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## Foreword

Dear Readers of the Journal of Economics, Innovative Management, and Entrepreneurship,

It is with great pleasure that we introduce the latest issue of the Journal of Economics, Innovative Management, and Entrepreneurship. As we continue our journey of exploration at the intersection of economics, management, and entrepreneurship, we are delighted to present a diverse collection of articles that reflect the dynamism and ingenuity of these fields.

In an era defined by rapid globalization, technological advancement, and economic transformation, the role of economics, management, and entrepreneurship in shaping our societies and driving innovation has never been more significant. Our journal offers a platform for scholars, practitioners, and policymakers to engage with the latest research, theories, and best practices in these areas, fostering dialogue and collaboration across disciplines and sectors.

Within these pages, you will find a wealth of insights and analyses on topics ranging from macroeconomic trends and policy implications to organizational strategies and entrepreneurial ventures. Each article contributes to our understanding of the complex dynamics that shape economies, businesses, and markets, offering valuable perspectives and practical implications for decision-makers and stakeholders.

As editors, we extend our sincere appreciation to the authors for their scholarly contributions and to the reviewers for their rigorous evaluation, which have ensured the quality and relevance of the published work.

To our esteemed readers, we invite you to delve into the articles in this issue with curiosity and an open mind. May the ideas and innovations presented here inspire new thinking, spark productive discussions, and ultimately contribute to the advancement of economics, management, and entrepreneurship as forces for positive change in our world.


Prof. Nataliya Bhinder

Editor-in-Chief

Journal of Economics, Innovative Management, and Entrepreneurship

Research Article

# Impact of Foreign Direct Investment on The Growth of Nigeria's Economy: (A Case of the Manufacturing Sector 1980-2023)

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**Abstract:** This study examines the impact of Foreign Direct Investment (FDI) on the growth of Nigeria's Economy: (A case of manufacturing sector between 1980-2023) using the Ordinary Least Squares method of estimation. Descriptive statistic, trend analysis, ADF unit root were initially prepared. It was indicated that all the variables were stationary at level and first difference I(0) and I(1). The Autoregressive Distributed Lag (ARDL) cointegration revealed that FDI has significant relationship with manufacturing output and inversely related (-2.02E-09) in short-run but positively related (0.00) in the long-run. Exchange rate (-0.04) was negatively related with manufacturing output in short-run but positively related in the long-run (0.19) Inflation rate (0.12) and (0.90) has positive impact of growth of Nigeria's manufacturing output and statistically significant in the long-run. More so, capacity utilization rate (0.08) and (0.04) was insignificant both in short and long-run ARDL model reparameterized into Error Correction Model (ECM) revealed the long-run equilibrium was corrected in the current period at an adjustment speed of 62%, statistically significant and negatively signed. Based on the findings, it was recommended that the government ought to come up with more pleasant economic policies and business environment, which will attract FDI into virtually all the sectors of the economy. On the issue of corruption and diversion of funds from FDI inflows, agencies established to fight corruption such as Economic and Financial Crimes Commission and Independent Corrupt Practices Commission should be seen to do their jobs to convince both foreigners and nationals that Nigeria is safe for investment. There is need to encourage and accelerate the factors that affect productivity in the manufacturing sector of the country especially manpower and skills for as long as productivity is low, there cannot be a meaningful growth in the manufacturing sector.

**Keywords:** Foreign Direct Investment; manufacturing sector output; capacity utilization rate; exchange rate; inflation rate

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## 1. Introduction

The fundamental objective of macroeconomic policy is to ensure better performance of the economy as a whole. Therefore, the achievement and maintenance of a reasonable level of employment, an efficient use of resources, a tolerable balance of payment position, equitable distribution of income, relatively stable price and sustained economic growth constitute the main goals of macroeconomic policy. Among these goals of macroeconomic policy, however, the one, which directly or indirectly impinges on the standard of living of the average individual, is the goal of sustainable economic growth.

In the meantime, Foreign Direct Investment (FDI) is a vehicle that has propelled the growth and development of many developing countries like Nigeria, its spillover effects in the areas of knowledge, skills, technological and employment generation has actually impacted tremendously to the growth and development of many developing countries. Thus, there is the need to adequately plan for it, if a country is to enjoy a satisfactory level of growth and development through poverty reduction via FDI. Though, wealth appears to be highly accentuated in Nigeria, poverty rate in rural areas increase at an alarming rate due to an increase in the level of population growth, poor infrastructure, high gender insensitivity and high level of illiteracy (Oladede, 2015).

Also, the manufacturing sector is confirmed to be among one of the major benefactors

to Nigeria's economic growth, but regrettably, after experiencing remarkable growth between the mid-1970s and the 1980s, the sector witnessed severe stagnation, and Nigeria's productivity deteriorated for most of the 1980s and the 1990s. This severe predicament could be ascribed to the descending movement in the oil market as well as the subsequent decrease in international oil prices. Government revenue, coupled with foreign exchange earnings, were drastically affected by the problems experienced in the oil market, and the government was therefore forced to adopt a series of economic reform policies such as austerity measures. This prevailing situation has negatively affected the manufacturing sector. In addition to this, serious trade control policies, like the rationing of foreign exchange, import restrictions via import licensing and tariff hikes, as well as quantitative measures, were put in place (Danmola et al., 2017).

Therefore, it is evident that if a host country like Nigeria creates a conducive and friendly macroeconomic environment for investors, FDI can play a crucial role in the manufacturing sector which will carve out potential benefits which include employment generation, promotion of citizen's welfare and economic growth by providing additional capital to the host country, stabilizing exchange rate, supplementing domestic savings and transfer of modern technology.

Given the foregoing, the broad objective of this research is to critically examine the impact of capital flight on economic growth in Nigeria. Specifically, the other objectives include: (1) to investigate the effects of FDI inflow on the manufacturing sector output; (2) to examine the determinants of FDI inflow in Nigeria economy; and (3) to analyze the effects of exchange rate on manufacturing sector in Nigeria.

The research hypotheses were formulated in line with the research objectives and research questions highlighted above. Basically, this study covered 43-year period, from 1980-2023 and was limited to manufacturing sector of Nigeria economy as far as foreign investment is concern.

## 2. Materials and Methods

A research design has been described as a program, which guides the researcher in the process of collecting, analyzing and interpreting observation. It also connotes the structuring of investigation aimed to identify variables and their relationships to one another (Amos, 2025). Therefore, the methodology was based on the *ex post facto* research design and Ordinary Least Squares (OLS) statistical technique was used

In order to establish the relationship between FDI and manufacturing sector output in the Nigerian economy, the study adopted the findings of Gandu and Yusha'u (2017). Though, importantly, both studies considered different time period. Gandu and Yusha'u (2017) considered the period 2009 – 2016 while the current study considered the period 1980-2023. It was expected that the findings from the current study would provide somewhat different policy insights on the effects of FDI on manufacturing sector output in Nigeria economy.

The incorporation of inflation and exchange rates examined the effect of government policy framework to checkmate the commitment on the provision of infrastructures that will attract investors in the manufacturing sector, which in turn will check the level of improvement of the overall manufacturing sector output growth. The incorporation capacity utilization rate was to examine the performance of the manufacturing sector.

Therefore, the model was presented in implicit form in equation below as:

$$MFOP = f(FDI, EXGT, INF, CAPUR) \tag{2.1}$$

The above implicit function in equation could be presented in a linear functional form as follows:

$$MFOP_t = \beta_0 + \beta_1 FDI_t + \beta_2 EXGT_t + \beta_3 INF_t + \beta_4 CAPUR_t + \epsilon_t \tag{2.2}$$

Where:

MFOP<sub>t</sub> = Manufacturing Sector Output

FDI<sub>t</sub> = Foreign Direct Investment

EXGT<sub>t</sub> = Exchange Rate

INF<sub>t</sub> = Inflation Rate

CAPUR<sub>t</sub> = Capacity Utilization Rate

ε<sub>t</sub> = Error term

β<sub>0</sub> = Constant or intercept term

β<sub>1</sub>, β<sub>2</sub>, β<sub>3</sub>, and β<sub>4</sub> = Parameters to be estimated

From the specified model equations above, the dependent variable is MFOP while exogenous variables are FDI, EXGT, INF and CAPUR. The parameters of the respective



functions are  $\beta_i$  where  $i = 0,1,2,3,4 \dots n$ . It is however, worth emphasizing here that where the assumption of an econometric technique (economic, statistic and econometric criteria) are not satisfied; it is customary to re-specify the model (e.g. introduce new variables or omit some others, transform the original variable and include error terms) so as to produce new form, which meets the assumptions of the econometric theory (Amos, 2025).

The Autoregressive Distributed Lag (ARDL) models are the standard OLS regressions, which include the lags of both the dependent variable and independent variables as regressors (Erdoğan and Çiçek, 2017). ARDL model can also be reparameterized into Error Correction model (ECM). If a long-run relationship among the variables is established (cointegration presence), then the long-run model(s) is/are estimated using Error Correction Term while for short-run relationship (no cointegration) ARDL model(s) is/are estimated.

The short-run relationship model is specified in below:

$$\Delta MFOP_t = \beta_0 + \sum_{i=1}^{n_1} \beta_{1i} \Delta FDI_t + \sum_{i=1}^{n_2} \beta_{2i} \Delta EXGT_t + \sum_{i=1}^{n_3} \beta_{3i} \Delta INF_t + \sum_{i=1}^{n_4} \beta_{4i} \Delta CAPUR_t + \lambda ECT_{t-1} + \varepsilon_{1t} \tag{2.3}$$

Conversely, for the long-run relationship model:

$$\Delta MFOP_t = \beta_0 + \sum_{i=1}^{n_1} \beta_{1i} \Delta FDI_t + \sum_{i=1}^{n_2} \beta_{2i} \Delta EXGT_t + \sum_{i=1}^{n_3} \beta_{3i} \Delta INF_t + \sum_{i=1}^{n_4} \beta_{4i} \Delta CAPUR_t + \varepsilon_{1t} \tag{2.4}$$

Data was analyzed using both quantitative and qualitative approach. In the case of qualitative approach, descriptive statistics was used to compare variable numerically and to ascertain pattern in the data set. For quantitative analysis, ARDL Model, ECM, and Unit Root were used to analyze the data.

### 3. Results

The data analysis began with the descriptive statistics which shows the statistical properties of the variables, afterwards the trend analysis was done to show the graphical flow lines of the variables. Also, Unit Root Test, ARDL Bounds Test for Co-integration, and ECM were carried out using E-Views 9.0 (see Appendix A).

The descriptive statistics (table 1) which generally investigate the features of the data include; the mean, median, maximum, minimum, standard deviation, skewness, kurtosis, Jarque-Bera, probability as well as number of observations for each variable. It therefore showed that all variables have equal observations of 44 each. The result also indicates the statistical properties of the variables such as mean, median, maximum, minimum etc. as well as the pattern of distribution of the variables.

**Table 1.** Descriptive statistics.

	MFOP	FDI	EXGT	INF	CAPUR
Mean	27.33614	2.38E+09	139.7448	18.89364	47.93492
Median	23.71500	1.61E+09	115.1250	12.94500	45.41000
Maximum	64.41000	8.84E+09	899.8930	72.84000	74.66000
Minimum	8.080000	-7.39E+08	0.550000	5.400000	30.40000
Std. Dev.	16.63206	2.53E+09	168.1764	16.15820	10.63813
Skewness	0.685054	1.185796	2.424827	1.895413	0.430097
Kurtosis	2.398258	3.356462	10.77444	5.599418	2.842643
Jarque-Bera	4.105362	10.54445	153.9286	38.73345	1.401943
Probability	0.128390	0.005132	0.000000	0.000000	0.496103
Sum	1202.790	1.05E+11	6148.773	831.3200	2109.136
Sum Sq. Dev.	11894.89	2.75E+20	1216181.	11226.76	4866.305
Observations	44	44	44	44	44

Source: Computed using E-view 9.0.

Stationarity result is presented in table 2. The six variables (MFOP, FDI, EXGT, INF, CAPUR) went through unit root test using Augmented Dickey Fuller (ADF) and two variables (INF and CAPUR) were found to be stationary at levels while the remaining three variables – MFOP, FDI AND EXGT, were stationary at first difference. D(MFOP and FDI) were significant at 5%, while D(EXGT), D(INF), and D(CAPUR) were statistically significant



at 1% level.

**Table 2.** Unit root stationary result.

Variables	ADF Statistics	Critical Value	P-Value	Order of Integration
MFOP	-4.6326	-3.5966 (1%) -2.9332 (5%) -2.6049 (10%)	0.0005	I(1)
FDI	-8.5120	-3.5966 (1%) -2.9332 (5%) -2.6049 (10%)	0.0000	I(1)
EXGT	-3.5796	-3.6268 (1%) -2.9458 (5%) -2.6115 (10%)	0.0113	I(1)
INF	-3.1747	-3.5925 (1%) -2.9314 (5%) -2.6039 (10%)	0.0285	I(0)
CAPUR	-3.0338	-3.5925 (1%) -2.9314 (5%) -2.6039 (10%)	0.0396	I(0)

Source: Computed using E-view 9.0.

From the table 3, it is clear that there is long-run relationship amongst four variables. The F-statistic is higher than the upper-bound critical value (5.06) at the 1% level. This implies that the null hypothesis of no cointegration among the variables is rejected against the alternative hypothesis of a cointegrating relationship in the model.

**Table 3.** ARDL bounds test for co-integration.

Null hypothesis: No long-run relationships exist			
Test statistic	Value	K	
F-statistic	6.629119	4	
Critical value bounds			
Significance	I0 bound	I1 bound	
10%	2.45	3.52	
5%	2.86	4.01	
2.5%	3.25	4.49	
1%	3.74	5.06	

Source: Computed using E-view 9.0

Note: indicates significant at 0.01 level (that is, F-statistic > 5.06 critical value)

From the ARDL model reparameterized into ECM. We can see that the long-run equilibrium is corrected in the current period at an adjustment speed of (0.6210) i.e. 62%, statistically significant and negatively signed. It shows the rate at which the economy is converging to equilibrium in the long-run. The coefficient of determination (R<sup>2</sup>) which is used to assess the explanatory power of a model revealed that the model has a good-fit with (R<sup>2</sup> = 0.9690 and 0.6811) 97% and 68% of changes in manufacturing sector output being explained by the variables included in the model both in the short-run and long-run respectively. The remaining 3% and 32% were explained by the error term ( $\mu$ ). The Durbin Watson (DW) value suggests that there may be no serial autocorrelation problem and the F-Statistics (6.6291 and 36.4852) shows that the variables were jointly statistically significant in short-run and long-run respectively. The results from the AIC, SIC, and Hannan-Quinn criterion tests showed very low figures, indicating that the selection of lags in the model was adequate.

Furthermore, from the coefficient of the model in the short-run analysis, FDI and exchange rate were negatively related with manufacturing sector output while inflation rate and capacity utilization were positively related. It was indicated from the result that FDI has



a significant relationship with manufacturing sector output, therefore the hypothesis no significant relationship between FDI and manufacturing sector output was rejected. Exchange rate has effect on manufacturing sector output, therefore the hypothesis: Exchange rate has no impact on manufacturing sector output was rejected. The Inflation rate was also has no impact on the MFOP, therefore the hypothesis: inflation rate has no impact on manufacturing sector output was accepted. This means that not all variables considered were conformed to 'a priori' expectation. For instance, INF was expected to be negatively related to MFOP. It was revealed that a unit change in FDI will lead to a 2.44E-09 or 0.000 decrease in MFOP in the short-run. A unit change in EXG will lead to a 0.0353 decrease in MFOP in the short-run; a unit change in INF will lead to a 0.1156 increase in MFOP in the short-run. Also, a unit change in CAPUR will lead to a 0.0830 increase in MFOP. Therefore, in the short-run, FDI and EXGT variables were statistically significant while INF and CAPUR were not.

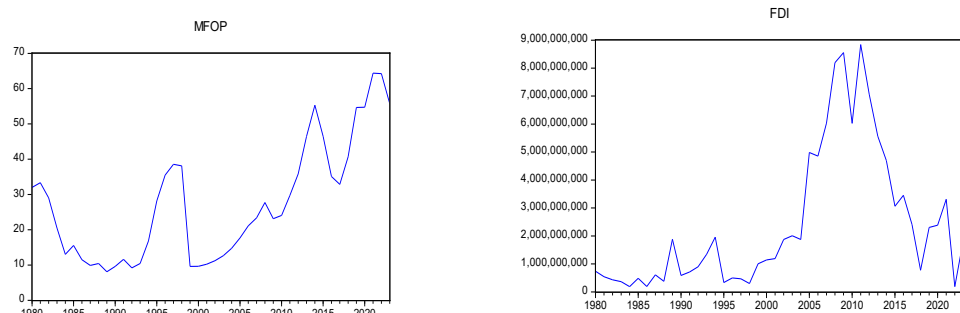
In the long-run, all the variables were positively related with MFOP. This means that some variables considered were conformed to 'a priori' expectation while some were not e.g. inflation rate and FDI were both expected to be negatively related with MFOP. It was revealed that a unit change in FDI will lead to a 2.02E-09 or 0.0000 increase in MFOP in the long-run. A unit change in EXG will lead to a 0.1944 increase in MFOP in the long-run; a unit change in INF will lead to a 0.9048 increase in MFOP in the long-run. Also, a unit change in CAPUR will lead to a 0.3999 increase in MFOP. Therefore, in the long-run, INF and EXGT variables were statistically significant while FDI and CAPUR were not. Table 4 analyzes ARDL test equation.

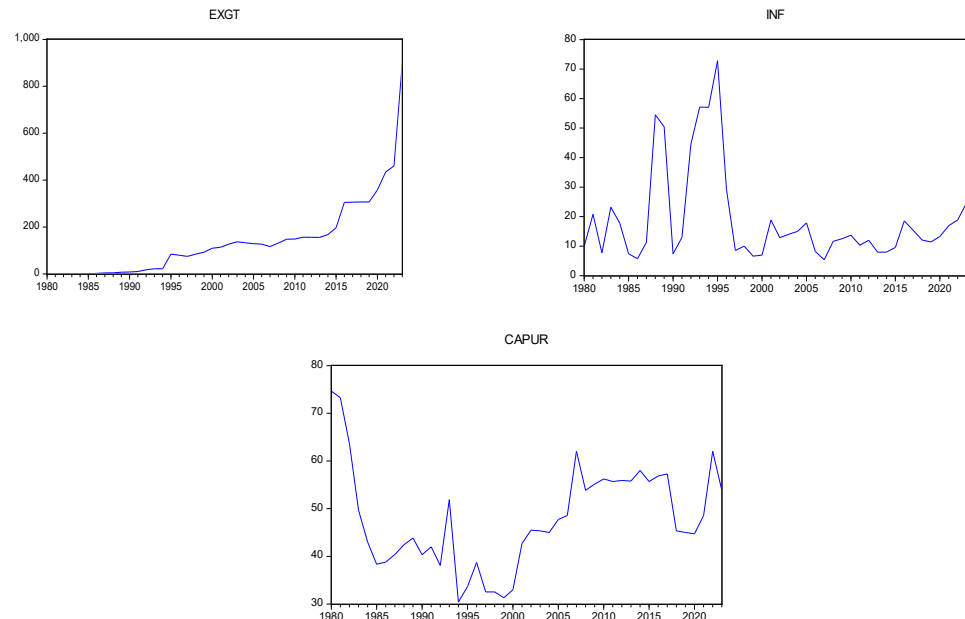
**Table 4.** ARDL test equation analysis.

<b>Model: Short-run model result</b>				
Variables	Coefficient	Standard Error	T-statistics	Prob.
C	-19.45474	8.346957	-2.330758	0.0298
$\Delta$ FDI	-2.44E-09	8.64E-10	-2.828865	0.0101
$\Delta$ EXGT	-0.035281	0.014324	-2.463120	0.0225
$\Delta$ INF	0.115597	0.068961	1.676266	0.1085
$\Delta$ CAPUR	0.082966	0.167938	0.494027	0.6264
ECMt-1	-0.621051	0.118571	-5.237794	0.0000
<b>Model: Long-run model result</b>				
Variables	Coefficient	Standard Error	T-statistics	Prob.
C	-31.325535	13.714893	-2.284053	0.0329
FDI	0.000000	0.000000	1.478694	0.1541
EXGT	0.194398	0.022501	8.639683	0.0000
INF	0.904830	0.162824	5.557118	0.0000
CAPUR	0.399863	0.303659	1.316816	0.2021

Source: Computed Using E-View 9.0.

Graphically, the trend analyses showed that there was instability in all the variables under study at one point or the other during the period under review. This was attributed to the level of FDI that would have had consequent impact on some of the variables. These are presented graphically in figure 1.





**Figure 1.** Trends analysis.  
*Source:* Computed from E-View 9.0

#### 4. Discussion

This study examines the impact of FDI on economic growth in Nigeria considering the manufacturing sector output. It was discovered that FDI has been one of the major determinants of FDI flow into the manufacturing sector. Thus, it has negative significant relationship with the manufacturing sector output during the years considered in the short-run but positively insignificant in the long-run. This is line with Danmola, Olateju, and Aminu (2017) who found that a standard error shock to manufacturing sector leading to a positive impact on FDI in the long-run. Meanwhile, it disputed the findings of certain scholars (Opaluwa et al., 2012; Durham, 2004; Akinlo, 2004), who revealed the absence of short-run relationship between FDI and economic growth. The ECM test the short-run relationship of the model. It shows that FDI can be treated as a long run forcing variable explaining economic growth. This contradicted the findings of Nubong and Ntuli (2024) as well as Whiteside (2010) who found absent of long run relationship between FDI inflow and economic growth but in line with the some scholars (Victor, 2013; Oladede, 2015; Olusanya, 2013) who found long-run relationship between FDI inflow and economic growth.

