

CIRCULAR ECONOMY AND ENTREPRENEURSHIP DEVELOPMENT IN NIGERIA

¹A.O. Ogunsanwo, ²A.O. Ayo-Balogun

¹Department of Business Administration and Management, Federal Polytechnic, Ilaro, Ogun State, Nigeria.

Abstract: The transition from linear to circular economy and its associated opportunities for entrepreneurship development and job creation have not been adequately embraced in Nigeria. The concept (circular economy) has not been sufficiently researched and in effect, opportunity potent for jobs in the industry has not been adequately exploited. The aim of the study was to examine the technical skill in circular economy as a strategy for entrepreneurship development towards job creation in Nigeria. To achieve the objectives, survey research design was adopted. Proportionate random sampling technique on purposive approach was employed to select 300 respondents from three different sectors of the recycling industry (i.e. informal sector, formal sector, and government agencies) in Lagos State, Nigeria. A questionnaire tagged (Circular Skill and Job Creation) was used as instrument for data collection. The Psychometric Properties (Validity and Reliability) of the instruments was tested with Factor Analysis and Cronbach Alpha respectively. Data collected were analysed with regression analysis at 5% level of significance. The result revealed that there is significant positive relationship between technical skills in recycling activities and job creation for Nigerian youths with correlation coefficient of 0.97 ($P\text{-value} = 0.00 < 0.05$). It was therefore concluded that technical skill in circular industrial activities will facilitate empowerment of youths towards job creation and economic sustenance. The study recommended that government should partner with NGOs and private agencies to promote activities in the recycling industry.

Keywords: Circular economy, job creation, entrepreneurship development, technical skill, recycling industry.

Introduction

The circular economy (CE) is a paradigm for economic development and a policy initiative. It is a response to the unsustainable, conventional 'take-make-dispose' economic model. The CE brings a multi-level transition towards cyclical closed-loop systems by minimizing the intake of natural resources (El-len MacArthur Foundation 2013, Murray et al. 2015). Kircherr et al. (2017) have defined the CE as "an economic system that is based on business models which replace the 'end-of-life' concept with reducing, alternatively reusing, and recycling materials in production/distribution and consumption processes, with the aim to accomplish sustainable development, which implies creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations". Following from the above there is a broad linkage between entrepreneurship and CE; entrepreneurial activity act as a link between Linear Economy and Circular Economy (Erdmann 2016). Since Entrepreneurs create and bring to life new technologies, products and services, building new markets and jobs along the way. And like any economy aiming to move ahead, Nigeria needs to adopt CE business model. (Erdmann 2016).

One of the most difficult problems threatening any nation in achieving economic development is unemployment; a nation which fails to adequately and advantageously engage its increasing population has little plans for economic progress (Metu & Nwokoye, 2014).

Luckily, Nigerian youths (most active segment) constitute the larger percentage of the entire population of over 140 million people (2006 census figure). About 70 to 80 per cent of this population is made up of youth and more than 80 percent are unemployed (Ibrahim, 2008). The estimated 10 percent in employment are burdened and depressed with near total dependence of relatives and family members (Giwa 2008) cited in (Isa & Vambe, 2013).

Ironically the 2012 Global Entrepreneurship Monitor (GEM) has empirically identified Nigeria as one of the most entrepreneurial countries in the world.. The study showed that 35 out of every 100 Nigerians (over a third) are engaged in some kind of entrepreneurial activity or the other. Yet Nigeria has nothing to show for it. Then where are we getting it wrong?

Nigeria in her bid to develop a viable economy and reduce poverty has had a number of entrepreneurial plans since independence starting from the First National Development Plan (1962-1985), to the most recent Vision 2020 (Osabuohien et al., 2012). Regrettably, despite series of plans, all these efforts did not yield any reasonable result towards improving living standard of Nigerian (Udefuna & Uzodinma, 2017)

Increase global environmental awareness continues incessantly, still, Nigerians put up poor environmental attitude. We treats our natural resources like a perennial phenomenon, forgetting that the nonrenewable resources are deciduous while the renewable ones may alter forms with negative consequences for human. Both residuals from production and consumption activities are thrown back to nature as waste. Whereas this so called waste can be turned to wealth through circular economy business model and the entrepreneurial skill that bridge the gap between linear economy and circular economy. There is no gainsaying that both the economic and environmental challenges bedeviling Nigeria calls for the need to redirect the nation's development strategy; perhaps speedy movement towards CE may be the right direction to tap the abundant youthful talents in the nation.

In view of the above, the study aims to examine the relationship between circular economy and entrepreneurship development. In the effect, the research hypothesis was state as:

Ho: There is no significant relationship between circular economy and entrepreneurship development.

