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PSYCHOLOGICAL DETERMINANTS OF ECONOMIC GROWTH

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ABSTRACT

This study aimed to examine the psychological determinants of economic growth. The study sample was taken from Tanzania in two regions- Mwanza and Kagera. The cross-sectional survey research design was used. The self-checklist questionnaires were used to collect the primary data from 211 individuals. The analysis-weighted automatic linear modelling (AW-ALM) and probit model were used to examine the linear and non-linear behaviour of the psychological determinants (Hube) on economic growth respectively. The study found that the main psychological determinant of economic growth is the motivation of the individual. Moreover, the study evidenced the concavity and convexity of functional/relational behaviour of the Hube on economic growth in the Mwanza and Kagera regions respectively. The study concluded that the effective motivation packages for economic growth are that involve both bounded choices or self-interested (intrinsic) and unbounded choices or induced-interest (extrinsic) motives. Consequently, the study recommended that appropriate motivational strategies should be involved both intrinsic and extrinsic stimuli of the individual.

Keywords: Cognitive Psychology, Intrinsic and Extrinsic Motives, Lifestyle, Metacognition

INTRODUCTION

Despite the endless efforts on strengthening the economic growth in Tanzania, the economy is still unpredictable, unreliably, and unevenly growing. The growth was averaged at 6.3 percent

per annum for more than 10 years in 2018 (World Bank, 2019; URT, 2019b). This growth was not optimal, it was modest. Uninterestingly, Kagera is one of the regions in the Lake Zone where its economy getting the worst in Lake Victoria zone (URT, 2019b). Practically, Kagera and its neighbour regions share a lot of economic opportunities. For example, Kagera and Mwanza regions share inter-regional trade and Lake Victoria-based economic opportunities. Kagera region is more advantaged in cross-border trades with Kenya, Uganda, Rwanda, and Burundi (URT, 2019a; 2019c). It is still unknown why the economy of the Kagera region getting worse while the economy of the Mwanza region is getting better. The regional GDP per capita of the Kagera region is 41 percent less than the national GDP per capita while that of Mwanza is 0.04 percent above the national GDP per capita as recorded in 2018 (URT, 2019c). Relying on these facts, it is undoubtedly that the economy of the Kagera region is not only limited to economic variables but also non-economic variables such as psychological factors. Therefore, the need of extracting the psychological determinants of the economic growth in Tanzania is now thematically granted or supported. Notably, in the text, the term psychological determinants or factors is used interchangeably with the term psychological human behavioural determinants or factors.

This phenomenon implies that only economic variables do not account for economic growth. The existing theories on psychological well-being do not exhaustively describe the problem. The relevant theories that explain the psychological well-being of the individual in the aspect of economic growth are neo-classical economics and eudemonism theories. The neo-classical economic growth is limited only to the bounded interest of the individual choices (self-interest) to maximise their utility, it ignores the unbounded interest (interest or choice due to influence). Therefore, the theory does not fully define the psychological determinants of individuals as it ignores external influences. On the other hand, the Eudaimonic theory emphasises more on the internal force (bounded interest) and ignores the external forces of the individual in making choice (self-interest). The eudemonic theory or Ryff's (1989) theory fails to fully capture the concept of eudaimonia forwarded by Aristotle (Kashdan and Biswas-Diener, 2014). It excludes the external forces (subjective well-being) of an individual's life.

Empirically, Diener and Seligman (2004) suggested that the socio-economic and political measures of GDP have seriously failed to provide a full account of policy decisions at the organizational, corporate, and governmental levels. They emphasised that economic growth is heavily influenced by issues related to well-being as people's evaluations and feelings about their lives. That is, whilst GDP and other similar measures reflect the value of goods and services provided through the market, they exclude many others that are not provided through the market but that nevertheless contribute to overall welfare. Clearly, they exclude variables such as psychological factors (e.g., personal traits, values, etc.) which are not accounted for in the economic principle of demand and supply. Moreover, the exclusion of the non-economic variables such as motivation, metacognition, and lifestyle leads to economic performance failure in some regions or countries (Diener and Seligman, 2004, Bundala, 2020).

According to Baro and Sala-i- Martin (2004), some of the non-economic variables such as fertility rate, life expectance, and education attainment have a significant impact on economic growth. Moreover, Diener and Seligman (2004), Roka (2020), Stevenson and Wolfer (2008; 2013), and others suggested the involvement of psychological factors in economic modelling is now encouraged. However, the psychological factors (e.g., personality traits, values, cognition, etc.) have been challenged to have a paradoxical effect on economic growth (Easterlin, 1973; 2017). Furthermore, some studies evidenced that the lack of "strictly

conditioned equality” of psychological well-being of the individuals in the society would lead to unevenly and unpredictable economic growth as the psychological factors (well-being) are evidenced to be distributed unevenly across countries in the world (Bundala, 2020; Bundala, Ngaruko, and Lyanga, 2021; Jokela, Bleidorn, Lamb, ..., Rentfrow, 2015; Rentfrow, Gosling, and Potter, 2008; Talhelm, Zhang, Oishi, ..., Kitayama, 2014).

Reasonably, both the theoretical and empirical grounds support the consideration of the psychological well-being of the individual in economic planning. Therefore, this study examined the psychological behavioural factors that determine the economic growth in Tanzania by taking sample regions of the Kagera and Mwanza regions.

