

An Assessment of the Role of National Culture as a Determinant of Entrepreneurial Orientation

Dr. Shuvashish Roy
Financial Advisor,

Hazrat Khajar Bashir Unani Ayurvedic Medical College & Hospital Foundation,
Jamalpur, Bangladesh

Dr. Rajib Bhattacharya

Associate Professor, International School of Business & Media (ISB&M),
Kolkata, India

Dr. Sarmistha Sarma

Professor-Marketing, Institute of Innovation in Technology and Management,
(Affiliated to GGSIP University), New Delhi, India

Abstract

Entrepreneurship is an important factor of production. It is considered as a source of innovative change. Thus it catalyzes enhancement in sustainable economic development of a nation. Entrepreneurship is inseparably interlinked with flexibility and knowledge. These two factors have gained importance as a source of competitive edge in the present globalized & interconnected economy. Entrepreneurship prevents concentration of economic activities, income and wealth and promotes decentralized development of commerce, trade and industry. This in turn, leads to removal of regional and industrial imbalance. Development of entrepreneurial activities and sustainable development in entrepreneurship have gained priority in national agenda across the world. Entrepreneurship is even more crucial for developing countries as it has high employment elasticity and potential for earning foreign exchange. However, entrepreneurship is essentially a behavioural aspect. Hence culture has a causal relationship with entrepreneurship. This paper aims at assessing the role of Hofstede's dimensions of culture in developing entrepreneurship in nations by using the technique of linear multi-variate regression.

Keywords: Entrepreneurship, Hofstede's dimensions of national culture, Linear multi-variate regression.

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Introduction

Most researches on economics, psychology and sociology have pointed to the fact that entrepreneurship is a continuous process. Entrepreneurship transcends beyond being a mere economic factor. Entrepreneurship has a lot to do with change. It is associated with issues relating to choosing between alternatives. Available literature on entrepreneurship provide definitions of entrepreneurship which highlights the functional role of entrepreneurs. They are mostly associated with innovation, risk-tolerance, sourcing of capital, making and implementing decision regarding ownership, resource allocation & coordination. Of these, three often cited functional roles are risk seeking, innovativeness and opportunity seeking. Entrepreneurship has been empirically found to have a positive effect on the development of an economy and also in reducing the degree of inequality of distribution of income and wealth by curbing regional imbalances. Entrepreneurship is essentially a behavioural aspect of an individual. As behavior of persons are effected by culture, there is a causal relationship between culture and entrepreneurship. This paper aims at probing into this relationship at a macro level. This paper seeks to assess the degree of explicability of the changes in entrepreneurship in the nations of the world by Hofstede's dimensions of national culture.

Literature Review

The United Nations Conference on Trade and Development (2004) paper examined the problems of the nature of entrepreneurship and its role in the different economic theories. It also addressed the advancement of theory and research since the time of Schumpeter's theory, the causal links between entrepreneurship and sustainable economic growth of a nation and the role of entrepreneurship as an interface between small business units at the micro level and sustainable economic growth of a nation at the macro level. It also addressed the ways to boost sustainable growth of entrepreneurship. The paper postulated that a comprehensive approach to the promotion of entrepreneurship primarily depends on two aspects of strengthening of entrepreneurial skills and improvement of entrepreneurial ecosystem in nations. The paper also postulated that these two aspects were interlinked as entrepreneurs did not operate in a vacuum. The skills and motivations of entrepreneurs to convert business ideas into profit opportunities were shaped by the existing framework conditions and the entrepreneurial ecosystem.

