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TÍTULO: El impacto de la felicidad en el crecimiento económico y el desarrollo comunitario: una estimación del panel dinámico.

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RESUMEN: El objetivo de este estudio es evaluar el impacto de la felicidad en el crecimiento de la nación en un esfuerzo por comprender la importancia de colocar al bienestar humano en el centro de las decisiones de formulación de políticas que desarrollarían a las comunidades de una manera más sostenible. Este estudio emplea la técnica de estimación de panel dinámico de Métodos Generalizados de Momentos (GMM) para analizar un conjunto de datos de micro panel de cincuenta países seleccionados para el período 2000 a 2013. Los resultados muestran evidencia de que la felicidad y la formación de capital tienen un impacto favorable en el crecimiento económico.

PALABRAS CLAVES: felicidad, crecimiento económico, desarrollo comunitario, desarrollo sostenible.

TITLE: The impact of Happiness on Economic Growth and Community Development: A Dynamic Panel Estimation.

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ABSTRACT: The objective of this study is to assess the impact of happiness on the nation's growth in an effort to understand the importance of placing human well-being at the center of policy making decisions that would develop communities in a more sustainable way. This study uses the technique of dynamic panel estimation of Generalized Methods of Moments (GMM) to analyze a set of micro-panel data from fifty countries selected for the period 2000 to 2013. The results show evidence that happiness and the formation of capital have a favourable impact on economic growth.

KEY WORDS: happiness, economic growth, community development, sustainable development.

INTRODUCTION.

The strive for economic growth and community inclusion has been the focus of policy makers for decades. This can be seen in the voluminous research that has been produced thus far, in the area of economic growth and community development (Hou and Chen, 2014; Liu, 2016; Akram & Rath, 2017; Badeeb & Lean, 2017; Nuttavuthisit, 2017).

As Liu (2016, p. 8) rightly points out: "*Growth, prosperity, and inclusion are complementary, not contradictory, goals for meaningful economic development*". She further adds that "I*t's time to shift and broaden the purpose and practice of economic development to generate continuous growth, prosperity, and inclusion*" (Liu, 2016, preface; Dalir et al, 2014; Nazoktabar & Tohidi, 2014). However, much of the literature on economic growth and community inclusion do not take happiness or human well-being into account. As happiness is the meaning and purpose of life (Prinsloo 2013), the very existence of human kind is based on the pursuit of happiness. Shouldn't policy making be

centered on happiness or subjective well-being? Governments generally seek to achieve higher levels of sustainable economic growth and community development, but how important human well-being is to the economic performance of countries and their communities, is an area of research that remains under researched.

Governments and non-governmental organizations play a pivotal role in promoting economic growth, community development and inclusion by incorporating community issues and human well-being into policy-deliverables. By engaging the communities directly, in solving their issues, the entire process of developing and implementing economic growth policies becomes more purposeful and intentional. Taking care of the well-being of a nation is an area of great interest to all governments, with emphasis being placed on the quality of life as a key milestone in their public policies.