METHODOLOGY AND STATISTICS TESTS

The study used cross-sectional survey data, randomly sampled from 211 individuals in Mwanza and Kagera regions. The self-checklist administered questionnaires were used to collect the primary data as suggested as a better way of collecting psychological attributes of individuals (Kothari, 2009; Kabir, 2016). The data were analysed by automatic linear modelling (linear modelling) and probit analysis (non-linear modelling). The internal consistency reliability was examined by using rho-A coefficients and found to range from 0.932 to 0.975, which is within the recommended values (Hair, Risher, Sarstedt, and Ringle, 2019). This test is recommended as the best measure than the common measures such as Cronbach’s alpha and composite reliability (Cronbach, 1951; Joreskog, 1971; Dijkstra and Henseler, 2015). On the other hand, the construct validity of the questionnaires (convergent and discriminant) were examined by using an average variance extracted (AVE) of the latent’s construct as recommended by Hair et al, (2019). The AVE was found to range from 0.863 to 0.925; it is within the recommended value of at least 0.50 (Hair et al. 2019). Moreover, Henseler, Ringle, and Sarstedt (2015) proposed the heterotrait-monotrait (HTMT) ratio of the correlation to measure the discriminant validity. The HTMT ratios were found to range from 0.277 to 0.674 which are within the recommended thresholds of either 0.85 or 0.90 for dissimilar and similar items of the construct respectively (Henseler et al. 2015).

The endogenous variable which is a construct of psychological human behavioural factors was constructed from the 5-points Likert scales, with three-dimensional observed factors, motivation, metacognition, and lifestyles. The exogenous variable which is annualised individual income is defined as the average income of the individual per year in 2020.

RESULTS

Respondents' Information and Descriptive Statistics

The respondent rate was 100 percent. The most important demographic factors of respondents as suggested by Le Tan and Trang (2017) and French (2014) were gender, age, education, and marital status. These factors determine the credibility and trustworthiness of the findings (Miller and Karakowsky, 2005). The study involved females 24 (21.62%) and 51 (51%) in Mwanza and Kagera regions respectively. The ages of the respondents were distributed as 18-30 years were 47 (42.34%) and 64 (64%) in Mwanza and Kagera regions respectively. The age of 31-40 years were 29 (28.13%) and 17(17%) in Mwanza and Kagera regions respectively. On the other hand, the education level of the respondents who are primary school leavers was 70 (63.06%) and 48(48%) in Mwanza and Kagera regions respectively. The secondary school leavers respondents were 34 (30.63%) and 40 (40%) in Mwanza and Kagera regions respectively. The rest of the age class of 41-70 years were covered by the rest percentage of respondents. The marital statuses of the respondents were distributed as single 26(23.42%) and 44(44%) in Mwanza and Kagera regions respectively. The married

respondents were about 78(70.27%) and 54(54%) in Mwanza and Kagera regions respectively. The rest percentages of the respondents were covered by divorced and separated statuses. The study involved a broad range of education, age, and marital status hence increasing the reliability and validity of the findings (Boateng, Dzandu, and Agyemang, 2015; Hamis, 2019).

The descriptive statistics were provided to describe the means scores, estimation errors (standard deviation), and ranges in two regions in Tanzania, Mwanza and Kagera regions (Table 1).

Table 1
The Descriptive Statistics for the Exogenous and Endogenous Variables

Variable	Means score		Std. Dev		Range	
	Kagera	Mwanza	Kagera	Mwanza	Kagera	Mwanza
AGDP	1.2614	1.957	0.6533	0.7647	3.2568	4.056
Listy	0.6917	0.7350	0.1688	0.1704	0.8000	0.6500
Moti	0.6928	0.7670	0.1730	0.1746	0.8000	0.8000
Meta	0.6852	0.7735	0.1724	0.1555	0.8000	0.5300

Source: Analysed field data (2021)

Table 1 shows the descriptive statistics of the variables used in this study. The average economic growth (annualised monthly income) of the individual was 1.2614 TZS million and 1.957 TZS million in Kagera and Mwanza regions respectively. Moreover, the range of economic growth in annualised monthly individual income range was 3.2568 TZS million and 4.056 TZS million in the Kagera and Mwanza regions respectively. This value of range indicates that there is a high variation of economic growth in the Mwanza region than in the Kagera region. The individual psychological affect on lifestyle, motivation and metacognition is averaged at 0.6899 or 68.99 percent in the Kagera region and they averaged at 0.7585 or 75.85 percent in the Mwanza region. This indicated that the Mwanza region is more psychologically well-off than the Kagera region. The empirical cut-off value (ECV) of this psychological scale is 60 percent, which indicates the neutral point of the psychological score (that is, an individual is not considered as having a positive or negative psychological well-being at this level).

Linear Psychological Determinants of Economic Growth

The psychological human behavioural (Hube) determinants of economic growth were established by examining the impact of the lifestyle of an individual (Listy), motivation on work or economic activities (Moti), and the metacognition state of an individual (Meta) as the key indicators of the Hube. The Analysis weighted automatic linear modelling (AW-ALM) regression model, which has the advantage of automation of data preparation and selection of data/variables was applied. After the data quality was automatically cleared, the AW-ALM regression model was run to establish the relationship between the indicators of the Hube and economic growth. The model is determined by only two significant factors, which are region as dummy variables composing the Mwanza and Kagera regions, and the motivation of the individual on economic activities (Table 2).