Also, the study shown that exchange rate has negative significant impact the growth of manufacturing sector output in the short-run but positive significant impact in the long-run. It was discovered that the exchange rate volatility in the economy was driven largely by foreign reserves shocks and that exchange rate volatility has harmful consequence on FDI inflows, with FDI inflows further infuriating the exchange rate volatility in the economy. This is in accordance with Attah-Obeng, Enu, Osei-Gyimah and Opoku (2013) who examined the relationship between GDP growth rate and exchange rate in Ghana from the period 1980 to 2012. Also, Amos (2025), Oniyide & Ogunjinmi (2021) examined the relationship between exchange rate and economic growth in Nigeria. Meanwhile, Ojonugwa and Musa (2019) studied the direction of causality between real exchange rates on economic growth in Nigeria.

It was discovered that inflation rate has positive significant relationship with manufacturing sector output both in the short and long-run. This is contradictory to Oniyide and Ogunjinmi (2021) who explained inflation in the long-run as negative phenomenon to economic growth consistently across these three models. Though, it is expected that the price level reduces with the expansion in the manufacturing sector output in the long-run.

Furthermore, it was discovered that the capacity utilization rate was positively insignificant related to manufacturing output both in short and long-run. Expectantly, capacity utilization measures that percentage of manufacturing output as actually being produced, thus, when capacity utilization rate is low, there will be reduction in output and invariably, couldn't significantly affect the economic performance. This is in line with Egena, Oluwatosin and Ac-Ogbonna (2024) who examined the manufacturing sector output and

economic growth nexus: evidence from Nigeria.

## 5. Conclusions

The findings from the study show that FDI has negative significant relationship with the manufacturing sector output during the years considered in the short-run but positively insignificant in the long-run. This summed up the economic situation in Nigeria and the role of manufacturing sector by identifying the main hurdles that mostly and historically affect its development and growth. These barriers include insecurity, political instability, market-distorting, state-owned monopolies, weak infrastructure and unavailability of finance. The study also indicated that exchange rate has a significant negative relationship with manufacturing sector output in the short-run but positively significant related in the long-run. This is because the foreign currency especially the United State of American dollar, are persistently demanded for leading to capital outflow which have a tendency to mount burden on the exchange rate, that is, the dollar amount that can be bought by a unit of (naira) Nigeria's currency. It was revealed from this study that inflation rate has positive significant relationship with manufacturing sector output both in the short and long-run. The theoretical arguments for the impact of government expenditure and revenue on inflation rates can be traced on the fact that inflation results in growing deficit that is financed through the banking system, particularly central bank which leads to further increase in money supply and prices. When deficit is monetized (i.e. money-financed or bond financed deficit) is necessarily inflationary. Likewise, it was discovered that the capacity utilization rate was positively insignificant related to manufacturing output both in short and long-run. Expectantly, capacity utilization measures that percentage of manufacturing output as actually being produced, thus, when capacity utilization rate is low, there will be reduction in output and invariably, couldn't significantly affect the economic performance.

The major implication of these findings is that the manufacturing sector in Nigeria which shows a catalytic part, being a prominent sector in many respects and has vigorous benefits; critical for economic transformation is seen to be tied to foreign investments because of the capital equipment consumption to enable growth and development process. In fact, until the early 1980s, this has been a success in Nigeria when oil market that was the major source of the nation's foreign earnings collapsed due to fall in prices. As a result, there was a reduction of foreign investments gotten from the exportation of oil. This could not provide the necessary stimuli for the growth and development in the manufacturing sector. Notably, improvements in the output level in manufacturing sector will impact positively in the foreign investment inflow to the sector.

Further studies could utilize other vital economic sector as dependent variables, variables such as external reserve, employment rate, trade policy and insecurity could be included or make use of other statistical techniques. This will enable contrast and increase confidence on and strength of the results of this study. This will also verify the validity of the findings of this study, since different methods, variables and time horizons will be used. It will also expand the body of existing literature on the subject matter. Also, size, structure and performance of private Nigerian manufacturing enterprises in relation with FDI could be examined.

The limits of this study have to do with the funding and source of data which was derived from 2020 Central Bank of Nigeria Statistical Bulletin. Other sources of data are so puny in terms of the capacity of the statistical agencies that there exist inconsistencies in annual series data. Though, this article has not been submitted or publish in any journal.

**Funding:** This research received no external funding.

**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

**Macroeconomic indicators on manufacturing sector output and FDI from Nigeria (1980-2023)**

YEAR	INF (%)	MFOP (Billion US\$)	FDI (US\$)	CAPUR (%)	EXGT (US\$)
1980	9.97	32.01	738870004.4	74.66	0.55
1981	20.81	33.33	542327289.1	73.26	0.61
1982	7.7	29.03	430611256.5	63.64	0.67



1983	23.21	20.49	364434580.2	49.68	0.72
1984	17.82	13.03	189164784.9	42.98	0.76
1985	7.44	15.53	485581320.9	38.34	0.69
1986	5.72	11.51	193214907.5	38.78	2.02
1987	11.29	9.89	610552091.5	40.39	4.02
1988	54.51	10.44	378667097.7	42.43	4.54
1989	50.47	8.08	1884249739	43.84	7.36
1990	7.36	9.61	587882970.6	40.35	8.04
1991	13.01	11.6	712373362.5	42.00	9.91
1992	44.59	9.19	896641282.5	38.07	17.3
1993	57.17	10.42	1345368587	51.89	22.07
1994	57.03	16.83	1959219858	30.40	22
1995	72.84	28.18	335842165	33.63	84.58
1996	29.29	35.48	499276809.5	38.7	79.6
1997	8.53	38.56	469577019.8	32.52	74.63
1998	10	38.11	299566658.3	32.52	84.37
1999	6.62	9.62	1004915631	31.29	92.53
2000	6.94	9.64	1140167556	32.99	109.55
2001	18.87	10.24	1190618644	42.7	113.45
2002	12.88	11.23	1874070753	45.48	126.9
2003	14.03	12.63	2005353563	45.34	137
2004	15	14.75	1874060887	45	132.85
2005	17.9	17.67	4982533930	47.74	129
2006	8.2	21.11	4854353979	48.56	127
2007	5.4	23.38	6036021405	62.04	116.8
2008	11.6	27.73	8194071895	53.84	131.25
2009	12.5	23.12	8555990007	55.14	148.1
2010	13.7	24.05	6026253091	56.22	148.81
2011	10.3	29.72	8841062051	55.68	156.7
2012	12	35.84	7069908428	55.9	155.76
2013	7.96	46.44	5562857987	55.8	155.74
2014	7.98	55.33	4693828632	58	168
2015	9.55	46.48	3064168904	55.7	197
2016	18.55	35.12	3453258408	56.85	305
2017	15.37	32.85	2412974916	57.3	306
2018	12.1	40.69	775247400	45.34	307
2019	11.4	54.68	2305099812	45	307
2020	13.25	54.75	2385277666	44.73	358
2021	16.95	64.41	3313210000	48.56	435.00
2022	18.85	64.25	186792428.9	62.04	460.00
2023	24.66	55.74	1872520530	53.84	899.89

Source: Central Bank of Nigeria, 2020.

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Research Article

# Outsourcing and Organizational Performance in Fast-Food Businesses in Benin Metropolis

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**Abstract:** Across sectors and industries, the strategic imperative of outsourcing in supporting organizational performance has been emphasized. In this study we focused on outsourcing and organizational performance in the fast-food businesses in Benin City, Nigeria. Specifically, we explored three dimensions of outsourcing – business process outsourcing (BPO), knowledge process outsourcing (KPO) and information technology outsourcing (ITO) - and their effects on organizational performance. A cross-sectional design was adopted and executed through a survey. In accomplishing the study objectives, the 196 employees of the two selected food organizations, being the entire population of the sampled food organizations, were invited to respond to the research instrument. An appropriately structured 28 item research instrument prepared in a 5-point Likert format was used for data collection to assess the variables investigated. The hypotheses were tested with multiple regression at 5% level of significance. The findings of the study showed that all the three dimensions of outsourcing explored had significant effect on the performance of the sampled fast-food businesses in Benin City Metropolis. Appropriate recommendations in line with the findings of the study were proffered.

**Keywords:** business process outsourcing; knowledge process outsourcing; information technology outsourcing; organizational performance

## 1. Introduction

Globally, outsourcing is known as a crucial strategy for fast-food and eatery businesses seeking to optimize operations, reduce costs, and enhance service delivery. Major multinational brands over the years outsource supply chain procurement responsibilities, transportation coordination, and even client support entrusting them to expert firms to enhance productivity and concentrate on essential business operations. The emergence of the COVID-19 pandemic further unsettled global distribution networks, increased labor shortages, and heightened concerns over food safety and quality control. These challenges have forced many businesses to reassess their outsourcing strategies to ensure sustainability and adaptability in an uncertain economic and competitive landscape.

In Nigeria, the fast-food and eatery sector faces unique challenges in outsourcing. While outsourcing promises cost savings and improved service delivery (Doval, 2016) issues such as unreliable supply chains, inconsistent government policies, and currency depreciation hinder its full potential. The post-corona virus disease reality has exacerbated these challenges with disruptions in food imports, rising inflation, and increasing consumer demand for hygienic and efficient service delivery. Additionally, rising security concerns and a lack of technological infrastructure pose risks to outsourcing logistics and food delivery services. To remain competitive, there is the need for fast-food businesses to develop localized customer centered outsourcing solutions that balance cost efficiency with quality control and sustainability.

The fast-food business sector in Nigeria has in recent times attracted a lot of interest from both local and foreign investors (Onwuzuruike et al. 2022) leading to rapid outlet development, strategic relationships, increase in foreign entrants' investments etc. These businesses struggle for resources, infrastructure, market share, and relevance. To compete successfully for optimal profit, the organizations have employed inventive and new weaponry

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in their business operations. One avenue that organizations have pursued to attempt improving their competitive position has been to increase the role of outsourcing in their operations (Agburu et al., 2017). This work addressed outsourcing as one strategic tool being used by businesses (Sreedevi & Tushar, 2018) and we considered dimensions such as business process outsourcing (BPO), knowledge process outsourcing (KPO), and information technology outsourcing (ITO) to evaluate how they impact organizational performance.

Organizational performance describes how effectively a company achieves its goals and objectives in areas such as profitability, productivity, customer satisfaction, and innovation. It is measured through financial indicators (like revenue, profit margins), operational efficiency, employee performance, and market competitiveness (Kaplan & Norton, 2001). It reflects an organization's ability to meet stakeholder expectations and describes the organizational output. Scholars like (Gunasekaran et al., 2015; Kivuva, 2018) affirm organizations monitor performance in outsourcing relationships using strategic measures, financial measures, quality measures and market performance such as cost savings, cycle time, customer satisfaction etc. to assess outsourcing effectiveness.

While outsourcing has been widely adopted in various sectors, its effect on organizational performance, particularly in the fast-food industry within Nigeria remains underexplored (Onwuzuruike et al. 2022) and more especially within the Benin Metropolis. Despite the potential benefits of outsourcing such as cost reduction, access to specialized expertise, and improved focus on core business activities, the fast-food businesses in Benin Metropolis appear to face challenges in effectively implementing outsourcing strategies. Additionally, there is the lack of sufficient empirical evidence on how outsourcing affects key performance indicators in the context of fast-food businesses in this region.

The key purpose of the study was to explore the relationship between outsourcing and organizational performance using dimensions of outsourcing such as BPO, KPO, and ITO to investigate their effects on performance. The following research questions guided the study: (1) What is the effect of BPO on organizational performance? (2) How does KPO influence on organizational performance? (3) What is the impact of ITO on organizational performance?

## 2. Literature Review

### 2.1. *Understanding the Concept of Organizational Performance*

Essentially, organizational performance describes how well an organization achieves its goals, objectives, and mission. It reflects the extent to which an organization fulfills its purpose by comparing actual outcomes to set objectives, covering all facets of operations (Kaplan & Norton, 2001; Waruhiu, 2014; Mwagona & Kinyua, 2023). It involves executing objectives through sound corporate governance, effective management, and a steady focus on results. According to Pitt and Tucker (2008), it serves as a key indicator of organizational effectiveness, showing how well processes or outcomes meet specific goals. Literature highlights core aspects of organizational performance, including financial performance (revenue growth, profitability, ROI, and stability); productivity (efficiency, effectiveness, and product/service quality); innovation (ability to adapt and remain competitive); quality (standards compliance and continuous improvement); customer satisfaction (meeting needs, expectations, and fostering loyalty); employee engagement (motivation, satisfaction, and retention); and corporate citizenship (social contributions, environmental care, and ethical conduct) (Kaplan & Norton, 2001; Waruhiu, 2014; Doval, 2020; Mwagona & Kinyua, 2023). Studies indicate that one vital strategy that can enhance organizational performance is corporate outsourcing. (Power et al., 2006; Waszkowski et al., 2018; Ndubuisi-Okolo & Arinze, 2022).

### 2.2. *Understanding Outsourcing in Organizations*

Outsourcing involves delegating corporate tasks, processes, or entire business functions to an external contractor. It allows organizations to transfer non-core activities to specialized providers to enhance efficiency and cost-effectiveness, shifting tasks beyond an organization's core competencies (Smith et al., 2006). It entails procuring services externally that could have been sourced internally and focuses on delegating recurring internal functions to third-party providers (Garver & Mentzer, 2000; Ndubuisi-Okolo & Arinze, 2022). Recently, outsourcing has been adopted across sectors to enable focus on core operations, reduce costs, pursue comparative advantages, and meet customer and shareholder demands. This makes outsourcing as a strategic and valuable approach to achieving corporate objectives



(Akewushola & Elegbede, 2013; Agburu et al., 2017). Smadi and Al-jawazneh (2016) note that globalization drives organizations to explore global opportunities and outsource goods and services to enhance competitive advantage.

The literature identifies outsourcing benefits such as cost savings, reduced capital investment, increased adaptability, focus on core competencies, and lowered risk from technological shifts (Verhoef, 2005). However, challenges include longer transit times, inventory issues due to uncertainty, cultural and security concerns, inadequate vendor infrastructure, quality issues, erosion of in-house skills, currency fluctuations, job losses, and intellectual property risks (Russell & Taylor, 2008). Also, there are criticisms of outsourcing strategy stemming from issues such as its negative effects on employee psychology, data protection and confidentiality risks, financial and reputational risks, and limited prospects for flexibility (Khan et al., 2022).

### *2.3. Nexus of Outsourcing with Organizational Performance*

Some scholars (Power et al., 2006; Halvey & Melby, 2007; Oshri et al., 2009) have identified several forms of outsourcing using diverse criteria. In this study we examined outsourcing in three dimensions i.e. BPO, KPO, and ITO and explored its relations with organizational performance.

BPO involves delegating specific business functions or processes to an external service provider and refers to the transference of internal business operations to an external entity (Halvey & Melby 2007; Ndubuisi-Okolo & Arinze, 2022). With advancements in global telecommunications, BPO often extends to international providers when local outsourcing solutions are inadequate. Scholars emphasize that BPO typically involves forming partnerships with third-party service providers to manage non-core but essential business functions, such as customer service, human resources, and accounting etc. (Duening & Click, 2005; Power et al., 2006). The study by Gituma (2019) shows that commercial banks mainly outsource and that BPO had significant effects on organizational performance. Also, Waszkowski, Nowicki, & Worwa (2018) report findings supporting that well designed business processes can be managed and programmed for performance improvement.

KPO focuses on outsourcing high-value business activities that require specialized expertise and analytical skills. Unlike BPO, KPO involves processes that are critical to a company's competitive advantage and require advanced decision-making, research, and technical capabilities (Agarwal & Nisa, 2009). It is information-driven, facilitating the continuous creation and dissemination of knowledge within industries such as research and development, market analysis, product design, and strategic planning. KPO enhances innovation by leveraging specialized talent to drive business growth. Javed, Rafique, and Muhammad (2020) analyzed the perceived impact of outsourcing services in the construction industry in Pakistan and found out that outsourcing had significant effects on performance and this is especially true for knowledge driven industries. Kamau (2021) conducted research and the results show that there exists a strong positive correlation linking knowledge management processes and organizational performance, and a positive correlation between knowledge management infrastructure and performance.

ITO entails outsourcing IT services to external providers while retaining strategic control over core technology functions. The primary goal is cost reduction, operational efficiency, and fostering innovation through multiple suppliers. Unlike BPO, ITO does not rely on exclusive partnerships but instead encourages competition among vendors. Some organizations adopt joint ventures to co-develop IT solutions, sharing both risks and rewards. A notable trend in ITO is the Application Service Provider (ASP) model, where businesses purchase software on a pay-per-use basis rather than investing in in-house IT infrastructure (Kennedy et al., 2002). Organizations that consider IT a core function often retain IT operations in-house to maintain full control. Several associated benefits of ITO such as cost effectiveness, clients' services efficiency, technical expertise, improved organizational performance etc. have been documented, some studies however have reported mixed results on the relationship between ITO and performance (Bui et al., 2018). In a related study by Murphy (2024) on the influence of IT outsourcing on organizational success and innovation, the study findings indicate a worrisome rate of perceived ITO failures and reveal that the specific industry of an organization can affect ITO success.

## **3. Theoretical Review**

### 3.1. *The Transaction Cost Economics*

The Transaction Cost Economics theory, originally introduced by Ronald Coase in 1937 and later expanded by Oliver Williamson in the 1970s and 1980s, explains why firms exist and how they minimize transaction costs. Coase suggested that firms reduce the costs associated with market exchanges, while Williamson further developed the concept by examining governance structures - markets, hierarchies, and hybrids - that help control these costs. The theory integrates economic and management theories to help businesses determine the best market relationships. The theory is widely used in outsourcing decisions, helping firms determine when and how to outsource tasks effectively. It also explains the contractual complexity in outsourcing arrangements. However, the theory has limitations. It focuses on individual transactions, overlooking modern collaborative business arrangements, and is considered static, failing to account for the dynamic nature of today's business environment. Overall, this theory highlights the importance of contractual relationships, emphasizing that outsourcing can reduce costs, improve task efficiency, and enhance customer satisfaction by allowing firms to delegate weaker areas to experts while maintaining service quality under their brand.

### 3.2. *Resource Based View Theory*

The Resource-Based View (RBV) theory of the firm, developed by Edith Penrose and popularized by Barney (1991), emphasizes that a company's competitive advantage depends on its unique resources and capabilities. According to RBV, firms should focus on developing and utilizing valuable, rare, inimitable, and non-substitutable (VRIN) resources to achieve sustained competitive advantage. This theory provides a strong foundation for understanding the strategic role of corporate outsourcing, as firms seek to optimize resource allocation by focusing on their core competencies while outsourcing non-core functions. Corporate outsourcing aligns with the RBV theory by allowing firms to concentrate on their key strengths while leveraging external expertise for non-core activities. For instance, a technology company may outsource customer support and payroll management to external specialists, ensuring that internal resources are dedicated to innovation and product development. By outsourcing routine tasks, firms enhance efficiency, reduce costs, and allocate resources strategically to areas that offer the greatest competitive advantage. This approach supports the RBV principle that firms should build and maintain distinctive capabilities rather than spread resources across multiple non-strategic functions.

The RBV highlights the importance of resource control rather than ownership. Firms do not need to own all resources but must ensure access to critical capabilities through strategic outsourcing partnerships. For example, leading global brands outsource manufacturing to specialized firms with advanced production expertise, ensuring high-quality output while focusing on branding, marketing, and product design. However, organizations must carefully manage outsourcing to prevent losing core competencies or becoming overly dependent on external vendors. A well-structured outsourcing strategy ensures that firms retain control over critical knowledge and intellectual property, in line with RBV's emphasis on maintaining competitive resources. In conclusion, the RBV theory strongly supports corporate outsourcing as a strategic tool for optimizing resource utilization. By outsourcing non-core functions, firms enhance efficiency, focus on core competencies, and sustain long-term competitive advantage. However, outsourcing decisions should be made strategically to protect critical resources and prevent over-reliance on external providers. Thus, RBV provides a valuable framework for guiding firms in making outsourcing decisions that strengthen their market position.

### 3.3. *Synthesis of Empirical Research*

Previous studies have explored the relationship between outsourcing and organizational performance across industries. Waszkowski et al. (2018) conducted research on BPO and corporate efficiency. The results of the research prove that well designed business processes may not only be managed but also be easily enhanced and automated in a way that allows organizations to improve their performance in meaningful ways. Yeboah (2013) studied outsourcing and organizational performance in Ghana's banking and insurance sectors using 50 corporate businesses. The findings revealed significant correlations between outsourcing and quality, outsourcing and competitive advantage, but there was no significant correlation between outsourcing and productivity.