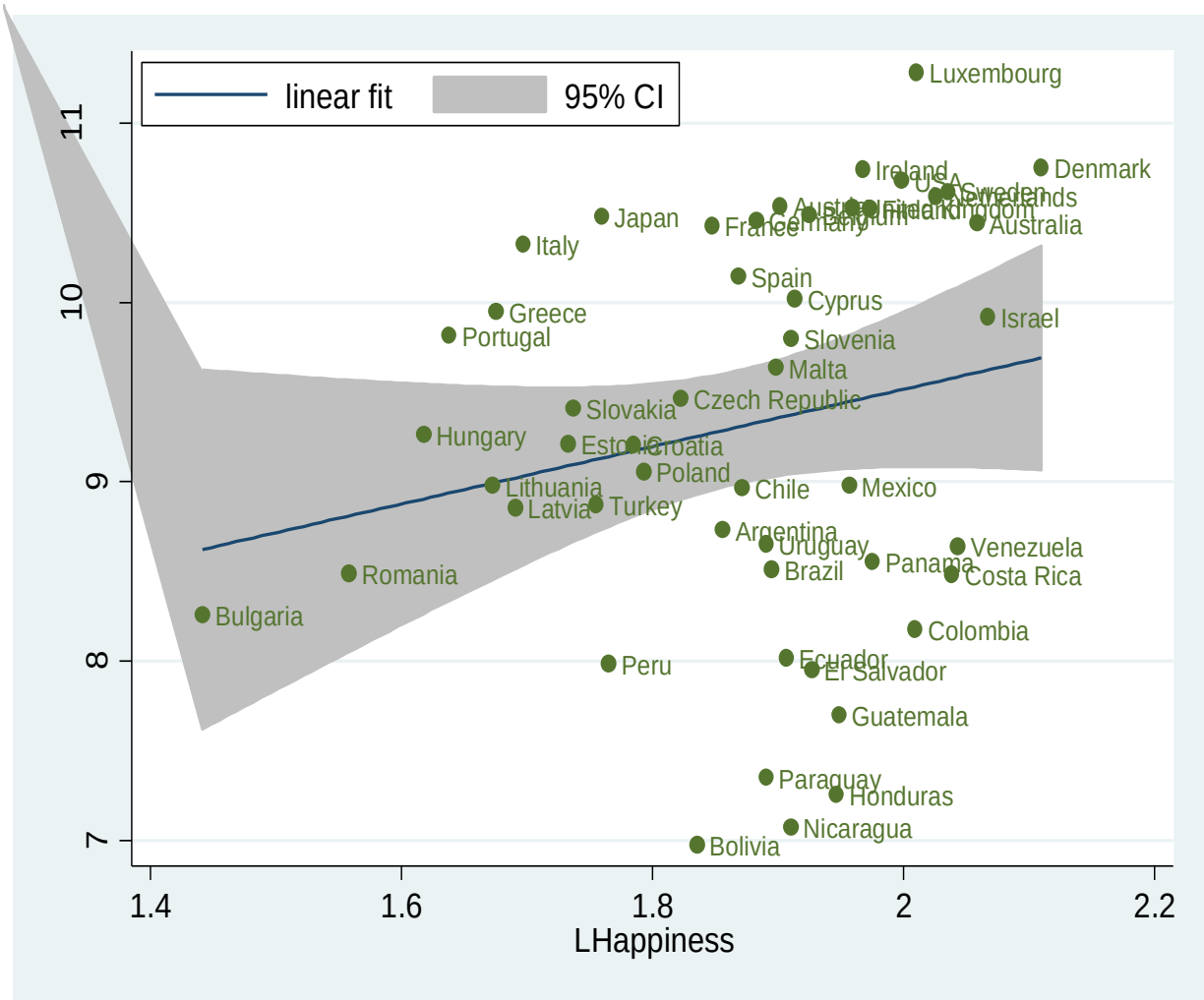
A nation can be deeply affected by a decline in happiness among its people, as countries with low levels of well-being could see a rise in the number of suicides and crimes, a decline in productivity, growth rates, fertility rates below the replacement levels, and a host of other such undesirable economic problems. The World Health Organization, reported that approximately 800,000 people commit suicide every year, which translates to one person every 40 seconds. This is especially true for the 15-29 years old group, where suicide is the second most important cause of death. Suicide rates have been on the rise over the years, with depression being one of its causes. The rat race brought on by globalization and competition has increased stress levels and cases of depression.

An estimated 300 million people suffer from depression; a common mental disorder suffered mostly by women. It was also reported that people who were afflicted by depression, had felt low s of happiness (high level of sadness), often feeling guilty, with low self-worth, lack of confidence, disturbed sleep or appetite, tiredness and poor concentration, substantially impairing their ability to function at work or school and to cope with daily life. This in turn reduces the level of productivity,

thus affecting economic development. If left unchecked, long periods of low levels of happiness can halt the progress of a nation.

The consequence of economic growth and community development is that it provides not only material gains for people, but it also enhances subjective well-being or happiness. As evident in Figure 1, as far as economic growth is concerned, the trend indicates that people in countries with higher levels of happiness tend to receive higher levels of income per capita.

Figure 1: Happiness and Income per capita.