Table 2

Unit Impacts (Coefficients) of AW-ALM Regression Model

Coefficients
Target: ln AGDP

Model Term	Coefficient ▼	Std.Error	t	Sig.	95% Confidence Interval		Importance
					Lower	Upper	
Intercept	0.808	0.046	17.726	.000	0.718	0.898	
Region=Kagera	-0.453	0.057	-7.959	.000	-0.565	-0.341	0.605
Region=Mwanza	0 ^a						0.605
lnMoti_transformed	0.681	0.106	6.430	.000	0.472	0.890	0.395

^aThis coefficient is set to zero because it is redundant.

Source: Analysed Field Data (2021)

Table 2 shows the coefficients of the AW-ALM regression model for economic growth. The model is only built on two factors/variables. Kagera region as a dummy variable has a negative beta coefficient of -0.453, a t-value of -7.959, a p-value of 0.000, and an importance ratio of 0.605. This means the state of living in the Kagera region reduces the opportunity (chances) for economic growth for an individual. On the other hand, the coefficient of the Mwanza region dummy variable was eliminated in the model; this was due to a collinearity problem. It has a positive beta coefficient of 0.453, a t-value of 7.959, a p-value of 0.000, and an importance ratio of 0.605. This means that living in the Mwanza region increases the opportunity of an individual to generate his/her income. On the other hand, the motivation variable (lnMoti) has a significant positive beta coefficient of 0.681, a t-value of 6.430, a p-value of 0.000, and an importance ratio of 0.395. This means the positive psychological well-being of an individual on economic activities increases the economic growth or positively impacts the economic growth. Region variable has a higher importance ratio than motivation but it has less impact on economic growth than motivation. Other variables were removed from the model due to their insignificance impact on economic growth.

Ex Post Facto Linear Modelling

The ex post facto linear modelling was done to understand further behaviour of the psychological human behaviour indicators in impacting the economic growth. A close examination was done for each observed variable in each region. The general model of the linear relationship indicates that the motivation of the individual has a significant positive impact on economic growth. A close examination reveals that motivation has a linear and convex relationship between economic growth in Mwanza and Kagera regions respectively (Figure 1).

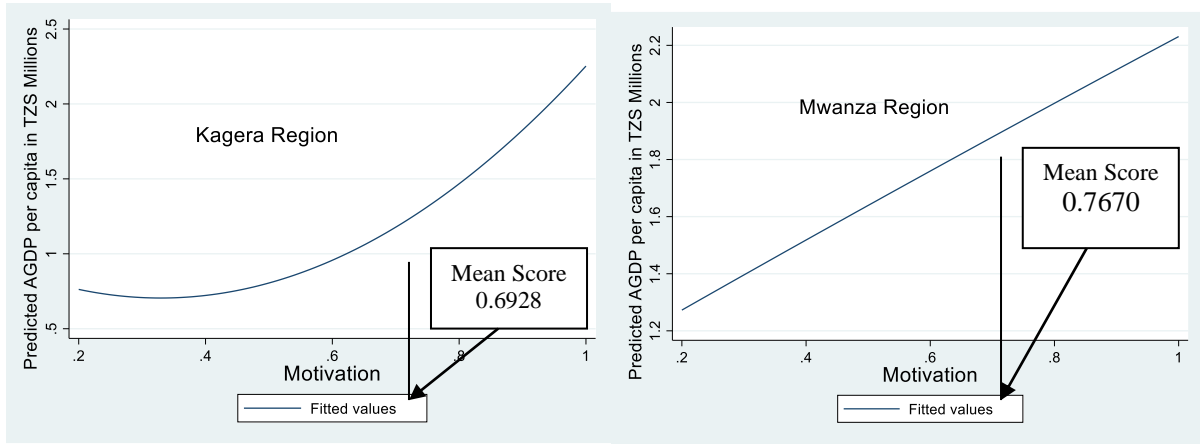


Figure 1: The Convexity and Linearity Behaviour of Motivation on Economic Growth
 Source: Analysed Field Data (2021).

Figure 1 shows the convexity and linearity behaviour of the motivation of individuals on economic growth. The convexity behaviour or functional relations exhibited in the Kagera region indicates that the law of diminishing marginal rate of substitution (MRS) is exhibited. Technically, it is interpreted that as the needs or acquiring of income increases more and more, the individual will prefer to sacrifice the lesser and lesser amount of consumption of motivation. That is, the higher income of the individual will result in less motivation for an individual to work. In general, to keep output (income) along an isoquant increase of one factor must be accompanied by a decrease in the quantity of the other factor (motivation) (Sarpong, Owusu-Hemeng, and Ackora-Prah, 2018). On the other hand, motivation has a significant positive (direct) impact on economic growth in the Mwanza region. That is, there is a positive covariance between motivation and economic growth in the Mwanza region. Further examination was done on the lifestyle and metacognition impact behaviour on economic growth. Both lifestyle and metacognition show concavity and convexity functional behaviour on economic growth in Mwanza and Kagera regions respectively. The concavity behaviour of the lifestyle and metacognition satisfies the principle of scarcity and opportunity costs which is described by the production function in the economic field. In other words, the concave curve illustrates the law of diminishing returns. Therefore, the lifestyle and metacognition indices behave the production inputs in the Mwanza region (Figure 2 & 3).