Entrepreneurial behaviour has its roots embedded in entrepreneurial attitudes, skills and motivations. The paper proved that whenever these attitudes and skills existed, entrepreneurship developed. Bunyasrie (2010) provided an overview of economic theories and empirical studies on the linkage between entrepreneurship and economic growth of nations. They showed that empirical analysis proved that entrepreneurship had an effect on economic growth in different magnitudes in low income countries and high income countries. Carree & Thurik (2010) opined that in a study linking culture and entrepreneurship, the micro-economic foundations of growth should first be identified laying stress on the role of knowledge externalities in the process of economic growth. It also identified intermediate linkages starting from entrepreneurial activity and culminating into to economic progress. It also dealt with both the causalities in the relation between entrepreneurial activity and growth. It also considered the multidisciplinary character of entrepreneurship while establishing linkages between the different levels of analysis. Smith (2010) established that the level of entrepreneurial orientation in a nation had a significant positive impact on the degree of economic growth in that nation. Ogbo & Nwachukwu (2012) studied a hundred SMEs in Nigeria. They showed that SMEs have exhibited significant roles in the growth, development and industrialization of many nations across the globe. In Nigeria, SMEs were found to have under-performed due to a combination of problems ranging from attitude and habits of entrepreneurs affected by factors related to environment, unstable governments and frequent alterations of government policies. They emphasized more on managerial qualities of entrepreneurs and did not consider cultural factors as determinants of entrepreneurship. Ediagbonya (2013) recommended that governments should endeavour to ease flow of capital to entrepreneurs. He opined that cultural factors were not that significant as economic and infrastructural factors. Naude (2013) provided an overview of the overlapping of entrepreneurship and developmental economics. His research dealt with the contemporary theoretical aspects regarding the overlapping of developmental studies and entrepreneurship. His work also envisaged the empirical evidences on the causal linkages between entrepreneurship and development. He also encompassed the insights for entrepreneurship policy which aimed at development. Decker et al (2014) in their study arrived at the conclusion that startups and young firms were important contributors to job creation and productivity growth in the USA. Bosma & Volvoet (2015), in their study professed that within the regional entrepreneurship ecosystems approaches, entrepreneurship culture should be seen as one of the essential elements. They proposed that regional entrepreneurship culture represented the cohesive force that linked the elements of the entrepreneurial ecosystem. Dhaliwal (2016) argued that that disproportionately high number of entrepreneurs could lead to a hyper competitive situation which in turn had the potential to limit career choices for individuals. With a high number of entrepreneurs, levels of aspirations exhibited an upward trend. Owing to the ups and downs caused by success & failures in entrepreneurial ventures, the scenario of having a high number of entrepreneurs might bring about inequalities and income and wealth. He further argued that the relation between economic development and entrepreneurship contained crucial inputs for makers of economic policies. Dogan (2016), in his study on Turkey, opined that the cultural environment provided individuals with the opportunity, impetus and initiative for becoming entrepreneurs. He argued that culture was a great influencer of behaviors of individuals and factors motivating them. Cultures had their own dynamics. The social dynamics remained static in the short-term. Attitudes and values changed simultaneously with the dynamic external environment. Bartha & Gubik (2017) focused on the relationship between the cultural dimensions and studied the entrepreneurial attitudes and activity of university students in 21 selected OECD countries. They found that there was a direct positive correlation between the entrepreneurial intents of students and In-Group Collectivism. However, Uncertainty Avoidance was not found to have any significant effect on entrepreneurial intentions but was found to be correlated positively with perceived behavioural control. This was found to have a significant effect on entrepreneurial intentions. Omoruyi et al (2017) attempted to show the significant effect of entrepreneurship on economic prosperity. Their work a few challenges faced by entrepreneurs in sub-Saharan Africa. They argued that entrepreneurship was positively correlated with economic growth of nations. They proved that entrepreneurship was a cause for variations in the growth of different African nations. They contended that entrepreneurship in developing economies including Africa, was a crucial determinant in promoting economic growth as it created employment and reduced poverty. Jovanovic et al (2018) in their research computed the correlation between Hofstede's dimensions of national culture and pillars of the Global Entrepreneurship Index. They found that Power-Distance had almost all negative correlations, Individualism had almost all positive correlations, Masculinity had almost all negative correlations, Uncertainty Avoidance had all negative correlations, Long Term Orientation had mostly negative correlations and Indulgence had all positive correlations with the pillars of Global Entrepreneurship Index.

The various researches of Hofstede (2003, 2010) and Trompenaars (2012) provide a broad view of national cultures. Hofstede's study the most commonly cited in the literature on national culture. Hofstede (1983) initially postulated four dimensions of national culture i.e. Power Distance, Individualism, Masculinity versus Femininity and Uncertainty Avoidance. He extended the number of dimensions of national culture to six (<http://www.geert-hofstede.com>) with introduction of two new dimensions of Long-Term Orientation in 1991 based on research by Michael Bond and Indulgence versus Restraint based on analysis by Michael Minkov (2010).

Brief descriptions of the six dimensions considered in this paper have been provided hereafter. All the

dimensions have been scaled from 0 – 100.