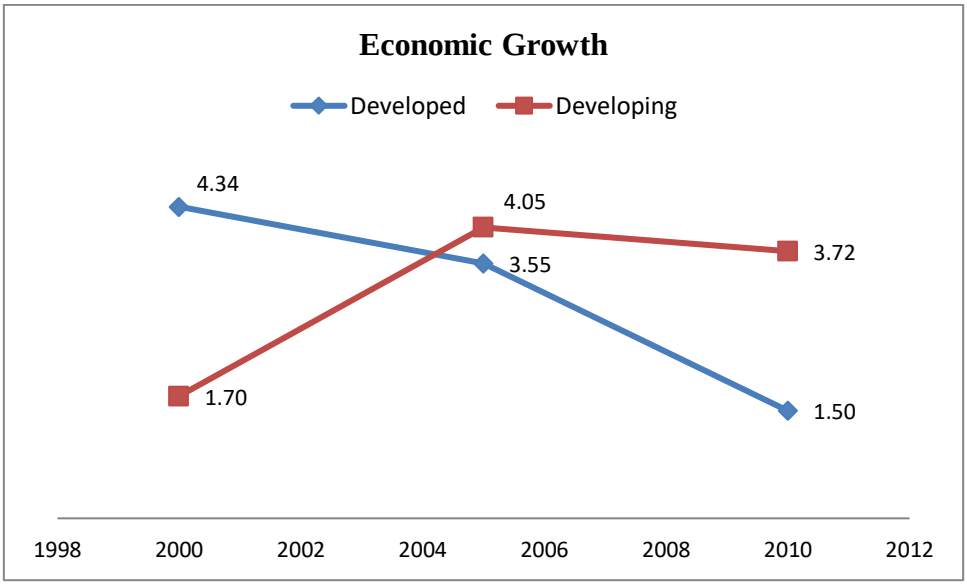


Exploring and understanding the importance of happiness or human well-being will assist policy makers to consciously implement better and more inclusive policies. In an effort to enhance economic growth, community development and inclusion, more and more nations are placing happiness at the

center of policy analysis and decision making. It has become more evident to many countries, especially the developed ones, that placing greater emphasis on people's well-being takes precedence in policy making. This study is therefore in the right direction as it investigates the impact of happiness on economic growth and community development.

Figure 2 shows the economic growth trend between developed and developing countries among the fifty selected countries. It can be seen that developing countries experienced rapid economic growth from 2000 to 2005, after which growth declined slightly from 2005 to 2010.

Figure 2: Real GDP growth rate between Developed and Developing Countries.



Neo-liberal reforms were implemented in many countries during the 1980s and 1990s. As different countries implemented these reforms in varying degrees, the effects on economic growth differed among these countries. There were countries that experienced significant efficiency gains, thus enhancing economic growth, while there were other countries that did not experience such efficiency gains. The developed countries faced massive slowdown in the last decade from 2000-2010, as shown in Figure 2. The steep drop in economic growth among the developed could be attributable to the financial crash of 2008/2009. Based on the analysis of the global trend of economic growth mentioned

above, the motivation for this study is therefore to further analyses whether happiness or subjective well-being played a role in explaining the variations in economic growth across nations.

The paper is organized as follows. Section 2 provides a review of the existing literature on economic growth and community development, with a focus on the impact of happiness on growth; Section 3 provides details of the methodology used in this study; while Section 4 provides a comprehensive empirical analysis of the findings and Section 5 concludes.

DEVELOPMENT.

Literature review.

The extensive literature on economic growth models reflects the various schools of thought on the possible causes of economic growth. A review of the existing literature on economic growth and community development indicates a gap. Most scholars have extensively studied the determinants of economic growth, and these include capital, labour, human capital, foreign direct investment, trade, and many more. However, very limited studies have been carried out on the relationship between happiness and economic growth (Kenny, 1999; Li and Lu, 2010; Easterlin, 2015; Tsarkov & Hoblyk, 2016). Realizing the gap in the extant literature, more research is needed to explore the effects of happiness on economic growth. With the availability of panel data sets for happiness in recent years, the opportunity to contribute towards this limited literature is made possible.