Literature Review

Conceptual

The concept of circular economy (CE) has evolved, becoming for a few years a trending topic, with increasing relevance, both at the level of management of public administrations and companies, as well as at the academic level (Ruiz-Real , Uribe-Toril , Valenciano & Gázquez-Abad, 2018). Despite this increasing popularity, the term has no universally agreed definition. But there seems to be a consensus indicating that CE is most frequently depicted as a combination of reduce, reuse, and recycle activities(Ruiz-Real, et. al., 2018).. In similar vine CE is defined as “an economic system that is based on business models which replace the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes, thus operating at the micro, level and macro level, with the aim to accomplish sustainable development” level (Ruiz-Real, et. al., 2018). Blomsma, & Brennan (2017); Naustdalslid, (2017) posited that CE is a generic term covering all activities that reduce, reuse, and recycle materials in the process of production, distribution, and consumption. McCarthy et al. (2018) illustrates CE as a concept to use resources more efficiently across their life-cycle by closing, extending and narrowing material loops that could result in decoupling of primary raw material consumption from economic growth. Geissdoerfer; Savaget; Bocken, Nancy, Hultink, & Erik, (2017).

McCarthy, Dellink and Bibas (2018), in OECD, (2018) noted that Four key benefits of the transition to a circular economy commonly identified in the literature are: (i) reduced extraction of virgin natural resources; (ii) lessened exposure to (geo-political) supply risk; (iii) reduced environmental pressures; and (iv) new economic opportunities.

According to European Commission(2018), circular economy can be monitor through the following framework: self-sufficiency of raw material, green public procurement, waste generation, food waste, overall recycling rate, recycling rate for specific waste streams, contribution of recycled material to raw material demand, trade in recyclable raw material, private investment, jobs and cross value added, and patents (Anukka Berg, Riina Antikainen, Ernesto Hartikainen, Sari Kauppi, Petrus Kautto, David Lazarevic, Sandra Piesik and Laura Saikku, 2018)

The Ellen MacArthur Foundation (2015) presented a categorization to six business models for CE: Regenerate- refers to shifting to renewable energy and materials. Share- denotes the sharing and recycling economy as well as prolonging the life of products. Optimize- refers to increased efficiency, waste minimization and utilization. Loop - defined as closing the technical and biological material cycles. Virtualize - deals with direct and indirect dematerialization. Exchange - calls for the utilization of novel materials and technologies.

Theoretical Review

The theory that underpin this study is cradle-to-cradle theory developed by Brann Gant & Mc Donough in 1990. The concept of cradle to cradle is a philosophy and way of life that focused on responsible production and consumption which keep production material into continuous cycle with the aim of protecting the environment and improving the quality of human life in such a way that generations to come would continue to enjoy incessant pleasurable quality of life.

The concept is about get the right thing from scratch. This means the producers should have a perfect knowledge of material employed in production and knows the fate of such after consumption of the product. This is known by identify the biological products and technological products with the aim of ensuring that all the residual from former pass through biodegradation and go back to the ecosystem as a nutrient for other living being without releasing of harmful product to the environment, while the components of the latter should be decoupled/ disassemble into various component that go back into the production process without any of it escape to the environment as a pollution.

In summary cradle to cradle is a regeneration production process that extends the end life of a product continuously through a process that use renewable energy source.

Empirical Review

Korhonen, Nuur, Feldmann & Birkie (2018) in a study titled “Circular economy as essentially contested concept” asserted that innovation, entrepreneurship and technological development are key elements in transformation from linear to circular economy. Wijkman & Skanberg (2015), Circular Economy Benefit for Society, affirmed that 75,000 circular economy related jobs were creates in Sweden; 5,000 in Renewable Energy, 20,000 in Energy Efficiency and 50,000 in material efficiency. IISD (2018), Estimating Employment Effects of the Circular Economy suggested that circular economy has a great potential of creation of new jobs. The Club of Rome (2016), The Circular Economy and Benefits for Society, posited that circular economy business model would lead to more jobs and lower costs of production.

Wrap and the Green Alliance (2015) carried out a study on the role of the circular economy in alleviating sluggish job markets in the United Kingdom and how circular economy policies can alleviate unemployment and regional inequalities. The study, “Employment and the circular economy job creation in a more resource efficient Britain” used different public scenarios and estimated that 200,000 new jobs will be created and unemployment reduced by 54,000 without any policy change; 500,000 new jobs will be created and unemployment reduced permanently by 102,000 under a more aggressive policy scenario. ILO (2018) in the study – The Future of work in Changing Natural Environment Climate Change, Degradation and Sustainability, asserted that advance towards circular economy sustainability can create jobs. mILO (2018) in the study – World of Employment and Social Outlook – affirm the circular economy can provide new job if embraced.

Horbach, Rennings & Sommerfeld, (2015) in their study Circular Economy and Employment, posited that circular economy leads to increase in employment due to substitution labour input for high cost material input, investments in resource and energy efficiency, revenue recycling via lowering employers’ social security contributions results in lower labour costs to industries, generating additional employment demand. ”In 2014, the EC (2018) estimated that jobs directly associated with the circular economy employed 3.9 million people. The May 2018 report by Cambridge Econometrics, Trinomics and ICF, Impact of Circular Economy Policies on Labour Markets, concludes that the circular economy could add 0.5 per cent to Europe’s GDP and a net increase of 700,000 jobs. A 2017 report by Circle Economy and Ehero estimates that 8 per cent of the Dutch workforce is currently employed in circular economy jobs.