Power-Distance (coded as “pdi” in this study) is a degree of equality, or inequality between people of one society and also the extent to which the less influent members accept the hierarchy. The institutions or organizations where less powerful members accept power is distributed unequally, have high PDI. These countries are more likely to disallow significant upward mobility of its citizens. A low PDI indicates that the society is inclined to reduce the differences between citizen's power and wealth. In these cultures citizens expect power relations that are more democratic in nature. They relate to others regardless of formal positions. Subordinates are more comfortable with contributing to and criticizing the decisions of those who are hierarchically higher.

Individualism (coded as “ici” in this study) focuses on how much people of a society define themselves apart from their group as also how much the country emphasizes individual or collective achievements. A High Individualism ranking means that citizens are expected to develop their personalities and their choices. A Low Individualism ranking exhibits societies where the individuals are more likely to act as a member of a group e.g. family, town, profession etc. This collectivist nature tends to develop relationships between individuals, and reinforce extended families.

Masculinity (coded as “mfi” in this study) measures the degree the society reinforces the traditional masculine work role model or not. A High Masculinity ranking means that higher importance is accorded to traditional male values like ambition, accumulation of wealth and power in the country. Those societies lay stress on greater gender differentiation. In these cultures, males dominate a significant portion of the society. Females are under domination. In the opposite case, a low masculinity will indicate that the society de-emphasizes the gender differentiation. In those countries, females are treated equally to males in all aspects of the society.

Uncertainty Avoidance (coded as “uai” in this study) focuses on the extent to which people try to cope with stress by fighting uncertainty and ambiguous situations within the society. A high uncertainty-avoidance indicates a rule-oriented country, where citizens prefer explicit laws, rules and controls in order to mitigate the amount of uncertainties & ambiguities. A Low Uncertainty Avoidance ranking, on the contrary, means that the country has less concern about ambiguity and has a greater tolerance for informal situations.

Long-term (coded as “lsi” in this study) orientation encompasses the basic notion that preparing for the future is always desired. In a short-time-oriented culture, the past provides a moral direction-provider and adhering to it is morally desirable.

Indulgence (coded as “iri” in this study) envisages societal allowance for relatively free fulfilment of basic and natural human drives related to life and having fun. Restraint, on the contrary, stands for a society that suppresses gratification of needs and controls it by means of strict social norms. In an indulgent culture it is good to be free. In a restrained culture, the feeling is that life is hard. Life in these countries is considered to be a duty and not freedom and is thought of as the normal state of being.

Objective of the study

The study aimed at determining whether national cultures have any effect on the level of entrepreneurship in nations. This objective has been envisaged to be achieved through assessing the extent of explicability of the variation in the level of entrepreneurship in different nations by the variations in the dimensions of national culture. Accordingly, Linear Multivariate Regression analysis was used in this study. The Global Entrepreneurship Indices of various nations as published by the Global Entrepreneurship Monitor was the dependent variable and the six dimensions of national culture i.e. Power-Distance (pdi), Individualism vs Collectivism (ici), masculinity vs femininity (mfi), Uncertainty Avoidance (uai), Long-term Orientation (lsi) and Indulgence vs Restraint (iri) were considered as the predictor variables.

Methodology of the study

The Global Entrepreneurship Index (coded as “gei” in this study) was taken to be the measure of inequality of income and wealth. This index is computed and published annually by Global Entrepreneurship Monitor (GEM). The Global Entrepreneurship Monitor (GEM) represent an important sources for statistical analysis of the causal relationship between entrepreneurial activity and economic growth of nations across the globe. The GEM is a research programme which was launched in 1999 to provide annual assessments of the national level of entrepreneurship in the world. GEM reports are based on a synchronized assessment of the level of national entrepreneurial activities of nations and provide data on entrepreneurship which facilitate cross-country comparison. Bosma & Dona (2019) compiled the Global Entrepreneurship Index values of different nations for 2018-19. The same were obtained from the official website of GEM i.e. <https://www.gemconsortium.org/report/gem-2018-2019-global-report>. The website was accessed on 21 February 2019. The values of the six dimensions of national cultures as discussed in the survey of literature were collected from the official website of Geert Hofstede i.e. <https://www.hofstede-insights.com/product/compare-countries/>. Though the values of the dimensions do not change frequently, the website of Hofstede was accessed on 03 November 2018. 82 countries were screened out for which the Global Entrepreneurship Index as well as values of

all the six dimensions of culture were available. Thus the data points in this study was 82. The provision for an intercept has been kept in constructing the linear multivariate regression equation as existence of certain amount of entrepreneurship can be there even without the effects of the six dimensions of national culture. The objective of constituting the regression equation was not to predict the Global Entrepreneurship Index on the basis of the dimensions of national culture, but to find out which dimensions were significant in affecting the Index.