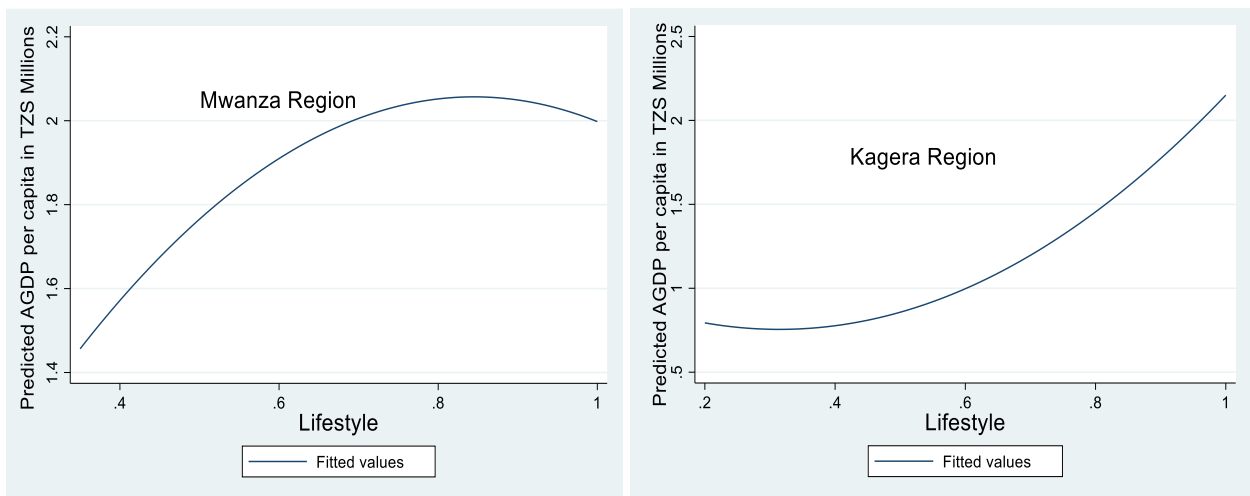


Figure 2: The Concavity and Convexity Behaviour of the Lifestyle on Economic Growth
 Source: Analysed Field Data (2021).

On the other hand, both lifestyle and metacognition exhibited the convexity behaviour in the Kagera region, which indicates the efficient combination of either lifestyle and economic growth or the metacognition and economic growth is determined by the marginal rate of technical substitution (MRTS) which is the quantity of individual income that an individual is willing to sacrifice for employing an additional quantity of lifestyle or /and metacognition to produce the same level of income (Figure 2 & 3).

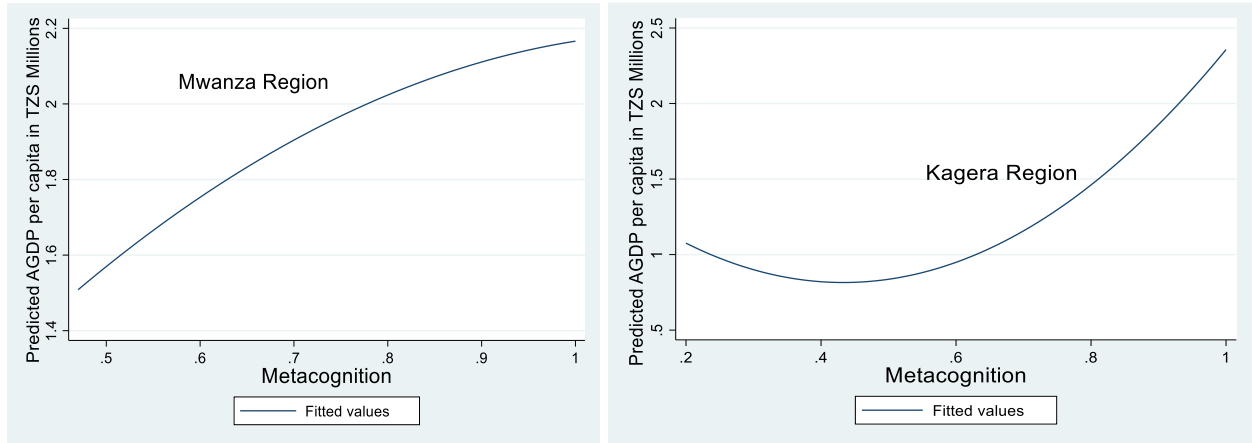


Figure 3: The Convexity and Concavity Behaviour of Metacognition on Economic Growth
 Source: Analysed Field Data (2021).

Moreover, the concavity functional behaviour of psychological human behaviour indicators on economic growth in Mwanza is due to the evidenced low correlation of the exogenous and endogenous variables (model variables). Remember, the higher correlation coefficients between the exogenous and endogenous variables result in high opportunity costs that will maximise the marginal rate of technical substitution (MRTS) of the convex curve. This empirical study evidenced the low correlation coefficients of the model variables that range from 0.1652 to 0.2410 in the Mwanza region. On the other hand, the correlation coefficients of the model variables in the Kagera region range from 0.5211 to 0.5578, which is higher than that of the Mwanza region. And, that is why the Kagera region experiences a convexity functional behaviour of the Hube indicators and economic growth, and the Mwanza region experiences concave function behaviour on economic growth. Therefore, with the significant correlation of the model variables (exogenous and endogenous) or simply dependent and independent variables, the convexity behaviour will emerge, and it is vice versa.