The traditional Solow-Swan model of economic growth does not include happiness as a contributing factor to economic growth. It is the intention of this study to augment the model by incorporating happiness into it. Most studies on the happiness-economic growth relationship has focused on the impact of economic growth on happiness and the findings have been somewhat ambiguous and inconclusive (Luttmer, 2005; Ferrer-i-Carbonell, 2005; Graham and Felton, 2006; Clark, Frijters and Schields, 2008; Barr and Clark, 2009; Knight and Gunatilaka, 2011; Veenhoven and Vergunst, 2013).

Studies on the impact of happiness on economic growth have been rather limited (Kenny, 1999; Li and Lu, 2010 and Easterlin, 2015). Kenny (1999) analysed cross-country data and found mixed results, whereby happiness was found to be significantly and negatively related to income in three countries, while only positively related in one.

Happiness promotes productivity as revealed in a study by Oswald, Proto and Sgroi (2015) who discovered that happiness had a large positive effect on productivity, in an environment where people received payment for their effort. Ali (2014) argued that "innovation is not merely an economic issue but also a social factor that is characteristically linked to societal wellbeing and the position of a nation in the global marketplace" (p.2). Happiness therefore stimulates innovation, creating positive spill-over effects or externality that would enhance productivity, thereby increasing economic growth. Yusuf (2009) found human happiness to have an influential causal impact on labour productivity, which in turn can lead to higher economic growth. This was aptly captured by Yusuf (2009) who mentioned that "Commercially viable innovations are becoming the hinge of success in global markets and by helping to raise total factor productivity, they now account for a significant share of growth in advanced and industrializing economies." Jalali and Heidari (2016), in their study on the relationship between happiness, subjective well-being, creativity and job performance of primary school teachers, found that happiness, subjective well-being, creativity and job performance had a significant relationship, with happiness and subjective well-be being the strongest predictors of job performance.

We believe that happiness or life satisfaction has a positive impact on labour and capital, as studies have shown that happier people are more creative and innovative (Myers, 1993; Yusuf, 2009; Mao and Weathers, 2015; Mayer et al, 2016; Chen et al, 2016; Kurasawa, 2016; Adhikari et al, 2017; Saidu et al, 2018; Samet, 2018). Therefore, we posit that happiness stimulates creativity and innovation, thereby augmenting human capital via the enhancement of emotional capital that augments people's

ability and capability to perform better. Adhikari, Choi, and Sah (2017) examined the link between employee friendliness and innovation, and found that cash profit sharing and employee involvement had a positive impact on innovation output of a firm. Their results also revealed that implementing employee-friendly policies had a greater impact in industries having higher employee power, further emphasising the point that happy and satisfied employees tend to be more productive than the unhappy and dissatisfied ones. Edmans (2011), in his study on employee satisfaction and equity prices, finds that firms with high levels of employee satisfaction generate superior returns for shareholders, once again reaffirming the importance of happiness.

Happy people are also found to be less prone to absenteeism and presenteesim (reduced performance while present at work), compared to unhappy people. In a study on the impact of depression on work productivity, Woo et al. (2011) discovered that the lost productive time (LPT) from absenteeism and presenteeism was significantly higher among the workers with major depressive disorder (MDD) compared with a comparison group. This lends support to our conviction that unhappy people tend to be less productive.

It is our hope that this study will contribute further to this limited literature on the happiness-economic growth nexus, and provide some insights to policy makers into what matters most, when it comes to sustainable economic growth and community development.

Methodology.

This quantitative study investigates the impact of happiness on economic growth. The GMM estimation technique is a dynamic data-generating process that enables us to investigate how the current realizations of the dependent variable are influenced by the past ones (Roodman 2006). The GMM estimation technique is suitable as it supports micro panel data, and is helpful in cases where the regressors are not strictly exogenous. Aside from that, the GMM estimator provides a solution to the problem of heteroskedasticity and autocorrelation within cross-sections. The GMM estimation

technique is a dynamic data-generating process that enables us to investigate how the current realizations of the dependent variable are influenced by the past ones (Roodman, 2006). The data-generating process of the GMM estimators assumes that the instruments available are based on the lags of the instrumented variables, which are considered "internal" instruments. The GMM estimator is beneficial as it exploits these easily available "internal" instruments that exist within the dataset.