The values of the seven variables were tested for normality of their distributions by computing their skewness and kurtosis and plotting Box & Whiskers plots. As they were not found to be normally distributed and occasional presence of outliers were also noted, they were normalized by taking natural logarithms of the respective values of all the seven variables.

The skeletal structure of the regression equation was constituted as:

$$gei = \text{Intercept} + \beta_1 * pdi + \beta_2 * ici + \beta_3 * mfi + \beta_4 * uai + \beta_5 * lsi + \beta_6 * iri$$

The statistical significance of the intercept and the coefficients of the predictor variables were tested by t test at 5% Level of Significance through framing the following hypotheses

H₀: The regression coefficient is statistically insignificant

H₁: The regression coefficient is statistically significant

The value of the Adjusted R² was taken to be the measurement of the extent of explicability of the variations in inequality of income by the variations in the six dimensions of national culture.

ANOVA was applied to test the robustness of the regression model by testing the statistical significance of the F statistic at 5% Level of Significance through framing of the following hypotheses:

H₀: The model is not robust

H₁: The model is robust

The presence of autocorrelation in the regression model was tested by computing the Durbin-Watson statistic and testing its statistical significance at 5% Level of Significance through framing of the following hypotheses:

H₀: True Autocorrelation = 0

H₁: True Autocorrelation > 0

The Residuals versus Fitted Plot was also done to test the accuracy of the regression model. The normality of the distribution of the residuals was tested by plotting the Quantile-Quantile (Q-Q) plots as well.

All the statistical processes were carried out on R platform. The R codes are contained in the Appendix.

Findings

The distributions of the dependent variable as well as the six predictor variables were not found to be normally distributed. The corresponding values of skewness and kurtosis are contained in Table 1.

Table 1
Kurtosis & Skewness of the Independent and the Dependent Variables

Variables	Kurtosis	Skewness
Pdi	-0.579	-0.305
Ici	-1.013	0.532
Mfi	0.077	-0.045
Uai	-0.717	-0.243
Lsi	-1.044	0.28
iri	-0.719	0.215
gei	-1.026	0.466

Source: Authors' own calculations

The coefficient of correlation matrix of the intercept and the six predictor variables are contained in Table 2.

Table 2
Correlation Coefficient Matrix of the Independent Variables and the Intercept

	(Intercept)	pdi	ici	mfi	uai	lsi	iri
(Intercept)	1	-0.719	-0.586	-0.071	-0.352	-0.314	-0.537
pdi	-0.719	1	0.668	-0.254	-0.108	0.031	0.212
ici	-0.586	0.668	1	-0.167	0.023	-0.226	-0.010
mfi	-0.071	-0.257	-0.167	1	-0.000	-0.075	-0.089
uai	-0.352	-0.103	0.023	-0.000	1	-0.022	0.094
lsi	-0.314	0.031	-0.226	-0.075	-0.022	1	0.468
iri	-0.537	0.212	-0.010	-0.089	0.094	0.468	1

Source: Authors' own calculations

The covariance matrix of the intercept and the six predictor variables are contained in Table 3.