Musau (2016) studied the effect of outsourcing strategy on organizational performance at Bidco Africa Ltd., a leading FMCG manufacturer in Thika, Kenya. Conducted between

September 2015 and April 2016, the research aimed to determine factors influencing outsourcing decisions and their impact on company performance. A descriptive research design was used, with data collected from 90 employees selected through random sampling. Findings showed that cost-driven, innovation-driven, and focus-driven outsourcing significantly influenced performance. Cost-driven outsourcing improved efficiency, while innovative-driven outsourcing helped the company create and deliver value faster than competitors. The study concluded that strategic outsourcing enhances performance by reducing costs and risks, increasing innovation flexibility, and strengthening core competencies and market share.

Obikezie and Dike (2023) studied the impact of outsourcing strategy on organizational growth in selected fast-food firms in South-South Nigeria. Using a correlation survey design, they analyzed data from 10 registered fast-food firms using a structured questionnaire and Pearson Product Moment Correlation coefficient. The study found a significant positive relationship between BPO and outlet expansion, concluding that outsourcing is essential for improving quality and driving growth. It recommends that fast-food firms should sustain customer satisfaction through quality improvement through outsourcing.

Ndubuisi-Okolo and Arinze (2022) examined the relationship between outsourcing strategy and the performance of Deposit Money Banks in Anambra State. Using a survey research design, data was collected from 162 respondents across three major banks in Nnewi, Awka and Onitsha through structured questionnaires. Analysis using Pearson Correlation and Regression in SPSS revealed a significant positive relationship between outsourcing strategy and bank performance. BPO enhanced task accomplishment, while marketing outsourcing improved cost-effectiveness. Summarily, outsourcing promoted overall banking operations by ensuring quality service and addressing weak areas, recommending further outsourcing for improved efficiency.

Duan, Grover, and Balakrishnan (2009) conducted research on BPO and its impact on organizational performance. The findings confirm that outsourcing provides value for both core and supporting business processes, but BPO announcements related to core processes lead to higher abnormal returns than those involving supporting processes. Although the ownership of the processes was not a significant factor in BPO performance, its interaction with the firm's venture capital position provided insights into the optimal timing of outsourcing. Their study emphasizes the importance of developing processes internally, especially when outsourcing core business functions, for successful BPO outcomes.

Ihunwo and Ikegwuru (2023) in their research examined logistics outsourcing and its impact on the organizational performance of oil and gas companies in Rivers State. The study utilized a descriptive research design, with a target population of 295 oil and gas firms in the state. A sample of 170 companies was selected, and three executives from each company were chosen using a non-probability sampling method, resulting in a total of 510 management staff respondents. They utilized correlation analysis to evaluate the relationship between logistics outsourcing and organizational performance. The findings of their study revealed a positive and significant correlation between operational outsourcing services and organizational performance, as well as between manufacturing outsourcing and organizational performance. The study recommended that management adopt effective logistics outsourcing strategies, such as operational and manufacturing outsourcing, to drive sustainable business growth.

### *3.4. Research Gaps and Hypothesis Development*

Research reports suggest outsourcing improves organizational performance, whether through cost reduction, innovation, or better service delivery. Other studies however have reported mixed results (Bui et al., 2018; Murphy, 2024). It is also worthy of note that most of the studies are of foreign origins with very few studies from Nigeria. This research is also imperative as it explored the food services industry in Benin City Metropolis in which to the best of knowledge of the researchers there exists an apparent paucity of studies on this subject. Against this background, the research examined how the identified components of outsourcing influenced organizational performance of the sampled food businesses. In view of the reviewed literature this research was conducted. The research aim was to examine the effects of outsourcing on organizational performance in the sampled fast-food businesses using the three reviewed dimensions of outsourcing. The research hypothesized as follows:

H<sub>01</sub>: BPO does not have a statistically significant impact on organizational performance of the sampled food businesses;

H<sub>02</sub>: KPO does not have a statistically significant impact on organizational performance of the sampled food businesses;



H<sub>03</sub>: ITO does not have a statistically significant influence on organizational performance of the sampled food businesses.

## 4. Materials and Methods

### 4.1. Research Design

A cross-sectional design was adopted and executed through a survey. The survey was utilized because of its usefulness for handling large samples and for obtaining detailed information about issues, events, problems, and describes them as they are. It helps to collect descriptive details about a group of people or elements.

In accomplishing the study objective, the 196 employees of the selected food organizations, being the entire population of the sampled food organizations, were invited to respond to the research instrument. The study therefore was a census. The two fast-food organizations were purposively selected from amongst the food businesses in the city because of their geographical spread across the city metropolis, their huge staff strength, the high customer patronage, the evident participation in the food services sector and because they had been in the food business for over ten years.

### 4.2. Validity and Reliability of Research Instrument

An appropriately structured 28 item research instrument prepared in a 5-point Likert format ranging from strongly disagree to strongly agree was used for data collection to assess the variables – BPO, KPO, ITO and organizational performance. The items were derived from different extant studies on outsourcing and modified to suit the objectives of this study. The validity of the instrument was assured using face and content validation techniques.

We conducted a pilot study to establish the reliability of the instrument. This was determined by conducting a reliability test using the Cronbach alpha reliability coefficient test. Alpha values for all the variables were between 0.72 - 0.86 lying greater than the 0.70 acceptable range for a reliable and standard value as proposed by Nunnally (1978). The reliability values are given in Table 1 below. The table displays the different variables examined with their computed alpha values. The variables studied are BPO, KPO, information process outsourcing and organizational performance.

**Table 1.** Reliability alpha values.

No	Variables	Alpha values
1.	Business process outsourcing	0.86
2.	Knowledge process outsourcing	0.72
3.	Information technology outsourcing	0.83
4.	Organizational performance	0.80

Source: Authors' computation.

The functional regression model is given as:

$$OP = f(OS) \quad 1$$

$$\text{Whereas: } OS = f(BPO, KPO, ITO) \quad 2$$

Then:

$$OP = f(BPO, KPO, ITO) \quad 3$$

The econometric form of the research model is given as:

$$OP = \beta_0 + \beta_1 BPO + \beta_2 KPO + \beta_3 ITO + \epsilon_0 \quad 4$$

Where:

OS = Outsourcing strategies (BPO, KPO, ITO)

BPO = Business process outsourcing made up of the following items: BPOI<sub>1</sub>, - BPOI<sub>7</sub>

KPO = Knowledge process outsourcing made up of the following items: KPOI<sub>1</sub>, - KPOI<sub>7</sub>

ITO = Information technology outsourcing made up of the following items: ITOI<sub>1</sub>, - ITOI<sub>7</sub>

OP = Organizational performance made up of the following items: OPI<sub>1</sub>, - OPI<sub>7</sub>

$\epsilon_0$  = Error term

$\beta_0$  = Intercept of model constant

$\beta_1 - \beta_3$  = are the regression coefficients.

## 5. Results and Discussion

At the inferential level of analysis, the hypotheses were tested with multiple regressions.



The hypotheses were tested at 5% level of significance. The choice of regression analysis was because it establishes the presence of an association and explains the effect of the components of the independent variables on the dependent variable. The summarized regression results are presented in table 2. The table contains the regression output for the different independent and dependent variables examined showing the regression coefficients, the R value, the R<sup>2</sup> value, the adjusted R<sup>2</sup> value and the F statistics. The details are given in table 2 below where predictors include Constant, BPO, KPO, and ITO; and dependent variable is OP.

**Table 2.** Summarized regression results.

	Un. Std. Coef		Std. Coef (Beta)	t-value	p-value	VIF
	Beta	SE error				
Constant	2.793	.317		4.956	0.000	
BPO	0.198	.089	0.109	6.821	0.004	1.88
KPO	0.850	.206	0.321	2.652	0.005	1.05
ITO	0.611	.108	0.435	8.410	0.002	1.88
R = 0.75						
R <sup>2</sup> = .562						
Adjusted R <sup>2</sup> = .55						
Standard error of estimate = .599						
F value = 36.463						

The constant term coefficient value is 2.793, BPO coefficient is 0.198 with a standard error of 0.109, KPO coefficient is 0.850 with a standard error of 0.321, and ITO is 0.611 and 0.435 respectively. Also, the three independent variables (BPO, KPO, and ITO) have their variance inflation factor (VIF) less than 2 hence, the multicollinearity generated by these variables (BPO, KPO, and ITO) is not significant. The result shows that organizational performance is linearly related to the independent variables: BPO, KPO, and information process outsourcing (ITO) with a constant term that is 2.793. Also, the three components of outsourcing were significant and had p-values all less than the alpha ( $\alpha$ ) significance value of 0.05. The model summary showed R value = 0.75; R<sup>2</sup> value = .562; adjusted R<sup>2</sup> value = .55; and F value = 36.463. The p values were all significant at (0.000; 0.004; 0.005 and 0.002) respectively. The R<sup>2</sup> value of 0.562, suggests that approximately 56.2% of the variance in organizational performance is explainable by the combined effect of the three predictor variables, i.e. components of outsourcing investigated. This demonstrates a moderately strong relationship between the predictors and the dependent variable – organizational performance. The R value of 0.75 implies a strong positive linear relationship between the observed and predicted values of organizational performance implying that the model's pre-dictions closely align with actual observed outcomes. The adjusted R<sup>2</sup> value of 0.555 accounts for the number of predictors in the model and the sample size (n = 196). The small difference between R<sup>2</sup> and the adjusted R<sup>2</sup> indicates that the model is not overfitted and the predictors contribute meaningfully to explaining the variation in organizational performance, even when adjusted for model complexity.

Our study findings showed that outsourcing influences organizational performance in the sampled fast-food businesses. This means that BPO, KPO and ITO are effective in improving organizational performance. Specifically concerning research question one and hypothesis one, the result reveals that BPO has a significant relationship with organizational performance in the sampled fast-food businesses. This finding is in line with the study by Awino and Mutua (2014) whose research confirmed that Kenyan State corporations were involved in outsourcing; and that BPO had a positive contribution to the firms' overall performance. Similar results were reported by Nyameboame and Haddud (2017) that outsourcing reduced operational cost, enabled consistent and improved service delivery, enhanced current technology and expert knowledge and significantly enhanced the performance in the oil and gas organization. Makau and Nyangau (2022) report study findings that establish the influence of BPO on organizational performance through BPO activities like supply chain and customer services outsourcing in selected local airlines in Kenya. Our finding differs somewhat from the result of the study by Ejechi and Oshodin (2019) who reported that BPO demonstrated an indirect relationship with organizational performance through competitive advantage. Their study reported that the components of BPO employed did not have significant effect on organizational performance but on competitive advantage,



and that BPO activities should be stepped up by organizations because rather than impacting indirectly on organizational performance, a direct impact will be more significant to the performance of the organization. Theoretically our study result lends support to the RBV of the firm, that organizations can attain improved performance when they utilize resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991). In this context when they properly manage their outsourcing relationship and activities with their strategic partners who satisfy the VRIN criteria, their organizational performance and value creation will be enhanced.

For research question two and hypothesis two on the effect of KPO on organizational performance, the result reveals that KPO has a statistically significant and positive effect on organizational performance. This finding reinforces the view that outsourcing knowledge-intensive activities can serve as a strategic lever for improving operational efficiency, innovation capacity, and overall performance outcomes. Our result aligns with a growing body of empirical and theoretical studies that underscore the role of knowledge outsourcing on firm-level outcomes. For instance, Liu and Deng (2015) provide empirical evidence that organizations can significantly improve performance metrics through the effective management of KPO capabilities. Their study highlights how well-structured KPO arrangements facilitate learning, innovation, and value creation within firms. Similarly, Liu and Lin (2019) reported that knowledge outsourcing is positively correlated with key performance indicators such as productivity, customer satisfaction, and financial returns, suggesting that strategic investments in KPO can be a vital component of competitive advantage. The study by Akinbola, Ogunnaike, and Ojo (2013) reported that KPO supported customer satisfaction and marketing performance. Also, KPO fosters organizational learning and capacity development, as it often involves collaboration with external knowledge experts and the integration of advanced analytical capabilities.

In addition, the positive relationship observed between KPO and performance may be explained through the lens of Knowledge-Based Theory, which views knowledge as the most strategically significant resource of the firm. Outsourcing to knowledge experts allows firms to access sophisticated cognitive and technical skills, which, when properly integrated, can lead to higher levels of innovation, efficiency, and customer satisfaction. In sum, the evidence supports the conclusion that KPO is not merely a cost-saving tactic but a strategic approach to drive superior performance outcomes especially in knowledge-intensive industries where innovation, responsiveness, and adaptability are critical to survival and growth.

With respect to research question three and hypothesis three on the effect of information technology outsourcing on organizational performance, our study finding provides empirical evidence to support that ITO benefits the company by enhancing performance. This is supported by the study of Mtsweni, Mokwena and Moeti (2021) whose study results revealed that the quality of IT services provided have a direct impact on the performance of the organization. Also, Wang, Gwebu, Wang, and Zhu, (2008) report that there are positive effects of information technology outsourcing on performance and that it appears mostly at the process level. On the contrary, our findings differ from the results of the study by Murphy (2024) who examined the influence of IT outsourcing on organizational success and innovation and reports findings indicating a worrisome rate of ITO failures and that the specific industry of an organization can affect its success. The study also reported information technology outsourcing as adversely impacting organizational innovation and recommended intense market research on vendor skillsets and experience, establishment of well-structured contracts and multi-sourcing strategies amongst others to mitigate incidences of ITO failures.

## 5. Conclusions

The study concludes that all three dimensions of outsourcing explored had significant effect on the performance of the sampled fast-food businesses in Benin City Metropolis. In view of the above the study recommended that fast-food businesses should optimize BPO practices and identify operational processes suitable for outsourcing to improve efficiency and reduce costs. The management should leverage KPO for innovation as it enhances business performance. The fast-food businesses should utilize it to foster innovation and support strategic decision-making. Specialized knowledge-intensive tasks such as market research, data analytics, and product development should be outsourced to KPO providers with deep industry expertise. Also, the sampled fast-food businesses should strengthen ITO practices in view of its significant effect on business performance as it will ensure a secure, reliable, and up-to-date technology infrastructure. The organizations should work with ITO



partners who can provide robust services like cyber security, facilities management and system integration. This will ensure operational efficiency, protect sensitive data, and align information technology systems with the business's strategic objectives. The implications in practical terms are that fast food businesses should enhance operational efficiency by outsourcing routine tasks, utilize knowledge process out-sourcing possibilities and invest in ITO to ensure reliable systems and cybersecurity, technology infrastructure alignment etc. The study suggests that future studies should be undertaken to compare outsourcing effects across different service industries to highlight sector-specific practices. Also, longitudinal studies should be conducted to examine how outsourcing affects sustained innovation, profitability, and customer loyalty. Lastly it is also important to explore outsourcing risks in fast food operations and how proper governance can minimize them.

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Research Article

# Portable Extension Wire with Manual Cable Reel for Industrial Use

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**Abstract:** This research innovation relates to a portable extension wire with a manual cable reel mechanism. The device consists of a compact, lightweight housing that contains a spool or reel for winding and unwinding an electrical extension cord. The reel is manually operated, allowing the user to easily extend or retract the cord as needed without the use of any motors or automated mechanisms. The housing is designed to be highly portable, with a carrying handle and compact dimensions that make it easy to transport and store when not in use. The extension cord can be fully extended to provide power access over a wide area, spanning up to 26 feet. When the cord is no longer needed, it can be smoothly retracted back onto the internal reel, neatly storing the cord within the housing. The manual cable reel mechanism provides the user with precise control over the length of cord that is deployed. This helps prevent tangles, kinks, or excess slack in the cord, improving both safety and convenience compared to traditional extension cords that must be manually coiled. The study investigates user satisfaction with the device's efficiency, durability, safety, and its specific benefits for Bachelor of Industrial Technology students at Cebu Technological University.

**Keywords:** portable extension wire; manual cable reel; electrical safety

## 1. Introduction

The Bachelor of Industrial Technology (BIT) program at Cebu Technological University Pinamungajan Campus is designed to equip students with a comprehensive understanding of industrial processes, equipment, and technologies. Today, technology is evolving by innovating the available materials even from waste and scraps (Park, 2014). As part of this curriculum, students are exposed to a wide range of tools and devices that are commonly used in various industrial settings, enabling them to develop the necessary skills and expertise to excel in their future careers.

According to Canillo and Bendanillo (2023) by learning about industrial technology, we become better at taking care of ourselves and making smart choices in our modern world. According to TAM individuals' intention to use technology determines the actual use of the application and attitudes toward technology affect the intention (Brown et al., 2012). Exploring this helps us understand how things are made and leads to a more informed and capable way of living (Maddox, 2008).

One such tool that is particularly valuable in the BIT program is the portable extension wire with a manual cable reel. According to Koren, Wang and Gu (2017), extension wire scalability is defined as the ability of a system to adjust in production capacity through reconfiguration with minimal cost, in minimal time, over a large capacity range. This versatile equipment plays a crucial role in providing temporary and flexible access to electrical power by which is essential for the successful completion of various practical assignments, laboratory exercises, and project-based learning activities.

The portable extension wire with a manual cable reel allows students to extend electrical power to areas that may not have direct access to power outlets, such as remote workstations, machinery, or equipment. This feature is particularly important in industrial settings, where the layout and configuration of the workspace can often present challenges in terms of power accessibility. By utilizing this equipment, students can overcome these obstacles and ensure

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the seamless operation of their projects and experiments (Chang & Liu, 2025).

Moreover, the manual cable reel component of the extension wire offers additional benefits (Rosato, 1998). It enables students to neatly coil and retract the wire when not in use, reducing the risk of tangles, damage, or tripping hazards. This feature not only enhances the safety and organization of the workspace but also promotes efficient and effective work practices, which are essential skills for future industrial technologists (Vashishth et al., 2024).

This report aims to provide an in-depth examination of the portable extension wire with a manual cable reel, its features, and its applications within the BIT program at Cebu Technological University. By understanding the capabilities and benefits of this equipment, students can better appreciate its role in their academic and professional development as future industrial technologists.

The study will start by looking at the important parts and how the portable extension wire with a manual cable reel works. Then, it will explore how this tool can be used in different BIT courses and practical activities. Lastly, it will explain why this tool is valuable for improving learning and preparing students for jobs in the industry.

## 2. Materials and Methods

The portable extension wire with a manual cable reel is designed using durable materials such as copper cables for conductivity and safety, a sturdy plastic or metal reel for storage, and secure electrical connectors (Martinka, 2022). It features a wooden casing for durability, ergonomic handles for easy use, a switch for power control, and bearings for smooth operation. A smooth finish and waterproofing enhance aesthetics and longevity, while weather-resistant paint protects the housing.

The design focuses on convenience, durability, and user-friendliness, particularly for Bachelor of Industrial Technology students at Cebu Technological University Pinamungajan Campus. It ensures easy operation, secure connections, and protection from environmental factors. Construction involves precise assembly of high-quality materials, ensuring safety and functionality. Finishing processes include weather-resistant coatings for a professional look and durability.

Implementation includes thorough testing, quality assurance, and user training to ensure proper use and maintenance. The research uses a quantitative design with a structured survey to measure workspace efficiency, user comfort, and productivity among 80 BIT students and instructors. Data is collected anonymously via an online survey and stored securely to protect privacy. Ethical guidelines are strictly followed, with informed consent and anonymized data ensuring participants' confidentiality and rights.

## 3. Results

This study investigates the beneficial of Portable Extension Wire with Manual Cable Reel as a series of profitable and ergonomic assessment. Following the comprehensive analysis of findings and discussion on the usability and effectiveness of the portable extension wire with a manual cable reel, it is pivotal to outline strategic recommendations aimed at optimizing its design, safety features, and educational integration within the Building and Industrial Technology curriculum. These recommendations are poised to enhance user experience, mitigate operational risks, and foster a more robust educational framework for future industrial professionals.

### 3.1. Statistics and Data Analysis

Table 1 presents the User's appeasement for the application of Portable Extension Wire with Manual Cable Reel. The data reflects the respondents' perceptions based on four key dimensions: efficiency, durability, safety and reliability, and safety features and mechanisms. The responses were gathered to assess the device's impact on workshop management, equipment use, and educational utility.

