, infrastructure strain and institutional dependency shape the extent to which the universities can sustain their multiplier effects and support long-term regional development.

Financial Fragility

As highlighted in the OAG (2023) report, PU's negative working capital exposes the institution to recurrent liquidity crises. Because PU's economic impact depends heavily on government capitation, any delay in funding immediately disrupts the local economy. Landlords, food vendors, transport operators, and micro-enterprises experience sudden income shocks when salaries or student disbursements are delayed. This financial vulnerability weakens PU's ability

to serve as a stable anchor institution and underscores the fragility of university-driven development in regions with inconsistent public funding.

Infrastructure Strain
Infrastructure Strain
The rapid expansion of student populations in Kilifi and Mombasa has intensified pressure on local infrastructure systems, including waste management, water supply, and affordable housing. In Kilifi, the emergence of "studentification" has altered rental markets, often pricing out long-term residents and shifting land use patterns. These strains reveal a mismatch between university growth and county-level planning capacity. Without coordinated investment in urban infrastructure, the benefits of university expansion risk being offset by congestion, rising living costs, and environmental stress.

Institutional Dependency
A third limitation is the growing dependency of local economies on university activity. In both Kilifi and Mombasa, micro-enterprises-hostels, food vendors, transport operators and retail shops are tightly tied to the academic calendar. Strikes, closures, or funding delays lead to an immediate collapse of commercial activity in surrounding "university towns" (Kariuki & Mwaura, 2022). This dependency creates economic vulnerability: while universities stimulate growth, they also concentrate on risk. The absence of diversified economic bases in these counties means that disruptions within PU or TUM reverberate widely across the local economy.

CONCLUSION
This study demonstrates that Pwani University (PU) and the Technical University of Mombasa (TUM) function as critical economic anchors in Kenya's coastal region. Their presence generates direct, indirect, and induced economic effects that stabilize local markets, expand employment opportunities, and stimulate micro-enterprise growth. As major employers, the universities support thousands of academic, administrative, and technical jobs, while student and staff spending sustains local businesses in housing, food services, transport, retail, and ICT (Osumbah & Wekesa, 2023). These findings align with county development plans, which identify higher education institutions as key drivers of local consumption and service-sector expansion (Kilifi County Government, 2018; Mombasa County Government, 2018).

Beyond immediate economic activity, PU and TUM catalyze long-term regional development. Their presence has accelerated infrastructure upgrades in roads, electricity, water supply, and ICT connectivity, reinforcing their role as urban transformation hubs. The universities also contribute to Kenya's Blue Economy agenda by providing research capacity, skilled labor, and innovation ecosystems essential for sustainable coastal development (Rasowo et al., 2020). Without these institutions, the region would face reduced investment, slower urbanization, weakened research capacity, and significant barriers to higher-education access—particularly for low-income and rural students (CUE, 2021; KIPPRA, 2020).

The absence of PU and TUM would therefore create profound economic and social disruptions. Local enterprises would collapse during university closures, human capital formation would decline, and counties would lose critical partners in public service delivery, community outreach, and policy engagement. These findings underscore the strategic importance of universities as regional anchors and highlight the need to expand higher-education infrastructure across the coastal belt.

If each coastal county hosted a fully chartered public university, the region would likely experience compounded benefits: expanded employment, stronger local markets, enhanced infrastructure development, increased Blue Economy innovation, and reduced regional disparities in access to higher education and skilled employment (Rasowo et al., 2020; Osumbah & Wekesa, 2023).

Policy Recommendations
Establish County-Level Anchor Universities
Each coastal county-Kwale, Taita Taveta, Tana River and Lamu should host at least one public university or satellite campus specializing in Blue Economy sectors such as maritime engineering, fisheries science, port logistics, and marine conservation.

Integrate University Growth into County Planning
County governments should align urban planning, housing policy and infrastructure investment with university expansion to mitigate studentification, reduce housing pressure, and ensure sustainable service delivery.

Strengthen University–County Partnerships
Counties should formalize collaborations with universities across research, innovation, public health, environmental management and workforce development to maximize local impact.

Enhance the Financial Stability of Existing Universities
The national government should ensure predictable, timely capitation to prevent liquidity crises that destabilize local economies and disrupt university operations.

Developing a Coastal Research Corridor
The two existing universities should establish a coordinated network linking PU, TUM and future coastal universities to support Kenya's Blue Economy agenda through shared research facilities, joint programs, and regional innovation clusters.

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