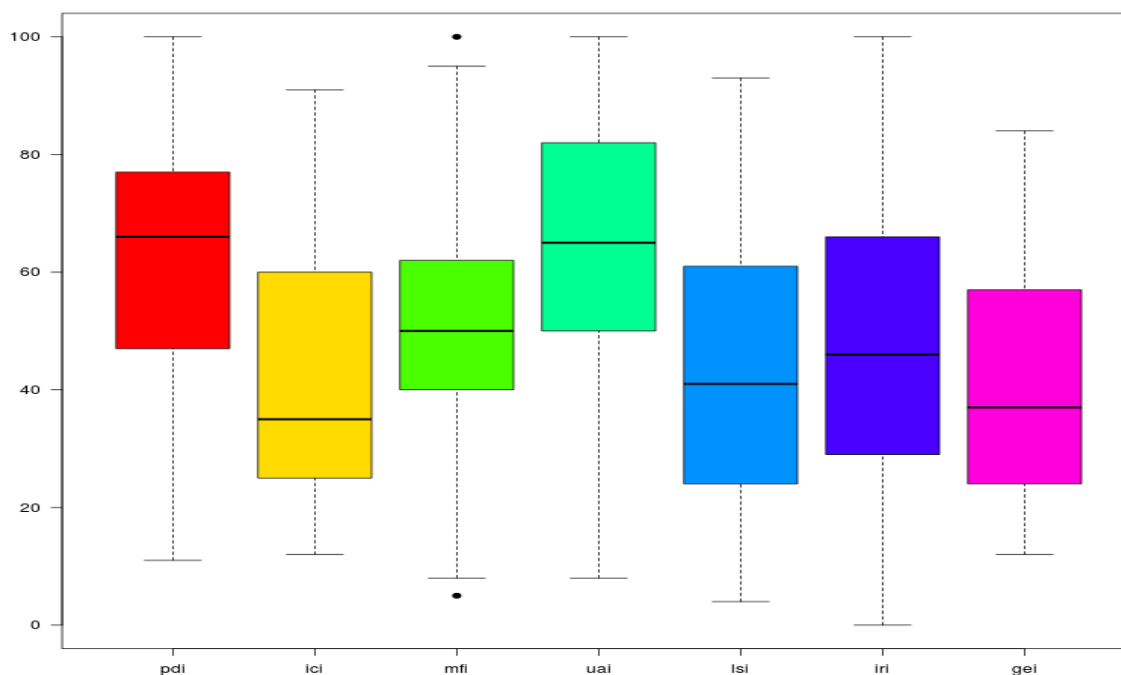
Table 3
Covariance Matrix of the Independent Variables

	(Intercept)	Pdi	ici	mfi	uai	lsi	iri
(Intercept)	0.887	-0.006	-0.004	-0.001	-0.002	-0.002	-0.003
pdi	-0.006	0.001	0.001	-0.001	-0.001	0.001	0.001
ici	-0.004	0.001	0.000	-0.000	0.000	-0.000	-0.000
mfi	-0.000	-0.000	-0.000	0.000	-0.000	-0.000	-0.000
uai	-0.001	-0.000	0.000	-0.000	0.000	-0.000	0.000
lsi	-0.001	0.000	-0.000	-0.000	-0.000	0.000	0.000
iri	-0.002	0.000	0.000	-0.000	0.000	0.000	0.000

Source: Authors' own calculations

The Box & Whiskers plot of the dependent variable and the predictor variables are contained in Figure 1.

Figure 1
Box & Whiskers Plots of the dependent & Independent Variables



Source: Authors' own calculations

The summary of the constructed regression model which mainly shows the value of the Adjusted R² is contained in Table 4.

Table 4
Summary of the Regression Model

R Square	Adjusted R Square	Std. Error of the Estimate
0.670	0.642	12.081

Source: Authors' own calculations

The intercept and the regression coefficients of the six predictor variables are contained in Table 5. The variable having the absolute value of t statistic ≥ 2 are statistically significant. This is obvious from the corresponding p-value of the t statistic which is ≤ 0.05 i.e. the Level of Significance.

Table 5
Coefficients of the Intercept and the Independent Variables

Intercept & Variables	Estimate	Std. Error	t	Pr(> t)
(Intercept)	27.946	11.376	2.457	0.017
pdi	-0.266	0.101	-2.634	0.010
ici	0.394	0.088	4.452	0.000
mfi	-0.055	0.074	-0.747	0.457
uai	-0.071	0.067	-1.056	0.295
lsi	0.265	0.070	3.783	0.000
iri	0.190	0.069	2.741	0.008

Source: Authors' own calculations

The results of the ANOVA test done to assess the robustness of the constituted regression equation, is contained in Table 6.

Table 6
Summary of ANOVA

F	Regression df	Residual df	p Value
23.735	6	70	Negligibly small

Source: Authors' own calculations

The presence of autocorrelation in the constituted regression model is tested by the computation of Durbin-Watson statistic the value of which along its p-value, are contained in Table 7.

Table 7
Summary of Durbin-Watson Statistic

Statistics	Method	Alternative Hypothesis	p Value
2.122	Durbin-Watson test	true autocorrelation is greater than 0	0.706

Source: Authors' own calculations

The extent of multicollinearity in the constructed regression model has been tested by computing the Variable Inflation factor (VIF) of the six predictor variables, which are contained in Table 8.

