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Contents

THE EFFECTS OF ILL-HEALTH AND DISABILITIES ON LABOUR FORCE PARTICIPATION AMONG NIGERIAN HOUSEHOLDS.

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Abstract: *Nigeria has demeaning health statistics together with declining labour supply despite the large population size. This paper investigated the effect of illness, disability and other socio-demographic factors on labour force participation among Nigerian households. This study is cross-sectional in which secondary data from the General Household Survey (2015/2016) was used for the analysis. A representative sample of 4,200 household heads was used for the analyses. Both predictive and descriptive analyses were undertaken. Binary logistic regression was used to investigate predictors of labour force participation among the household heads. The data revealed that 52.1% of respondents were engaged in labour force. Controlling for other variables, the various forms of disabilities, ill-health, body injury, gender and educational attainment were significant determinants of labour force participation. The result provokes the need for policymakers to articulate policies that improve access to healthcare through the expansion of health insurance coverage. The study concluded that self-assessed health and education attainment influence labour force participation. Policies should be used to expand educational opportunities and improve access to healthcare services in Nigeria. To improve access to healthcare, the Nigeria government should increase the ownership of health insurance policy by broadening the coverage of the formal health insurance and encouraging community-based health insurance in the informal and rural sectors.*

Keywords: Ill health, disabilities, labour force participation, Nigerian households.

JEL: D6, H8, R4.

1. Introduction

Health status is the general wellbeing of a person at a point in time. Health is not the mere absence of infirmity or diseases, but a state of complete mental, physical and social well-being (WHO, 2006). The level of labour force participation is limited for countries with poor health status given that many sick people have a low probability of being engaged under prevailing wages (Cai, 2007). Poor health status means that the health of the citizens of the nations is low at a particular point in time. In nations with deplorable health outcomes, people in that country require improved access to healthcare services. More so, poor health status implies that individuals will have low productivity. Low productivity reduces an individual's earnings power and therefore discourages him/her from participating in the labour market.
The health indicators of Nigeria have remained largely below the country's targets and internationally-set benchmark due to weakness inherent in the health system (United

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Nations Development Programme, UNDP, 2014; Rolle, Osaze and Henry, 2020).HIV and Malaria are co-epidemics that continue to plague the health of Nigerians (Rolle and Onwuma,2019). HIV/AIDS and Malaria are the two main causes of morbidity and mortality among Nigerians. Approximately, 97% of Nigerians populations are at the risk of Malaria attack and 1.5% of Nigeria adults aged 15-49 are currently living with HIV infection (World Development Indicators, 2018). Several other non-communicable diseases such as hypertension, sick cell diseases, anaemia, mental health, blindness, stroke account for Nigeria's high disease burden (National Strategic Health Development Plan (SHDP, 2010, Rolle, Osaze and Henry, 2020).

In Nigeria, there is a dearth of studies that examined the effect of health on labour force participation using a microeconomic approach. The few studies either utilized a microeconomic approach (see Ajani and Ugwu, 2008; Omonona, Egbetokun and Omiolele, 2012) or a macroeconomic approach to examine the effect of health on labour productivity (see Jimoh, 2005; Umoru and Yaqub, 2013; Rolle and Iseghohi, 2018; Onyema and Nyenke, 2019). Given the high rate of disease infection and low labour supply compared to an immeasurable increase in population size, it is essential to examine the effect of poor health status on labour force participation among Nigerian households. The study drew upon data from the most recent General Household Survey (2015-2016) wave 3 to examine the phenomenon. It examined the effect of various dimensions of self-assessed health (that is illness and disability) on labour force participation among Nigerian households.

The purpose of this study goes beyond estimating the impact of health status on labour force participation among Nigerian households to include making available important and current information on the issue at stake. As a result, the study would be relevant to those who would be making, interpreting or implementing policies on health and its impact in the country. This study would, therefore, bring to the knowledge of government at all levels, the economic need to invest in the health of workers by providing them with adequate health facilities at reduced (or subsidized) cost since adverse health reduces the productivity of the nation's workforce.

The remainder of the paper is structured as follows: section 2 focuses on literature review; section 3 presents the methods and materials, section 4 dwells on the results, section 5 on the Discussion of the results and section 6 concludes the study.

2. Literature Review

2.1. Theoretical Literature Review

Grossman's (1972, 2000) model on the demand for health exposited on the relationship among individual's health, human capital and labour force participation. The model built on the Becker' (1964) model on human capital theory. According to this model, an individual's health stock determines the total amount of time the individual engaged in labour, while his stock of knowledge determines his market and non-market productivity (Grossman, 2000). According to Becker (1964), an individual's current health stock depends on past investment made on health and the rate of depreciation of health stock. Health is both consumption and production goods. As consumption goods, it enters into an individual's utility function given that there is a psychic utility associated with being healthy. As production goods health is an essential input in the production process since it frees up streams of healthy time utilized in producing both health and non-health goods (Novignon, Novignon and Arthur, 2015). However, an individual's health stock diminishes over time approaching a threshold level where death may occur, but the rate of depreciation may be slowed down through appropriate investment in health, which includes medicare, good dieting, housing facilities and sleep (Grossman, 1972). The pure investment model analyses health capital as an

output generated from time allocated to health production, hence good health provides extra time to engage in productive activities that determine income levels over an individual's lifetime (Novignon Novignon and Arthur, 2015).

2.2. Empirical Literature Review

The relationship between health and labour force participation has attracted several research works. Various researchers employed different research methods and measures of both health status and labour force participation to examine this relationship (Novignon et al; 2015).

Kalwij and Vermeulen (2005) studied labour force participation of the elderly for eleven countries in Europe and found that different health indicators had different significantly impact on the decision of the elderly to participate in the labour force and that health effects differ between countries. The study utilized both subjective measures of health (self-assessed health) and objective health measures (body mass index and bad mental health) for individuals aged (50-64) years. Using descriptive analysis, they observed that improved health conditions may yield 10 percentage points higher for men than women in some European countries under study, while in other countries studied, participation would be higher for females with improved health than males.

Thomas and Thierry (2006) analyzed disability and labour force participation of older workers using a latent variable model. In a preliminary step, they estimated an equation of participation by directly introducing the self-reported disability, but the '' true'' disability status was unobserved. In a second step, following Bound's (1991) methodology, they used estimations of self-reported disability and observed that using a self-reported health measure leads to a downward bias in the impact of disability status on labour force participation.

Cai (2007) examined the relationship between health and labour force participation in Australia. The study adopts the method of simultaneous equation panel model using Full Information Maximum Likelihood Criterion and two-stage least square to observe the relationship between self-assessed health and labour force participation for both males and females. Drawing upon data from HILDA data, it was observed that health had a significant positive effect on labour force participation.

Mushtaq, Mohsin and Zaman (2013) investigated the effects of health on labour force participation for Pakistan for the period (1975–2011). The study employed the Autoregressive Distributed Lag Model cointegration technique to estimate both short-run and long-run elasticities, whereas the Wald coefficient restriction test was used to determine the dynamic relationship between the variables. The study revealed that health significantly influences labour force participation, however, Pakistan could not derive maximum benefit from human capital development due to poor health outcomes.

Belachew and Kumar (2014) in their study draw upon data from five National Health Surveys (NHSs) of Australia to examine the association between self- assessed health status and labour force participation utilizing logistic regression model, and controlled for other variables such as age, period and cohorts. Their results showed a significant positive association between health status and labour force participation, with the effects stronger for female than male**.** There was also a strong negative relationship between major chronic diseases (arthritis, cancer, asthma, diabetes and heart disease) on both male and female's labour force participation. They also reported cohorts effect for both male and female, with lower probability to participate in the labour force noticed among the youngest cohorts.

Dogrul (2015) examined the effect of health status on labour force participation in Turkey utilizing a two-stage estimation technique for a cross-sectional data and found out that health status significantly affects labour force participation for all age-gender groups. Also, a reverse causality was noted flowing from labour force participation to health, showing there

is a psychic utility in being engaged economically. However, its findings that labour force participation positively influenced health contradicts that of Cai's(2007) findings that labour force participation had a negative effect on the health status of men.
Novignon et al (2015) used objective health indicator–life expectancy as a proxy for health status to examine the relationship health status and labour force participation in SSA by employing a dynamic panel model using the generalized method of moments. The result shows a significant effect of health status on female labour force participation across SSA countries.
Irequi Bohorquez, Melo –Becerra, and Teressa (2016) examined the relationship between health status and labour force participation drawing data from the first wave of the Columbian Longitudinal Survey. The estimation technique addressed possible potential endogeneity between the two variables. The results revealed two-way relationships between health status and labour force participation so that healthy people were more likely to engage in labour force participation, and those who engaged in the labour force were more likely to be healthier. However, significant differences were uncovered when separate analyses were undertaken for separate age groups and gender. The results highlight the importance of public policy to improve good health and consequently improve labour force participation and economic growth performance.

3. Materials and Method

3.1. Theoretical Framework

The study adopts the theoretical framework from Currie and Madrina (1999) in Novignon et al (2015), which follows the pioneering work on human capital by Becker (1964), and Grossman (1972) and was utilized by Novignon et al (2015). According to this model, the consumer maximizes an intertemporal utility function, which is specified as:

$\sum_t^T Et(1/(1+\delta)^t$ Ut β (At+1) (1)

Where δ = discount rate,
B (.) = bequest function
A = assets
U = utility function given below:

Ut = Ut (Ht, Ct, Xt, Lt, Ut, et) (2)

In equation (2), Ht represents the stock of health, Ct represents consumption of non-health goods, Lt is leisure, Xt is the vector of exogenous taste shifters, Ut is a vector of permanent individual-specific taste shifters, and et denotes a shock to preferences. The individual's utility function in equation (2) is maximized subject to the set of constraints in equation (3) through equation (7):

Ht = Ht (Ht-1, Gt, Th, Zt, U_2, e_2t) (3)
Ct = Yt + pt Gt - (At - At+1) (4)
Yt= Wt + r At (5)
Ⅎ = $T_L + Th + Ts$ (6)
Ts = Ts (Ht, U_3, e_{st}) (7)

Where **Ht**-1 is one time-lagged value of health stock, Gt is health goods e.g. medicare, Th is time engaged in producing health (that is the time involved in an exercise, diet, sleeping), Zt is other goods that can enhance health e.g. food, U_2 is individual specific productivity shifters, e_2t is productivity shock, Yt represents income, P represents price, (At - At+1) represents the change in assets, At is asset in the current period, Wt is the wage, r is the

interest rates, ℸ is total time allocation, $\mathbf{T_L}$ is time engaged in leisure, Ts is time spent in sickness, U_3 is individual determinants of health and $\mathbf{e_{st}}$ is a random disturbance that may influence health (pandemics)(Currie and Madrina, 1999 in Novignon et al; 2015). By solving the utility-maximizing problem above, conditional labour supply function is deduced, which depends on the stock of health.

3.2. Data Source

The Data analyzed in this study was drawn from the General Household Survey (GHS, 2015/2016) wave 3. GHS is a nationally representative data collected every 2-3 years. The collection is pioneered by the National Bureau of Statistic with support from World Bank and National Planning Commission. Data collection is done at two visits that are post-planting and post-harvest seasons. The survey follows the same households over time and collects information on diverse areas. The survey data has national coverage covering the 36 States and the Federal Capital Territory (FCT). The sample design for the survey facilitated the provision of estimates at the national and subnational levels (national, zone and States). The multi-stage stratified sampling design was utilized in collecting the data. In the first stage, 60 enumerations (EAs) were selected from the 36 States and FCT. In stage 2, ten households were selected per EAs using systematic sampling procedure. Hence, a total of 22,000 households were marked for the survey. Out of these, 5000 households were selected from the 500 EAs. A total of 4,916 households completed their interviews with a non-response rate of 1.68%. Given the panel structure of the GHS, in which a set of households were interviewed post-planting and post-harvest, some households moved before the wave 3 interview. Hence, 4,581 households that are 32,827 household members were interviewed in the post-harvest wave 3.