Non-Linear Psychological Determinants of Economic Growth

The non-linear model of the psychological behavioural factors (Hube) and economic growth was established by using the probit analysis. The Hube indicators are psychological affects of lifestyle (Listy), motivation of individual on economic activities (Moti), and metacognition state (Meta). The probit regression was run on Hube indicators and economic growth. The binary outcome of the economic growth was $GDPP = 1$ (probability of getting high economic growth) when the economic growth of an individual is higher or equal to 1.9 TZS millions (average of annualised monthly income), and $GDPP = 0$ (getting low economic growth) when an individual annual income is less than 1.9 TZS millions. The general probit model is presented here

$$Pr(GDPP = 1 | Hube_i) = \Phi(Hube_i \cdot \beta)$$

The probit regression model was determined at Pseudo $R^2 = 0.1070$ and a p-value of 0.000, which indicates that the model was significant in the empirical data (Table 3).

Table 3

The Probit Regression Model for Hube Indicators and Economic Growth

Probit regression		Number of obs	=	211	
		LR chi2(4)	=	26.35	
		Prob > chi2	=	0.0000	
Log likelihood = -109.92275		Pseudo R2	=	0.1070	
gdpp1	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
lnlisty	-.5325582	.6006353	-0.89	0.375	-1.709782 .6446653
lnmoti	1.520633	1.066445	1.43	0.154	-.5695608 3.610828
lnmeta	1.044353	1.073402	0.97	0.331	-1.059476 3.148183
Kagera	-.1774264	.2035071	-0.87	0.383	-.5762929 .2214402
Mwanza	0 (omitted)				
_cons	.045331	.1880425	0.24	0.810	-.3232256 .4138876

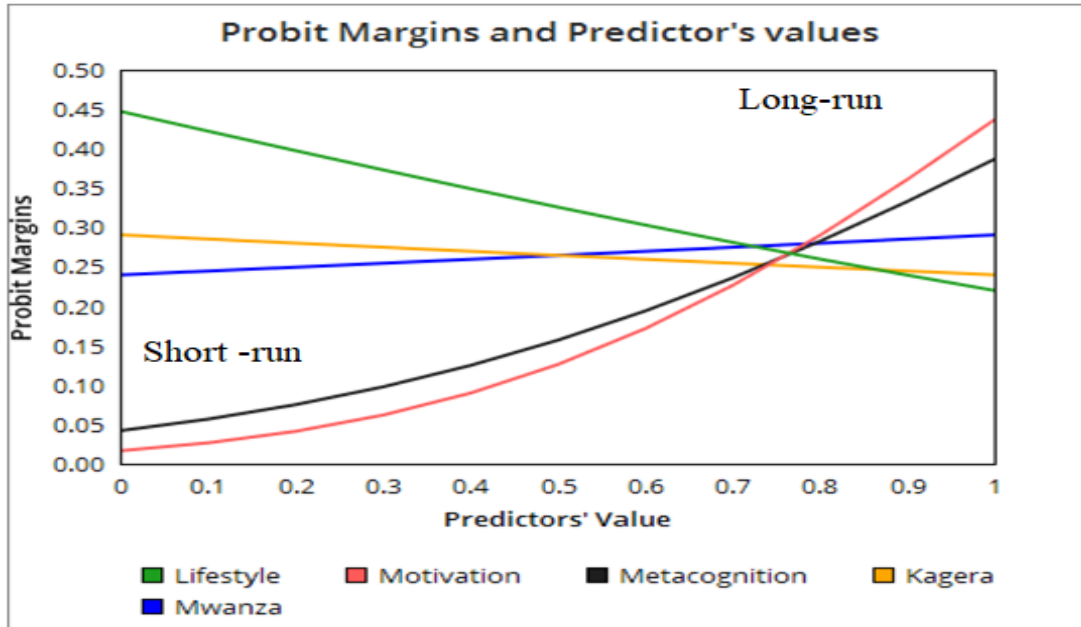
Source: Analysed Field Data (2021).

Table 3 shows the probit regression model for Hube indicators and economic growth. The indicators of Hube were evidenced to be insignificant to the economic growth. The lifestyle variable (lnlisty) has an insignificant negative coefficient of -0.5326, a z-score of -0.89, and a p-value of 0.375 with a 95 percent of confidence interval from -1.7098 to 0.6447. The motivation variable (lnmoti) has an insignificant positive coefficient of 1.5206, a z-score of 1.43, a p-value of 0.154, and a 95 percent of confidence interval from -0.5696 to 3.6108. The Metacognition variable has an insignificant positive coefficient of 1.0443, a z-score of 0.97, a p-value of 0.331, and a 95 percent of confidence interval from -1.0595 to 3.1482. Moreover, the Kagera region dummy variable has an insignificant negative coefficient of -0.1774, a z-score of -0.87, a p-value of 0.383, and a 95 percent of confidence interval from -0.5763 to 0.2214. The Mwanza region dummy variable was eliminated due to the collinearity problem with the Kagera region. Mwanza region dummy variable has an insignificant positive coefficient of 0.1774, a z-score of 0.87, a p-value of 0.383, and a 95 percent of confidence interval from 0.5763 to 0.2214. In general, it is evidenced that Hube has no predictive power on economic growth. In other words, the psychological well-being of an individual is unpredictable. Therefore, the probit margin analysis was not necessary to be done.