**Table 1.** User's appeasement for the application of Portable Extension Wire with Manual Cable Reel.

What is the user's appeasement with the application of the Portable Extension Wire with Manual Cable Reel in terms of the following:



Questions	Answer	Frequency	Percentage
<b>1.1. Efficiency</b> (Purposeful application of the device & ability to save energy over an extended period)			
Q1. Does the Portable Extension Wire with Manual Cable Reel made easier to manage the work shop / electricity needs?	yes	79	96.7%
	no	1	3.3%
Q2. Does the Portable Extension Wire with Manual Cable Reel enhance the work efficiency and flexibility of BIT students in electronics projects by providing a reliable power source for electronic devices and circuits?	yes	80	100%
	no	0	0%
Q3. How effective is the manual cable reel mechanism in preventing cable tangling?	yes	79	96.6%
	no	1	3.4%
<b>1.2. Durability</b> (Ability of an object or material to withstand where damage or deterioration overtime)			
Q1. How do the preferences and requirements for using portable extension wires in practical activities vary for BIT students specializing in Civil Technology, EIM, SMAW, IDT, and Electronics based on durability considerations?	yes	78	95.6%
	no	2	4.4%
Q2. How effective is the Portable Extension Wire with Manual Cable Reel innovation?	yes	80	100%
	no	0	0%
Q3. How does regular equipment maintenance, including the portable ex-tension wire, impact the longevity and effectiveness of the tools in design-related fields?	yes	79	97%
	no	1	3.0%
<b>1.3. Safety and Reliability</b> (ability to operate safely over an extended period)			
Q1. Is the current innovation of the Portable Extension Wire with Manual Cable Reel beneficial for BIT students in CTU by supporting seamless connectivity for various design tools and equipment?	yes	80	100%
	no	0	0%
Q2. How does user experience with the portable extension wire influence their overall satisfaction and efficiency in completing tasks?	yes	76	95.7%
	no	4	5.3%
<b>1.4. Safety Features and Mechanism</b> (it is added for user safety and designed system)			
Q1. How does the manual cable reel mechanism play in enhancing workspace organization and efficiency in de-sign-related tasks?	yes	77	94%
	no	3	6%
Q2. How do the design features of the portable extension wire align with the specific needs and challenges faced by BIT students and instructors in design-related fields at Cebu Technological University Pinamungajan Campus?	yes	79	99%
	no	1	1%

The data from Table 1 provides a comprehensive view of BIT students' satisfaction and perceptions regarding the application of the Portable Extension Wire with Manual Cable Reel. across various dimensions, the findings indicate overwhelmingly positive feedback. In terms of efficiency, 96.7% of respondents find that the device significantly eases workshop management and electricity needs, highlighting its role in enhancing work efficiency and flexibility for electronics projects (100%). The manual cable reel mechanism is also highly effective in preventing cable tangling (96.6%). Regarding durability, 95.6% of students acknowledge the importance of durability in practical activities, underscoring the device's effectiveness (100%) and its impact on tool longevity through regular maintenance (97%). Safety and reliability receive unanimous approval (100%), emphasizing the Portable Extension Wire with Manual Cable Reel's crucial support in seamless connectivity and satisfaction in task completion (95.7%). Safety features, including workspace organization and alignment with specific needs, are similarly recognized (94-99%), demonstrating the device's robust design and its integration into instructional settings at Cebu Technological University Pinamungajan Campus. Overall, these findings illustrate strong user satisfaction and operational benefits across efficiency, durability, safety, and specific design-related challenges, affirming the device's positive impact within educational contexts.



**Table 2.** The current innovation Portable Extension Wire with Manual Cable Reel help the BIT students with their task or projects.

How do the current innovation Portable Extension Wire with Manual Cable Reel help the BIT students with their task or projects?	Identified respondent groups					
	Civil & Electrical Technology (10)		Welding & Fabrication and Interior Design Technology (10)		Electronics & Drafting Technology (60)	
	WM	VD	WM	VD	WM	VD
The Portable Extension Wire with Manual Cable Reel has improved work setup efficiency.	4.54	VHS	4.56	VHS	4.56	VHS
The Portable Extension Wire with Manual Cable Reel helps students work in various campus locations.	4.56	VHS	4.59	VHS	4.56	VHS
The Portable Extension Wire with Manual Cable Reel enhances safety and organization in workspaces.	4.56	VHS	4.54	VHS	4.56	VHS
The Portable Extension Wire with Manual Cable Reel makes tasks easier and more accessible.	4.54	VHS	4.56	VHS	4.54	VHS
Overall weighted mean:	4.55		4.56		4.55	
Standard deviation:	0.01		0.0180		0.01	
Interpretation:	Very highly satisfied					

Table 2 presents data on how the current innovation of the Portable Extension Wire with Manual Cable Reel benefits BIT students in their tasks or projects, segmented by different respondent groups: Civil & Electrical Technology (10 respondents), Welding & Fabrication and Interior Design Technology (10 respondents), and Electronics & Drafting Technology (60 respondents). The table evaluates various aspects of the Portable Extension Wire with Manual Cable Reel’s impact, represented by weighted means (WM) and interpreted through verbal descriptions (VD).

Across all identified respondent groups, the Portable Extension Wire with Manual Cable Reel consistently scores very high satisfaction ratings, with weighted means ranging from 4.54 to 4.59, signifying that students are “Very highly satisfied” with its performance. Specifically, the device significantly improves work setup efficiency, facilitates work in different campus locations, enhances safety and organization in workspaces, and makes tasks easier and more accessible. Overall, the data from Table 2 underscores that the Portable Extension Wire with Manual Cable Reel is highly effective and well-received among BIT students across various disciplines. Its ability to enhance efficiency, safety, and accessibility in project environments highlights its value as a beneficial tool in educational settings, contributing positively to student outcomes and project execution.

**Table 3.** The safety of Portable Extension Wire with Manual Cable Reel innovation towards the BIT students.

How safe is the Portable Extension Wire with Manual Cable Reel innovation to the BIT students?	Identified Respondent Groups					
	Civil & Electrical Technology (10)		Welding & Fabrication and Interior Design Technology (10)		Electronics & Drafting Technology (60)	
	WM	VD	WM	VD	WM	VD
The Portable Extension Wire with Manual Cable Reel is designed with strong insulation and durable materials to prevent electrical hazards, like shocks and short circuits.	4.53	VSA	4.55	VSA	4.54	VSA
It includes easy-to-hold handles and organized cable management, reducing strain and physical risks while using it.	4.59	VSA	4.54	VSA	4.52	VSA



It meets safety standards required for electrical devices, ensuring it's safe and reliable for educational use.	4.51	VSA	4.53	VSA	4.55	VSA
BIT students are taught how to use it safely, promoting responsible handling and minimizing accidents.	4.52	VSA	4.52	VSA	4.54	VSA
Overall weighted mean:	4.53		4.53		4.53	
Standard deviation:	0.0311		0.0112		0.0132	
Interpretation:	Very strongly agree					

Table 3 provides an analysis of the safety of the Portable Extension Wire with Manual Cable Reel innovation among BIT students, segmented by respondent groups: Civil & Electrical Technology (10 respondents), Welding & Fabrication and Interior Design Technology (10 respondents), and Electronics & Drafting Technology (60 respondents). The table evaluates the device's safety aspects using weighted mean (WM).

Overall, the Portable Extension Wire with Manual Cable Reel receives very high safety ratings across all respondent groups, indicating a consensus that students "Very strongly agree" with its safety features. Specific aspects contributing to this high rating include its design with strong insulation and durable materials to prevent electrical hazards like shocks and short circuits, ergonomic features such as easy-to-hold handles and organized cable management that reduce strain and physical risks, and adherence to safety standards required for educational use.

Moreover, the inclusion of safety education for BIT students, promoting responsible handling and accident prevention, further supports the device's high safety use. To sum up, Table 3 illustrates that the Portable Extension Wire with Manual Cable Reel is widely perceived as very safe among BIT students across various disciplines. Its robust design, ergonomic considerations, compliance with safety standards, and emphasis on user education collectively contribute to its effectiveness and reliability in educational environments, ensuring a secure and conducive workspace for student projects and tasks.

#### 4. Discussion and Conclusions

The results manifested that the students in the BIT program at CTU Pinamungajan Campus expressed high satisfaction with the Portable Extension Wire with Manual Cable Reel.

The device was praised for its practicality, functionality, and safety, meeting their needs effectively at a reasonable cost. Participants appreciated its enhanced convenience and portability, aligning with ergonomic principles, which facilitated easy movement and use across various campus locations. While some suggestions for improvement were noted, overall feedback highlighted the extension wire's utility in workspace settings.

These findings resonate with previous research, such as studies by J. Rotimi, Moshood, and F. Rotimi (2024), which underscore the importance of ergonomic design in cable management systems. Similarly, Ravanbakhsh (2024) emphasized the critical role of temporary power solutions in enhancing safety and productivity on job sites. The positive reception of the portable extension wire with a manual cable reel among BIT students aligns with these broader insights into the practical benefits and ergonomic considerations of such devices in industrial and educational contexts.

Thus, this study not only confirms the device's effectiveness in meeting user expectations but also contributes to the growing body of knowledge on ergonomic tools that support efficient and safe work environments (Ronario Jr, 2023). The study's findings carry important implications for workplace safety, particularly in terms of electrical safety and health considerations. By incorporating portable extension wires with manual cable reels, organizations have the potential to lower costs linked to specialized electrical equipment while offering users a flexible and ergonomic workspace solution. The versatility of utilizing portable extension wires with manual cable reels creates possibilities for innovative workspace layouts and adjustable workstations that accommodate a range of user requirements. Addressing noted limitations, such as cord management and ergonomic support, can further improve the usability and effectiveness of repurposed extension wires in various settings, including sites, workshops, and field environments. In conclusion, this research highlights the portable extension wire with a manual cable reel as a versatile and convenient tool suitable



for various applications. Its ease of extension and retraction makes it ideal for workshops, construction sites, outdoor events, and more. The manual reel mechanism ensures controlled and tidy cable management, reducing the risk of accidents. Overall, this extension cord offers a practical solution for extending power where needed, promoting organization and safety.

For further enhancements in the development of a high-quality, durable portable extension wire with a manual cable reel can be achieved by implementing specific recommendations. Firstly, enhancing the ergonomics of the manual cable reel mechanism should be prioritized to optimize user comfort and reduce fatigue during prolonged use. This could involve refining handle shapes, improving rotation mechanisms, and simplifying cable retraction based on ergonomic evaluations which were conducted previously (Patel et al., 2022).

Secondly, safety features should be continuously upgraded to meet current standards and regulations (Soliman et al., 2011). This includes ensuring robust insulation to prevent electrical hazards, implementing secure cable management systems to mitigate tripping risks, and potentially integrating smart technologies for overload protection.

Thirdly, exploring durable and sustainable materials and construction methods is crucial (Abera, 2024). This approach could include using recyclable materials, enhancing energy efficiency during operation, and ensuring product longevity through rigorous testing and quality assurance measures.

Furthermore, developing comprehensive training programs for both students and instructors in the Building and Industrial Technology field is essential (Davis, 1993). These programs should emphasize safe handling practices, proper maintenance procedures, and situational awareness to minimize accidents and extend the product's lifespan.

Establishing a robust feedback mechanism where users, particularly BIT students and faculty, can provide ongoing input and suggestions for improvement is also recommended. This could involve regular surveys, focus groups, or direct feedback channels to capture user experiences and implement iterative enhancements (Neitzel, 2016).

Moreover, integrating the portable extension wire with a manual cable reel more deeply into the BIT curriculum would enhance its educational value. Practical exercises, case studies, and real-world applications across different disciplines (e.g., Civil Technology, Electrical, Welding and Fabrication) should be incorporated to better prepare students for industrial challenges.

Lastly, fostering collaborations with industry partners, researchers, and stakeholders to advance the technology and applications of portable extension wires is crucial. Joint research initiatives, knowledge-sharing efforts, and participation in industry conferences can facilitate continuous improvement and innovation (Lacaba, 2025).

By implementing these recommendations, manufacturers, educators, and stakeholders can significantly enhance the utility, safety, and educational impact of portable extension wires with manual cable reels, ensuring they remain indispensable tools in both educational settings and various industries.

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Research Article

# Assessing the Impact of Foreign Loans, Inflation, and Foreign Direct Investment on Economic Growth: Evidence from 51 Years of Data in Bangladesh

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**Abstract:** This research studied 51 years of historical secondary data ranging from 1972 to 2023 to ascertain how foreign loans (FL), inflation rate (INF), and foreign direct investment (FDI) impact the gross domestic product (GDP) and gross national income (GNI) of Bangladesh, an emerging market economy. The study compiled secondary data from multiple sources, such as the World Bank, Bangladesh Bank, macro trends.net, Bangladesh Economic Review, and Bangladesh Bureau of Statistics. It used the multiple linear regression model to assess the impact of FL, INF, and FDI on economic growth. The study results revealed that FL and FDI significantly impact economic growth. It implies that growing FL and FDI can boost the economic growth of an emerging market. It also indicates that external financial flows can significantly strengthen the macroeconomic fundamentals of a country and contribute to inclusive development if appropriately used. Therefore, Bangladesh should maximize the appropriate use of FL and FDI for high-impact projects and create a more suitable setting for FDI through regulatory reform and incentives. It would safeguard macroeconomic stability through integrated fiscal and economic policies encourage public-private partnerships to get leverage from the use of technical know-how, and enhance sector-specific research to foster sustainable growth. Future studies could build on this work, examining other economic factors such as interest rates, domestic debt, remittances, public and private investment, policy reforms, and governance. In addition, further comparative studies with other emerging countries could be done to gain an inclusive insight into the influence of FL and FDI on economic growth.

**Keywords:** foreign loans; inflation rate; foreign direct investment; economic growth

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## 1. Introduction

The economic growth of a country is influenced by several factors, including government loans (GL), investment in human capital, foreign direct investment (FDI), technological advancements, infrastructure development, natural resources, efficiency of the financial system, and budgetary and fiscal policies (Boldeanu & Constantinescu, 2015). Among the many components of economic growth, government debt and fiscal policy play a substantial part in shaping the economic structure of a country. GL is used to fulfil diverse development needs such as infrastructure development, social welfare initiatives, environmental sustainability, disaster control, relief and recovery, public health and safety, economic growth and job creation, and technical advancements. However, an increased reliance on government borrowing can result in financial instability if not rightly addressed.

Public debt can be either internal (domestic) or external (foreign); the government borrows money from domestic markets to finance domestic investments (Akhanolu et al., 2018). Governments borrow money when their revenue exceeds expenses (Yusuf & Mohd, 2021). As a result of this process, most governments have large amounts of outstanding debt (Akhanolu et al., 2018). For quick growth of the economy, affordable borrowing is crucial for funding infrastructure and public projects. However, taking on too much debt without enough investment planning can result in high debt and interest payments, which can have

negative economic repercussions (Yusuf & Mohd, 2021; Joy & Panda, 2020). An economy will grow when real GDP or gross national product (GNP) rises, which is obvious from an annual change in GNP or GDP. An economy can experience either positive or negative growth. While negative growth is considered a declining economy and is associated with economic depression and recession, positive growth implies a booming economy and a boom and recovery (Erick et al., 2023; Matiti, 2013).

Because of their low incomes and low savings, developing countries must rely on foreign loans (FL) to finance their projects. Due to the buildup of debt payment requirements, FL in developing nations can strain the economy, resulting in limitations and heightened financial responsibilities (Gurung et al., 2024; Ayadi & Ayadi, 2008).

The economic growth of a country is influenced by several factors, including GL, investment in human capital, FDI, technological advancements, infrastructure development, natural resources, the efficiency of the financial system, and budgetary and fiscal policies (Boldeanu & Constantinescu, 2015). Among the many components of economic growth, government debt and fiscal policy play a substantial part in shaping the economic structure of a country. GL is used to fulfil diverse development needs such as infrastructure development, social welfare initiatives, environmental sustainability, disaster control, relief and recovery, public health and safety, economic growth and job creation, and technical advances. However, an increased reliance on government borrowing can result in financial instability if not rightly addressed.

In developing nations like Bangladesh, lowering poverty and building infrastructure while attaining sustainable economic growth is the primary goal of any economic and fiscal policy. Nonetheless, the government must accept financial assistance from external sources outside the nation, mostly in debt, when it cannot achieve its growth requirements. In order to manage the fiscal deficit and save the investment gap since gaining independence, Bangladesh has had to rely on external debt and continues to do so (Dey & Tareque, 2020). The impact is positive in various countries since external debt would boost capital, which is then used for investment to stimulate growth.

In addition to capital accumulation, economic growth also depends on managerial and technical expertise (Yeasmin et al., 2015). However, nations with strong institutional frameworks help from outside debt by having more opportunities for investment and economic expansion. Developing nations with low per capita income and limited access to necessary financing view overseas investment as a noteworthy economic growth and speeding up sources. Additionally, because of their poor domestic revenue base and high government operational expenses, developing countries heavily rely on foreign money through remittances, financial aid, and external borrowing (Mohsin et al., 2021).

An upsurge in debt hurts a nation's economic growth. The nonlinear impacts of public debt on economic development, the GDP, and the tipping point or debt ratio threshold are highly significant in recent research (Kharusi & Ada, 2018).

On the other hand, a nation's inability to maintain its external debt efficiently leads to an enormous shortfall in its current account, which creates a serious challenge to its economic growth. Over time, its financial foundation becomes fragile. Given a huge amount of external debt, there are very few forthcoming investment opportunities available. As such, an effective use of external debts to finance domestic investments is essential to promote revenue and infrastructure (Mohsin et al., 2021).

The nations with large debt loads cannot boost economic growth and fall behind on debt payments. Many researchers and policymakers have grown more concerned about how many emerging nations' high levels of foreign debt impede their ability to progress. Developing states like Bangladesh have recently seen a drop in investments and economic growth due to un-certainties surrounding their foreign debt situation. Debt management policymakers in Bangladesh must research FL and growth to determine the ideal amount of debt for capital accumulation in a developing nation.

Governments everywhere use FL as a key instrument to boost corporate innovation, boost economic growth, and upgrade public infrastructure. FL is crucial for a polity's balanced growth, especially in emerging nations like Bangladesh.

Bangladesh has been using FL for its rapid economic growth and development because of its large population and countless economic problems. Infrastructure projects, social welfare initiatives, agriculture, education, healthcare, and private sector endeavors are just a few of the uses for these loans.

Although FL has been widely used to boost economic growth, opinions on its overall effects are dissimilar. Limited studies have yet been conducted on the affinity between

external debt and economic development. Although the literature on this topic is expanding gradually, very few empirical studies have been concentrated on Bangladesh, especially those that use econometric techniques to observe the fundamental relationship between FL and economic growth. In light of these factors, this study uses multiple linear regression analysis to investigate

In light of these factors, this study uses multiple linear regression analysis to investigate how FL, inflation rate (INF), and FDI impact economic growth.

This article's main objective is to investigate how Bangladesh's GDP and gross national income (GNI) are impacted by FL, INF, and FDI. The following are the specific research objectives:

- (1) Examining how FL affect Bangladesh's GDP and GNI.
- (2) Assessing how inflation affects GDP and GNI.
- (3) Analyzing how FDI affects GDP and GNI.

## 2. Theoretical Framework

This section lists and analyses all pertinent studies on the influence of FL on economic growth, both domestically and internationally.

Ale, Islam, and Nessa (2023) investigated the affiliation between economic growth and exterior debts from 1980 to 2020. From a longstanding and short-range perspective, they discovered a substantial negative connection between South Asia's economic growth and external debt. Using secondary data, Erick, Rotich, Njoki, Topisia, and Bosibori (2023) surveyed the effects of public debt on Kenya's economic development between 2002 and 2020. The researchers used descriptive research and multivariate regression analysis to determine the connection between public debt and economic growth. The paper witnessed that public debt has a negligible detrimental influence on economic growth.

Using the vector error correction model, Agarwal and Ansari (2022) investigated public debt's short – and long-term effects on Uttar Pradesh's economic growth over the 30-year post-reform period. Experimental analysis showed that the rise in the public debt-to-state GDP ratio and recompense of interest burden negatively affected long-term economic growth while having no discernible influence on short-term growth.

Mohsin, Ullah, Iqbal, and Taghizadeh-Hesary (2021) used the panel ordinary least square, fixed-effect, quintile regression model to examine the link between economic growth and external debt in the South Asian region between 2000 and 2018. According to the data, foreign debt negatively impacts economic growth. However, outside debt has a favorable influence. Additionally, the study established that trade openness and gross capital establishment favorably impact economic growth.

After reviewing the influences of Nigeria's external debt on economic growth, Edwin Ben and Calista (2021) concluded that debt has an unfavorable effect on Nigeria's economic growth and that its payment further harms the country. Yusuf and Mohd (2021) investigated the impact of government debt on Nigeria's economic development using annual data from 1980 to 2018. The empirical results showed that even if exterior debt contributed to growth in the short term, it hindered growth in the long run. However, long-term growth has been remarkably due to domestic debt, but short-term growth had to suffer.

However, Chimezie, Omankhanlen, and Eriabie's (2020) found that government revenue significantly impacts the economic growth of Nigeria. Gross domestic savings have not impacted the economic growth of Nigeria. In contrast, government spending has had a significant but not substantial impact through the results of capital expenditure and recurring expenditure.

Using time-series statistics from 1972 to 2022, Saboor, Yousaf, Narmeen, and Fatima (2023) discovered the impression of FL on the economic growth of Pakistan. The findings of this study confirmed that while FL affects the economic growth of Pakistan negatively, FDI impacts its economy positively and inflation affects negatively.

Ambya (2020) found that economic growth is considerably impacted by local government spending on real per capita infrastructure, real per capita education, real per capita health (lag-1) per capita, and the number of workers. According to Ali, Ahmad, and Rehman (2016), government borrowing is called public domestic debt, whereas private borrowing, or lending to the private sector, is utilized for financial development.

Dey and Tareque (2020) explored the autoregressive distributed lag bounds testing approach to show the effect of external debt on economic development in Bangladesh during the 1980–2017 periods within a larger macroeconomic context. The results of the study reveal

that foreign debt has an adverse effect on GDP growth, but the MEP index has a more significant positive impact suggests that good MEP and sensible HR practices might lessen or even eliminate this adverse effect.

Sultana, Uddin, Rahman, and Faruk (2020) investigated how the economic growth of Bangladesh was impacted by external debt. GDP growth was the dependent variable in the model, whereas explanatory variables were the exchange rate, trade terms, gross capital generation, external debt stock, and total debt service. Phillips-Parron Unit Root Tests and Augmented Dick Fuller were used for diagnostic testing. The empirical evidence indicated that a one-unit rise in external debt would result in a 0.14-unit long-term drop in GDP.