Data collection involved the training of field data collectors on the ethics of the research and procedure of data collection. Each household was surveyed by interviewers, supervisors and operators. Interviewers administered the questionnaires and submitted the filled questionnaires to Supervisors for cross-checking. At the end of each day, Supervisors handed over the questionnaires to operators. Operators were expected to report any perceived errors. Where necessary, supervisors demanded re-interview. Data collection was done using computer-assisted personal interviewing (CAPI) for entry of data. CAPI fast-tracked data collection and enhanced accuracy in data collection.

3.3. Outcome Indicator

The outcome indicator in this study is labour force participation. Labour force participation is defined as engaging in economic activities as a means of sustenance. In the General Household Survey (2015/2016), three questions were asked to elicit information from respondents' labour force participation. For the past seven days, respondents were asked if they undertook any of the followings: (i) Working as self-employed in any venture with a means of sustenance (ii) worked on a farm owned or rented by a member of the household, either in cultivating crops or in other farming tasks for livestock (iii) has worked on his/her own account in a business enterprise owned by his/herself or someone else. Household heads who reported to undertake any of the three were concluded to participate in the labour force, hence coded 1, while otherwise coded 0.

3.4. Health Indicators

The health indicators cut across illness, bodily injury and health limitations (HLLs). An individual was considered ill if they reported they visited physicians for any known illness such as malaria, cough, and others. Bodily injury is defined as burnt or bone fractures that reduce an individual's quality of lives. HLLs adopted a self-assessed approach in which an individual reported on various disabilities associated with daily living. The following

limitations were considered: (i) difficulties in walking (ii) difficulties in running (iii) difficulties in stooping/bending (iv) memory lapse/difficulties in concentration (v) difficulties in hearing despite hearing aid (vi) sight challenge.

3.5. Other Socio-demographic Factors

The study aims at investigating the influence of self-assessed health status on labour force participation among Nigerian households. In addition to health status (the treatment variable), six socio-demographic factors were considered: age, educational attainment, sex of head of households, marital status, type of occupation and household size. Age in years measures the current age of the respondents. It was reported in continuous terms. However, we recoded age into the following groups: 15-24, 25-34, 35-44, 45-54, and 55-64. Marital status examined the current marital status of head of households. The following categories were considered: Single, Married, Divorced, Separated, and Widowed. Educational qualifications measure the current educational attainment of the respondents. We considered the following categories: no formal, primary, secondary and tertiary education. Gender distinguished male from female. Place of residence examined the current location of respondents. We considered rural and urban residence. Occupation examined the sector where the head of the household worked. The following groups were considered: Agriculture, Services, Others, Manual and Professional.

3.6. Statistical Analysis

Data were analyzed using STATA version 13.0 for windows. Frequency tables were generated and Univariate analysis was conducted to generate crude odds ratio for the dependent variable labour force participation. The factors that were significant at 10% were entered into the binary logistic regression model to generate adjusted odds ratio at 95% confidence intervals.

4. Analysis

4.1. Results

The preliminary analysis of this study aims at giving an overview by establishing descriptive statistics of some selected variables. The descriptive statistics is a summary statistics of all variables used in the study. The result shows that on average, 52.1% of the respondents were engaged in the labour force. While male accounts for 48.3%, female category accounted for 51.7%. Furthermore, 15.2% from the sample were ill and 6.2% reported they suffered bodily injury. On average, 3.5 persons reported they had one form of disabilities (that are, hearing impairment, sight problem, difficulty in running, walking and memory/lack of concentration). Majority of the respondents belonged to the age group (15-24) years (34.1%). Approximately, 46% of households represented reported between 1 and 4 persons as family size. While urban residents account for 42.1%, rural accounts for 57.9%. Analysis of educational attainment revealed that the majority of household heads had only primary educational qualification (53.1%). Approximately, 40.1% were currently married and living with their partners. Most of the partners were engaged in the Agricultural sector (40.2%).

Table 1: Summary Statistics of Variables

Variables		Number	Percentage
Labour force participation:	Yes	2,188	52.1
	No	2, 012	47.9
Gender:	Male	2,029	48.3
	Female	2,171	51.7
Current age:	15-24	1,432	34.1
	25-34	764	18.2
	35-44	538	12.8
	45-54	831	19.8
	55-64	635	15.1
Illness:	No	3,562	84.8
	Yes	638	15..2
Bodily injury:	No	3,939	93.8
	Yes	261	6.2
Difficulties in hearing :	No	1,927	45.9
	Yes	2,273	54.1
Difficulties bending/stooping :	No	1,171	27.9
	Yes	3,028	72.1
Difficulties in running:	No	1,465	34.9
	Yes	2,735	65.1
Memory lapse /difficulties in concentration:	No	2,385	56.8
	Yes	1,815	43.2
Difficulties in walking:	No	1,834	43.7
	Yes	2,366	56.3
Sight challenge :	No	1,731	41.2
	Yes	2,469	58.8
Household size :	1-4	1,916	45.6
	≥5	2,284	54.4
Marital status:	Single	859	20.5
	Married	1,684	40.1
	Divorce	341	8.1
	Separated	528	12.6
	Widowed	788	18.8
Place of residence :	Rural	2,432	57.9
	Urban	1,768	42.1
Educational attainment:	No formal education	658	15.7
	Primary education	2,229	53.1
	Secondary education	789	18.8
	Tertiary education	524	12.5
Occupation :	Agriculture	1,687	40.2
	Services	705	16.8
	Others	519	12.3
	Manual	794	18.9
	Professional	495	11.8

4.2. Analysis of the Model

In Table 2, the logistic regression outputs for both the unadjusted and the adjusted models are presented. For the adjustment model, predictors of labour force participation include gender, illness, bodily injury, difficulties in hearing, difficulties in bending/stooping, difficulties in running, memory lapse and educational attainments. In reference to female respondents, male respondents (**aoR**: 1.98, 95% CI: 1.11-2.42] were approximately two times more likely to engage in the labour force. Respondents who reported no illness **(aOR**: 1.64, 95% CI: 1.14-1.98] were 64% significantly more likely to engage in the labour force. Being free from various health limitations: difficulties associated with hearing [**aOR**: 4.18, 95% CI: 0.31-1.04]; bending/stooping [**aOR**: 1.98; 95% CI: 0.41-1.31]; running [**aOR**: 3.18, 95% CI: 0.18-0.91]; memory lapse [aOR: 1.42, 95% CI: 1.04-1.08] and walking [**aOR**: 2.31, 95% CI: 1.04-1.08] significantly improves the chances to engage in labour force. Absence of body injury [**aOR:** 3.11, 95% CI: 1.14-1.98] significantly improves the chances of engaging in the labour force. In reference to the uneducated, secondary education [**aOR**: 1.92, 95% CI: 0.48-1.72] and tertiary education [**aOR**: 2.08, 95% CI: 0.98-2.41] significantly improves the chances of labour force participation.

Table 2: Factors Associated with Labour Force Participation among Respondents

Variables	**Yes N (%)**	**No N (%)**	**Unadjusted Odds Ratio (95% CI)**	**Adjusted Odds Ratio (95% CI)**
Gender:				
Female (ref)	666 (30.7)	1,505(69.3)	1.00	1.00
Male	1,522 (75.0)	507(25.0)	2.41(0.42-1.38)**	1.98(1.11-2.42)*
Current age:				
15 -24 (ref)	716(50.0)	716 (50.0)	1.00	.....
25- 34	531(69.5)	233(30.5)	1.81(0.31-0.98)	.....
35 -44	323(60.0)	215 (40.0)	1.91(1.42-2.41)	.....
45 – 54	332(39.9)	499(60.1)	2.42(1.64-2.98)	.....
55- 64	127(20.0)	508 (80.0)	3.72(1.98-3.71)	.....
Illness:				
Yes (ref)	575 (90.1)	63(19.9)	1.00	1.00
No	1,613 (45.3)	1,949(54.7)	3.81(1.32-1.48)*	1.64(1.14-1.98)**
Bodily injury:				
Yes(ref)	227(87.0)	34 (13.0)	1.00	1.00
No	1,961 (49.8)	1,978(50.2)	1.91(0.34-1.71)**	3.11(1.14-1.98)**
Difficulties in hearing:				
Yes (ref)	824(42.8)	1,103(57.2)	1.00	1.00
No	1,364(60.0)	909(40.0)	1.39(0.98-2.41)*	4.18(0.31-1.04)*
Difficulties in bending/stooping				
Yes (ref)	878(74.9)	293 (25.1)	1.00	1.00
No	1,310(43.3)	1,719(56.7)	2.83(1.41-3.19)*	1.98(0.41-1.31)**
Difficulties in running:				
Yes(ref)	1,136(41.5)	1,599 (58.5)	1.00	1.00
No	1,052(71.8)	413(28.2)	3.28(0.62-1.91)	1.31(0.04-2.08)

Memory lapse/Concentration difficulties				
Yes (ref)	1,188(65.5)	627(34.5)	1.00	1.00
No	1,000(41.9)	1,385(58.1)	1.87(2.41-3.65)*	1.42(1.04-1.08)*
Difficulties in walking:				
Yes(ref)	1,136(48.0)	1,230 (52.0)	1.00	1.00
No	1,052(57.4)	782(42.6)	1.98(0.42-1.31)*	2.31(1.04-1.08)**
Sight challenge:				
Yes(ref)	717(29.0)	1,752(71.0)	1.00	.....
No	1,471(84.9)	260(15.1)	1.41(1.31-3.41)	.....
Household size				
1-4 (ref)	375(19.6)	1,541(80.4)	1.00	.....
≥ 5	1,813(79.4)	471(20.6)	1.91(0.41-2.18)	.....
Marital status:				
Single(ref)	515(59.9)	344 (40.1)	1.00	.....
Married	688(40.9)	996(59.1)	0.41(0.32-1.98)	.....
Divorce	164(48.1)	177(51.9)	1.21(0.18-1.19)	.....
Separated	380(71.9)	148(28.1)	1.18(0.42-2.13)	.....
Widow	441(55.9)	347(44.1)	2.41(0.98-1.42)	.....
Educational attainment:				
No formal(ref)	342(51.9)	316(48.1)	1.00	1.00
Primary	864(38.8)	1,365(61.2)	1.21(1.11-1.98)**	1.81(0.42-1.32)
Secondary	537(68.1)	252(31.9)	2.31(1.41-2.31)**	1.92(0.48-1.72)**
Tertiary	445(84.9)	79(15.1)	3.48(1.31-3.42)*	2.08(0.98-2.41)*
Occupation:				
Agriculture(ref)	240(14.2)	1,447 (85.8)	1.00	.....
Services	599(84.9)	106(15.1)	1.11(1.11-2.12)	.....
Others	389(74.9)	130(25.1)	1.21(1.31-2.42)	.....
Manuals	683(86.0)	111(14.0)	3.48(1.98-2.93)	.....
Professionals	277(55.9)	218(44.1)	4.32(1.64-3.18)	.....

*p<0.05 **p<0.01 ***p<0.001.ref: reference category; CI: Confidence Interval
N.B number in parenthesis represents a simple percentage.

5. Discussion of the Results

This study examined the influence of health status, which comprises illness, body injury and various forms of disabilities on labour force participation among 4,200 head of households drawn from the most recent General Household Survey (2015/2016) wave 3.The study was premised on the assumption that various dimensions of ill-health can discourage participation in the labour market. Illness can retard labour productivity and reduce labour earnings, thereby creating a disincentive for sick people to engage in the labour market.

Findings from the study revealed the role of ill-health, body injury and various limitations associated with daily livings on labour force participation. All the indicators used to proxy disabilities except sight challenge were significantly associated with lower odds for participating in the labour force. Respondents who reported absence of ill-health were approximately two times significantly more likely to engage in the labour force. Our results

conform to findings from past studies (Novignon et al; 2015; Cai and Kalb, 2004; Dogrul, 2015; Nwosu and Woolard, 2015; Belachew and Kumar, 2014; Thomas and Thierry, 2006). The results showed that male respondents were more likely to participate in the labour force. It can be seen that male respondents were approximately two times more likely to participate in the labour force when compared to female respondents. This is typical of Nigerian settings where women are seen as home keepers. In Nigeria, gender norms defined the role of men as financiers and that of women as home managers. This finding conforms to a study conducted for SSA (Novignon et al; 2015).