Ex Post Facto Probit Analysis

The ex-post factor probit analysis was done to understand why the Hube has no probability effect on economic growth by the given set of data. This was done by using the empirical marginal effect cut-off analysis, which is a determination of empirical points that explained the optimal marginal effect of each variable. The trade-off between the short-run and long-run probabilistic impact of the Hube indicators on economic growth was analysed by using an increment score/value of 10 percent of each Hube indicator. In other words, the probit margin effects on each 0.10 increment score/value on the Hube indicators were examined to reveal the trends of changes on each increment in the long run. The aim is to understand the

relationship between the probit margin and the probit model predictors both in the short-run and long-run. It revealed the long-term behaviour of the Hube indicators on economic growth. The motivation variable has a positive impact on the z-score, which is indicated by a steeper positive sloping line. That is, it has less impact in the short run but a higher impact in the long run. On the other hand, the metacognition variable has a steeper positive z-score and is represented by a positive sloping line. It has less impact in the short-run and a higher impact on economic growth in the long-run. Other variables such as the Mwanza region dummy variable were indicated by a positive less steeper sloping (Figure 4).



Source: Analysed Field Data (2021).

Figure 4: The Trade-off of Probit Margins and Hube Indicators

Figure 4 shows margins of probit regression for Hube indicators and economic growth. The Kagera region and lifestyle variable have a negative impact on the z-score distribution of economic growth. They have a negative slope of the relative probit margin line. They have a higher negative impact in the short run but with less impact in the long run. The probit margins lines/trend values meet between 0.70 and 0.80 values of the Hube indicators. Therefore, the optimal value of the Hube indicator score is 0.75, which is the mean value of the lower and upper limits of the Hube indicator scores. Therefore, the Hube has no significant probability effect on economic growth at this current data because their indicators score/indices range from 0.71 to 0.73 which is below the optimal value of the marginal effects.

Predicted Probit Analysis

The predicted probability to go high (GPPP \geq 1.9 TZS Millions) due to the change of the Hube indicators was examined. The predicted probability of each individual to get a high economy due to change of the Hube indicator is averaged at 33.0 percent and 21.34 percent for each living in the Mwanza and Kagera regions respectively. The range value of the predicted probability is 99.78 percent and 96.46 percent in the Mwanza and Kagera regions respectively (Table 4). The predicted probability in the Mwanza region is higher than that of the Kagera region, indicating that the risk of missing the target (getting a high income) is higher in the Mwanza region than that of the Kagera region. Moreover, the predicted probability range values indicate a higher variation among the individual across the regions.

Table 4

The Predicted Probit Value for the Economic Growth Model

Regions	Mean Score		Std.dev		Range	
	Mwanza	Kagera	Mwanza	Kagera	Mwanza	Kagera
Probabilities	0.3300	0.2134	0.3605	0.2944	0.9978	0.9646

Source: Analysed Field Data (2021)

Table 4 shows the predicted probit mean value of 27.17 percent (regional average). It means each individual's income in the Mwanza and Kagera regions is expected to grow on average at 27.17 percent in the future. However, there is a higher variation of the predicted probit values among the individual as evidenced by the extreme range value of about 96.0 percent in each region.

Tests of the Accuracy of Predictive Power

The accuracy of the predictive power of the probit model was examined by the application of sensitivity and specificity. In other words, the measuring accuracy of model predictions of the binary outcome was estimated by using sensitivity and specificity indices. The specificity is the proportion of the true negative or the proportion of cases correctly identifies by the test or not meeting certain conditions (Zou, O'Malley, and Mauri, 2007). The position of the cut-off determines the number of true positives, true negatives, false positives, and false negatives (Figure 5). According to Mandrekar (2010), the probability cut-off is a value that indicates the criterion value range that predicts a positive condition. Moreover, Zou et al. (2007) defined the true negative rate as the proportion of the units with a known negative condition for which the predicted condition is negative. This rate is often called specificity. The false-negative rate is the proportion of the units with a known positive condition for which the predicted condition is negative. This rate is sometimes called the miss rate (Zou et al. 2007). The false-positive rate is the proportion of the units with a known negative condition for which the predicted condition is positive. This rate is sometimes called the fall-out and constitutes the horizontal axis on the ROC curve (1-specificity).