Methodology

The study was conducted with a focus on recycling industry in four local government areas in Lagos state Nigeria. A surveying research design was adopted for the study. Multiple stage sampling technic was adopted to select 300 respondents. The population was stratified into three (3); informal, formal and government agencies, 4 local government was selected randomly purposive sampling techniques was consequently employed to select 100 respondents from each of the stratum.

A questionnaire based of five (5) points Likert scale and tagged circular economy and job creation scale was utilized as instrument for the collection and necessary data.

The psychometric properties (validity and reliability) of the instrument was tested using components factor analysis and cronbach alpha respectively. The Data collected was analyzed using regression analysis with the aid of SPSS and the model was specified thus:

CE = F(ED),

$$CE = \beta_0 + \beta_1 ED + \varepsilon_t$$

Where CE = Circular Economy

ED = Entrepreneurship Development

β_0 = Constant

β_1 = Correlation coefficient

ε_t = Error Term

Source of Data: primary data source

Method of Data collection: primary data will be collected through questionnaires.

Analysis

table 1:reliability statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.876	.878	30

Table 1 reveals an alpha value ($\alpha = .876$). This implies that the instrument is highly reliable i.e can consistently measure the variables of interest in similar circumstances.

table 2 : total variance explained showing the validity of the instrument

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings ^a
	Total	% of Variance	Cumulative %	Total
1	7.972	26.573	26.573	6.556
2	7.521	25.070	51.643	6.072
3	5.924	19.746	71.389	5.647
4	3.887	12.958	84.347	5.548
5	2.819	9.398	93.745	6.170

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table 2 indicates a highly valid instrument with a total variance explain value of 93.94 percent. This implies that the items constituting the instrument are correlated and well loaded and provides an adequately measurement of the variables of the studies.

table 3 : correlation matrix showing the intensity of correlation between the variables

		EMPLOYABILIT Y	LEARNINGACHI EVEMENT
Pearson Correlation	EMPLOYABILITY	1.000	.969
	LEARNINGACHIEVEMENT	.969	1.000
Sig. (1-tailed)	EMPLOYABILITY	.	.000
	LEARNINGACHIEVEMENT	.000	.
N	EMPLOYABILITY	380	380
	LEARNINGACHIEVEMENT	380	380

Table 3 indicates a strong positive correction between the variables; circular economy and job which creation correlate at $r = .969$

table 4 : model summary showing the size of relationship between variables of interest

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.974 ^a	.949	.949	1.06859	2.691

a. Predictors: (Constant), Circular economy scale

b. Dependent Variable: Job creation scale

Table 4 shows an R square value of .974 ($r^2 = 974$). This implies that 97.4 percent of total variance is job creation accounted for, by circular economy.

table 5 anova showing the significance of relationship between variables of interest

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6389.386	1	6389.386	5595.494	.000 ^b
	Residual	340.280	298	1.142		
	Total	6729.667	299			

a. Dependent Variable: Job creation scale

b. Predictors: (Constant), Circular economy scale

Table 5 reveal that there is a significant statistical relationship between job creation and circular economy. This is evidenced by the ANOVA value [$f(1/298) = 5595.494$; $P < .05$] which implies the hypothesis of no significant relationship was rejected and the alternative hypothesis was accepted at 95% confidence level.

table 6: correlation coefficient showing the direction of relationship between variables of interest

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.023	1.059		-2.855	.005
	Circular economy scale	1.352	.018	.974	74.803	.000

a. Dependent Variable: Job creation scale

Table 6 reveal that everyone unit increases in circular economy will result in 1.352 increase in job creation. It further complements the ANOVA and the correlation matrix results that there is high significant relationship and correlation between circular economy and job creation. These are evidenced by the unstandardized correlation coefficient, T-test and the associated significant level ($\beta = 1.352$; $t = 74.803$; $p < 0.05$)

Conclusion

Circular economy is an emerging concept and still at its infant stage in Nigeria. Even so, the result of this study revealed that there is significant influence of entrepreneurship development on circular economy; infact over 97% of the total variation in circular economy is been accounted for by entrepreneurship development. The implication from the forgoing is that there is a great potential for the development of circular economy in Nigeria aid in effect opportunity for enhancement the value of our environment and natural resources. Regrettably, the very little effort in circular economy in Nigeria is been carry on by the informal sector. Another dangerous trend in Nigeria is that there has being an exponential increase in waste generation without corresponding environmental awareness in Nigeria. The level of ignorance about the need for preservation of our environment for better future is very high and what that means is that the wanton compromise of our future and the on our natural resources will continue unabatedly.

It is also worth of note that there is no cogent government policy on circular economy in Nigeria and that makes the solution for a cleaner environment through circular economy to be elusive. The present trend needs

to be check, but the government who could have facilitated the abduction of circular economy through relevant policies is not living to expectation either.

Recommendation

Base on the findings of the study, it is recommended that the government should come up with a clear and cogent environmental as well as circular economy policies. Government should also offer assistance and encouragement to entrepreneur in area of circular business through provision of access to fund, training facility, tax incentives and capacity building. Government should also embark on massive awareness programe on circular economy and potential opportunities and benefit associated with it.

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