The result showed that education significantly improves the chances of labour force participation. Specifically, respondents who had secondary and tertiary educational qualifications were respectively 92% and 108% significantly more likely to participate in the labour force. This result is not surprising given that most formal employments require certificates to be employed. Also, school offers the opportunity for people to acquire skills needed to be gainfully employed. The finding conforms to reports from past studies (Mushtag et al; 2013; Novignon et al; 2015).

5.1. Policy Recommendation

The results from the analyses provoke the need to articulate policies that will improve the health status of Nigerians given the pivotal place of health in enhancing labour productivity and economic growth. While participating in the labour market is influenced by health, labour force participation improves the state of well-being. Pragmatic policies, such as health insurance schemes, should be put in place to improve the health status of the Nigerian population. Such health policies will improve people's access to modern care services by diffusing the cost of treatment across people and over time. There is no gain reaffirming the health wealth led hypothesis, which posits that healthier people are wealthier people. More so, the government should encourage employer-sponsored health insurance in which employers should either pay the premium on behalf of the employees or engage in sharing the premium with employees.

5.2. Strength and Limitations

The only strength of the study is its cross-sectional nature and the large sample observation used for the analyses. However, the following limitations are worthy to be noted. (i) The assessment of health was based on the self-assessment that was not validated by any objective source. Hence, respondents may have given socially desirable responses. (ii) The analyses undertaken was static given the cross-sectional nature of the data. The nature of the data does not give room to a dynamic analysis of the effect of health on labour force participation.

6. Conclusion

In conclusion, the study sets out to investigate the effect of health status on labour force participation drawing on data from the General Household Survey (GHS), and a logistic regression model for its analysis. The research was motivated by the keen interest of policymakers all over the world on the benefits of improved health on labour productivity and general economic performance. The assumption is that health workers have both physical and cognitive development pertinent to engaging in the labour market. The results confirm the influence of health status on labour force participation among Nigerian households. Therefore, poor health status reduces labour force participation. Also, we conclude that higher educational attainment improves the probability of participating in the labour force.

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FOSTERING FINANCIAL INCLUSION: THE DETERMINANTS OF THE USERS BEHAVIOUR OF THE SMART ACT BRANCHLESS BANKING SERVICE

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Abstract: *The presence of Smart Act Branchless Banking Service (SABBS) in Indonesia is expected to be able to encourage people to have bank accounts and obtain banking services so that it can increase financial inclusion. The purpose of this study is to examine the determinants of the SABBS users' behaviour based on Theory of Interpersonal Behaviour (TIB) and Technology Acceptance Model (TAM). Based on the integration of the two theories, 9 hypotheses can be formulated to be empirically tested. Based on the integration of the two theories, 9 hypotheses can be formulated. A sample of 200 respondents were obtained through a survey on the SABBS users and the data was analysed using Smart-PLS. The results show that: (1) perceived ease of use and perceived usefulness influence attitude towards SABBS; (2) attitude, social and affective factors have an influence on intention to use SABBS; (3) intention and habits influence the SABBS users' behaviour. This study suggests that financial service authorities and the banking sector to increase financial inclusion must continue to foster public intentions to be willing to use SABBS. This can be done among others through structured and massive socialization about usefulness, easiness and security when using SABBS. This study also contributes, to reduce the research gap on the determinants of financial inclusion based on a behavioural approach*.

Keywords: Financial inclusion, banking service, attitude, Intention, user behaviour

JEL classification: G32, G21, G51

1.Introduction

A condition of the community that has not been reached by banking industry, or commonly called the unbanked group, has a large portion in developing countries including Indonesia. In 2014, it reached 64% of Indonesia's total population of 250 million people and in 2017, along with the development of Fintech services, it dropped dramatically to 37% (Warta Ekonomi, 2019). However, this still shows the existence of problems with financial inclusion. Financial inclusion is a process that ensures the ease of access, availability, and use of financial services for all members of the community (Sarma and Pais, 2011; Cámara and Tuesta, 2018). The existence of financial inclusion allows poor people to obtain cheaper financing (Karpowicz, 2014), increase access to financial services and reduce income inequality (Park and Mercado, 2018; Cooney and Shanks (2010). Constraints of financial inclusion can be caused by the demand side, including financial inability, financial literacy, high costs, other family members who already have a bank account, incomplete documents, disbelief, and religious reasons such as usury for bank interest (Kunt and Klapper, 2012), while in terms of supply or financial institutions, the constraints include regulatory aspects, geographical barriers, infrastructure, and connectivity.

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In facing the challenges of financial inclusion, the Indonesian government did not only encourage the development of the fin-tech industry but also issued SABBS policy in 2015. SABBS is a collaboration of banking or other financial services with other parties (bank agents) supported by the use of information technology facilities. This service aims to eliminate all forms of public access barriers in utilizing financial services by providing simple and easily accessible financial products that are easy to understand and could meet the needs of the community. The SABBS enables the users to open a savings account through an intermediary of a bank agent instead of coming to the bank office. A similar service was also launched by Bank Indonesia under the name of digital financial services in 2013.

To encourage the use of SABBS as a financial inclusion policy instrument, it is necessary to understand factors influencing the users' behaviour of using SABBS. Several previous studies have found the determinants of financial inclusion. It was found that age, education, financial literacy, income, and internet connectivity support had a positive effect on financial inclusion (Abel et al., 2018; Zins and Weill, 2016). While others found the determinants on the supply side, such as interest rate and bank innovation (Oyelami et al., 2017), and expansion of bank branch networks (Kumar, 2013). Although there have been many studies on the determinants of financial inclusion, however, there has been no analysis based on behavioural approaches regarding the adoption of technology. The use of a behavioural approach is expected to find ways to encourage people to utilize the instruments of financial inclusion.

There are many behavioural theories that can be used to explain behavioural determinants of technology adoption or the application of a new system such as SABBS. One of them is the Theory of Interpersonal Behaviour (TIB). According to TIB, user behaviour is basically influenced by interests and habits. Furthermore, interest is influenced by attitudes, social and affective factors of service users. While attitude factors can be explored through the Theory of Technology Acceptance Model (TAM) influenced by perceived usefulness and perceived ease of use.

2. Literature and Hypotheses Development

2.1. Antecedents of Attitude

TAM, introduced by Davis (1989), is a development of Theory of Reasoned Action (Fishbein and Ajzen, 1975) which explains that one's intentions are influenced by individual attitudes and social norms. Further, in the context of the behaviour of using computer technology, TAM adds perceived ease of use (PEOU) and perceived usefulness (PU) as factors forming individual attitudes.

A person's attitude is defined as a positive or negative feeling experienced if they have to do a certain behaviour (Davis et al., 1989). Someone who considers technology to be easy to use, he/she will show a more positive attitude towards the use of technology (Juniwati, 2014). In the context of SABBS, if someone views that SABBS is a service that is easy to understand and operate, it will encourage him/her to have a positive attitude towards the SABBS. Several previous studies have found empirical evidence on positive relations between PEOU and attitude (Chawla and Joshi, 2017; Weng et al., 2018).

In addition to being influenced by PEOU, attitudes are also influenced by PU, which is defined as a level of one's belief that the use of a special system will improve the performance of their work (Davis et al., 1989). Meanwhile, Rauniar et al. (2014) mentioned PU as a benefit of the technological attributes used. The benefits of a system will encourage individuals to have a positive attitude (Ferguson, 1997). Conversely, if a system, such as SABBS, does not have benefits, it will produce a negative attitude towards the use of the

system. This argument has received support from the results of previous studies (Elkaseh et al., 2016). Thus, in relation to the SABBS, the hypotheses proposed are as follows:
H1: PEOU has a positive influence on attitudes towards using SABBS
H2: PU has a positive influence on attitudes towards using SABBS.

2.2. Attitude, Intention, Habits, and Users Behaviour of SABBS

TIB, introduced by Triandis (1977), is the development of the Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) by adding affective factors in the formation of intention. TIB explains that behaviour is formed from three dimensions including intention, habit, and facilitating conditions. However, facilitating conditions only act as moderators facilitating the realization of a behaviour. The intention representing conscious control in deciding a behaviour is formed by attitude, social and affective factors. Whereas the habit representing subconscious control in deciding a behaviour is formed from repetitive behaviour carried out in the past (frequency of past behaviour). TIB has advantages over other behavioural theories because it can distinguish cognitive and affective aspects (Bamberg and Schmidt, 2003). In the context of SABBS, cognitive aspects in TIB can be seen as attitudes towards the use of SABBS and affective aspects can be interpreted as emotional responses to the use of SABBS.

Intention is a conscious plan or decision taken by an individual to show a behaviour (Sommer, 2011). Individual attitudes are the best predictors for intention variables (Chipeta and Surujlal, 2017). Someone with a positive attitude towards SABBS has a great potential intention to use SABBS. The results of previous studies (Chawla and Joshi, 2017; Chen, 2013) also show that attitude had a significant positive effect on the intention to use banking services.

The intention to use SABBS is also influenced by social factors. Triandis (1980) defined social factors as interpersonal agreements from an individual to the community he/she adheres to in a particular social environment. Social factors represent normative beliefs of an individual (Karaiskos et al., 2012). Researches on social influences associated with behavioural intentions in the banking industry had been carried out by researches such as Abrahão et al. (2016) and Kazi and Mannan (2013) who found that social factors had a positive effect on the intention to behave.

TIB explains that affective factor, which is an emotional response directly to a thought about a particular behaviour, becomes one of the important factors forming intention (Triandis, 1980). This is because an individual can make decisions based on feelings. It represents an individual's emotional response to thoughts of doing the behaviour (Karaiskos et al., 2012). A relatively similar definition is also stated by Moody and Siponen (2013) that it is an emotional response to certain situations based on instinct and subconscious processes in the mind. Previous studies show empirical evidence that affective factor had a significant influence on the intention of using the internet (Karaiskos et al., 2012; Kabadayı and Alan, 2012).

The SABBS users' behaviour is also influenced by habits which are the subconscious control in deciding a behaviour. Repeated behaviour carried out by someone in the past, even though it is not realized, will shape the habits of an individual (Bamberg and Schmidt, 2003). Meanwhile, Moody and Siponen (2013) emphasized regularly repeated behaviours could become automatic or habitual.

Based on the TIB theory which mentions that behaviour is determined by intention, habits and facilitating condition, in the context of this study, user behaviour is measured by the actual use of SABBS to obtain financial services. Previous studies show a significant relationship between intention and behaviour (Rauniar et al., 2014). Meanwhile, habits which are psychological tendencies to repeat past behaviour (Neal et al., 2012) also influence

behaviour. It is supported by studies on internet use (Moody and Siponen, 2013; Sharif and Raza, 2017) and car use (Setiawan et al., 2015).
TIB states that the effect of intention to use behaviour also depends on facilitating conditions, which are the assessment of each individual towards objective factors in an environment that can facilitate or complicate the occurrence of a behaviour (Triandis, 1980). It is possible that if a person has a high intention to do a certain behaviour, it will definitely fail if the infrastructure does not support the behaviour. Facilitating conditions in TIB have similar properties to perceived behavioural control in TPB. Ghalandari (2012) specifically stated that facilitating conditions refer to the extent to which one feels that the existing infrastructure supports the use of the system. Thus, it can be assumed that if the available infrastructure to use SABBS is more adequate, the influence of the intention to use SABBS on the actual use of SABBS will be greater. However, previous researches on the role of facilitating condition moderating the effect of intentions on behaviour were very limited. Most studies place facilitating conditions as factors that influence intention (Ayoade, 2015; Palau-Saumell et al., 2019). Based on the arguments above, some hypotheses can be formulated as follows:

H3: Attitudes have a positive influence on the intention to use SABBS.
H4: Social factors have a positive influence on the intention to use SABBS
H5: Affective factors have a positive influence on the intention to use SABBS.
H6: Repeated behaviour has a positive influence on habits.
H7: Intention has a positive influence on the SABBS user's behaviour.
H8: Facilitating conditions strengthen the positive influence of intention on the SABBS users' behaviour.
H9: Habit has a positive influence on the SABBS users' behaviour.