Yeasmin, Chowdhury, and Hossain (2015) attempted to use time series econometrics to observe the effect of foreign debt on Bangladesh's growth from 1972 to 2012. The findings demonstrated that debt has a significant negative effect on the economic growth of Bangladesh. The GDP of Bangladesh slowed down ward trend due to the pressure of servicing its external debt. The main drivers of Bangladesh's economic growth are exports, FDI and remittances. The study results suggest that equitable and efficient debt management is necessary.

According to Hassan and Akhter (2012), Bangladesh has mainly relied on public debt to cover its budget deficit since gaining independence. Their goal is to determine whether the Bangladeshi government's excessive borrowing from public sources is hurting the nation's economy.

Bangladesh has been experiencing a persistent budget deficit since the early 2000s, according to Rana and Wahid (2017), who also discovered that the government budget deficit averages close to 5% of the nation's GDP. Governments have primarily borrowed from local and foreign sources to fund this deficit, which has crowded out private investments and increased inflation. According to the results, the government budget shortfall negatively impacts Bangladesh's economic growth statistically significantly.

Hossain and Shirin (2016) investigated the effects of different forms of debt on the economic growth of Bangladesh using time series data from 2000 to 2015. Their findings demonstrated a long-term correlation between debt factors and economic growth.

Alam, Sadekin, Islam, and Moudud-Ul-Huq (2022) examined the influences of budget deficit financing on the economic growth of Bangladesh during 1981 to 2018. The study uses the Granger causality test, co-integration test, and vector error correction mechanism. According to the survey, money supply, government external debt, and government domestic debt all have a long-term positive impact on GDP.

Nath, Karim, Hossain, and Uddin (2023) investigated the connection between Bangladesh's foreign state debt and economic progress using time series data from 1961 to 2021. GDP growth, a stand-in for economic growth, is this study's response (dependent) variable. In contrast, the independent factors are FDI inflow, export, import, and external debt. The findings of the study demonstrated that foreign (external) debt has a detrimental effect on economic growth; in the near run, a 1% rise in foreign public debt lowers economic growth by 8.81%.

Kamal and Islam (2018) used a time series analysis of FL and donations for Bangladesh from 1980 to 2016 to examine a highly debated issue of whether FL or grants significantly influence the economic development of developing nations that receive enormous amounts of foreign aid. They discovered that FL had a more significant long-term effect on Bangladesh's economic growth (as indicated by per capita GDP) than foreign donations.

### 3. Materials and Methods

This research is supported by secondary data sources using an explanatory and empirical research approach covering 1973-2023. The main sources of data are the World Bank, Bangladesh Bank, [macro.trends.net](http://macro.trends.net), Bangladesh Economic Review, and Bangladesh Bureau of Statistics. The study used GDP and GNI as response (dependent) variables and FL, INF, and FDI as explanatory (independent) variables. It adopted different types of descriptive and inferential statistical techniques. The study encountered multiple regression analysis to ascertain the effect of FL, FDI and INF on economic growth in Bangladesh.

Table 1 provides a comprehensive overview of the variables utilized in this investigation, including proxies, definitions, and measurement methods. The primary macroeconomic metrics analyzed include GDP, GNI, FL, INF, and FDI.

**Table 1.** Variables explanation.



Variables	Proxies and symbols	Definitions	Measurement
Gross Domestic Product	GDP	GDP computes the monetary value of ended products and services – those procured by consumers – engendered in a nation during an exact period (Callen, 2008).	Natural logarithm of GDP in billions of US dollars.
Gross National Income	GNI	The GNI, previously known as the GNP, is the total amount of factor income earned by the residents of a country both domestically and internationally according to Tuhin (2021).	Natural logarithm of GNI in billions of US dollars
Foreign Loan	FL	A FL is a sum of money borrowed from a foreign government or individuals and companies operating in a foreign country (Akhanolu et al., 2018; Osinubi et al., 2010)	Natural logarithm of FL in billions of US dollars
Inflation Rate	INF	Inflation is a steady rise in the general price level that signifies a reduction in the purchasing power of a single unit of money (Mostafa, 2020).	Natural logarithm of INF
Foreign Direct Investment	FDI	FDI is an investment made to get a longstanding stake in businesses that is not part of the investor's economy. But, when it comes to FDI, the investor wants to have a significant voice in how the business is run (International Monetary Fund, 1993; Bayraktara, 2013).	Natural logarithm of Net FDI inflows in billions of US dollars

GDP, expressed in billions of US dollars, is the natural logarithm of the total monetary value of finished goods and services produced within a nation over a specific time period (Callen, 2008). GNI is computed as the natural logarithm of all domestic and foreign income earned by a nation's citizens, expressed in billions of US dollars. FL is the natural logarithm of FL in billions of US dollars and denotes external borrowing from foreign governments, people, or organizations.

The term “inflation” (INF) describes a general increase in prices that lowers purchasing power. The natural logarithm of the INF is used to calculate it (Mostafa 2020). Net inflows of capital aimed at acquiring a long-term stake in companies operating outside the investor's home economy are referred to as FDI. In billions of US dollars, the natural logarithm of net FDI inflows is used to compute it (International Monetary Fund, 1993; Bayraktara, 2013). In order to normalize the data and remove any heteroskedasticity and enable more reliable econometric analyses, the logarithmic adjustment was applied to all variables

### 3.1 Econometric Model

The study used GDP, GNI, and FL as the main variables to evaluate the impact of FL on economic growth. However, two more variables are also taken in the model- those are INF and FDI. Thus, there are in total five variables. The subsequent econometric model is well-thought-out for empirical investigation:

$$\text{Model 1: } \text{GDP}_t = \beta_0 + \beta_1 \text{FL}_t + \beta_2 \text{INF}_t + \beta_3 \text{FDI}_t + \epsilon_t$$

$$\text{Model 2: } \text{GNI}_t = \beta_0 + \beta_1 \text{FL}_t + \beta_2 \text{INF}_t + \beta_3 \text{FDI}_t + \epsilon_t$$

Where GDP stands for gross domestic product, GNI stands for gross national income. The parameter  $\beta_0$  is a constant term,  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  are the elasticity coefficients of GDP and GNI. FL stand for foreign loans, INF stand for the inflation rate, and FDI stances for foreign direct investment, t stands for time, and an idiosyncratic error term is offered by  $\epsilon_t$ .

## 4. Results and Discussion

A series of analyses using SPSS are performed to explore the correlations between GDP, GNI, FL, FDI, and INF based on data from 51 observations.

The sample size and range are 51 cases, with all variables evaluated. The table 2 shows each variable's minimum and maximum values, allowing for an understanding of the spread or range. For example, GDP fluctuated from 8.09 to 460.13 billion dollars, while GNI ranged



from 8.40 to 493.93 billion. The extensive ranges indicate significant variation in economic indicators across the sample.

**Table 2.** Descriptive statistics.

	N	Minimum	Maximum	Mean	Std. deviation
	Statistic	Statistic	Statistic	Statistic	Statistic
GDP (Billion dollar)	51	8.090000	460.130000	102.31078431	124.726540509
GNI (Billion dollar)	51	8.400000	493.930000	105.50117647	129.623687182
FL (Billion dollar)	51	.497826	99.477590	23.24092617	24.371011390
INF (Ratio)	51	-.176300	.671700	.07823333	.095542377
FDI (Billion dollar)	51	-.010000	2.830000	.64000000	.875746539
Valid N (listwise)	51				

Central Tendency (Mean) is a summary measure of central position. For example, the average GDP was about 102.31 billion dollars, whereas the average GNI was around 105.50 billion. These fundamental values provide a point of comparison for individual data points and assess the dataset’s overall economic performance.

Standard deviations (124.73 for GDP and 129.62 for GNI) show substantial variability. This result signifies that the data facts are distributed over a wide range around the mean, as is frequent in economic data, including various dimensions and intensities of economic activity. Similarly, FL and other variables such as INF and FDI vary considerably, reflecting different financial situations or policies in the observed cases.

Skewness and Kurtosis check the normality of data (table 3). Skewness is a measure of the asymmetry of the distribution of a variable, and Kurtosis is a measure of the peakedness of a distribution (Kim, 2013). Although skewness and Kurtosis are extensively used in exercise, there is no common rule for defining the values that specify normality. Some papers reported that up to an absolute value of ±2 for skewness and Kurtosis might be translated to normality (Islam, 2023; Islam et al., 2023; Islam et al., 2024). The above descriptive statistics show that the statistic values of skewness and Kurtosis are within ±2, so we can say that the data used in this study is normally dispersed.

**Table 3.** Tests of normality.

	N	Skewness		Kurtosis	
		Statistic	Std. error	Statistic	Std. error
GDP	51	.388	.333	-.805	.656
GNI	51	.392	.333	-.791	.656
FL	51	-.592	.333	.381	.656
INF	51	1.037	.333	1.603	.656
FDI	51	-1.150	.333	-.183	.656
Valid N (listwise)	51				

Pearson correlation coefficients (table 4) evaluate the linear correlations between variables. There are significant positive associations between GDP and FL ( $r = .940, p < .01$ ), GDP and FDI ( $r = .516, p < .01$ ), GNI and FL ( $r = .947, p < .01$ ), GNI and FDI ( $r = .494, p < .01$ ), and FL and FDI ( $r = .426, p < .01$ ). Insignificant negative associations are identified between GDP and INF ( $r = -.333, p < .05$ ), GNI and INF ( $r = -.327, p < .05$ ), and FL and INF ( $r = -.439, p < .01$ ).

Multicollinearity diagnostics are performed on the predictor variables (FL, INF, FDI) intended for regression models. FL (.645), INF (.786), and FDI (.796) tolerance values are all significantly higher than the commonly used threshold of 0.1. Similarly, the variance inflation factor (VIF) readings for FL (1.551), INF (1.273), and FDI (1.256) are significantly lower than the commonly used threshold of 10. These findings specify that multicollinearity is not a significant concern among the predictor factors.

**Table 4.** Correlation and multicollinearity.

		Correlations					Collinearity statistics	
		GDP	GNI	FL	INF	FDI	Tolerance	VIF
GDP	Pearson correlation	1						
GNI	Pearson correlation	.996**	1					



FL	Pearson correlation	.940**	.947**	1		.645	1.551
INF	Pearson correlation	-.333*	-.327*	-.439**	1	.786	1.273
FDI	Pearson correlation	.516**	.494**	.426**	-.052	1	.796

Note: Correlation is significant:

\*\*at the 0.01 level (2-tailed).

\*at the 0.05 level (2-tailed).

#### 4.1. Regression Outcomes

Two regression models were created, one for GDP and one for GNI, using the same set of predictors: FL, INF, and FDI. This section portrays the results of several linear regression studies that were conducted to look into how FDI, INF, and FL affected Bangladesh's economic performance as indicated by GDP and GNI. In order to evaluate the relationship between these independent macroeconomic factors and the primary income indicators of the nation, regression models were developed. The research clarifies how internal and external financial issues impact national economic growth by analyzing the strength, direction, and significance of these interactions. Model summaries, ANOVA statistics, and coefficient estimates are used to present the results; each is explained in detail below.

Table 5 shows the Model Summary of a multiple linear regression in which GDP is the dependent variable and FDI, INF, and FL are the independent variables. The model has a high correlation coefficient ( $R = 0.951$ ), showing a strong positive linear relationship between the predictors and the GDP.

Table 5. Model 1 summary.

Model	R	R square	Adjusted R square	Std. error of the estimate
1	.951a	.904	.898	.356694820

Note: Predictors: (Constant), FDI, INF, FL  
Dependent Variable: GDP

The R-squared value of 0.904 indicates that FDI, INF, and FL account for approximately 90.4% of the variation in GDP. The corrected R-squared value of 0.898 takes into consideration the number of predictors and validates the model's robustness by showing just a slight reduction, demonstrating that the model is not overfitted. The standard error of the estimate is approximately 0.357, which is the mean separation between the regression line and the observed values.

Table 6 illustrates the ANOVA test results, which are used to determine the regression model's overall significance. The F-statistic is 148.244 with a p-value (Sig.) of 0.000, indicating great significance at the 1% level. This demonstrates that the regression model is statistically significant and that the combination of FDI, INF, and FL has an enormous impact on GDP.

Table 6. ANOVA.

Model	Sum of squares	Df	Mean square	F	Sig.	
1	Regression	56.584	3	18.861	148.244	.000b
	Residual	5.980	47	.127		
	Total	62.564	50			

Note: Dependent variable: GDP  
Predictors: (Constant), FDI, INF, FL

In Table 7, Individual predictors revealed a substantial positive relationship between FL and GDP ( $B = 0.89$ ,  $SE = 0.05$ ,  $\beta = .919$ ,  $t = 16.36$ ,  $p < .001$ ). FDI significantly predicts GDP ( $B = 0.08$ ,  $SE = 0.03$ ,  $\beta = .129$ ,  $t = 2.55$ ,  $p = .014$ ). INF did not significantly predict GDP ( $B = 2.55$ ,  $SE = 1.68$ ,  $\beta = .077$ ,  $t = 1.52$ ,  $p = .136$ ). The model forecasts GDP with an excellent fit, with FL, INF, and FDI accounting for 89.8% of the variation. FL and FDI are the most potent indicators because they significantly impact GDP, but the INF has no statistically noteworthy influence on GDP.

Table 7. Coefficients.

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.	
	B	Std. Error	Beta			
1	(Constant)	1.559	.246		6.326	.000
	FL	.889	.054	.919	16.362	.000



INF	2.549	1.680	.077	1.517	.136
FDI	.076	.030	.129	2.550	.014

Note: Dependent variable: GDP

Model 2 examined the effects of FDI, INF, and FL using GNI as the dependent variable. The summary of the model presented in table 8. According to the table, the three predictors collectively account for roughly 91.5% of the variation in GNI, with a strong multiple correlation coefficient (R) of 0.956 and an R-squared value of 0.915. After accounting for the number of variables, the model's reliability is confirmed by its corrected R-squared value of 0.909, which shows no decrease in explanatory power.

Table 8. Model 2 summary.

Model	R	R square	Adjusted R square	Std. error of the estimate
2	.956*	.915	.909	.334173870

Note: \*Predictors: (Constant), FDI, INF, FL  
Dependent Variable: GNI

The ANOVA findings in table 9 demonstrate that the model is statistically significant, with an F-statistic of 168.060 and a p-value of 0.000, showing that the regression equation gives a good fit for the data and that the independent variables impact GNI together.

Table 9. ANOVA.

Model	Sum of Squares	df	Mean square	F	Sig.	
2	Regression	56.303	3	18.768	168.060	.000*
	Residual	5.249	47	.112		
	Total	61.551	50			

Note: \*Predictors: (Constant), FDI, INF, FL  
Dependent variable: GNI

The coefficients of the regression model are shown in Table 10. The strongest positive correlation between FL and GNI is indicated by the FL variable, which has the highest standardized beta value ( $\beta = 0.896$ ) and is statistically significant at the 1% level ( $p < 0.001$ ). This demonstrates that a sizeable portion of the nation's overall income comes from borrowing from abroad.

Table 10. Coefficients.

Model	Unstandardized coefficients		Standardized coefficients	T	Sig.	
	B	Std. Error	Beta			
2	(Constant)	1.895	.182		10.433	.000
	FL	.859	.048	.896	17.960	.000
	INF	.180	.117	.075	1.536	.131
	FDI	.069	.030	.118	2.298	.026

Note: Dependent variable: GNI

Although the INF variable has a positive coefficient ( $\beta = 0.075$ ), it is not statistically significant ( $p = 0.131$ ), indicating that, at standard levels of significance, inflation has no discernible direct impact on GNI within the model. FDI has a slightly positive effect on GNI ( $\beta = 0.118$ ) and is significant at the 5% level ( $p = 0.026$ ). This implies that although FDI makes a positive contribution to national income, its impact is less significant than that of FL.

## 5. Conclusions

Developing countries like Bangladesh mostly manage their deficit budget and development constructions through FL. These loans significantly impact a country's overall development, especially economic growth. This research has been conducted to understand the impact of FL, FDI and INF on the economic growth of Bangladesh. The study uses multiple linear regression analysis grounded on a secondary data period covering 1972–2023. The primary data sources are the World Bank, Bangladesh Bank, Bangladesh Economic Review, and Bangladesh Bureau of Statistics.

The study has used GDP and GNI as response (dependent) variables and FL, INF, and

FDI as explanatory (independent) variables. The analysis demonstrates that Bangladesh's economy has experienced tremendous growth and fluctuation during the last 51 years. GDP fluctuated from USD 8.09 billion to USD 460.13 billion, and GNI fluctuated from USD 8.40 billion to USD 493.93 billion.

The results specify that FL and FDI significantly influence economic growth. It implies that increasing FL and FDI will propel economic growth. These findings highlight the importance of FL and FDI in GDP and GNI, consistent with theoretical predictions regarding the impact of external financial flows on economic performance. These results indicate that external financial flows can significantly strengthen Bangladesh's macroeconomic fundamentals and contribute to inclusive development if appropriately utilized.

Therefore, Bangladesh should maximize the appropriate use of foreign debt and FDI for high-impact projects and generate a more conducive environment for FDI through regulatory reform and incentives. It should safeguard macroeconomic stability through integrated fiscal and monetary policies, encourage public-private partnerships to leverage technology use and skill development, and increase sector-specific and distributive research to foster sustainable growth.

Future studies could build on this work, examining other economic factors such as interest rates, domestic debt, remittances, both public and private investment, policy reforms, and governance. Further comparative studies in other developing countries could also be conducted to gain a more inclusive understanding of the influence of public debt on economic growth.

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Research Article

# Decoding the Key Determinants of Self-Employment in Botswana

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**Abstract:** Entrepreneurship plays a key role in eliminating unemployment and promoting inclusive economic development, especially in developing countries like Botswana. The determinants of self-employment are analyzed using cross sectional data from the 2015/16 Botswana Multi-Topic Household Survey (BMTHS) and a binary logistic regression model. The key determinants of self-employment include age, citizenship, education level, marital status, and geographical location, which have a significant impact on an individual's probability of being self-employed. Specifically, older individuals, foreigners, married or widows, and rural dwellers have greater probabilities of being self-employed. The findings also show that individuals with higher education such as diplomas, job training, and university degrees/other degrees are negatively correlated with being self-employed, suggesting that the more educated an individual is, the more they prefer wage employment. Also, findings suggest that programs of entrepreneurship need to be diverse by not only focusing on youth but older people as well, supporting citizen owned enterprises and integrating entrepreneurship training in all education levels. Furthermore, special support should be given to family businesses and rural entrepreneurship development schemes which can encourage more inclusive entrepreneurial growth. Addressing these socio demographic and spatial disparities by adopting segmented and responsive policies can enhance government efforts at promoting self-employment as a sustainable activity for economic diversification and poverty reduction.

**Keywords:** entrepreneurship; self-employment; youth unemployment; labour market

## 1. Introduction

Entrepreneurship and self-employment are vital drivers of economic development, employment, and poverty reduction. Governments and policymakers worldwide have increasingly encouraged graduates and non-graduates not to depend solely on formal employment but rather to consider starting their own businesses as a viable exit strategy out of unemployment and poverty. The growing global interest in entrepreneurship is fueled by the continued challenges that developing countries face, such as the limited capacity to absorb graduates in the labour market, unstable economic growth, and increasing inequality (Organisation for Economic Co-operation and Development, 2020; United Nations Botswana, 2022; World Bank, 2024).

The International Labour Organization (2022) defines a self-employed person as an independent worker who owns a business or exercises a profession alone. Recent research also defines a self-employed person as one who undertakes economic activity for the purpose of earning a living or profit either separately or in co-venture with partners, either with or without employees, depending on the nature and size of the undertaking (Organisation for Economic Co-operation and Development, 2021; Global Entrepreneurship Monitor, 2023).

According to Parker (2018), self-employment and entrepreneurship often overlap conceptually, with self-employment in most cases used as a proxy for entrepreneurship in empirical research, despite differences in motivation, scale of business, and innovation potential. The Global Entrepreneurship Monitor defines entrepreneurship as any attempt at a new business or venture creation, including self-employment, whether it involves the launch of a new business or the expansion of an existing one (Global Entrepreneurship Monitor, 2023).

Unemployment and poverty remain high in Botswana and are priority areas. The national

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unemployment rate was 25.4% in 2022, with youth and female unemployment being extremely high (Statistics Botswana, 2023). Poverty levels also remain a challenge compared to other upper-middle-income countries, driven by income and regional inequality (African Development Bank Group, 2022). In order to address these challenges, the Botswana Government has focused on entrepreneurship promotion as a strategic response to the limited formal sector job creation. While the unemployment rate has slightly fluctuated, the majority of jobs created are small-scale and often in informal enterprises (especially within agriculture) and are heavily dependent on government subsidies. Additionally, employment within the public sector has stagnated as a result of budgetary constraints and the hiring freeze which effected since 2010 (World Bank, 2024).

Recognizing the importance of entrepreneurship as an engine of economic diversification, the Government of Botswana has developed different institutions and initiatives to enhance entrepreneurial development. These include the Local Enterprise Authority, Citizen Entrepreneurial Development Agency, and the Youth Development Fund. These initiatives support small, medium, and micro enterprises through training, mentorship, and subsidized financing. Nevertheless, self-employment still accounts for a modest share of total employment around 23%, and concentrated in low-growth sectors (United Nations Botswana, 2022; World Bank, 2024). The Global Entrepreneurship Monitor (2023), highlights that entrepreneurial activity in Botswana has not yet reached a stage that could transform the country's employment landscape and more still needs to be done.