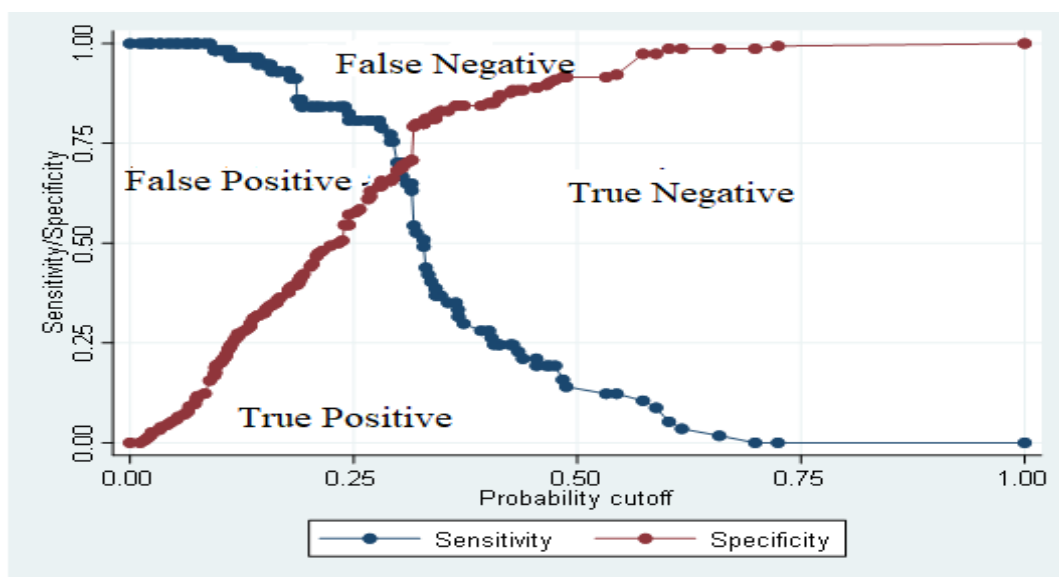


Figure 5: The Sensitivity/Specificity and Probability Cut-off of the Probit Model

Source: Analysed Field Data (2021).

Figure 5 shows the sensitivity/specificity and the probability cut-off of the probit model. The sensitivity and specificity analysis indicate the true positive is less than the false positive. On the other hand, the false negative is less than the true negative. This can be interpreted that the model having a medium predictive accuracy. The probability cut-off of this model is just above 25 percent.

Furthermore, the ROC curve analysis was done to reveal the overall predictive accuracy of the model. The ROC curve plots the true positive rate (sensitivity) against the false positive rate (1-specificity) for all possible cut-off values (Figure 6). Therefore, each point on the ROC curve represents cut-off values. Cut-off values that result in a low false-positive rate tends to result in a low true positive rate as well. As the true positive rate increases, the false positive rate increases. The better the diagnostic test, the more quickly the true positive nears 1 or 100 percent.

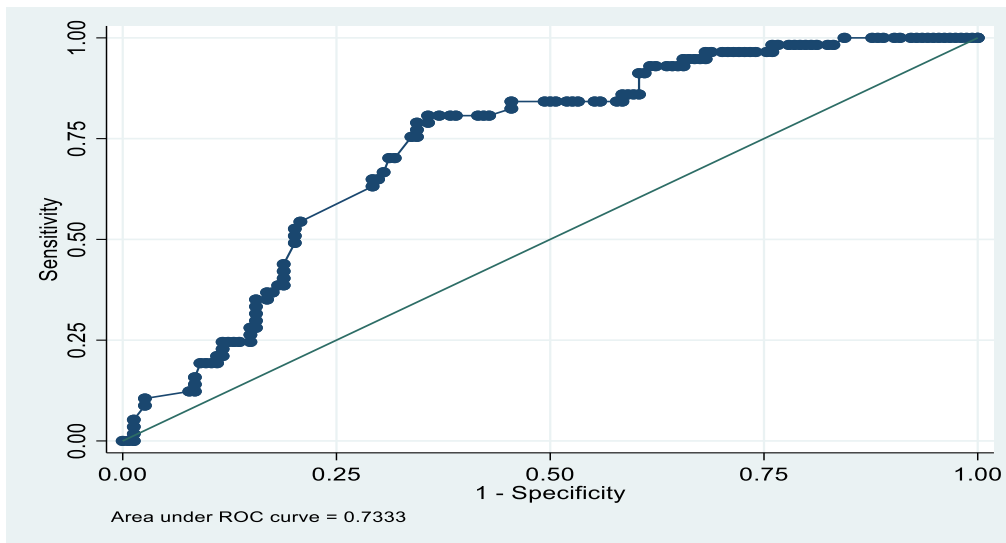


Figure 6: ROC Curve Analysis for Probit Model of Economic Growth
Source: Analysed Field Data (2021)

Figure 6 shows the ROC curve analysis for the predictive accuracy of the probit model. The horizontal axis is represented by the false-positive rate (1-specificity) and the vertical axis is represented by the true positive rate (sensitivity). The area under the ROC curve (AUC) is a popular measure of the accuracy of the predictive model or diagnostics test. In general, the higher the values area indicates better test performance. According to Zou et al. (2007), the values of ROC areas of 0.7 to 0.8 are acceptable, 0.8 to 0.9 is considered excellent and more than 0.9 is considered as outstanding. This probit model has an AUC of 0.7333, which is considered acceptable.

DISCUSSION OF FINDINGS

The study found that the motivation of individuals has a positive impact on economic growth. The study defined motivation as the willingness of an individual to work or to achieve his/her success through mental, governmental, and environmental support. This is a broad concept of motivation merged from Maslow's hierarchy of needs theory, Alderfer's ERG theory, reinforcement theory, equity theory, expectancy theory, goal theory, McClelland's three needs theory, and Herzberg's Two-Factor theory. In short, the study assumes the willingness of an individual to work is due or bound to his/her mental state and governmental and environmental supports. The issue of motivation in economics was championed by the early works of Samuelson (1954) and Olson (1965) who related the mental state of the individual and income generation. Therefore, self-interested behaviour was regarded as one of the central

tenets of economic theory and as a major threat to social cohesion, which rides on the production of public goods (Romaniuc, 2017).