3. Methodology

Data obtained through field surveys by distributing questionnaires. The questions asked in the questionnaire are divided into two parts. The first part deals with demographic identity. The second part contains research instruments related to measurement of variables: SABBS, PEOU, PU, attitudes, intention, social factor, affective factor, repeated behaviour, intention, facilitating conditions and habit. SABBS is measured using 3 items. Then, PEOU, PU and attitudes each measured by 4 items were adopted from Davis et al. (1989). Intention is measured by 3 items adopted from the research of Shrestha et al. (2012). Meanwhile, social factor, affective factor and Habit each measured using 4 items adopted from Triandis (1980). Furthermore, the variable repeated behaviour consists of 4 items adopted from Bamberg and Schmidt (2003) and facilitating conditions involving 3 items adopted from Ghalandari (2012). The items above were measured using a Likert scale consisting of a 5-point ratings of agreement (1 - strongly disagree, 5 - strongly agree).
The target sample was the SABBS users in Kudus Regency, Indonesia – a pioneer area for SABBS. During a three-month field survey, 200 respondents were obtained. Meanwhile, the total measurement item is 37, according to the suggestion by Hair et al. (2006) that the minimum number of samples is 5 times the number of measurement items, at least 185 respondents are needed so that the sample size obtained is relatively adequate for analysis purposes. The profile of the respondents shows that most of them were over 40 years old (31%) and most of them are men (53%), worked as entrepreneurs, and had a high school level of education (60%).
Testing of the instrument quality involved validity and reliability tests. The results of the validity test show that all measurement items have AVE values of > 0.5 and the loading factor of > 0.7. The reliability test using Cronbach's alpha and Composite Reliability is all > 0.7. Therefore, the research instrument used was valid and reliable. Furthermore, due to the

consideration of data distribution patterns, Smart-PLS was employed to conduct data analysis.

4. Results

The users' behaviour, facilitating conditions, intention, habits, attitudes, social factors, affective factors, repetitive behaviour, perceived usefulness, and perceived of ease of use variables have an average mean ranging from 4.00 - 4.44 with a standard deviation of 0.53 - 0.78.

Table 1: Descriptive Statistics

Variable	Min	Max	Mean	Std. Dev
PEOU	3	5	4.40	0.56
PE	3	5	4.43	0.55
Attitudes	3	5	4.25	0.53
Social factors	3	5	4.00	0.78
Affective factors	3	5	4.42	0.57
Repetitive behaviour	2	5	4.17	0.54
Intention	3	5	4.44	0.55
Habits	3	5	4.19	0.58
Facilitating conditions	3	5	4.44	0.55
Users' behaviour	3	5	4.41	0.57

To determine the ability of endogenous variables to explain the diversity of exogenous variables, Goodness of Fit (GoF) test was done. GoF is tested using R-square dependent latent variables with the same interpretation as regression. While Q-Square is a predictive relevance for a structural model that measures how well the observation value is generated by the model and also its parameter estimation. The results of the Goodness of fit model are summarized in Table 2 below

Tables 2: Goodness of Fit

Variables	R-Square
Attitudes	0.471
Intention	0.353
Habits	0.673
Users' Behaviour	0.744
Q-Square	0.834
GoF	0.680

The value of the R-square shown in Table 2, which is the contribution of each exogenous variable to endogenous variables, ranges from 36.5% to 74.4%. The overall Q-square value of the construct is 83.4%. This indicates that the diversity of behavioural variables of using SABBS could be explained by the overall model of 83.4%. The result of Goodness of Fit (GoF) value is considered in the high category (0.680). Therefore, the model is fit for the purpose of testing the hypothesis (Figure 1).

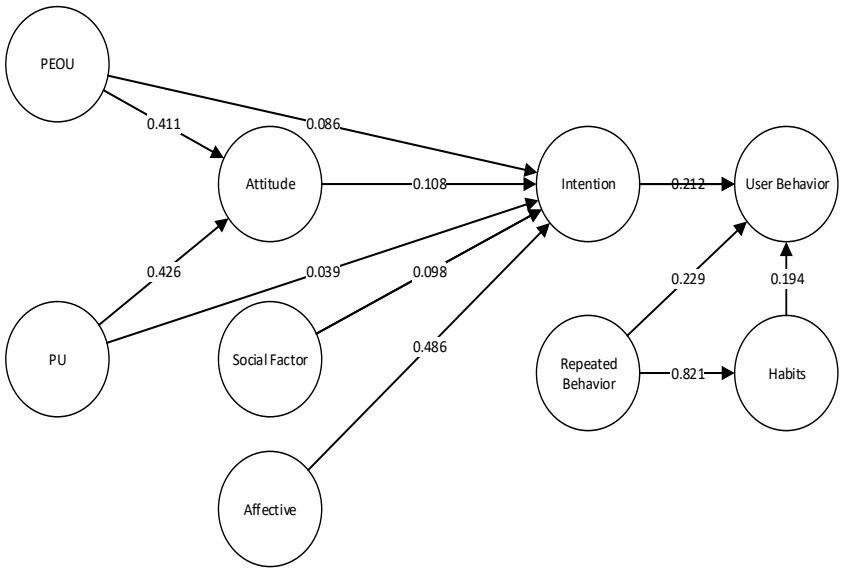

Figure 1: The Research Model

The results of partial testing of each hypothesis are presented in Table 3. PEOU and PU have a positive and significant effect on attitude ($\beta = 0.411$, $p < 0.01$; ($\beta = 0.426$, $p < 0.01$), resulting to H1 and H2 to be accepted. Attitude, social and affective factors have a positive and significant influence on intention ($\beta = 0.108$, $p < 0.1$; $\beta = 0.259$, $p < 0.01$; $\beta = 0.486$, $p < 0.010$), making H3, H4 and H5 to be supported. Repeated behaviour has a significant effect on habits ($\beta = 0.821$, $p < 0.01$) so that H6 is also supported. Then, intention and habits significantly influence the SABBS user' behaviour ($\beta = 0.212$, $p < 0.01$; ($\beta = 0.194$, $p < 0.01$). Thus, H7 and H9 are accepted. The only rejected hypothesis is H8 (= 0.031, p> 0.1), which means that the facilitating conditions do not strengthen the influence of intentions on the behaviour of using SABBS

Table 3: Hypothesis Testing

Hypothesis		Original Sample (O)	P-Values	Result
H1	PEOU -> Attitude	0.411	0.000	Accepted
H2	PE -> Attitude	0.426	0.000	Accepted
H3	Attitude -> Intention	0.108	0.058	Accepted
H4	Social Factor -> Intention	0.259	0.000	Accepted
H5	Affective Factor -> Intention	0.486	0.000	Accepted
H6	Repeated Behaviour -> Habits	0.821	0.000	Accepted
H7	Intention -> Users' Behaviour	0.212	0.000	Accepted
H8	Interaction (Facilitating Condition & Intention)-> Users' Behaviour	0.031	0.369	Rejected
H9	Habits -> Users' Behaviour	0.194	0.000	Accepted

Besides testing hypotheses for direct effects between variables, it was also interesting to analyse indirect effects, so that it could be seen whether certain variables such as attitudes, intentions, and habits were able to mediate certain variables used. Variance Accounted For (VAF) method is the result of the division of the indirect effect with the total effect and it can be grouped into the following categories: (1) it is a full mediator if the VAF value is > 80%; (2) it is a partial mediator if the VAF is between 20% - 80%; and (3) it is not a mediator if the VAF is < 20% (Hair et al., 2013). Table 3 shows that attitude is a partial mediator of the influence of PEOU and PE on intention. Whereas, intention can be categorized as a partial mediator in mediating the influence of attitudes and social factors on users' behaviour. Intention has a role as a full mediator in mediating the influence of affective factors on users' behaviour. Then, the habit that mediates the influence of past repetitive behaviour on user behaviour is also considered as a partial mediator.

Table 4: Results of Direct and Indirect Effects and VAF

Direct Effect	Indirect Effect	Total Effect	VAF	Result
PEOU --> Intention (0.086)	PEOU -->Attitude * Attitude --> Intention (0.411*108 = 0.044)	0.130	0.338	Partial Mediator
PE --> Intention (0.076)	PE -->Attitude * Attitude -->Intention (0.426 0.108 = 0.046)	0.122	0.377	Partial Mediator
Attitude --> Users' Behaviour (0.039)	Attitude -> Intention * Intention --> Users' Behaviour (0.212*0.108 = 0.023)	0.062	0.371	Partial Mediator
Social Factor -->Users' Behaviour (0.098)	Social Factor --> Intention * Intention --> Users' Behaviour (0.259*0.212 = 0.055)	0.153	0.359	Partial Mediator
Affective Factor --> Users' Behaviour (0.024)	Affective Factor --> Intention * Intention --> Users' Behaviour (0.486*0.212 = 0.103)	0.127	0.811	Full Mediator
Repeated Behaviour --> Users' Behaviour (0.229)	Repeated Behaviour --> Habits * Habits --> Users' Behaviour (0.821*0.194 = 0.159)	0.388	0.410	Partial Mediator

5. Discussion

The objective of this study was to examine the determinants of the SABBS users' behaviour by proposing nine hypotheses. The results show that almost all hypotheses are confirmed, except for one hypothesis which states that facilitating conditions strengthen the positive influence of intention on the SABBS users' behaviour. POEU and PU have a significant positive effect on attitudes. This means that if the users did not experience any difficulties in using SABBS, they would show a positive attitude towards the SABBS. Similarly, if they experienced many benefits of using SABBS, they would also show a positive attitude towards the SABBS. These results support previous researches which found that a person's attitude was highly influenced by their perceived ease of use (Chawla and Joshi, 2017; Weng et al., 2018) and perceived usefulness (Elkaseh et al., 2016).

The attitude towards the use of SABBS which has a significant positive effect on intention can be interpreted that if SABBS was able to form a positive attitude, then it could create the intention to use the SABBS. This result is in accordance with studies conducted by Chen

(2013). Furthermore, the positive attitude of the user had an important role to support the success of SABBS in an effort to improve financial inclusion. The results of the study also show that attitudes were also able to mediate the influence of perceived ease of use and perceived usefulness on intention.

Besides being influenced by attitude, intention is also influenced by social and affective factors. Social factors, in this case, refer to the encouragement of people in the surrounding environment and affective factors in the form of feeling comfortable in using SABBS can encourage one's intention to use SABBS. This finding corroborates the results of research on the positive influence of social factors (Abrahão et al., 2016; Kazi and Mannan, 2013) and affective factors (Karaiskos et al., 2012) on intention. Furthermore, the results of this study prove that intention is a determinant of the SABBS users' behaviour. The greater the intention of an individual towards the SABBS, the higher the tendency for someone to use the SABBS for daily financial transactions.

Repeated behaviours carried out by users in the past are proven to form the users' habits in using the SABBS as a means of non-cash transactions. This result is in line with Bamberg and Schmidt (2003) who claimed that behaviour carried out repeatedly would form habits and eventually, it would be automatic (Moody and Siponen, 2013).

The results also reveal that the facilitating conditions including a number of SABBS agents, the proximity of the location of SABBS agents to the user's residence, and affordability of costs were not able to strengthen the influence of intentions on the behaviour of using SABBS. This result is likely due to the limited number of agents. In addition, the cost of non-cash transactions in agents was perceived to be expensive

6. Conclusion and Policy Implication

The analysis of the determinants of the SABBS users' behaviour shows that the perceived ease of use and perceived usefulness influence the users' attitudes. Then, the attitudes along with social and affective factors influence the intention to use SABBS. Other results also reveal that the repetitive behaviours carried out in the past affect habits. Finally, the intention and habit would determine whether the user would consider SABSS as a non-cash transaction medium, where the user did not need to go to the bank but it could be done through agents appointed.