Several challenges continue to hinder entrepreneurship in Botswana. These include limited access to markets, financial exclusion, lack of management skills, poor entrepreneurial culture, and inadequate infrastructure (African Development Bank Group, 2022; United Nations Botswana, 2022). Mannathoko (2011) and Global Entrepreneurship Monitor (2023), highlight that 80% of the businesses in Botswana fail within the first 3 years of operating, which is a great concern considering the efforts and resources the Botswana Government invests in entrepreneurship development.

Gindling and Newhouse (2013) argue that understanding the characteristics and motivations of self-employed individuals is pivotal when designing policies that promote entrepreneurship. There remains a gap in Botswana-specific empirical evidence on the key factors that influence self-employment. This study seeks to fill that gap by identifying the socio-demographic, economic, and geographical factors influencing self-employment in Botswana. Understanding these factors will assist in formulating targeted strategies to support entrepreneurship to achieve sustainable economic growth, job creation, and poverty reduction. The study will assess the characteristics that influence the likelihood of being self-employed in Botswana.

Research questions concern the following:

- (1) How do socio-demographic characteristics such as age, gender, marital status and education level influence the possibility of being self-employed in Botswana?
- (2) Does an individual's health status influence self-employment decisions in Botswana?
- (3) Is there a significant difference in self-employment motivations between geographical locations in Botswana?

## 2. Literature Review

Self-employment has been studied at both macroeconomic and microeconomic levels. The microeconomic perspective investigates household level issues and data, where analysis is done on why an individual would switch from paid employment to self-employment or compare earnings for individuals transitioning between the two (Obschonka et al., 2017; Parker, 2018; Dawson et al., 2009; Rees & Shah, 1986). The macroeconomic approach considers self-employment from a national perspective, and explores its relationship with unemployment and economic development (Organisation for Economic Co-operation and Development, 2021; Neto, 2024). The focus of this study is at a micro level and the literature reviewed primarily adopts the microeconomic approach.

Gender has been recognized as an important factor in self-employment decisions. Gender has been found to influence entrepreneurship including Botswana (United Nations Botswana, 2022), the United Kingdom (Dawson et al., 2009), Portugal (Neto, 2024), Greece (Vlachos, 2016), Organisation for Economic Co-operation and Development (OECD) countries (Klapper & Parker, 2011), and Israel (Shavit & Yuchtman-Yaar, 2001). Entrepreneurship is traditionally viewed as a male dominated activity, and men are usually more than women in entrepreneurial activities (Choi, 2024). Studies undertaken in the United

States, Portugal, and Greece have found that men are more likely to enter self-employment for financial reasons, while women often enter out of necessity or lifestyle (Nikolova & Bargar, 2010; Klapper & Parker, 2011). In Botswana, family responsibilities continue to push women to participate in entrepreneurship (United Nations Botswana, 2022). However, female entrepreneurship may also be underreported. As Millán, Congregado, and Román (2012) and Parker (2018) observe, many women are usually classified as unpaid family workers even when they play a large role in managing the business, this therefore may not give a true reflection of the extent of women in entrepreneurship.

The effect of age on self-employment remains mixed in the literature. Some studies (Parker, 2018) suggest that younger individuals are more likely to engage in entrepreneurship due to their greater risk tolerance and energy, while others are of the view that older individuals have acquired more financial and human capital and are more likely to be self-employed (Gindling & Newhouse, 2013; Asheim, 2020). These opposing findings may reflect differing social safety nets, pension systems, and labor market conditions across countries globally.

Marital status is another determinant of self-employment. Rees and Shah (1986) find that married individuals are more willing to take entrepreneurial risks due to better social capital and stability in household income. Dawson, Henley and Latreille (2009) found that married individuals are often motivated by financial obligations and the desire to increase household income. Neto (2024) notes that marriage offers a safety net, such as spousal income, which may cushion the risks sometimes associated with self-employment.

Citizenship and immigration status is also found to influence entrepreneurial decisions. Non-citizens or foreigners are often faced with barriers in entering formal employment, which pushes them to engage in self-employment as a means of survival and income generation (Organisation for Economic Co-operation and Development, 2021; Fairlie, 2018). Studies such as Millán et al. (2012) and the International Labour Organization (2022) highlight that immigrants are often risk-takers and engage in self-employment to overcome exclusion in formal labor markets. In Botswana, non-citizens often participate in informal or small-scale entrepreneurship because of the legal and policy constraints on formal sector employment.

Education is another critical factor that also has mixed results in literature. While higher education can equip individuals with business skills and opportunity recognition capabilities (Aidis, 2023), it can also increase access to formal employment, which would reduce the possibility of self-employment (Obschonka et al., 2017). In Portugal, individuals with lower education levels have been found to enter self-employment out of necessity rather than opportunity (Neto, 2024). In contrast, studies in OECD countries suggest that those with advanced degrees are more likely to start self-regulating professional services (Klapper & Parker, 2011; Organisation for Economic Co-operation and Development, 2021).

Health status is also found to be a significant determinant of self-employment. Rietveld, van Kippersluis, and Thurik (2015) argue that self-employment is more physically and mentally demanding, which can discourage individuals with poor health. People with poor health are found to avoid self-employment due to uncertainty, lack of medical benefits, and greater workloads (Sitharam & Hoque, 2016). However, in countries with weak social protection systems or labor market discrimination, individuals with chronic health conditions may likely view self-employment as their only sustainable option (International Labour Organization, 2022).

The geographical dimension of self-employment is also relevant. Entrepreneurship tends to vary by location due to labor market structure, access to resources, and cultural norms. Unemployment in rural areas is often high and there are fewer wage employment opportunities, therefore rural areas tend to have higher levels of necessity-driven entrepreneurship (World Bank, 2024). Haapanen and Tervo (2009) found that in Finland, rural entrepreneurs were more likely to start businesses out of necessity than those in the urban areas. Similar patterns are also observed in developing countries, including Botswana, where lack of rural labour market opportunities push individuals into self-employment (United Nations Botswana, 2022).

### 3. Materials and Methods

In line with the empirical literature (Vlachos, 2016; Neto, 2024; Shavit & Yuchtman, 2001; Sanders & Nee, 1996) this study adopts the logit regression model to investigate the determinants of self-employment in Botswana. The model is specified as:



$$\ln \left[ \frac{P_i}{1-P_i} \right] = \beta_0 + \sum_{j=1}^n \beta_j X_{ij} + \varepsilon_i \quad \varepsilon_i \sim \left( 0, \pi^2 \right)$$

where  $P_i$  is the probability that the individual is self-employed,  $\beta_0$  and  $\beta_j$  are parameters to be estimated,  $X'_{ij}$  represents explanatory variables  $j$  for household  $i$ ,  $\ln$  is the natural logarithm and  $\varepsilon_i$  is the error term.

The dependent variable, employment status is defined as a dummy variable, taking a value of 1 if the individual is self-employed and a value of 0 if they are engaged in paid employment. Following some works (Parker, 2018; Obschonka et al., 2017; Brixiová & Kangoye, 2013; Aidis, 2023; Vlachos, 2016; Nikolova & Bargar, 2010; Dawson et al., 2009; Shavit & Yutchman, 2001; Rees & Shah, 1986), seven independent variables are considered in this study, including age, gender, education, citizenship, marital status, health status, and region of residence.

The choice of independent variables was mostly guided by the empirical literature on the determinants of self-employment and data availability. Table 1 describes the variables used in the model.

**Table 1.** Description of variables used in the model.

Variable	Variable definition
<b>Dependent variable</b>	
Employment Status	Employment Status; 1= Self-employed, 0= Paid employed
<b>Independent Variable</b>	
Age	Age in years
Gender	1=male, 0=female
Citizenship	1=citizen, 0=non-citizen
Health	1=Has a chronic disease, 0=Has no chronic disease
<i>Highest Education level</i>	
No training	1= Has no training 0=otherwise
Certificate	1=Has a certificate , 0=otherwise
Diploma	1=Has a diploma, 0=otherwise
Job training	1=Has job training, 0=otherwise
University Degree	1=Has a university degree, 0=otherwise
Other Degree	1=Has other degree, 0=otherwise
<i>Marital Status of HH</i>	
Never Married	1= Never married 0=otherwise
Married	1=Married, 0=otherwise
Cohabiting	1=Cohabiting, 0=otherwise
Separated	1=Separated, 0=otherwise
Divorced	1=Divorced, 0=otherwise
Widowed	1=Widowed, 0=otherwise
<i>Region</i>	
Cities/towns	1= cities/towns, 0= otherwise
Urban villages	1= urban village, 0= otherwise
Rural villages	1= rural village, 0= otherwise

### 3.1. Data and Descriptive Statistics

This study uses the data for the 2015/16 Botswana Multi-Topic Household Survey (BMTHS), a household level nationwide survey that was conducted during the period November 2015 to October 2016. The main objective of the BMTHS was to provide a complete and thorough data set for providing a basis for establishing poverty profiles for



Botswana. The survey had modules on household consumption and expenditure, education, employment, access to health amenities, community activities and other information on school and health facilities, as well as household characteristics. BMTHS survey gathered information from 7,060 households and 24,720 individuals from cities/towns, urban villages and rural villages. This study is based on information for individuals who were engaged in paid employment and self-employment (both formal and informal), which reduced the sample to 7,521 respondents.

Descriptive statistics are presented in Table 2. Most of the variables used in the model are dummy variables, except for age which is a continuous variables. As indicated in Table 2, 28.9% of the individuals were self-employed, implying that the remaining 71.1% were engaged in paid employment. Males account for 53.3%, while females accounted for the remaining 46.7%. Citizens account for about 95% of the participants, while non-citizens account for only 5%. Furthermore, 25% of the sample had a chronic disease, while the remaining 75% had no chronic disease. The mean age of the individuals stood at 39 years.

**Table 2.** Descriptive statistics results.

Variable	Mean	Minimum	Maximum
<i>Dependent Variable</i>			
Employment Status	0.289	0	1
<i>Independent Variables</i>			
Gender	0.533	0	1
Citizenship	0.949	0	1
Health status	0.252	0	1
Age	39	12	98
<i>Highest Education level</i>			
No training	0.624	0	1
Certificate	0.133	0	1
Diploma	0.098	0	1
Job training	0.036	0	1
University Degree	0.095	0	1
Other Degree	0.014	0	1
<i>Marital Status</i>			
Married	0.246	0	1
Cohabiting	0.298	0	1
Separated	0.014	0	1
Divorced	0.012	0	1
Never Married	0.397	0	1
Widowed	0.034	0	1
<i>Region</i>			
Cities/towns	0.297	0	1
Urban village	0.387	0	1
Rural village	0.317	0	1

Most of the sampled individuals do not have any form of training (62.4%), followed by Certificate holders (13.3%) and Diploma holders (9.8%). The majority of the individuals were never married (39.7%), 24.6 % were married, 29.8% were cohabiting, 1.2% were divorced, 3.4% were widowed, and only 1.4% had been separated. Majority of the individuals stayed in urban villages (38.7%), followed by rural villages (31.7%) and then cities/towns (29.7%).

#### 4. Results and Discussion

The results for the estimated logit model are presented in Table 3, which shows the coefficients, the corresponding p-values and marginal effects. The Log Likelihood Ratio test shows that the model is a good fit for the data ( $p < 0.001$ ). The Pseudo-R<sup>2</sup> (0.1142) is low which is common for cross-sectional data. A Variance Inflation Factor (VIF) was computed in order to detect multicollinearity. The test produced low VIFs. The highest VIF was recorded at 1.63, the lowest at 1.04, and the mean VIF at 1.21. Since the VIFs are less than 10 we can conclude that multicollinearity is not a serious problem (Stock & Watson, 2011).

The results of the empirical model show that the significant variables are age, citizenship, having highest qualification being a diploma, job training, university degree or other degree;



being married or widowed; and residing in cities/town or urban village. Age is found to be positive and statistically significant. The estimated marginal effect suggests that a one-year increase in age of an individual would increase the likelihood of being self-employed by 0.66 percentage points. Therefore, older individuals are more likely to be self-employed than the youth. The variable on citizenship was statistically significant and negative, this implies that citizens are 11 percentage points less likely to enter into self employment than non citizens. This would imply that employment opportunities in the country are usually given to citizens, while non-citizens usually enter the country to engage in other forms of employment like self-employment.

It is expected that those with higher education levels would rather enter into paid employment as compared to self-employment. Consistent with this hypothesis, the education variables were found to be significant and negative for diploma, job training, university degree and other degrees. Individuals that have a diploma or job training are respectively, 15.7 and 15.2 percentage points less likely to enter into self employment as compared to an individual that has no training. Furthermore, an individual that has a university degree or another degree is 17.9 and 15.3 percentage points less likely to enter into self employment as compared to an individual that has no training. This implies that education opens up opportunities for paid employment, and those individuals who have low educational attainments may be forced into self-employment due to limited job opportunities.

According to literature, married individuals are said to be more stable and less risk averse and therefore are more likely to enter into self-employment. Our results (table 3) corroborate this theory, those individuals that are married or widowed are respectively, 11.5 and 11.6 percentage points more likely to enter into self employment than individuals that have never been married. Location of the enterprise is also an important determinant of self-employment. The results indicate that residing in cities/towns and urban areas than in rural areas reduces the probability of self-employment. Individuals residing in cities/towns and urban villages are respectively 14.7 and 9.2 percentage points less likely to engage in self-employment than those residing in rural areas. This is consistent with expectation because paid employment opportunities are limited in rural areas.

**Table 3.** Logit estimates of the model.

Variable	Coefficients	P-value	Marginal Effects
Age	0.0345	0.000***	0.0066
Gender	-0.0189	0.740***	-0.0036
Citizenship	-0.5195	0.000 ***	-0.1103
Health Status	-0.0699	0.288	-0.0133
<i>Highest Education level (No training omitted)</i>			
Certificate	-0.0743	0.358	-0.0141
Diploma	-1.0259	0.000***	-0.1577
Job Training	-1,0310	0.000***	-0.1522
University Degree	-1.2292	0.000***	-0.1797
Other Degree	-1.0605	0.000***	-0.1531
<i>Marital Status (Never Married omitted)</i>			
Married	0.5631	0.000***	0.1153
Cohabiting	-0.0511	0.460	-0.0098
Separated	0.1475	0.510	0.0294
Divorced	0.1706	0.497	0.0341
Widowed	0.5424	0.000***	0.1159
<i>Region (Rural area omitted)</i>			
Cities/towns	-0.8341	0.000***	-0.1469
Urban	-0.495	0.000***	-0.0925
Constant	-1.2968	0.000***	
Pseudo R-Square	0.1142		
Log Likelihood	-4000.49		
LR Chi-Square	1031.22	0.000***	
No. of Observations	7521		

Self-employment is attracting a lot of interest globally as it is seen as a key driver for economic development for both developed and developing countries. The main objective of

this study was to examine factors that influence the decisions of individuals to engage in self-employment, rather than paid employment.

The results of our logit model show that the significant determinants of self-employment in Botswana are age, citizenship, education (diploma, job training, university/other degree), marital status (married or widowed), and geographical location (living in cities/towns or urban villages).

Age is found to be positive and statistically significant, this means that the older a person is the more they are likely to engage in self-employed activities. Older individuals are more likely to be self-employed than younger ones. This finding corroborates results by Muchemwa and Odimegwu (2024), who found that older entrepreneurs are more likely to enter self-employment due to accumulated capital, experience, and risk tolerance. Alene (2023) also found that age positively influences the likelihood for innovation among entrepreneurs.

The variable on citizenship was statistically significant and negative, this implies that citizens are less likely to enter self-employment than non-citizens. This may suggest that employment opportunities in the country are more accessible to citizens, while non-citizens, who may face challenges in entering the formal labor market, and will likely engage in self-employment out of survival. Similarly neighbouring Eswatini finds similar trends, where non-nationals dominate self-employment due to the limited access to wage employment (United Nations Development Programme, 2023). This finding also mirrors OECD patterns, where the non national self-employment rates are found to exceed those of the nationals in multiple countries (Organisation for Economic Co-operation and Development, 2024). Similar effects have been found in African migrant contexts, such as South Africa, where foreigners enter self-employment due to limited access to formal jobs (Fubah & Moos, 2022).

Regarding education, the results support the hypothesis that individuals with higher educational attainment are more likely to choose paid employment than self-employment. The education variables (diploma, job training, university degree, other degrees) were all significant and negative, meaning those individuals with these qualifications are less likely to enter into self employment as compared to those with no qualifications. These findings are aligned with findings by Obschonka, Hakkarainen, Lonka, and Salmela-Aro (2017), who found that higher education corresponds with a preference for paid employment, where earnings and job security are perceived to be more stable.

Marital status is another significant factor. Those who are married or widowed are more likely to enter self-employment than individuals who have never been married. This result is supported by Kumalo and Kaseeram (2019), Muchemwa and Odimegwu (2024), and Alene (2023), who highlight the role of marital status in increasing household stability and risk tolerance, both of which support entrepreneurial activity. Romeu Gordo, Stypińska, and Franke (2022) also highlights that marriage provides financial stability and support, facilitating entrepreneurial transitions. Widowed individuals most likely enter into self employment as a means of survival, to compensate for the decrease in the overall household income due to the loss of a spouse.

Geographical location was also a key determinant, as individuals residing in cities/towns or urban villages are less likely to engage in self-employment than those in rural areas. This corroborates findings from rural sub-Saharan Africa (Nagler & Naudé, 2017), USA (Conroy & Low, 2022), and South Africa (Muchemwa & Odimegwu, 2024), where higher rural self-employment is driven by necessity. Muchemwa and Odimegwu (2024) highlight that individuals in rural areas are more likely to engage in self-employment due to a lack of formal job opportunities.

## 5. Conclusions

This study investigated the key determinants of self-employment in Botswana using nationally representative household survey data and a binary logit regression model. The study established that age, citizenship, education level, marital status, and geographical location significantly influence the likelihood of individuals being self-employed. Specifically, older individuals, non-citizens, the less educated, those married or widowed, and rural dwellers are more likely to be self-employed.

These findings have important policy implications for Botswana given its high unemployment, labour market challenges, and the government's continued investment in entrepreneurship development programs. The study recommends targeted policy measures to promote inclusive and sustainable self-employment.

Entrepreneurship support needs to be made more accessible to older individuals who



were found to be more likely to be self-employed. There is a need for entrepreneurship programs that target mid-career and retired entrepreneurs, such as mentorship networks and more accessible financial options which can utilise this age group's experience and capital in to create employment. The lower likelihood of citizens being self-employed compared to non-citizens highlights the need to increase opportunities and reduce barriers to entry of citizen entrepreneurs.

The negative relationship between higher education and self-employment underscores the need to reassess how entrepreneurship is integrated into Botswana's education and training system. Entrepreneurship needs to be included in the education curriculum, there is a need for start-up facilitation for graduates, and an overall mindset change is needed in the way we view entrepreneurial activities.

Marital status (more particularly married or widowed) was positively associated with self-employment, which means that policies that promote household financial security can encourage entrepreneurial activity. This would include providing special assistance to widows and family enterprises. Geographical location was discovered to have an influence on self-employment, with individuals living in rural areas participating in self-employed more than urban dwellers. This finding highlights the necessity to strengthen rural entrepreneurship ecosystems by investing in infrastructure, directing support beyond agriculture, and improving rural access to business development services.

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Research Article

# Investigating Entrepreneurship Competencies Among University Students: A Descriptive-Comparative Study

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**Abstract:** This descriptive-comparative study examined the self-perceived entrepreneurship competencies of 282 university students across four core domains defined by the entrepreneurship competence framework: ideas and opportunities, personal resources, specific knowledge, and into action. Utilizing both descriptive statistics and inferential analyses (t-tests and Welch's ANOVA), the study revealed that students generally reported moderately high levels of entrepreneurial competence, particularly in opportunity recognition, resilience, and adaptability. Notably, female students scored significantly higher in the personal resources domain, highlighting a gender-based strength in intrapersonal and interpersonal capacities. Furthermore, significant differences in specific knowledge and overall entrepreneurship competence emerged across household income groups, with students from higher economic backgrounds exhibiting stronger domain-specific knowledge, affirming the influence of socioeconomic status on entrepreneurial development. These findings were interpreted through the theoretical lenses of the Theory of Planned Behavior, Human Capital Theory, and Effectuation Theory. The results suggest that attitudes and perceived behavioral control influence competence perceptions, economic resources shape access to knowledge, and adaptive learning fosters entrepreneurial resilience. Practical implications underscore the need for equity-oriented interventions that scaffold entrepreneurial skills, especially for economically disadvantaged students. This study contributes to the growing literature on entrepreneurship education by offering empirical insights into competence disparities and by proposing inclusive pedagogical strategies.

**Keywords:** Entrepreneurship competence; gender differences; economic status; Theory of Planned Behavior, Human Capital Theory, Effectuation Theory

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## 1. Introduction

Entrepreneurship competencies – defined as the amalgamation of knowledge, skills, and attitudes essential for recognizing and exploiting business opportunities – are increasingly regarded as core outcomes of higher education, particularly in the context of economic revitalization and sustainable development (Bacigalupo et al., 2016; Ratković et al., 2022). Universities play a critical role in cultivating an entrepreneurial mindset among students, thereby fostering innovation, self-employment, and regional economic transformation (Romero & Nalangan, 2023). In the Philippines, especially in developing regions like Mindanao, the emphasis on entrepreneurship education is aligned with national strategies aimed at reducing youth unemployment and alleviating poverty through human capital investment (Demillo & Demillo, 2022).