The motivation of individuals has many implications in the economic system, particularly, it influences the labour market. The labour demand and supply can be significantly influenced by the state of the motivation of an individual (Romaniuc, 2017). The individual labour demand and supply schedules are influenced by the motivation of the individual (Ritter and Taylor, 1997). Moreover, the sorting job behaviour of the applicants influences the labour market in the economy (Romaniuc, 2017). On the other hand, the performance bondings of the employees influence the motivation packages attached to the bonding such as incentive pay (e.g. salary, overtime, bonuses, etc.). The emergence of cognitive psychology which contented that behaviour cannot be predicted and controlled by observing and manipulating the physical environment of the decision-makers enriched the concept of self-interest behaviour and intrinsic motivation (Chomsky, 1959). Cognitive psychology empathises with the internal sources of motivation. However, this study went beyond the self-interest behavioural model, the study pays attention to both income and non-income-related determinants of motivation. Although, people's willingness to engage in environmentally friendly activities even in the absence of extrinsic motivation (monetary incentives) is probably because they had an intrinsic motivation to preserve the environment (Romaniuc, 2017). In other words, the man is self-interested. Notably, economic activities are believed to be intrinsically motivated if there is no reward except the activity itself. Therefore, there is no reason to deviate from the self-interested model (Romaniuc, 2017).

This study went beyond the bounded self-interested model or was not limited only to cognitive psychology. In reality, people's choices are due to both bounded choices (self-interest) and unbounded choices (induced or forced interest). This study has broadened the definition of motivation in the methodology arena. From this standing, the positive influences of motivation on economic growth are not only due to intrinsic but also extrinsic motivations. Remember, the study was not intended to establish the source of human behaviour motivation as it is not among the economists' main interests (Romaniuc, 2017). Therefore, any motivational package that enforces the individual intrinsically and extrinsically is better for economic growth.

On the other hand, lifestyle and metacognition have convexity and concavity behaviour on economic growth in Tanzania. The study examined maxima, minima values, and mean position values (MPV) of either minima or maxima values to further examining of the nature of the relationships between the exogenous and endogenous variables. The MPV is the weighted proportion of the distance value of either maxima or minima values. It simply explains the percentage of variation of maxima or minima from the mean score. The MPV greater than 60 percent indicates the two variables have a positive significant relationship, and it is vice versa for minima values. Noticing, the 60 percent is a critical or cut-off value established empirically in the scale of this study. It indicates a neutral psychological decision. From this empirical analysis, in the Mwanza region, the mean score of the lifestyle covers about 87 percent toward the maximum value of 0.8448. This means that the marginal product of lifestyle (MPL) which is the additional output (income) produced by one more unit of lifestyle, is approaching zero, and exhibiting the law of diminishing returns. Therefore, the impact of lifestyle on economic growth would be positive but is not significant. The same fact can be explained in Metacognition, which its mean score covers about 68.9 percent of its maximum value of 1.1224. The motivation variable in the Mwanza region exhibits significant

linearity behaviour on economic growth. On the other hand, the minimum value of lifestyle is 0.3144 and its MPV is 0.5455 indicating that about 54.55 percent of the mean score is explained by the minima values. In this case (minima) the mean is always above the minima values, therefore, it has a positive impact on the economic growth not significant. This is because its marginal rate of technical substitution (MRTS) is slightly increasing upward. The same fact will be interpreted for motivation and metacognition variables in Kagera which have minima values of 0.3294 and 0.4331 respectively, and MPV of 0.5245 and 0.3680 respectively. Therefore, all the Hube indicators in the Kagera region are insignificantly positively impacting economic growth.

CONCLUSION AND RECOMMENDATIONS

Based on the fact that the motivation of the individual plays a major role in economic growth, the study concluded that the effective motivation packages for economic growth in Tanzania are that involve the stimuli of both bounded and unbounded interests of an individual. In other words, the study evidenced that the willingness of the individual to work does not only influence the mental awareness but also the surroundings of the individual. Therefore, appropriate motivation packages incorporate both internal forces from his/her mental status or position (intrinsic stimuli) and external forces from surroundings (extrinsic stimuli). On the other hand, the study evidenced that the variables or indicators of Hube behave as the economic variables (obey the demand and supply laws). The nature of the concave curve of the lifestyle and motivation variables in the Mwanza region exhibits the principles of scarcity and opportunity costs applied in the economic planning/decision-the production possibility frontier (PPF). Therefore, they obey the law of diminishing returns. Moreover, the convex nature of the lifestyle, motivation, and metacognition signify the principle of diminishing MRTS, that is, MRTS decrease as individuals prefer either one input (indifference curves). For this reason, the non-economic variables once they behave as the economic variables indicate the “economic relevance” of the variables. Therefore, lifestyle, motivation, and metacognition are relevant economic variables (REV).

The study posed two general recommendations. It recommends that appropriate motivational strategies should be involved both intrinsic and extrinsic motives of the individual. This will help to increase the efficiency of the labour market as they are influenced by the complex nature of psychological human behaviour at work (personal demand schedules). Moreover, the adoption of that strategies will improve both the performance bonding and piece-rate payment and reduce or manage the sorting of job applicants in the labour market system in Tanzania. More the study evident that lifestyle and metacognition have economic relevance, therefore, should be applied in economic planning. However, its optimality values should be observed according to the principles of scarcity and opportunity costs.

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