The results of this study are able to prove that the integration of the Technology Acceptance Model (TAM) and Theory of Interpersonal Behaviour (TIB) model was able to explain more comprehensively about one's behaviour towards the adoption of innovations in the form of the use of SABBS to improve financial inclusion. This study encourages financial inclusion and shows that there is a need for the financial services authority and the banking sector to continuously grow the public's intention to use the SABBS. This can be done through structured and massive socialization of the benefits and easiness of using SABBS. Besides, it is also important to emphasize the use of SABBS as a means of safe transactions.

There were several limitations in terms of samples where this study only took samples from respondents who had used SABBS which might lead to biased conclusions about the influence of intentions on behaviour to use SABBS. However, still, there will be a possibility that if the respondents have not used SABBS, they may have high intentions of using SABBS, but does not necessarily use it. Therefore, the intention would not always influence behaviour. Future researches are suggested to expand the scope of the sample, not only from users but also respondents who have not used SABBS

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DO GREEN MARKETING AND GREEN BRAND AWARENESS INFLUENCE CUSTOMER SATISFACTION? AN EMPIRICAL STUDY

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Abstract: *The importance of this study in bridging the gap between existing research literature works by analysing the influence of green marketing and awareness of the green brand on customer satisfaction of mineral water products. The analysis adopted a quantitative and analytical approach by administering structured questionnaires. The questionnaire developed based on the objectives of the research and the analysis of the relevant literature on green marketing, green brand awareness, and customer satisfaction. The results revealed green marketing had no influence on customer satisfaction in the case of the Pristine 8 + bottled mineral water customers. However, it was found that green brand awareness has a positive influence on customer satisfaction. Green marketing and green brand awareness simultaneously have a positive influence on customer satisfaction of the Pristine 8 + bottled mineral water brand. This study expands the scientific literature by providing empirical evidence on green marketing, green brand awareness on customer satisfaction that also can use as a consideration that might help companies to make decisions that will allow them to surpass their competitors through green marketing and green brand awareness, and to meet their customer satisfaction.*

Keywords: Green marketing, Green brand awareness, Customer Satisfaction, empirical study, Mineral water product.

JEL classification: M31, M39

1. Introduction

The modern era is committed to environmentally sustainable and green marketing needs are being recognized throughout the world. Environmental and health concerns and awareness have changed people and business perceptions and behaviors. Consumers worldwide are aware of the detrimental effects of non-eco-friendly products on the environment. Consumers' concern for the environment has increased substantially, and demand for a green product has emerged. 'Green' has been used to represent certain branding strategies, such as healthy, energy-efficient, and environmentally-friendly (Parker, Segev, and Pinto, 2010). Many businesses around the world implement a green marketing strategy for a variety of reasons, such as protecting themselves against relevant regulations, responding to green consumer demands and competing with other green products, or altering their business philosophy (Grant, 2008).

Water is one of the human's most essential elements since humans could never live without water. The need for clean water will always increase from time to time, as the number of

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people rises. Mineral water is present as an alternative for consuming healthy drinking water to meet their needs. Technology development and population growth are now widening market opportunities and prompting mineral water companies to continue to innovate and broaden their distribution networks to compete with other mineral water companies, leading to increasingly fierce competition between mineral water companies. This indicates the business must consistently strive to improve the product quality, pay close attention to pricing, and be innovative in the creation and development of its products.
The objective of the study is to examine the influence of green marketing and green brand awareness on customer satisfaction of mineral water products under the Pristine 8 + brand in Riau Province, Indonesia. In terms of developing new and improved products and services with environmental inputs, the study has its significance for the companies to gain customer satisfaction and maintain a competitive advantage over non-environmental business concerns. Besides, companies consider green marketing and green branding as advantages that can be used to achieve their goals and have a moral obligation to be more socially responsible for delivering green products. This study expands the scientific literature by providing empirical evidence on green marketing, green brand awareness on customer satisfaction, that can also be used as a consideration that could help companies make the decisions that will allow them to surpass their competitors through green marketing and green brand awareness, and meet their customer satisfaction.

2. Literature Review

2.1. Green marketing

Green marketing is a concept and strategy to protect the environment. A market segment has arisen, i.e. the green market due to the growing concern for environmental protection (Yan & Yazdanifard, 2014). The term green marketing was first revealed in the late 1970s (Chaudhary et al., 2011). The green marketing concept was first discussed in a 1975 American Marketing Association (AMA) seminar on "ecological marketing" and took its place in the literature (Novela et al., 2018). Green marketing comprises of a wide range of commercial activities designed to meet the needs and desires of consumers and to reduce the negative effects on the natural environment (Tiwari et al., 2011). Furthermore, it was also described by the American Marketing Association (AMA) as "eco-marketing".
Furthermore, according to the American Marketing Association (AMA), the green marketing approach is the marketing of commodities focused primarily on environmental safety; it includes business activities consisting of packaging changes, production processes, and green ads (Yazdanifard & Mercy, 2011). Besides, green marketing's main objectives were to reduce the environmental hazards caused by industrial and strengthen the customer's impression of corporate eco-centered image (Braimah, 2015). This kind of product or service can be environmentally friendly in it or manufactured and/or packaged in an environmentally friendly manner (Chaudhary et al., 2011). Green marketing can be described as a business operation that uses the environment as its main issue, utilizes human awareness of environmental issues, provides or offers goods or services with minimal environmental impact (Mantiaha, 2016).
H1: Green marketing has a positive influence on customer satisfaction.

2.2. Green brand awareness

Brand awareness is a condition in which customers recognize the brand of a product and are correctly connected to certain product categories (Mantiaha, 2016). Green brand awareness is characterized by the possibility of identifying and remembering the characteristics of a brand dedicated to preserving the environment (Mourad & Ahmed,

2012). Furthermore, green brand awareness is described as the customer's will and trust in a brand's product or service, where the brand has reputation, policies, and the ability to reduce the negative impact on the environment (Ha, 2004).
Environmentally friendly products and green brand awareness motivate customers that value the environment when considering their purchase decisions. It is the role of marketers to provide green product information, eco-friendly labeling by using content through green messages to educate consumers with their green brands (Tariq, 2014). Moreover, the green brand is a perception and association that the brand is committed to and has an interest in the environment in the minds of consumers (Praharjo, 2013). Green brand elements are divided into the green brand image, green satisfaction, and green trust (Chen, 2010: 308).
H2: Green brand awareness has a positive influence on customer satisfaction.

2.3. Customer satisfaction

Customer satisfaction is the satisfaction or dissatisfaction of the consumer as a reaction to the evaluation of the discrepancy between the initial perception before purchase (or another normal performance) and the actual performance of the product perceived after the product concerned has been used or consumed (Tjiptono & Chandra, 2016). Customer satisfaction refers to the fulfillment of customer expectations concerning services and products, in particular quality. Satisfaction can only be obtained if perceived performance meets the needs of the customer or exceeds the expectations of the customer (Alabboodi, 2019).
Swenson & Wells (1997) furthermore explained customer satisfaction as a process and as an outcome. As a process, it contributes to satisfaction by evaluating the perception and psychological processes. As an outcome, fulfilling the final condition arising from the experience of consumption. Related to the environmental sustainability, customers want to be associated with environmentally friendly companies and products, as a consequence, companies in their packaging, advertising, or manufacturing processes that communicate their 'environmentally friendly products' are getting satisfied customers (Yazdanifard & Mercy, 2011).
H3: Green marketing and green brand awareness simultaneously have a positive influence on customer satisfaction.

2.4. Framework

This study uses a conceptual framework as defined below (Figure 1):

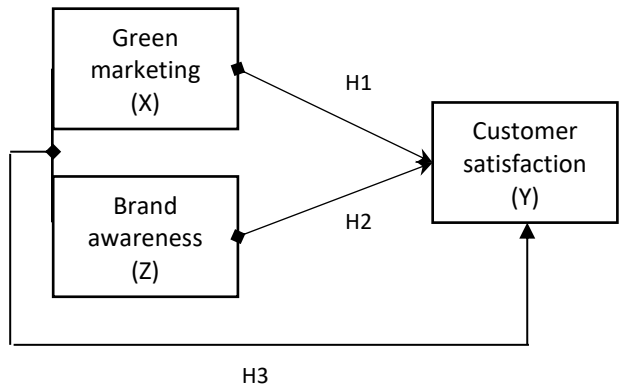

Figure 1: Conceptual framework
Source: own construction

2.5. Previous studies

A study conducted by Tariq (2014) regarding the impact of green brand awareness on green satisfaction in environmental-conscious consumers with the mediating role of consumer purchasing behavior towards green products. Green brand awareness has a positive influence on the green customer satisfaction of environmentally friendly products. The questionnaire was collected from 207 customers as the data source. Study findings also indicate that if businesses implement green marketing and advertising strategies then environmentally conscious consumers are willing to pay more to buy green products to satisfy their needs. A study by Sandra & Iyyapan (2017) examined different aspects of customer satisfaction and showed that marketing could influence the preference of consumers for greener products. The main hurdle to the purchasing of green products is whether the product can perform as expected. However, customers typically trust the performance of well-known brands, but instead green products that work well and do not make over-inflated green claims may successfully be marketed under well-known brands.

3. Research methodology

The study adopted a quantitative and empirical approach in the collection of research data by administering structured questionnaires in a survey. The questionnaire was developed based on the research objectives and the analysis of the relevant literature on green marketing, green brand awareness, and customer satisfaction. The population of this study is customers who consume Pristine 8 + bottled mineral water products in the province of Riau, Indonesia. The sample size used consisted of 180 customers. In a quantitative study, the number of samples already met the minimum number of samples required (Sugiyono, 2016). Samples are obtained using the non-probability sampling method and using a purposive sampling technique. Customers who have used or bought pristine 8+ bottled mineral water more than 2 times are the criteria applied, as it is assumed that the consumer has already purchased the product and is likely to use it again.

The study also sought to assess customer satisfaction with green marketing and awareness of the green brand, therefore the questionnaire provided the expression of views that attempted to quantify this. The data obtained is then measured by a Likert scale, and used Statistical Package for Social Sciences 22.0 (SPSS 22.0) for further statistical analysis. Results were interpreted and analyzed based on green marketing literature, green brand awareness, and other relevant empirical evidence, given due consideration to the study objective.

3.1. The profile of the mineral water product

Pristine 8+ is a brand of bottled mineral water that has been treated by an ionization process. The feature of this product is the smaller structure of the water molecule that the body instantly absorbs. Additionally, Pristine 8 + is rich in antioxidants and effectively counteracts the processes of oxidation that destroy the cells of the body. The number '8' represents the quantity of alkaline pH in one bottle of Pristine 8 + that can also help to neutralize the acids of the body. Pristine 8 + is made of pure and organic water from Mount Gede Pangrango's springs, Indonesia, and refined using advanced Japanese technology.

3.2. Demographic of respondent

The respondent's demographics were based on data from 180 respondents involved in completing the questionnaire (Table 1). Female respondents comprised 56.67% of the total number of respondents. The respondents' ages ranged from 21 to 25 (36.67%), 26 to 35 (23.89%), 16 to 20 (22.2%), and > 35 years (17.22%). A large percentage of respondents

as a student (39.44%) followed by non-government employees (23.33%), government employees (18.89%), and others (18.33%).