Despite policy advancements and curricular reforms, many students continue to exhibit a disconnect between theoretical entrepreneurship education and their practical entrepreneurial competence. Studies reveal that this gap may be influenced by demographic factors such as gender, socioeconomic background, and academic discipline (Armuña et al., 2020; Liu et al., 2022). While students enrolled in business programs typically demonstrate stronger entrepreneurial competencies (Ratković et al., 2022), recent findings suggest that psychological and behavioral traits – such as self-efficacy and financial behavior – are equally influential (Obenza, Cuaresma et al., 2024). These authors also found that financial self-

efficacy significantly mediates the relationship between financial behavior and financial well-being among college students in Region XI, underscoring the role of behavioral constructs in shaping real-world competencies.

Moreover, personality traits such as conscientiousness and extraversion have shown significant correlations with students' financial management behavior, which is conceptually linked to self-regulation and initiative – two dimensions closely related to entrepreneurial action (Obenza, Torre Franca et al., 2024). These findings suggest that non-cognitive and socio-psychological factors, though often overlooked, may provide deeper insight into students' readiness for entrepreneurial careers. These perspectives are also aligned with Social Cognitive Theory, which posits that self-efficacy beliefs directly influence behavior, motivation, and goal-setting – critical components of entrepreneurial success (Bandura, 2001).

In the local context, some studies have explored entrepreneurial intentions and basic challenges (Reyes et al., 2018), but there is a notable scarcity of comprehensive competency-based evaluations. While Romero and Nalangan (2023) assessed personal entrepreneurial competencies among graduating business students in Davao, their findings called for structured interventions to sustain and scale competency development. Furthermore, some authors (Obenza et al., 2023) confirmed that financial self-efficacy mediates the link between behavior and outcomes, even in professional cohorts such as DepEd teachers – offering a conceptual and methodological framework that could extend to entrepreneurship research.

This study draws on the Theory of Planned Behavior (TPB) (Ajzen, 1991), Human Capital Theory (HCT) (Becker, 1964), and Effectuation Theory (ET) (Sarasvathy, 2001) to frame its analysis. TPB posits that entrepreneurial intentions are shaped by attitudes, subjective norms, and perceived behavioral control, influencing an individual's likelihood to engage in entrepreneurial activity (Krueger et al., 2000). HCT underscores the role of education and skill acquisition in enhancing entrepreneurial potential (Martin et al., 2013), while ET highlights how entrepreneurs use available means and adapt to contingencies rather than relying on predictive strategies.

By integrating these theoretical perspectives, this study provides a grounded understanding of how gender, economic background, and academic discipline influence entrepreneurial competencies among university students. According to Armuña, Ramos, Juan, Feijóo, and Arenal (2020), competency domains include: ideas and opportunities (IO), personal resources (PR), specific knowledge (SK), and into action (IA). Ultimately, the findings aim to inform the design of evidence-based entrepreneurship education and institutional policies tailored to the unique challenges and opportunities within Mindanao's higher education landscape.

Given these research gaps, especially the lack of comparative data from Mindanao, this study seeks to investigate entrepreneurial competencies among university students using a descriptive-comparative design. Specifically, it aims to:

- (1) Profile students' entrepreneurship competencies across demographic groups;
- (2) Compare entrepreneurial competency dimensions – such as initiative, risk-taking, and persistence – across gender and socio-economic status;
- (3) Identify educational and institutional factors associated with variations in competency levels.

## 2. Materials and Methods

### 2.1. Research Design

This study adopts a descriptive-comparative quantitative research design, which is suitable for systematically profiling and contrasting entrepreneurial competencies across distinct demographic groups. As described by Creswell and Creswell (2023), descriptive research is employed to accurately illustrate the characteristics of a specific population, while comparative research focuses on identifying and analyzing differences between predefined groups – in this case, based on gender, economic status, and academic discipline.

This methodological approach enables the researcher to provide a comprehensive snapshot of entrepreneurial competencies among university students in Mindanao, allowing for statistically grounded comparisons. It also facilitates the identification of patterns or disparities in competencies across demographic categories, contributing to a deeper understanding of equity and inclusivity in entrepreneurship education.

### 2.2. Population and Sample



The target population of this study consists of university students enrolled in various academic programs across higher education institutions in Region XI, Philippines. Reflecting the study’s descriptive-comparative design, participants were selected using a stratified random sampling technique to ensure proportional representation across key demographic variables, namely gender, economic status, and academic discipline (Creswell & Creswell, 2023). This approach enhanced the validity of group comparisons by minimizing sampling bias and allowing for a more nuanced analysis of differences in entrepreneurial competencies.

A total of 282 students participated in the study. Of these, 62.4% were female (n = 176) and 37.6% were male (n = 106), ensuring sufficient gender representation to support comparative analysis. In terms of economic status, students were categorized according to Philippine household income classifications. The largest group, representing 27.0% (n = 76), fell into the “low-income but not poor” category, earning between ₱10,957 and ₱21,914 per month. This was followed closely by 23.0% (n = 65) who were classified as poor, with household incomes below ₱10,957. Students from the lower-middle-income bracket (₱21,914 to ₱43,828) comprised 20.6% (n = 58) of the sample, while those in the middle-income group (₱43,828 to ₱76,669) accounted for 15.2% (n = 43). Participants from upper-middle-income households were divided into two subgroups: 8.5% (n = 24) fell within the ₱76,669 to ₱131,484 range, and 5.7% (n = 16) had household incomes between ₱131,483 and ₱219,140. This distribution reveals a diverse socioeconomic profile among the respondents, which is essential for exploring competency differences based on income (see table 1).

**Table 1.** Socio-demographic profile of the respondents.

Economic status (family/household Income)	Counts	% of total	Cumulative %
Low-income but not poor: P10,957 to P21,914 monthly income	76	27.0%	27.0%
Lower middle: P21,914 to P43,828 monthly income	58	20.6%	47.5%
Middle: P43,828 to P76,66 monthly income	43	15.2%	62.8%
Poor: Below P10,957 monthly income	65	23.0%	85.8%
Upper middle but not rich: P131,483 to P219,140 monthly income	16	5.7%	91.5%
Upper middle: P76,669 to P131,484 monthly income	24	8.5%	100.0%
Gender	Counts	% of Total	Cumulative %
Female	176	62.4%	62.4%
Male	106	37.6%	100.0%

The structured composition of the sample, as detailed in table 1, provides a strong basis for statistically grounded comparisons across demographic groups. It supports the study’s goal of identifying variations in entrepreneurial competencies, particularly in relation to students’ gender and economic backgrounds, thereby contributing to evidence-based improvements in educational interventions targeting entrepreneurship development.

### 2.3. Instruments

This study utilized a standardized survey questionnaire based on the Entrepreneurship Competence (EntreComp) Framework developed by Bacigalupo, Kampylis, Punie, and Van den Brande (2016), a widely recognized model for assessing entrepreneurial competencies in education. The instrument evaluated students’ self-perceived competencies across four key dimensions (IO, PR, SK, and IA) as adapted by Armuña et al. (2020). These domains encompass critical entrepreneurial traits such as opportunity recognition, innovation, self-efficacy, financial literacy, leadership, and risk-taking. A 7-point Likert scale, ranging from 1 (Strongly Disagree) to 7 (Strongly Agree), was employed to capture the degree to which students identified with each item, allowing for both nuanced self-assessment and meaningful comparative analysis across demographic subgroups.

To ensure contextual relevance and reliability, the instrument underwent expert validation by two academic professionals and was subjected to a pilot reliability test prior to deployment. The results indicated excellent internal consistency, with Cronbach’s alpha ( $\alpha = 0.946$ ) and McDonald’s omega ( $\omega = 0.947$ ), both exceeding the 0.70 threshold recommended by Nunnally and Bernstein (1994). These metrics confirm the psychometric soundness of the tool, supporting its use in accurately measuring entrepreneurial competencies among university students in Region XI.



### 2.4. Data Collection and Analysis

Data collection was conducted using a structured online questionnaire, administered via Google Forms, which employed a 7-point Likert scale to measure students' self-assessed entrepreneurial competencies. Prior to data gathering, ethical clearance was obtained from the appropriate institutional review board, and informed consent was secured from all participants. Respondents were informed about the study's purpose, assured of their anonymity, and guaranteed the confidentiality of their responses. Completing the survey required approximately 10–15 minutes.

Once collected, the data were encoded, tallied, and organized using Microsoft Excel for initial processing. The raw dataset was subsequently submitted to a professional statistician for formal analysis and interpretation.

The study utilized both descriptive and inferential statistical analyses to examine entrepreneurial competencies across demographic groups. Descriptive statistics, such as means and standard deviations, were computed to summarize student performance across the four EntreComp-based dimensions: IO, PR, SK, and IA. For inferential analysis, independent samples t-tests were employed to assess differences based on gender, while one-way ANOVA was used to evaluate variations across economic status and academic disciplines. Where appropriate, effect sizes were calculated – Cohen's *d* for t-tests and eta-squared ( $\eta^2$ ) for ANOVA – to interpret the practical significance of observed differences.

To evaluate the internal consistency of the instrument, Cronbach's alpha was computed for each dimension, with a reliability threshold of 0.70, in accordance with Nunnally and Bernstein (1994). These analytic procedures provided a robust statistical foundation for identifying competency gaps and informing recommendations for curriculum and policy development in entrepreneurship education.

## 3. Results

### 3.1. Construct Validity

The findings of the confirmatory factor analysis (CFA) provided compelling evidence for the construct validity of the instrument used to assess entrepreneurial competencies among university students. As shown in table 2, all items loaded significantly onto their respective latent constructs ( $p < .001$ ), with factor loadings exceeding the widely accepted threshold of 0.70 (Hair et al., 2019). These strong standardized estimates indicate a high degree of indicator reliability and internal coherence within the dimensions of the EntreComp-based scale. Notably, the SK construct yielded the highest loadings, particularly for items SK2 (1.341) and SK3 (1.360), suggesting that knowledge-related competencies are particularly well defined and consistently measured by the items in this domain. Similarly, all indicators under IO, PR, and IA demonstrated robust loadings, further confirming the appropriateness of the instrument structure for the target student population in the Philippine context.

**Table 2.** Factor loadings.

Factor	Indicator	Estimate	SE	Z	p
Ideas and opportunities (IO)	IO1	1.080	0.0611	17.7	<.001
	IO2	1.057	0.0578	18.3	<.001
	IO3	1.089	0.0656	16.6	<.001
	IO4	1.010	0.0600	16.8	<.001
	IO5	0.966	0.0633	15.3	<.001
Personal resources (PR)	PR1	0.915	0.0620	14.7	<.001
	PR2	1.041	0.0644	16.2	<.001
	PR3	1.027	0.0612	16.8	<.001
	PR4	1.112	0.0704	15.8	<.001
	PR5	1.035	0.0687	15.1	<.001
	PR6	0.976	0.0610	16.0	<.001
Specific knowledge (SK)	SK1	0.814	0.0698	11.7	<.001
	SK2	1.341	0.0678	19.8	<.001
	SK3	1.360	0.0703	19.4	<.001
Into action (IA)	IA1	1.066	0.0746	14.3	<.001
	IA2	1.030	0.0610	16.9	<.001



IA3	1.112	0.0690	16.1	<.001
IA4	1.054	0.0695	15.2	<.001
IA5	0.946	0.0641	14.8	<.001
IA6	0.994	0.0609	16.3	<.001
IA7	0.930	0.0656	14.2	<.001
IA8	0.965	0.0700	13.8	<.001

Beyond individual factor loadings, the inter-factor covariances presented in table 3 reinforce the theoretical coherence of the four-domain model. High and statistically significant covariances were observed between all pairs of constructs, particularly between PR and IO ( $r = 0.908, p < .001$ ), and between PR and IA ( $r = 0.872, p < .001$ ). These relationships suggest a strong degree of overlap and mutual reinforcement among the different entrepreneurial dimensions, supporting the notion that EntreComp is multifaceted and interdependent rather than a set of isolated traits (Bagozzi & Yi, 1988). For instance, students who demonstrate greater self-efficacy and resilience (under PR) are also more likely to act decisively and innovate (under IA and IO), aligning with theoretical models of entrepreneurial behavior such as the ET (Sarasvathy, 2001) and Social Cognitive Theory (Bandura, 2001). The robust associations across constructs not only affirm the scale’s factorial structure but also underscore the practical implication that strengthening one domain (e.g., knowledge) may reinforce others (e.g., action orientation).

**Table 3.** Factor estimates.

Factor covariances		Estimate	SE	Z	p
Ideas and opportunities (IO)	IO	1.000 <sup>a</sup>			
	PR	0.908	0.0171	53.00	<.001
	SK	0.700	0.0366	19.10	<.001
	IA	0.860	0.0213	40.50	<.001
Personal resources (PR)	PR	1.000 <sup>a</sup>			
	SK	0.713	0.0358	19.90	<.001
	IA	0.872	0.0203	42.90	<.001
Specific knowledge (SK)	SK	1.000 <sup>a</sup>			
	IA	0.766	0.0307	24.90	<.001
Into action (IA)	IA	1.000 <sup>a</sup>			

Note: <sup>a</sup> = fixed parameter

The CFA results validate the multidimensional structure of the entrepreneurship competency framework used in this study and confirm its suitability for assessing university students in the Southeast Asian educational context. The scale demonstrated both convergent and discriminant validity, essential criteria for establishing the credibility of latent construct measurements in educational and psychological research (Hair et al., 2019). These findings justify the continued use and adaptation of the instrument for broader applications, including longitudinal assessments and comparative studies across regions or disciplines.

### 3.2. Students’ level of entrepreneurship competence

The descriptive statistics presented in Table 4 offer valuable insights into the self-perceived entrepreneurial competences of the 282 respondents across four primary domains: IO, PR, SK, and IA, culminating in an overall assessment of EntreComp. Each item was rated on a 7-point Likert scale, with higher means indicating greater perceived competence.

In the domain of IO, participants reported a relatively high overall mean score of 5.20 (SD = 1.09), suggesting a generally strong entrepreneurial mindset related to opportunity recognition, idea generation, and value creation. The highest-rated item was IO5 (“I assess the consequences and impact of my ideas, opportunities, and actions before implementing them”) with a mean of 5.38 (SD = 1.25), reflecting a proactive and reflective orientation in decision-making processes. In contrast, IO2 (“I can develop creative and purposeful ideas to solve problems or generate new opportunities”) yielded the lowest mean in this cluster (M = 5.09, SD = 1.21), though it still suggests a moderately high self-perceived capacity for innovation.

PR, with an overall mean of 5.04 (SD = 1.07), reflects participants’ perceived intrapersonal and interpersonal skills essential to entrepreneurial success. Among the six items in this domain, PR1 (“I can effectively identify and evaluate my own strengths and



weaknesses, as well as those of my team”) attained the highest mean ( $M = 5.22$ ,  $SD = 1.21$ ), signifying strong self-awareness and evaluative capabilities. Conversely, PR5 (“I can clearly and effectively communicate my ideas to different audiences”) obtained the lowest mean ( $M = 4.86$ ,  $SD = 1.34$ ), indicating that communication skills may be a relative area of developmental need.

The SK domain received the lowest mean among all four dimensions ( $M = 4.83$ ,  $SD = 1.24$ ), pointing to a potential gap in foundational and technical knowledge related to entrepreneurship. In particular, SK3 (“I have a strong understanding of financial and economic concepts relevant to business”) scored the lowest overall mean ( $M = 4.68$ ,  $SD = 1.50$ ), which may warrant targeted educational interventions. Meanwhile, SK1 (“I have sufficient knowledge and skills to effectively use digital tools and technologies”) had the highest mean in this domain ( $M = 5.03$ ,  $SD = 1.27$ ), suggesting greater confidence in digital literacy over legal or financial knowledge.

The IA domain displayed a moderately high mean of 5.04 ( $SD = 1.05$ ), emphasizing participants’ perceived ability to translate entrepreneurial intention into practice. Notably, IA8 (“I view mistakes as learning opportunities and use them to improve my future actions”) emerged as the highest-rated item across all domains ( $M = 5.79$ ,  $SD = 1.33$ ), reflecting a growth-oriented mindset and resilience—critical traits in entrepreneurial contexts. On the other hand, IA1 (“I can develop new products or services that meet market needs”) had the lowest mean ( $M = 4.31$ ,  $SD = 1.44$ ), suggesting limited confidence in innovation execution, despite earlier expressed strengths in idea generation.

The composite score for EntreComp stood at a mean of 5.03 ( $SD = 1.01$ ), which overall denotes a favorable but varied level of entrepreneurial readiness. The relatively narrow standard deviation implies consistency across respondents, although some individual items exhibited greater dispersion, such as SK3 and IA1, both with higher standard deviations ( $SD > 1.40$ ), indicating heterogeneous responses and potential disparities in specific entrepreneurial competencies.

Taken together, these descriptive findings underscore a solid entrepreneurial foundation among respondents, particularly in personal resilience, ethical foresight, and opportunity recognition, while simultaneously revealing targeted areas for further capacity-building, especially in financial literacy, product innovation, and strategic communication. These insights offer a critical empirical basis for the design of entrepreneurial training programs and curriculum enhancements tailored to bridge competence gaps and cultivate well-rounded entrepreneurial skill sets.

**Table 4.** Descriptive statistics.

	<b>N</b>	<b>Mean</b>	<b>SD</b>
IO1. I am able to identify opportunities that create value and address important challenges	282	5.12	1.27
IO2. I can develop creative and purposeful ideas to solve problems or generate new opportunities.	282	5.09	1.21
IO3. I can visualize future scenarios to guide my decisions and actions.	282	5.22	1.33
IO4. I can recognize the potential value of an idea and how it can create impact.	282	5.17	1.22
IO5. I assess the consequences and impact of my ideas, opportunities, and actions before implementing them.	282	5.38	1.25
<b>Ideas and opportunities</b>	282	5.20	1.09
PR1. I can effectively identify and evaluate my own strengths and weaknesses, as well as those of my team.	282	5.22	1.21
PR2. I am determined to turn my ideas into action, even when facing pressure, adversity, or failure.	282	5.17	1.29
PR3. I can effectively maximize and make the most of limited resources to achieve my goals.	282	5.05	1.24
PR4. I am confident in my ability to lead and motivate others toward a common goal.	282	4.89	1.40
PR5. I can clearly and effectively communicate my ideas to different audiences.	282	4.86	1.34
PR6. I can apply knowledge from different fields to solve problems and create value.	282	5.05	1.22
<b>Personal resources</b>	282	5.04	1.07



SK1. I have sufficient knowledge and skills to effectively use digital tools and technologies.	282	5.03	1.27
SK2. I understand the legal aspects related to business and entrepreneurship.	282	4.78	1.46
SK3. I have a strong understanding of financial and economic concepts relevant to business.	282	4.68	1.50
<b>Specific knowledge</b>	282	4.83	1.24
IA1. I can develop new products or services that meet market needs.	282	4.31	1.44
IA2. I can effectively define priorities and create action plans to achieve my goals.	282	5.01	1.24
IA3. I am comfortable making decisions in situations involving uncertainty, ambiguity, and risk.	282	4.66	1.38
IA4. I actively seek and establish professional contacts to expand my network.	282	4.83	1.37
IA5. I work well in teams and contribute effectively to group success.	282	5.28	1.25
IA6. I can identify and solve complex problems effectively.	282	4.96	1.23
IA7. I learn best through hands-on experiences and practical application.	282	5.51	1.26
IA8. I view mistakes as learning opportunities and use them to improve my future actions.	282	5.79	1.33
<b>Into action</b>	282	5.04	1.05
<b>Entrepreneurship Competence</b>	282	5.03	1.01

3.3. Students' Level of EntreComp when Grouped according to their Profiles

The statistical analyses presented in Tables 5 and 6 provide understanding of the variations in EntreComp and its associated dimensions across gender and economic status, as assessed through independent samples t-tests and one-way ANOVA respectively. These inferential analyses serve to interrogate whether statistically significant differences exist among subgroups in terms of their entrepreneurial capabilities.

Table 5 reports the results of independent samples t-tests comparing male and female participants across five composite dimensions of EntreComp. Among these, PR yielded a statistically significant difference ( $t(280) = 2.039, p = 0.042$ ), with females reporting higher mean scores than males (Mean Difference = 0.267, SE = 0.131). Although the effect size, represented by Cohen's  $d = 0.2507$ , falls within the small to moderate range (Cohen, 1988), it still suggests a meaningful gender-based variation in perceived intrapersonal and interpersonal entrepreneurial capacities, such as leadership, resourcefulness, and resilience. Conversely, the other four dimensions—IO ( $p = 0.096$ ), SK ( $p = 0.491$ ), IA ( $p = 0.370$ ), and the overall EntreComp composite score ( $p = 0.152$ )—did not reach statistical significance, indicating no conclusive gender-based differences in these areas. However, the small effect sizes observed (e.g.,  $d = 0.2056$  for IO;  $d = 0.0847$  for SK) still suggest subtle trends worthy of further exploration in larger or more balanced samples.