The proxy for happiness in this study was the subjective well-being index, which was sourced from the World Database of Happiness (Veenhoven 2010), while all other economic data used in this study were sourced from the World Development Indicators published by the World Bank. The model used in this study was based on Mankiw Romer and Weil's (MRW) economic growth model (Mankiw, Romer and Weil 1992), which was further enhanced to include the happiness variable, aside from the basic control variables in the original MRW model.

With the GMM procedure, we estimated the following augmented economic growth model equation:

$$lny_{it} = \beta_{0i} + \beta_{1i} lnsk_{it} - \beta_{2i} ln(n_{it} + g + \delta) + \beta_{3i} lnHC_{it} + \beta_{4i} lnH_{it} + \upsilon_{it}$$

where *y* is the dependent variable representing real output per capita or output per worker, β_{0i} is the country-specific intercept, *Sk* is the fraction of output invested in the accumulation of physical capital (measured by the ratio of gross fixed capital formation over GDP; *HC* is the stock of human capital resulting from secondary education, *H* is the average self-reported happiness over the period 2000 to 2012, *n* is the labour force growth rate proxied by the population growth rate, *g* is the growth rate of exogenous technological progress, *d* is the depreciation rate, ε_t is the standard error term, and *t* refers to the time period. Mankiw, Romer and Weil (1992) and Knowles and Owen (1995) assumed the value of $g + \delta$ to be 0.05. The subscripts indicate country (i) and time (t) and υ is the error term. All variables have undergone logarithmic transformation (natural log) as it linearizes the exponential trend of the data used, aside from linearizing the original non-linear model. Taking the natural logs of the variable data also allows us to interpret the regression coefficients as elasticities.

Following the dynamic panel data studies on growth by Omri, (2013), and Vedia-Jerez & Chasco (2016); the standard dynamic panel regression equation to achieve our second and third research objectives for growth and fertility respectively, can be specified as follows:

$$y_{it} = \delta y_{i,t-1} + x_{it}^{'} \beta + \varepsilon_{it}$$

where *y* represent the dependent variable of the model, $y_{i,t-1}$ is the lagged dependent variable, *x'* represents the vector of explanatory variables, while $\varepsilon_{it} = \mu_i + v_{it}$. ε_{it} represents the disturbance term that consist of two orthogonal components, the fixed effects and the idiosyncratic shocks, represented by μ_i and v_{it} respectively. The error term, ε_{it} fulfills the classical assumptions, where $E(\mu_i) = E(v_{it}) = E(\mu_i v_{it}) = 0$ where *i* and *t* refers to cross sectional units and time, respectively.

Dynamic panel models are powerful as they look into the empirics of dynamics, enabling researchers to study whether past behavior can directly influence current behavior. The lagged dependent variable therefore becomes a part of the explanatory variables as follows:

$$y_{it} = \delta y_{i,t-1} + x_{it}^{'} \beta + \lambda Happy_{it} + \varepsilon_{it}$$

where y_{it} is the logarithm of per capita GDP of country i at time t, $y_{i,t-1}$ is the log of lagged income, $x_{it}^{'}$ is a set of "fundamental" explanatory variables determining economic growth, $Happy_{it}$ represents the average self-reported happiness, and $\varepsilon_{it} = \mu_i + v_{it}$, representing the disturbance term that consist of two orthogonal components, with μ_i capturing the effects of the country i that are time invariant, and the classical error term v_{it} representing the variability across time and countries.

Results and Discussion.

Prior to analysing our empirical model, we begin by showing the descriptive statistics for all variables used in this study, to reveal the basic properties of the data. The results in Table 1 reveal the strength

of the between variance component, which better explains the data variability for all variables used in this study.

Table 1: Descriptive statistics for key variables.