Table 1: Respondent demographics

Description (n = 180)		**N**	**%**	**Description** (n = 180)		**n**	**%**
Gender	a. Male	78	43.33	Occupation	a. Student	71	39.44
	b. Female	102	56.67		b. Government employee	34	18.89
					c. Non-government employee	42	23.33.
					d. Others	33	18.33
Age	a. 16-20 years	40	22.22				
	b. 21-25 years	66	36.67				
	c. 26-30 years	43	23.89				
	d. > 30 years	31	17.22				

Source: Authors' computation

4. Research Findings & Discussion

4.1 Validity Test

A validity test is a measurement of the degree of accuracy/appropriateness of the instruments used to measure what will be measured and a research questionnaire is of good quality if its validity and reliability have been proven. (Arifin, 2016). By comparing r-count with r-table, the validity check is performed. The element is said to be valid if r-count > r-table. The item of the questionnaire is said to be invalid if r-count < r table (Sugiyono, 2016). The corrected item-total correlation value is referred to as the t-count value in the validity test (Table 2). The value of the product-moment r-table is derived from the value of statistics r-table based on the value of df (degree of freedom) used in this analysis, i.e. df = 180-3 = 177, then the obtained value is based on r-table statistics with a 5% significance: r-table = 0.148. Based on a comparison of the values of r-count and r-table. It can then be concluded that all green marketing (X), green brand awareness (Z) and customer satisfaction (Y) questionnaire statements are valid.

4.2 Reliability Test

Reliability test is defined as consistency when the test is tested many times the results are relatively the same, indicating that there are significant correlation results after the first test results are correlated with the next test (Arikunto, 2016). The reliability test is performed if the items of the questionnaire are declared valid and the statement items concluded on the questionnaire are reliable if the Cronbach alpha value obtained > 0.6. If the alpha value of Cronbach < 0.6 then the questionnaire items will be considered unreliable (Sugiyono, 2016). The calculation result of the Cronbach alpha value (Table 3) of 0.805 was obtained from the reliability test for variable X with a questionnaire of 6 items, 0.820 for variable Z with a questionnaire of 7 items and variable Y used 3 items questionnaire of 0.665. Since these three Cronbach alpha values > 0.6, it is concluded that variable X (green marketing, variable Z (green brand awareness) and variable Y (customer satisfaction) are declared reliable.

Table 2: Validity test result

Variable/s	Statements	Corrected Item-Total Correlation (r-count)	Variable/s	Statements	Corrected Item-Total Correlation (r-count)
Green marketing (X)	1	0.512 (valid)	Customer satisfaction (Y)	1	0.524 (valid)
	2	0.607 (valid)		2	0.469 (valid)
	3	0.579 (valid)		3	0.437 (valid)
	4	0.585 (valid)			
	5	0.607 (valid)			
	6	0.507 (valid)			
Green brand awareness (Z)	1	0.616 (valid)			
	2	0.594 (valid)			
	3	0.611 (valid)			
	4	0.552 (valid)			
	5	0.600 (valid)			
	6	0.561 (valid)			
	7	0.453 (valid)			

Note: r-table = 0.148; valid if r-count > r-table
Source: Authors' computation

Table 3: Reliability test result

n	Variable	Cronbach's Alpha	Result
180	X	0.805	Reliable
	Z	0.820	Reliable
	Y	0.665	Reliable
Reliable if Cronbach alpha > 0.6			

Source: Authors' computation

4.3. Classic Assumption Test

4.3.1. Multicollinearity test

The multicollinearity test aims to check whether the regression model has formed a correlation between independent variables (Sugiyono, 2016). In a good regression model, there should be no correlation between the independent variables (Ghozali, 2013). The tolerance value is > 0.10 and the VIF value is < 10.00; multicollinearity does not occur. In compliance with the results of the multicollinearity testing output (table 4), the tolerance values of green marketing and green brand awareness with value 0.498. It is stated that there are no symptoms of multicollinearity (the tolerance value of 0.498 > 0.10). Besides, it is also supported by the VIF values obtained at 2.007 < 10.00.

Table 4: Multicollinearity test result

		Green Marketing	Green Brand Awareness
Collinearity Statistics	**Tolerance**	0.498	0.498
	VIF	2.007	2.007

Source: Authors' computation

4.3.2. Heteroscedasticity test

The purpose of the heteroscedasticity test is to examine whether there is a difference between the residuals from one result and another in the regression model. A good model of regression is homoscedasticity or there is no heteroscedasticity (Sugiyono, 2016). The basic decision for heteroscedasticity test: if the value of sig. (2-tailed) > 0.05 then there is no heteroscedasticity problem. Conversely, if the significance value or sig. (2-tailed) < 0.05 then there is a heteroscedasticity problem (Ghozali, 2013).

Table 5: Heteroscedasticity test result

Spearman's rho		**Unstandardized Residual**
Green Marketing	Sig. (2-tailed)	0.093
Green Brand Awareness	Sig. (2-tailed)	0.056
n		180

Source: Authors' computation

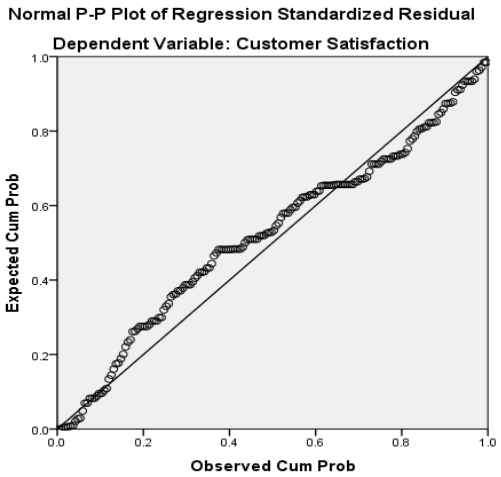

Figure 2. Normality test result
Source: Authors' computation

Based on the heteroscedasticity analysis (Table 5), the results obtained respectively for the green advertising of 0.93 and the green brand awareness of 0.56. This is in line with the decision-making basis that states if sig. value (2-tailed) > 0.05, then there is no heteroscedasticity problem.

4.3.3. Normality test

A normality test is necessary because it assumes that the residual value follows the normal distribution to evaluate certain variables. If this assumption is violated, the statistical test becomes invalid and it is not possible to use regression statistics (Arikunto, 2016). The basic decision for the normality test (Ghozali, 2013): If the data spread diagonally and follows the line, by diagonal or the histogram graph (Figure 2) shows a normal distribution, the regression model meets the assumption of normality. If the data spread widely away from the diagonal and/or does not follow the diagonal line direction or the histogram chart indicates no normal distribution, then the regression model does not satisfy the normality assumption. It can be seen from the test output (Figure 2), the data spread in the direction of the diagonal line. Therefore, it can be concluded that the data is normally distributed and then the hypothesis test can be performed.

4.4. Hypothesis test

4.4.1. t-test

The t-test is performed to determine whether the independent variable (X) partially influences the dependent variable (Y) by comparing the t-counts of each independent variable with the 5% error rate of the table value (α= 0.05). The independent variable provides a significant influence on the dependent variable if the value of the t-count ≥ t-table. The t-test uses df = n-k-1 degree of freedom where n= number of observations and k= number of variables (Sugiyono, 2016).
t-table = t (α/2 ; n - k - 1) = t (0.025; 177) = 1.984

Table 6: T-test result

Model		t	Sig.
1	(Constant)	3.119	0.002
	Green Marketing (X)	1.483	0.140
	Green Brand Awareness (Z)	5.870	0.000

Dependent Variable: Customer Satisfaction (Y)
Source: Authors' computation

The first (H1) and second (H2) hypothesis test results are as follows (Table 6): The Sig. value of the influence of X on Y is 0.140 > 0.05 and the value of the t-count is 1.483 < t-table 1.984, then it can be inferred that H1 is rejected, implying that the variable X does not influence the Y. The value of the influence of Z on Y is 0.000 < 0.05 and the value of t-count 5.870 > t-table 1.984, it is concluded that H2 is accepted, indicating that variable Z has a positive influence on Y.

4.4.2. F-test

F-test aims to determine the independent variables influence simultaneously on the dependent variable with a 5% significance level (Sugiyono, 2016), with basic decision-making (Ghozali, 2013): F-count > F-table, the dependent variable is influenced simultaneously by the independent variables and If F-count < F table, the dependent variable is not influenced simultaneously by the independent variables.
F-table = F (k ; n – k) = F (2 ; 180 – 2) = 3.02
The third hypothesis test uses F-test with the result as follows (Table 7):

Table 7: F-test result (Anova)

Model		Mean Square	F	Sig.
1	Regression	138.057	49.148	0.000
	Residual	2.809		
	Total	773.331		

a. Dependent Variable: Customer Satisfaction
b. Predictors: (Constant), Green Brand Awareness, Green Marketing
Source: Authors' computation

Based on the test output, the significance value for the influence of X and Z on Y at simultaneously amounted to Sig. 0.000 < 0.05 and the value of F-count 49.148 > F-table 3.02, and it was concluded that H3 is accepted; implying that variables X and Z were influenced simultaneously on variable Y.

4.4.3. Coefficient of determination analysis

The determination coefficient (R square) is used to measure and assessed the contribution level of the independent variables that influence the dependent variable simultaneously. The F test results that are significant are the criteria that must be met to interpret the R square value (Ghozali, 2013).

According to the test results in the model summary (Table 8), the R square value is 0.357 or 35.7%. The number in the R square implies that the variables of green marketing (X) and green brand awareness (Z) simultaneously influence the customer satisfaction variable (Y) by 35.7%. Whilst the rest (100% - 35.7% = 64.3%) are influenced by other variables that are not examined

Table 8: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.598[a]	.357	.350	1.676
a. Predictors: (Constant), Green Brand Awareness (Z), Green Marketing (X)				

Source: Authors' computation

5. Conclusion, Limitation, and Implication

5.1. Conclusion

From the results of the analysis, conclusions drawn concerning the responses to the proposed hypotheses, i.e.:

Based on the first Hypothesis (H1) test results, it was discovered that green marketing (X) has no influence on customer satisfaction (Y) of Pristine 8 + brand bottled drinking water, identified with a significance value of variable X 0.140 > 0.05 and t-count value < t-table (1.483 < 1.984). The results of the second hypothesis (H2) test, supported the statement that green brand awareness (Z) has a positive influence on customer satisfaction (Y) of Pristine 8 + bottled drinking water with a significance value 0.000 < 0.05 and with the value of t-count > t-table (5870 > 1,984).

The third hypothesis (H3) with test results supporting the hypothesis that green marketing (X) and green brand awareness (Z) simultaneously have a positive influence on customer satisfaction (Y) of the Pristine 8 + bottled water brand with test results sig value 0.000 < 0.05 and F-count value > F-table (49.148 > 3.02). The value of R square obtained by analyzing the determination coefficient (R square) is 0.357. It means that the green marketing variable (X) and green brand awareness variable (Z) simultaneously influence the customer satisfaction variable (Y) by 35.7 % and the rest is influenced by other variables that are not investigated.

5.2. Limitation

Although the study provides a certain perspective on how variables on the mineral water product influence customer satisfaction, it has some limitations. There is a limited number of respondents. A larger sample would have enhanced the results obtained. The empirical results could be influenced by these study design factors changing. Future studies should define and evaluate certain factors influencing customer satisfaction, such as the quality of green service/product or perceived values with the green image of the product brand.

5.3 Implication

The results of this study, notably in the field of marketing management are expected to provide benefits for science growth. The outcomes of this study are expected to serve as a reference source for further studies. The results are also intended to be inputs as well as developing materials for the management of the company as a source of information and to facilitate appropriate decision making concerning the marketing strategy of bottled mineral water products.

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Appendix 1.