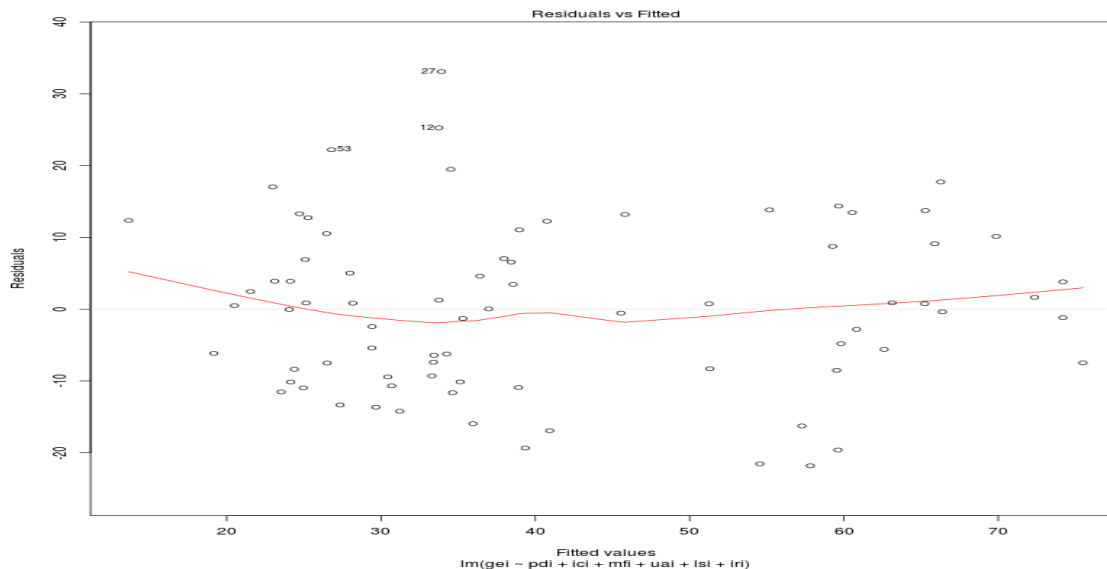
Table 8
Summary of Variable Inflation Factor (VIF)

Variables	VIF
pdi	2.155
ici	2.081
mfi	1.077
uai	1.054
lsi	1.400
iri	1.387

Source: Authors' own calculations

The plotting of the Residual versus Fitted values are contained in Figure 2.

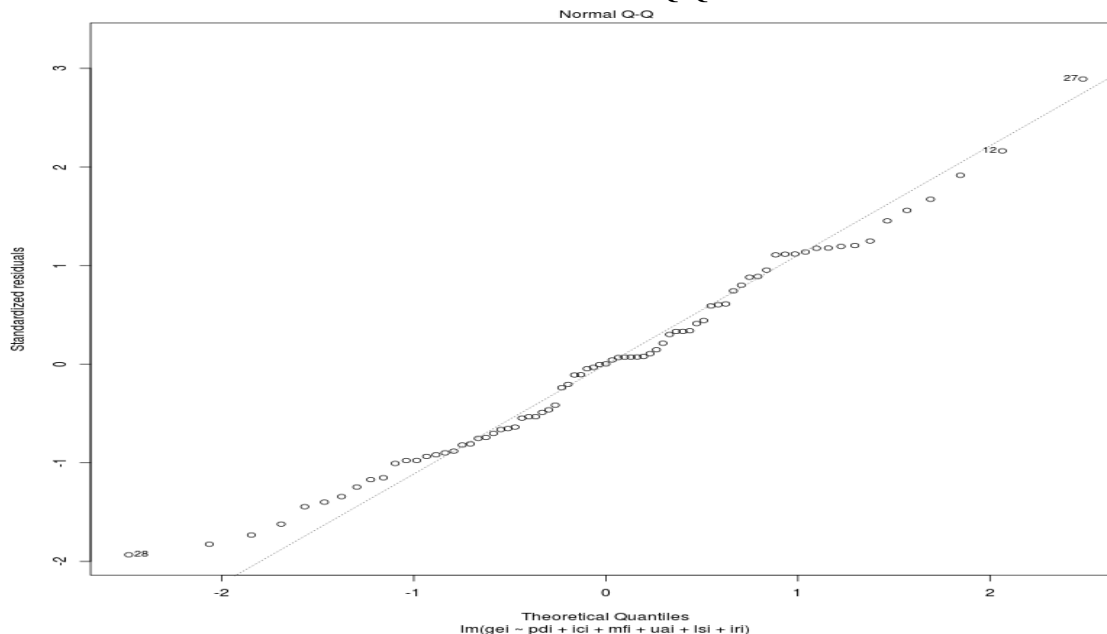
Figure 2
Residual vs Fitted Plots



Source: Authors' own calculations

The normality of the distribution of the residual values has been plotted through the Q-Q Plot contained in Figure 3.