Table 5. Independent samples t-test.

		Statistic	df	p	Mean difference	SE difference	Effect Size
IO	Student's t	1.673	280	0.096	0.223	0.134	Cohen's d 0.2056
PR	Student's t	2.039	280	0.042	0.267	0.131	Cohen's d 0.2507
SK	Student's t	0.689	280	0.491	0.105	0.153	Cohen's d 0.0847
IA	Student's t	0.897	280	0.370	0.116	0.130	Cohen's d 0.1103
EntreComp	Student's t	1.438	280	0.152	0.178	0.124	Cohen's d 0.1768

Note:  $H_a \mu_{Female} \neq \mu_{Male}$

The one-way Welch's ANOVA presented in table 6 evaluates the effect of household income brackets on the five domains of EntreComp. Among these, two domains revealed statistically significant differences across income groups: SK ( $F(5, 82.4) = 3.00, p = 0.015$ ) and the overall EntreComp composite score ( $F(5, 84.7) = 2.39, p = 0.044$ ). These findings suggest that economic background may play a meaningful role in shaping students' entrepreneurial knowledge and readiness, likely due to disparities in access to educational resources, financial literacy exposure, or practical business experience. In contrast, the domains of IO ( $p = 0.128$ ), PR ( $p = 0.201$ ), and IA ( $p = 0.084$ ) did not demonstrate statistically significant differences across income levels. However, the marginal p-value for IA



indicates a potential trend toward variance that may be worth investigating further with a larger sample.

**Table 6.** One-way ANOVA (Welch’s)

	F	df1	df2	p
Ideas and opportunities	1.77	5	84.8	0.128
Personal resources	1.49	5	86.3	0.201
Specific knowledge	3.00	5	82.4	0.015
Into action	2.02	5	85.1	0.084
Entrepreneurship competence	2.39	5	84.7	0.044

Delving deeper into these results, table 7 presents the Tukey post-hoc comparisons for the SK domain. Notably, a statistically significant difference emerged between students from the “Low-income but not poor” bracket (₱10,957 to ₱21,914) and those in the “Upper middle” income group (₱76,669 to ₱131,484), with a mean difference of 0.929 ( $t = 3.255$ ,  $df = 276$ ,  $p = 0.016$ ). This result highlights a distinct knowledge gap in entrepreneurship-related technical skills – particularly in financial and digital literacy – between students from modest economic backgrounds and their higher-income peers. No other pairwise comparisons reached statistical significance, although the difference between the “Low-income but not poor” and “Poor” groups versus “Middle” or “Upper middle but not rich” income brackets approached significance in several cases. This indicates that students from lower socioeconomic strata may have uneven access to foundational business knowledge, reinforcing the HCT (Becker, 1964), which posits that educational and skill-based investments are often contingent upon socioeconomic resources.

**Table 7.** Tukey Post-Hoc test – SK.

		Low-income but not poor: ₱10,957 to ₱21,914 monthly income	Lower middle: ₱21,914 to ₱43,828 monthly income	Middle: ₱43,828 to ₱76,666 monthly income	Poor: Below ₱10,957 monthly income	Upper middle but not rich: ₱131,483 to ₱219,140 monthly income	Upper middle: ₱76,669 to ₱131,484 monthly income
Low-income but not poor: ₱10,957 to ₱21,914 monthly income	Mean difference	-	0.282	0.0399	0.438	0.630	0.929*
	t-value	-	1.33	0.171	2.126	1.880	3.255
	df	-	276	276	276	276	276
	p-value	-	0.770	1.000	0.277	0.416	0.016
Lower middle: ₱21,914 to ₱43,828 monthly income	Mean difference	-	-	-0.2422	0.156	0.348	0.647
	t-value	-	-	-0.987	0.708	1.012	2.187
	df	-	-	276	276	276	276
	p-value	-	-	0.922	0.981	0.914	0.247
Middle: ₱43,828 to ₱76,666 monthly income	Mean difference	-	-	-	0.398	0.591	0.889
	t-value	-	-	-	1.661	1.654	2.863
	df	-	-	-	276	276	276
	p-value	-	-	-	0.559	0.563	0.051
Poor: Below ₱10,957 monthly income	Mean difference	-	-	-	-	0.193	0.491
	t-value	-	-	-	-	0.566	1.687
	df	-	-	-	-	276	276
	p-value	-	-	-	-	0.993	0.541
Upper middle but not rich: ₱131,483 to ₱219,140	Mean difference	-	-	-	-	-	0.299
	t-value	-	-	-	-	-	0.759
	df	-	-	-	-	-	276



monthly income	p-value	-	0.974
Upper middle: P76,669 to P131,484 monthly income	Mean difference	-	-
	t-value	-	-
	df	-	-
	p-value	-	-

Note: \* p < .05, \*\* p < .01, \*\*\* p < .001

In table 8, which reports the Tukey post-hoc comparisons for the overall EntreComp, no pairwise differences reached statistical significance at the 0.05 level. The most notable – but still non-significant – comparison was between the “Low-income but not poor” group and the “Poor” group (mean difference = 0.426, t = 2.53, p = 0.120), which suggests that economic disadvantage may modestly affect students’ self-perceived entrepreneurial capabilities. Although these results do not establish conclusive income-based disparities in total entrepreneurial competence, they hint at emerging patterns of inequality that warrant more targeted investigation. These findings lend empirical support to the premise that while general entrepreneurial mindset dimensions – such as creativity, perseverance, and opportunity recognition – may be less influenced by income, technical knowledge and confidence in applying entrepreneurship skills are more vulnerable to socioeconomic disparities.

**Table 8.** Tukey Post-Hoc test – EntreComp.

		<b>Low-income but not poor: P10,957 to P21,914 monthly income</b>	<b>Lower middle: P21,914 to P43,828 monthly income</b>	<b>Middle: P43,828 to P76,66 monthly income</b>	<b>Poor: Below P10,957 monthly income</b>	<b>Upper middle but not rich: P131,483 to P219,140 monthly income</b>	<b>Upper middle: P76,669 to P131,484 monthly income</b>
Low-income but not poor: P10,957 to P21,914 monthly income	Mean difference	-	0.156	-0.103	0.426	0.2378	0.3546
	t-value	-	0.894	-0.541	2.53	0.866	1.517
	df	-	276	276	276	276	276
	p-value	-	0.948	0.994	0.120	0.954	0.654
Lower middle: P21,914 to P43,828 monthly income	Mean difference	-	-	-0.259	0.270	0.0822	0.1990
	t-value	-	-	-1.288	1.50	0.292	0.821
	df	-	-	276	276	276	276
	p-value	-	-	0.791	0.665	1.000	0.963
Middle: P43,828 to P76,66 monthly income	Mean difference	-	-	-	0.529	0.3410	0.4578
	t-value	-	-	-	2.70	1.166	1.800
	df	-	-	-	276	276	276
	p-value	-	-	-	0.079	0.852	0.468
Poor: Below P10,957 monthly income	Mean difference	-	-	-	-	-0.1881	-0.0713
	t-value	-	-	-	-	-0.675	-0.299
	df	-	-	-	-	276	276
	p-value	-	-	-	-	0.985	1.000
Upper middle but not rich: P131,483 to P219,140 monthly income	Mean difference	-	-	-	-	-	0.1168
	t-value	-	-	-	-	-	0.362
	df	-	-	-	-	-	276
	p-value	-	-	-	-	-	0.999
Upper	Mean	-	-	-	-	-	-



middle:	difference	
P76,669 to	t-value	-
P131,484	df	-
monthly	p-value	-
income		

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Taken together, the inferential results in tables 6 to 8 substantiate the critical need for equity-focused entrepreneurship education programs that offer additional scaffolding and targeted interventions for students from economically disadvantaged backgrounds. By integrating tailored financial literacy training, mentorship, and resource accessibility strategies, higher education institutions can help mitigate these structural disparities and democratize access to entrepreneurial success.

#### 4. Discussion

The present study aimed to investigate the self-perceived EntreComp of university students across four key domains (IO, PR, SK, and IA) and to assess whether these competencies varied significantly based on gender and economic status. The results offer both affirmations of prior literature and novel insights, particularly when interpreted through established theoretical lenses such as the TPB (Ajzen, 1991), HCT (Becker, 1964), and ET (Sarasvathy, 2001).

The overall self-reported EntreComp among students was moderately high ( $M = 5.03$ ,  $SD = 1.01$ ), with the strongest performance in the IO domain. This finding suggests that students feel confident in recognizing and evaluating entrepreneurial opportunities and in considering the ethical and social impact of their actions – an observation congruent with the EntreComp model’s emphasis on value creation and sustainability (Bacigalupo et al., 2016). High ratings for specific items such as assessing the consequences and impact of entrepreneurial decisions (IO5) align with the “ethical and sustainable thinking” dimension of the EntreComp framework and further support literature identifying opportunity recognition as a cornerstone of entrepreneurial intention (Karimi et al., 2014; Liu et al., 2025).

In contrast, the lowest-rated items emerged within the domains of SK and IA, notably SK3 (financial knowledge) and IA1 (product innovation). These findings highlight persistent gaps in financial and innovation-related competence – a trend previously identified in both local and international studies (Iglesias-Sánchez et al., 2019; Yin et al., 2022). From the standpoint of HCT (Becker, 1964), this underscores the critical need for targeted educational investments in domain-specific skills such as financial literacy and product development. It also reinforces the notion that technical knowledge forms a vital component of entrepreneurial capacity that is, in turn, shaped by the quality and accessibility of formal and experiential education.

Moreover, the high scores on items related to learning from failure (IA8) and teamwork (PR1) reflect personal and interpersonal resources conducive to entrepreneurial resilience and adaptability. These traits are consistent with ET’s (Sarasvathy, 2001) emphasis on leveraging available means, accepting uncertainty, and embracing failure as part of the entrepreneurial process. The students’ favorable self-perception in these areas suggests that they may be more inclined to adopt effectual rather than causal logic in real-world entrepreneurial scenarios – a desirable orientation for navigating complex, uncertain environments.

The inferential analysis revealed minimal gender-based differences, with only the PR domain showing statistically significant variation in favor of female students. This aligns with existing research indicating that women often report higher levels of collaboration, planning, and empathy – traits associated with entrepreneurial personal resources – even as they simultaneously report lower self-efficacy (Barrientos-Báez et al., 2022; Rotnitsky et al., 2024). The small to moderate effect size ( $d = 0.2507$ ) observed in this study lends weight to the argument that while the competencies are present, female students may understate their entrepreneurial potential due to perceived behavioral control issues, as posited by the TPB (Ajzen, 1991).

This interpretation also resonates with findings from Villanueva-Flores, Diaz-Fernandez, Hernandez-Roque, and van Engen (2021), who noted that subjective norms and psychological capital – such as self-efficacy and perceived social support – are particularly influential for women’s entrepreneurial intentions. Therefore, the current findings reinforce the need for gender-sensitive entrepreneurship education that not only develops



competencies but also cultivates positive entrepreneurial attitudes and social validation mechanisms.

The findings of this study affirm the significant influence of economic status on students' EntreComp across several core dimensions – particularly SK and the overall EntreComp composite score. These disparities align with established theoretical frameworks, particularly the TPB (Ajzen, 1991), HCT (Becker, 1964), and ET (Sarasvathy, 2001), offering a multidimensional explanation for how economic resources shape entrepreneurial development in higher education contexts.

In the domain of IO, students from higher-income backgrounds demonstrated higher confidence in recognizing and evaluating business ideas, supporting the view that financial security enhances access to entrepreneurial exposure (Czyzewska & Mroczek, 2020). This result is consistent with the HCT, which posits that individuals with greater resources can invest more in opportunity-seeking behaviors and skills acquisition (Becker, 1964). However, overconfidence in assessing opportunity viability may emerge due to limited experience with constraints – a nuance observed in the literature (Czyzewska & Mroczek, 2020). This reflects an imbalance between perceived and actual opportunity evaluation, where resource abundance may mask deficiencies in critical appraisal skills.

Regarding PR, the data support the notion that economic capital translates into greater self-efficacy and entrepreneurial motivation. Students from wealthier families reported stronger confidence in their leadership, resilience, and social resource utilization, echoing previous research that highlights the moderating role of family economic status in converting entrepreneurship education into intention and action (Li et al., 2023). Ajzen's (1991) TPB also explains this dynamic through the construct of perceived behavioral control—suggesting that economically privileged students perceive fewer external barriers to initiating entrepreneurial action.

The statistically significant income-based variation in SK – particularly between the “low-income but not poor” and “upper middle” income groups – underscores disparities in technical preparation, especially in financial literacy and legal acumen. Students from lower-income backgrounds are more likely to report gaps in entrepreneurial knowledge, which impedes their ability to formulate viable business strategies (Czyzewska & Mroczek, 2020; Liu et al., 2025; Li et al., 2023). This reinforces Becker's (1964) assertion that access to quality education and extracurricular engagement – such as competitions, workshops, and entrepreneurship networks – is often contingent upon socioeconomic advantage.

In terms of IA, although the differences across income levels did not reach statistical significance, the marginal p-value suggests a latent disparity that aligns with existing literature. Students from higher economic backgrounds are more likely to act on entrepreneurial intentions due to fewer financial risks and greater access to support systems (Liu et al., 2022; Czyzewska & Mroczek, 2020). ET (Sarasvathy, 2001) offers an interpretive lens here: students with fewer resources may be more adept at means-driven action but require institutional support to scale these intentions into sustainable ventures. Conversely, wealthier students benefit from both the means and institutional alignment to actualize predefined entrepreneurial goals.

The overall pattern of results highlights a stratified entrepreneurial ecosystem within higher education, where competence development is shaped not only by cognitive and attitudinal factors but also by students' material conditions. This calls for a responsive and inclusive educational strategy – one that prioritizes the democratization of entrepreneurship training. Equity-focused interventions, such as tiered mentorship programs, integrated financial literacy curricula, and accessibility to real-life entrepreneurial engagements, are essential to close the competence gap and promote inclusive entrepreneurial ecosystems.

The present study contributes meaningful theoretical and applied insights by integrating established frameworks to interpret the dynamics of EntreComp among university students, particularly as influenced by gender and economic status.

First, the TPB (Ajzen, 1991) serves as a foundational lens to understand the relationship between students' competence perceptions and entrepreneurial intention. Although the study did not directly measure attitudes, subjective norms, or perceived behavioral control, the high ratings in domains such as IA and IO – especially among female students and those from higher-income groups – suggest robust internal motivation and confidence in enacting entrepreneurial behavior. The significantly higher PR score among females implies stronger self-regulatory capacities and intrapersonal awareness, which are essential for perceived behavioral control. This supports TPB's assertion that psychological readiness is central to translating intention into action.

Second, the HCT (Becker, 1964) offers explanatory power in understanding disparities in competence, particularly in the domain of SK. Students from higher economic brackets consistently rated themselves higher in technical knowledge areas such as financial literacy, digital skills, and business awareness. This affirms the theory's proposition that access to resources and education enhances productivity and work-readiness. Conversely, students from lower-income households may lack access to enriching educational experiences and industry exposure, thereby limiting their ability to internalize domain-specific entrepreneurial skills. These disparities reflect systemic issues in access to skill-building opportunities, which ultimately shape long-term entrepreneurial potential.

Third, ET (Sarasvathy, 2001) helps contextualize students' adaptability and action orientation in uncertain environments. Across all income and gender groups, high scores in resilience-related items – such as viewing mistakes as learning opportunities (IA8) – point to an emerging effectual mindset. Female students' higher ratings in interpersonal and evaluative capacities also resonate with effectual logic, wherein entrepreneurs start with their available means and adapt as goals evolve. This finding reinforces the argument that effectuation is not limited to those with privileged access but can also be cultivated among those who develop resilience and creativity through constraint.

From a practical standpoint, the findings highlight the need for inclusive and differentiated entrepreneurship education. The gender-based strength in PR suggests that entrepreneurship programs should further cultivate communication, self-awareness, and leadership among male students, while continuing to support and challenge female students to apply their interpersonal strengths in high-risk entrepreneurial settings. Meanwhile, economic disparities in knowledge-related competencies underscore the urgency of embedding equity-driven interventions – such as subsidized access to entrepreneurship competitions, mentorship programs, digital training modules, and financial literacy workshops – particularly for students from economically disadvantaged backgrounds.

Therefore, this study underscores that while foundational entrepreneurial competencies are present across student groups, systemic and social factors such as gender and income status significantly mediate the development and application of these competencies. Aligning program designs with the psychological, structural, and experiential dimensions of entrepreneurship can help bridge these gaps, ensuring a more equitable and empowering entrepreneurial education for all learners.

Based on the study's findings, several strategic recommendations are proposed to enhance the inclusivity, efficacy, and theoretical grounding of entrepreneurship education in higher education institutions.

First, addressing disparities in SK is crucial, particularly among students from lower economic backgrounds. The relatively lower competence scores in financial literacy, digital tools, and legal awareness among these groups signal a need for targeted curricular interventions. Programs should integrate modules on applied financial management, digital entrepreneurship, and regulatory compliance. Instructional strategies such as case-based learning, business simulations, and legal clinics can foster hands-on mastery of these technical areas.

Second, given the positive self-perceptions observed in the domains of resilience and opportunity recognition, especially among female students, institutions should continue to strengthen experiential and effectuation-based pedagogies. Activities such as startup incubators, entrepreneurial bootcamps, hackathons, and real-world problem-solving challenges can cultivate adaptability and innovation – core competencies emphasized in ET (Sarasvathy, 2001). These strategies are particularly beneficial in democratizing access to entrepreneurial experiences for students with fewer material resources.

Third, the study revealed gender-based strengths in the domain of PR, with female students reporting higher self-efficacy, reflection, and perseverance. This suggests the value of expanding gender-responsive programs, including peer mentoring, entrepreneurship circles, and leadership workshops led by diverse role models. These initiatives support the TPB (Ajzen, 1991) by strengthening perceived behavioral control and enhancing the motivational foundation for entrepreneurial intention, particularly among underrepresented groups.

Fourth, the results highlight that economic status, rather than educational attainment *per se*, significantly influences *EntreComp*. Accordingly, entrepreneurship curricula should incorporate equity-oriented scaffolding. Students from lower-income households may benefit from scholarship-linked training programs, free access to entrepreneurial resources, and community partnerships that reduce barriers to participation. Ensuring inclusive access to

competitions, internships, and venture funding is essential to operationalize the equity goals implied by HCT (Becker, 1964).

Lastly, institutions are encouraged to establish robust monitoring and evaluation systems to track student growth in EntreComp across time. Implementing formative feedback tools, pre-post diagnostic assessments, and competency portfolios aligned with the EntreComp framework can help faculty identify areas of growth and tailor instruction accordingly. These mechanisms would enhance evidence-based teaching, support institutional accountability, and ensure that entrepreneurship education remains responsive to the diverse needs of learners.

## 5. Conclusions

This study offers a comprehensive examination of university students' entrepreneurship competencies using a descriptive-comparative design grounded in the EntreComp framework. Overall, students rated themselves as moderately competent across the four key dimensions (IO, PR, SK, and IA) with the highest scores observed in opportunity recognition and resilience, and the lowest in financial literacy and product innovation. These findings affirm the multifaceted and uneven nature of entrepreneurial readiness in higher education contexts.

Inferential analyses revealed significant gender- and income-based variations in perceived competence. Female students demonstrated higher levels of PR, suggesting stronger self-awareness, evaluative ability, and interpersonal adaptability – competencies crucial for perceived behavioral control as articulated in the TPB. Furthermore, economic status emerged as a significant determinant of entrepreneurial knowledge and overall competence. Students from higher-income backgrounds reported stronger technical knowledge, especially in digital and financial literacy, consistent with the assumptions of HCT, which underscores the importance of access to education and skill-building opportunities in developing entrepreneurial capacity.

These empirical patterns reflect not only differential access to learning environments but also variation in psychological and contextual resources. From the perspective of ET, students across income brackets displayed resilience and adaptive logic, particularly in learning from mistakes and leveraging available means – hallmarks of effectual reasoning. However, structural disparities in knowledge and opportunity access suggest that effectuation may be more easily operationalized by students with greater economic capital.

Taken together, the study highlights that entrepreneurial competence is not evenly distributed, but rather shaped by an interplay of gender, economic background, and internal dispositions. The findings underscore the necessity for equity-oriented and context-sensitive entrepreneurship education programs that cultivate both cognitive and practical skills across diverse student populations.

Several limitations must be acknowledged in interpreting the results of this study. First, the reliance on self-reported measures may introduce social desirability bias or discrepancies between perceived and actual competence levels. While the Likert-scale items were validated and aligned with the EntreComp framework, future studies should consider triangulating self-assessments with objective performance-based tasks or behavioral indicators.

Second, the study employed a cross-sectional design, which limits causal inferences regarding the development of entrepreneurship competencies over time. Longitudinal or experimental studies would provide stronger evidence on how education or interventions influence competence trajectories.

Third, the sample, while sufficient in size ( $N = 282$ ), may not be fully representative in terms of gender distribution and economic classification. The modest number of female participants and the overrepresentation of certain academic disciplines may limit the generalizability of gender-related findings.

Despite these limitations, the study offers meaningful contributions to the field of entrepreneurship education by highlighting competence profiles, identifying gaps, and proposing data-driven strategies grounded in theory and empirical evidence.

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