Questionnaire regarding GREEN MARKETING AND GREEN BRAND AWARENESS INFLUENCE CUSTOMER SATISFACTION

- **Please tick one box at a time for every question.**
- **Please answer all questions in the survey**

Gender	Age	Occupation
□ Male	□ 16 - 20 years	□ Student
□ Female	□ 21 - 25 years	□ Government employee
	□ 26 - 30 years	□ Non-government employee
	□ > 30 years	□ Others

Evaluation Scale:

5 - Strongly agree, **4** - Agree, **3** - Neutral, **2** - Disagree, **1** - Strongly disagree

Section 1: Green Marketing						
1	I use Pristine 8+ bottled mineral water because of advertising in the mass media as an eco-friendly product.	5	4	3	2	1
2	Product information, labeling, and packaging design that includes information on Pristine 8+ bottled mineral water truly represents an environmentally friendly product.	5	4	3	2	1
3	I feel that the Pristine 8 + bottled mineral water product advertising activity is an honest campaign.	5	4	3	2	1
4	The Pristine 8+ bottled mineral water product is relatively affordable and easy to find.	5	4	3	2	1
5	The Pristine 8 + bottled mineral water product collaborates in its promotional activities with communities that care about environmental sustainability.	5	4	3	2	1
6	The eco-friendly information on Pristine 8+ bottled mineral water products in promotional and advertising activities is easy to understand.	5	4	3	2	1
Section 2: Green Brand Awareness						
1	I have an awareness of the importance of using environmentally friendly products to preserve nature.	5	4	3	2	1
2	If I see an environmental label on a product or brand, I will highly consider using it rather than non-label.	5	4	3	2	1
3	By consuming Pristine 8 + bottled mineral water product I believe that it is not only eco-friendly but also beneficial for our health.	5	4	3	2	1

4	Producers of Pristine 8 + bottled mineral water products have a good record of accomplishment in environmental preservation.	5	4	3	2	1
5	I am willing to pay more for drinking Pristine 8 + bottled mineral water products since it is an eco-friendly product.	5	4	3	2	1
6	By using Pristine 8+ bottled mineral water products, I believe that I have contributed to the effort to preserve the environment.	5	4	3	2	1
7	I recognize the producers of Pristine 8 + bottled mineral water products educate consumers about sustainability in the environment.	5	4	3	2	1
Section 3: Customer Satisfaction						
1	I am satisfied to use the Pristine 8+ bottled mineral water product.	5	4	3	2	1
2	I will recommend using Pristine 8 + bottled mineral water products to friends and colleagues.	5	4	3	2	1
3	Pristine 8+ bottled mineral water product is my best choice when it comes to drinking mineral water products.	5	4	3	2	1

CORPORATE GOVERNANCE IN THE ROMANIAN RESEARCH-DEVELOPMENT ACTIVITY

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Abstract*: Corporate governance was implemented in companies managerial activity. It explicitly sets forth such companies organization way according to the principle of the separation of the executive management from the decisional one, especially in those companies which were heading towards bankruptcy. Thus, the two models of corporate governance appeared, the dual management system or the simple management system. The most implemented system in Romania is the dual one and this system is implemented both in the private system as well as in public entities. In the private system, the dual system is implemented both in companies listed on a regulated market as well as in those not listed. Timid steps are also taken by entities with research & development (R&D) activities, for the moment among those listed with the Bucharest Stock Exchange, but we need to mention here that some corporate governance principles are implemented also in companies which are not listed, as we will see in what follows. Maybe it will not be bad to have this management system implemented also in research-development national institutes as it would be easier to follow the way of how the public money is spent. At the same time, by its implementation, the corporate governance might have an important role also in what concerns the human resource of such institutes.*

Keywords: corporate governance, research & development, Stock Exchange, Financial Supervisory Authority, Romania

JEL classification: G23, G28, H11, H30

1. Introduction

Corporate governance represents an ensemble of the so called “rules of the game” by which companies are managed internally and supervised by the Board of Directors in order to protect the interests of all the participant parties. Thus, this governance has as its specific the rights and liabilities distribution between the various participants in a company such as the Board, the managers, the shareholders and other participant parties and which specifies the rules and procedures for decision making related to the business of the respective company (Aguilera and Jackson, 2010).

The necessity of this corporate governance appearance came up when many companies reached bankruptcy, the financial crises and, in particular, the gap between the compensations granted to the managers and the company performance of the last years, all these demonstrating that the introduction of the corporate governance was not just a means of the company survival but, rather a way to the corporation prosperity (OECD, 2015).

The need for corporate governance increased along time, as the distance increased between the owners of a business and those who manage it in their name. The appearance of several owners led to the appearance of the joint stock companies.

The need for corporate governance is brought forth by the sometimes divergent interests of the shareholders who wish to make sure that they will recover their investment in terms of

maximum profitability taking into account the risk profile they accept and the managers appointed by them to run the entity who may have other objectives. Corporate governance wishes to align the interests of several parties so that the shareholders achieve their goals without generating frustrations among the managers (Păunescu, 2019).

2. Corporate governance in a company with dual management system

If in the case of small individual businesses where the owner is totally involved in the activity, the need for corporate governance is not imperative, in exchange, in the case of joint stock companies, where the stock owners are different from those who manage the company, an efficient system of corporate governance may make the difference between success and failure. The corporate governance rules applicable to Romanian companies may be found in Law no. 31/1990 and also in the additional legislation applicable to them. It may be the case of Law no. 24/2017 on the issuers of financial instruments and market operations, of the Law no. 297/2004 on the capital market, with the subsequent amendments and completions, or of the Government Emergency Ordinance no. 109/2011 on the corporate governance of public companies, with the subsequent amendments and completions. Mainly, joint stock companies are managed by a Board of Directors and a Supervisory Board, i.e. in a specific dual system (Păunescu, 2019).

Thus, the management of the joint stock company rests exclusively with the Board of Directors which fulfills the necessary and useful acts for the performance of its field of activity, except for those reserved by law to the responsibility of the Supervisory Board and to the general assembly of shareholders.

The members of the Board of Directors may not be also members of the Supervisory Board at the same time (Law no. 31/1990).

They may be revoked at any time by the Supervisory Board but, should the memorandum of association stipulate so, the members of the Board of Directors may also be revoked by the ordinary general assembly of the shareholders. In exchange, should the revocation of the members of the board be done without a just cause, then, they are entitled to the payment of damages.

The Board of Directors exercises its assignments under the control of the Supervisory Board. It is composed of one or several members, the number being usually odd. When there is one member, he bears the name of unique general manager. At the same time, in the case of joint stock companies whose annual financial statements make the object of a legal audit obligation, the Board of Directors is composed of at least three members (Dragomir, 2010).

The Board of Directors represents the company in its relationship with thirds and in law related matters. If the memorandum of association does not stipulate it expressly, the members of the Board of Directors represent the company only by acting together and, in such a situation, subsequent to a unanimous vote, the members of the Board of Directors may mandate one of them to run certain operations or type of operations (Law no. 31/1990).

Among the assignments of the Board of Directors is also the one which indicates that, once every three months, the board submits a report to the Supervisory Board on the company management, activity and possible evolution. Besides this information, the Board of Directors notifies the Supervisory Board any information related to the events which may have a significant influence on the company (Law no. 31/1990).

A very important thing is that the members of the Board of Directors submit to the Supervisory Board the annual financial statements and its annual report immediately after their draw up, together with a detailed proposal concerning the distribution of the profit resulted from the balance of the financial exercise, proposal which will also be backed up in the general assembly of the shareholders (Aguilera and Jackson, 2010).

The members of the Supervisory Board are appointed by the general assembly of shareholders, except for the first members who are nominated by the memorandum of association. The candidates for the positions of member in the Supervisory Board are named by the existing members of the Board or by the shareholders (Dragomir, 2010).
The members of the Supervisory Board may be revoked at any time by the general assembly of shareholders with a majority of at least two thirds of the number of votes of the present shareholders. At the same time, the members of the Supervisory Board may not simultaneously be members of the Board of Directors and may not cumulate the position of member of the Supervisory Board with that of company employee (Dragomir, 2010).
The number of the Supervisory Board members is set up by the memorandum of association and that number cannot be inferior to 3 nor higher than 11 (Law no. 31/1990).
From its members the Supervisory Board elects the Chairman of the Board. Also, the Supervisory Board members cannot be at the same time members of the Board of Directors and they may not cumulate the position of Board member with that of company employee (Aguilera and Jackson, 2010).
In exceptional cases, when the company interest so requires, the Supervisory Board may convene the general assembly of shareholders (Dragomir, 2010).
There were many discussions on whether company management assignments may be transferred to the Supervisory Board. The answer is no, but, still, the company memorandum of association may specify that certain operations may not be performed but with the agreement of the Supervisory Board. The situation in which this Board does not express its agreement on that/these operation(s) then the Board of Directors may ask for the approval of the general assembly of shareholders (Law no. 31/1990). The resolution of the general assembly related to such an agreement is adopted with a majority of three fourths of the number of votes of the present shareholders. The memorandum of association may not set up another majority nor can it stipulate other terms for the agreement of the general assembly (Law no. 31/1990).
Another thing which rests with the Supervisory Board is its possibility to create advisory committees which are composed of at least two members of the Supervisory Board and assigned to run investigations and the elaboration of recommendations for the said Board in domains like audit, the remuneration of the members of the Board of Directors, of the supervisory board, of the personnel and the nominations of candidates for various management positions (Law no. 31/1990).
These committees must submit activity reports on their activity to the Supervisory Board (Păunescu, 2019).

3. Corporate Governance at the Bucharest Stock Exchange

The Bucharest Stock Exchange was re-established in 1995, after almost 50 years during which the market activity was suspended by the Communist regime and, since then, it witnessed a continuous development, being the most important Romanian stock exchange. The mission assumed by the BSE refers to the transformation of the local capital market in an active financing instrument of the Romanian economy (BVB, 2020).
The Bucharest Stock Exchange plays an important role in imposing the best principles of corporate governance. Thus, in 2015, it issued a new Corporate Governance Code applicable as of 2016 to all the companies listed on the regulated market. The Code replaces the one published in 2001 and revised in 2008 and puts to practice the experience accumulated along the years, intending to help the development of an attractive and competitive market at an international level on the basis of the best practices, transparence and trust (BVB, 2020).

The Corporate Governance Code of the BSE is a set of practices and recommendations and puts to practice the principle "apply or explain". The principles recommended by the Code have as their aim the development of the trust granted by investors to the listed companies by the promotion of corporate governance improved standards in those companies (Law no. 24/2017, Law no. 297/2004).
The principles, which regard mainly the investors' access to information and the shareholders' rights protection, encouraging the companies to build up a strong relation with their shareholders and with other interested parties, are not compulsory but just recommended. Still, the companies admitted for trading on a regulated market have the obligation to include a corporate governance declaration in their annual report, in a distinct section, document which will include a self-assessment regarding the manner in which the recommended provisions were fulfilled, as well as the measures adopted with a view to the observance of the provisions which are not or just partially fulfilled (BVB, 2020).
Supplementary, in order to support the companies in their implementation of the Corporate Governance Code, the Stock Exchange published also a compendium of corporate governance good practices as well as a Manual on reporting in matters of corporate governance. Even if a company, other than those admitted for trading on a regulated market is not obliged to adopt the Corporate Governance Code issued by the Stock Exchange, the said Code, together with the supplementary materials issued by the Bucharest Stock Exchange may be used as a landmark of good practices in the relation with its investors (Law no. 24/2017, Law no. 297/2004).

4. Corporate Governance for entities regulated by the Financial Supervisory Authority

In terms of corporate governance, certain companies must conform to supplementary requirements. Thus, the entities regulated by the FSA have the obligation to request the endorsement of the management structure members prior to the start of their mandate. Similar provisions may be also met in the case of the companies regulated by the National Bank of Romania (ASF, 2020).
The respective regulations apply to the following entities:

a) Companies of financial investments services;
b) Investments administration companies;
c) Collective investment bodies/alternative investment funds (FIA), set up by memorandum of association, managed internally;
d) Administrators of alternative investment funds (AFIA);
e) Central trustees;
f) Central counterparties;
g) Trading places administrators;
h) Insurance and/or reinsurance companies;
i) Administrators of privately administered pension funds, administrators of facultative pension funds and administrators of the occupational pension funds (ASF, 2020).

As an example, the Regulations of the Financial Supervisory Authority no. 2/2016 on the assessment and approval of the members of the management structures and of the persons who hold key positions within the entities regulated by the FSA stipulates that the regulated entities must make sure that the members of the management structures fulfill and maintain for the full duration of their activity development, requirements referring to:

- Knowledge, competences and professional experience;
- reputation, honesty and integrity,
- governance (ASF, 2020).

to that end, the regulated entities evaluate in advance the persons approved by the general assembly of shareholders as members of the management structures and request the

endorsement of the FSA but have the obligation to set up adequate policies and procedures for the assessment of the initial and continuous adequacy of the assessed persons in order to make sure that they:

- have a good reputation,
- possess sufficient knowledge, competences and experience for the fulfillment of the position specific assignments,
- are capable of acting with honesty, integrity and have an independent thinking to evaluate and challenge in an argumentative manner the decisions of the executive management/higher management and any other decisions when necessary and to effectively supervise and monitor the decision making process,
- may allocate enough time, the case in which they hold several positions, for the fulfillment of the assignments afferent to the positions within the regulated entities and with the observance of the limitation of the number of management positions which can be held simultaneously.