Variable		Mean	Std. Dev.	Minimum	Maximum
Log GDP per capita (y)	overall	9.299	1.116	6.869	11.382
	between		1.121	6.974	11.279
	within		0.110	8.882	9.656
Log Capital formation (Sk)	overall	-1.571	0.205	-2.219	-0.716
	between		0.149	-1.900	-1.265
	within		0.142	-2.099	-0.944
Log Population ($n + g + \delta$)	overall	1.262	0.324	-2.312	1.763
	between		0.279	0.465	1.690
	within		0.169	-1.857	1.724
Log Human Capital (HC)	overall	13.86493	1.455	9.351	17.784
	between		1.533	10.146	17.768
	within		0.204	12.499	14.729
Log Happiness (H)	overall	1.860329	0.165	0.940	2.128
	between		0.144	1.440	2.110
	within		0.080	1.139	2.050

The within variance for GDP per capita is 0.1102 (= 0.0120), indicating that only 1.2% of the overall variability in the data occurs within-country, while the between variance is 1.1212 (= 1.257). Similarly, for happiness, the within variance is 0.0802 (= 0.0064), indicating a very low 0.64% of the overall variability in the happiness data occurs within-country, suggesting that the between variance component dominates in explaining the variability of the data.

Aside from describing the basic properties of the data, a graph (see Figure 1 in Introduction section) showing the relationship between happiness and GDP per capita, reveals the existence of a positive relationship. The graphical evidence demonstrates the preliminary evidence that countries achieving

higher economic growth are those with higher levels of happiness. The positive happiness-economic growth relationship as shown in Figure 1 is further confirmed in Table 2, in which the dynamic panel one-step and two-step difference and system GMM estimation techniques are applied.

Table 2: Dynamic Panel Estimation Results of the Happiness-Economic Growth Model.

Variables	**GMM 1-DIF (1)**	**GMM 2-DIF (2)**	**GMM 1-SYS (3)**	**GMM 2-SYS (4)**
$LGDPC_{(t-1)}$	0.659***	0.612***	0.973***	0.973***
	(12.26)	(34.40)	(177.31)	(118.84)
LCapital	0.128***	0.125***	0.141***	0.125***
	(3.45)	(9.79)	(6.05)	(4.04)
LPopulation (ngd)	-0.076	-0.124***	-0.08**	-0.156***
	(-0.97)	(-4.69)	(-2.30)	(-4.01)
LHuman Capital	0.003	0.022*	-0.006	0.010
	(0.11)	(1.97)	(-0.78)	(0.70)
Log Happiness	0.538***	0.656***	0.111*	0.294**
	(2.80)	(11.93)	(1.69)	(2.35)
Number of Countries	45	45	48	48
Number of Observations	161	161	213	213
Number of Instruments	41	36	42	41
m_1-test	0.008	0.015	0.047	0.078
m_2-test	0.926	0.791	0.339	0.578
Hansen Test	0.213	0.190	0.145	0.211
Diff-in-Hansen	0.752	0.558	0.997	0.338

Notes: 1. T-statistics are shown in parentheses. *, **, * demote significance at 10%, 5% and 1% respectively.**
2. The values reported for m_1 and m_2 are the *p*-values for first and second order auto-correlated disturbances.
3. The values reported for Hansen and the Difference-Hansen tests are the p-values.

The empirical evidence in Table 2 confirms the validity of the instruments utilised as the results fail to reject the null hypothesis of the over-identifying restrictions being valid. The result also confirms the absence of higher order autocorrelation in the residuals. The serial correlation test complies with the requirements of the GMM theory, which allows the presence of first order serial correlation as

shown by the significant p-value for the m1-test, while the results of the m2-test reveal the absence of second order autocorrelation. The existence of strictly exogeneous instruments is shown by the p-value in the Difference-in-Hansen test, which fails to reject the null hypothesis of exogeneity of the instrument subsets. We can therefore proceed to discuss the results as all expected diagnostics have been met.

Table 2 displays the results of data analysis using four different GMM techniques as shown in columns 1 to 4, with the purpose of testing the robustness of the happiness-economic growth model. The overall empirical results demonstrate robustness, as similar results are generated in terms of the magnitude and direction of the coefficients of the explanatory variables using the difference and system GMM estimators.

The lagged dependent variable (past year GDP per capita) has a positive and significant coefficient across all four techniques, indicating the strong influence that past year per capita income has on the current per capita income. Similar results were also found in several other studies (Mankiw, Romer and Weil 1992, and Hou and Chen 2014). With magnitudes of 0.659, 0.612, 0.973 and 0.973 respectively, past year's per capita GDP displays a high degree of persistency.