Figure 3
Residuals Normal Q-Q Plots



Source: Authors' own calculations

Discussions

From the value of the Adjusted R^2 , the dimensions of national culture could explain a considerable and 64.20% of the variations in Global Entrepreneurship Index. The model has been found to be statistically robust as evidenced by rejection of the null hypotheses of the F static. The model does not suffer from the problem of autocorrelation as the Durbin-Watson statistic is close to 2 and the null has been accepted. The problem of multicollinearity is also not that significant as the values of the Variable Inflation factor (VIF) have been found to be marginally over 2 for two predictor variables and below 1.5 for the other 4 predictor variables.

The value of the Adjusted R^2 indicated that nearly 2/3rd of the variation in entrepreneurship was explained by Hofstede's dimensions of national culture. This proves that entrepreneurship is largely affected by the dimensions of national culture.

The statistically significant predictor variables were found to be the Power-Distance (pdi), Individualism (ici),

Lon-Term Orientation (lsi) and Indulgence (iri). Among the significant predictor variables, Power-Distance was found to be inversely related with the index. This indicated that nations with high Power-Distance might result in low level of entrepreneurial activities. All the other three significant predictor variables i.e. Individualism, Long-Term Orientation & Indulgence were found to be positively related with level of entrepreneurship in the nations.

Conclusion

The findings of this study lead to the conclusion that national culture to a considerable extent, is relevant in the context of causing entrepreneurial development in nations. The findings corroborates the theory that entrepreneurship being a behavioural aspect, is largely influenced by culture. Thus the findings of this study upholds the relative superiority of the cultural context over the infrastructural context for entrepreneurial development in nations.

Policy prescription

The policy makers of different nations, while formulating policies to enhance entrepreneurial activities may consider the cultural factors for paving way for sustainable development in entrepreneurship. The framed policies should be aligned with the national cultures to fit the particular nation best.

Scope for future studies

The findings of this study may be used for further studies on a continental or regional basis. Moreover further studies may also be undertaken to assess the role of dimensions of national culture in explaining the variations in important socio-economic phenomena of corruption, happiness and inequality in distribution of income and wealth.

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Appendix

The R codes used

Dataframe

```
dataframe<-data.frame(pdi,ici,mfi,uai,lsi,iri,gei)
colnames(dataframe)<-c("pdi","ici","mfi","uai","lsi","iri","gei")
```

Descriptives

```
round(apply(dataframe,2,e1071::kurtosis),3)
```

```
round(apply(dataframe,2,e1071::skewness),3)
```

Linear Model

```
lmmodel<-lm(gei~pdi+ici+mfi+uai+lsi+iri, method="qr", model=TRUE)
```

Model Summary

```
summary(lmmodel)$r.squared
```

```
summary(lmmodel)$adj.r.squared
```

```
summary(lmmodel)$sigma
```

Coefficients of Independent Variables

```
summary(lmmodel)$coefficients
```

ANOVA

```
summary(lmmodel)$fstatistic
```

Correlation Coefficient Matrix

```
summary(lmmodel, correlation=TRUE)$correlation
```

Covariance Matrix

```
summary(lmmodel)$cov.unscaled
```

Durbin Watson

```
lmtest::dwtest(lmmodel)
```

VIF

```
car::vif(lmmodel)
```

Residuals vs Fitted Plots

```
plot(lmmodel,which=1,col="#000000')
```

Normal Q-Q Plots of Residuals

```
plot(lmmodel,which=2,col="#000000')
```

Boxplot

```
boxplot(dataframe,horizontal=FALSE,las=1,notch=FALSE,outline=TRUE,outcol="#000000",outpch=19,col=rainbow(7),xlab="",ylab="",
main="",sub="",col.lab="#000000",col.main="#000000",col.sub="#000000",col.axis="#000000",cex.lab=1,cex.main=1,cex.sub=1)
```