The coefficients for all explanatory variables are significant, with the exception of human capital, which is marginally significant in the two-step difference-GMM technique, but insignificant for others. Population has the expected negative sign, revealing that growth in population contributes to a decline in economic growth, similar to what was found in the studies conducted by Mankiw, Romer & Weil (1992); Dao (2012); and Hou & Chen, 2014.

Capital formation, on the other hand, shares a positive and significant relationship with economic growth across all four techniques, similar to the findings of several other researchers (Mankiw, Romer and Weil 1992 and Hou and Chen 2014). Population continues to remain negative and significant in explaining economic growth.

This study's main focus is on the impact of happiness on economic growth and community development. The coefficient for happiness across all four techniques remain positive and significant It is interesting to note that the magnitude of the happiness coefficients is higher than that of capital, labour and human capital, implying the significant role it plays in the economies and their communities. This positive relationship concurs with the results of several researchers (Kenny 1999, Li and Lu 2010, Hagerty and Veenhoven 2003, and Stevenson and Wolfers 2013). It was found that "*actions that improve happiness and the strength of social interaction are good in their own right and might have the added advantage of encouraging growth*." (Kenny 1999 p. 22). Easterlin (2015), however, found evidence pointing to the fact that only short-term fluctuations in happiness and income were positively associated, while long term trends revealed no relationship. Yusuf (2009) found that happiness as linked to creativity, which enhanced productivity.

Happiness also motivates community service volunteers to continue to serve the marginalized communities by inspiring and empowering them to take positive steps to develop their communities. As Krugman (1994, p.11) appropriately mentions that "Productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker". As productivity begins in the workplaces, of which the central point are the human resources, it is imperative that policies and strategies focus on enhancing human emotions such as happiness in an effort to improve productivity and thereafter, economic growth. Higher economic growth will in turn provide more resources to develop communities and bring about positive social change. Improving human well-being must therefore become the priority and central issue for policy making. Reflecting on the various explanations provided above, to support our main findings of the positive impact that happiness has on economic growth, the importance of this study is justified.

The similarity of our results with those found in the literature of economic growth hence validates our results and confirms its robustness.

CONCLUSIONS.

This study explores the impact of happiness on nation growth in an effort to understand the importance of placing human well-being at the center of policy making decisions that would develop communities in a more sustainable manner.

The empirical evidence provided by this study reveals the significantly positive impact that happiness and capital formation has on economic growth.

The research outcomes suggest that policy makers should focus on training institutional and community leaders to create positive working environments that promote employees' well-being, to guarantee good results at the individual level in terms of creativity, innovation and productivity, and consequently, at the organizational and country level.

This study provides practitioners with possible routes to act in favour of a much happier and more creative workforce. Economic growth, on the other hand, provides greater opportunities and resources that can enhance community development. It also provides valuable insights for policy makers and community service volunteers to recognise the importance of integrating happiness into economic growth policy making decisions to create sustainable community development.

Human well-being should become the central tenet of policy making, if nations are serious about sustainable community development and economic growth. This study recommends that policy-making integrate happiness-centred approaches, by placing human well-being as an indicator of nation growth, rather than just concentrating on material well-being, as is the case for most nations. Policy makers must develop appropriate and inclusive strategies that focus on the enhancement of human well-being, so that nations and their communities can be developed in a more sustainable manner.

It is also highly recommended that more funding and medical facilities be provided to hospitals to take care of patients suffering from mental health problems, and not just physical health problems, as studies have shown that productivity loss can be reduced when employees suffering from depression undergo psychiatric intervention. This study recommends that employers take a serious view of their employees' mental well-being by collaborating with mental health professionals to ensure that employees are provided with accessible quality care at a reasonable cost.

While the findings of this study are important for policy making, there are limitations to this study. The data for this study covered only fifty countries for a period of 13 years, and therefore the results may not be representative of the population. It is also important to include other happiness-related variables in our study to further enrich the findings. Regardless of the limitations mentioned above, the limited existing body of knowledge on the happiness-economic growth literature is further augmented with this study's contribution of findings. It is hoped that our findings will assist policy makers to develop policies that will take care of a nation's soul, i.e. the happiness of its people (Rasiah, Habibullah and Baharom 2015).

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