The adequacy must be evaluate also individually, at the member level, but also collectively, at the level of the management structure (ASF, 2020).

5. Corporate Governance in the research & development activity in Romania

The concept of corporate governance appeared and developed during the last century (XX), starting with the appearance of the conflicts of interests between the shareholders (owners) and managers. This appearance was a response to a series of spectacular failures from the private sector, in a relatively short time, failures which shocked by their ampleness and decreased the trust of the actors of the economic life in the financial statements of the entities, especially the investors' trust.

The corporate governance affects the manner in which the organizations function and their results, not directly, but by the actions and decisions made by the leaders. Just as Pérez paraphrases Edgard Morin, it can be said that the governance is somehow the "management of the management" (Pérez, 2003). This reference may explain a significant part of the enthusiasm, mixed with a little bit of mystery, caused by this concept in the field of the organizational science.

We may consider corporate governance as being a mosaic composed of several pieces interlaced between them which, together, bring value and importance within the entity. In the specialty literature from the area of the corporate governance and financial reporting, we may notice the fact that the published scientific surveys are oriented towards several research directions (towards the independence of the entity councils members, to audit and control, informational transparency, gain manipulation, introduction of the financial statements according to the Financial Reporting International Standards). These research directions will be introduced in the first chapter of the work (Kole and Lehn, 1999).

This concept is one of the complex concepts which stands at the border between several disciplines located in the economic sphere. The interdisciplinary aspect is noticed in the specialty literature by the fact that it is introduced in relation with various area of the economic environment like the audit, management, finances and accounting. This is seen as an ensemble of mechanisms which comes to the support of the management to order the decisions within the entity and reconcile the various interests appeared within the entity, mainly those between shareholders and managers.

The introduction and transparency of the information of an economic nature help cover the gaps with the information necessary to the investors, clients, employees, shareholders and may have a positive effect on the company revenues.

Corporate governance developed along the time due to the legal changes, to the new aspirations of the entities and of the interested parties, respectively, due the impact of the

various external factors, having an important role in the harmonization of the financial statements and the economic stability which an entity needs after going through a period of financial decline (Mănoiu et al., 2015).

In Romania, the R&D activity runs both public and private.

For public entities, corporate governance is exercised in accordance with the provisions of the Government Emergency Ordinance no. 90/2011 but, the mentioned ordinance expressly specifies which are the public entities that have to implement corporate governance, i.e.:

a) autonomous administrations;

b) national companies and entities, companies in which the state or an administrative-territorial unit is the sole, majority shareholder or in which holds control;

c) companies in which one or several public enterprises specified at letter a) and b) own a majority participation or a participation by which they hold control.

The R&D activity is operated in public entities such as research-development national institutes, universities, institutes under the subordination of the Romanian Academy and in private companies usually organized as joint stock companies.

So, the R&D institutes, the main “actors” on the R&D activity market segment, both the ones under the coordination of the related ministry and the ones under the subordination of the same ministry are not included.

Even if they do not apply the corporate governance organization and principles, the public entities with R&D activity have an organization form close to the corporate governance: they have a Board of Administration and an Executive Board. The Board of Administration adopts the resolutions which are the most important for the respective entities and the said resolutions, by the General Manager, reach the Executive Board which starts the said resolutions implementation. At the same time, certain measures taken by the Executive Board have to reach the Board of Administration in order to be approved.

In exchange, the entities with R&D activity which are organized as private joint stock companies and which are listed on a regulated market have to apply the corporate governance principles, as we said before. In what follows, I will introduce two examples of such companies of which one applies the corporate governance and the second does not apply such governance principles.

One example of private joint stock company is ICECON SA, a joint stock company which develops R&D activities in the field of constructions. Though it should be organized under the incidence of the corporate governance, for the time being, the legislation does not oblige it to implement such governance.

It is worth mentioning the fact that the administrative organization of ICECON SA is similar to those who implemented corporate governance in the sense that, instead of having a Directorate and a Supervisory Board, here they have a Board of Administration and an Executive Board besides the Scientific Council composed of researchers, so still two management structures of which one executive and one administrative.

The Chairman of the Board of Administration is at the same time General Manager, a legal situation due to the fact that the said Chairman is also the majority shareholder of the respective company.

In exchange, CEPROCIM SA is a private company with R&D activity listed with the Bucharest Stock Exchange (BVB) and bearing the symbol CEPO.

In terms of organization, CEPROCIM SA has a Board of Administration and an Executive Board which plays the supervisory role besides a Scientific Council composed of researchers.

In this case also, the Chairman of the Board is General Manager becoming Chairman-General Manager but, like in the case of ICECON SA, this Chairman is also the majority shareholder and, if the corporate governance implemented by the Bucharest Stock Exchange does not ban that, this is very good.

As it is listed on the Stock Exchange, CEPROCIM SA offers a greater transparency related to its activity as compared to the other entities of the R&D activity as the financial results are public for all the shareholders and the activity of this company is subject to a greater number of rules as compared to other competitors on the same market.
At the same time, the negative financial results may lead to the decrease of the market value of a share as compared to the value of one share of a company with R&D activity which is not listed and in which, usually, the majority shares package is owned by a small number or even by a single person.
Due to this fact, there are higher chances that CEPROCIM SA distributes dividends, a thing which is expected by the shareholders and leads to a more attractive value for this company as compared to other R&D companies which do not distribute dividends and, on the contrary, it shows debts to various state budgets.
One good thing lately is that the financial statements of all the entities, including those with R&D activity are public and may be seen especially by the business environment and thus, the said environment may have an image on its intentions related to investments in R&D activity.

6. Conclusions

We consider that it would be advisable that the corporate governance principles be implemented by all the entities of the R&D activity (not so much in universities and those subordinated by the Romanian Academy) as there would be a total transparency related to the funds allocated from the state budget for the R&D activity.
This could also lead to a higher capitalization of the fundamental research activity results which may easily turn into experimental research the situation in which the results of the fundamental research would have practical applicability and might enter in a production process and the resulted products would contribute, even if to a little extent, to the funding of the research-development activity (Rus, 2016).
Or, such funds resulted from the R&D activity may contribute either to the development of a knowledge based society (Rus, 2013) or to the relaunch of the present economy, after the COVID-19 crisis, because the present economy, to a certain extent, led the economy to a situation similar to that generated by the economic crisis after 2008.
And last, but not least, the human resources existing in these R&D institutes could be stimulated to stay in those entities and the young people who will come to this system would not be tempted to leave for the first offer coming from the private system.
In the research institutes subordinated by the Romanian Academy, many candidates for a doctor's degree were co-opted lately and they have high chances to stay in those institutes and be included in research teams after the acquirement of the doctor's titles, being stimulated to implement the results of the research they did during the doctorate studies.
And maybe then we could witness more inventions or innovations in the Romanian R&D activity which could add to all those done so far of which we could mention the "artificial blood" or we could go to the Magurele Laser which, in time, may have applicability in medicine for instance, for the treatment of cancer in various body organs, for example.
And, last but not least, the set up of a capital fund by the Romanian state, of which rumors have spread years ago, could maybe stimulate more the research-development activity so that, along with the infrastructure development and the increase of the number of personnel in this field, the attracted funds would increase and that will implicitly go along with the implementation of a corporate governance in this field to a number of entities as great as possible.

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TRADE OPENNESS AND UNEMPLOYMENT RATE IN NIGERIA

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Abstract: *This study examines the relationship between trade openness and unemployment rate in Nigeria from 1980 to 2018. The study utilized the auto-regressive distributed lag (ARDL) technique and the result of the study shows that trade openness had negative and significant impact on unemployment rate in Nigeria. The implication of this result is that trade openness provides employment opportunities, which reduces the unemployment rate in Nigeria. Thus, the study concludes that trade openness is a significant determinant of unemployment in Nigeria. The study recommends the need for conscious economic policies that would promote foreign private investment, capable of enhancing aggregate volume of investment in the country and contribute to employment generation in the Nigeria. Finally, government needs to explore new marketing areas for foreign investors which would also contribute to employment generation.*

Keywords: Trade Openness, Unemployment, ARDL, Nigeria.

JEL Classification: F13, F16, J21.

1. Introduction

Globally, government has always introduced and implemented economic policies to achieve desired micro and macroeconomic objectives. Relatedly, the Nigerian government has over the years implemented various trade policies - export promotion strategy in 1981; trade liberalization policy in 1986; exchange rate liberalization in 1986; establishment of the Nigerian Export-Import Bank (NEXIM) in 1991; and entered several bilateral and multilateral trade agreements. These trade policies were expected to increase trade relations with the global community through ease movement of commodities across borders, importation of cutting-edge and modern technologies, accessibility of foreign currency, enhance inflow of foreign capital and knowledge spill-over, and facilitate the participation of foreign firms in domestic trade (UNCTAD, 2013). The inflow of these resources is expected to enhance the country's international competitiveness leading to higher production and generation of employment opportunities.

Furthermore, Khattry and Rao (2002) and Ebrill, Stotsky and Gropp (1999) argued that trade policy influences trade tax revenue. The removal of quotas and reduction of tariffs on imported goods lead to substantial increase in trade volumes and a decrease in the incentive to evade taxes; consequently resulting in higher trade revenue (Ifeakachukwu, 2018). The increase in trade revenue is expected to enhance the government finances in providing employment opportunities. In spite of the above narrative on the link between trade policy and unemployment, available data shows that increase in trade openness has not been

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accompanied by reduction in unemployment rate (see appendix Figures 1 and 2) while empirical literatures on this issue have equally yielded mixed results. Kemal et al. (2003) observed that reduction in quantitative restriction on imports improve welfare of employees while Martes (2018) noted that trade openness had significant and negative impact on unemployment rate. Famode, Makalamba and Ngbolua (2020), and McMillian and Verduzco (2011) observed an insignificant relationship between trade policy and unemployment rate. With respect to Nigeria, little is known about the link between trade openness and unemployment rate, due to absence of indigenous studies on this issue. Most studies on trade openness have focused on its relationship with economic growth (Ude and Agodi, 2015; Arodoye and Iyoha, 2014) while studies on unemployment have equally focused on its link with other macroeconomic variables such as economic growth, poverty and government spending (see Sodipe and Ogunrinola, 2011; Oloyede, 2014). In view of the paucity of knowledge on trade openness and unemployment, this study seeks to address the research question "what is the relationship between trade openness and unemployment rate Nigeria"? and the objective of this study is "to analyse the relationship between trade openness and unemployment rate in Nigeria". The outcome of this study would review the stand of the relationship between trade openness and unemployment rate which would provide the guide for policymakers on appropriate trade policy measures to be adopted in addressing the perennial problem of unemployment in Nigeria.

Hypothesis Testing:
Trade openness has an insignificant impact on unemployment rate in Nigeria.

2. Literature Review

Different theories have been developed with respect to international trade. The factor proportion model was developed by Heckscher and Ohlin (1991). The model introduced a second factor of production (capital) to the traditional model of David Ricardo. The model is a two-by-two variant that is there are two countries, two factors of production (capital and labour) and two goods. Also, the two countries have identical technology i.e. same production functions which are available for the two goods to be produce and the aggregate preference are the same for the two countries. The model assumes that the only differences that exist between the two countries are the variations in the relative endowments of factors of production. The Heckscher-Ohlin theory hypothesized that a capital-abundant country will export capital-intensive good while a labor-abundant country will export the labor-intensive good, thus, each country exports good which it produces relatively cheaper than the other country. In the Heckscher-Ohlin theory a country's advantage in production arises mainly from its relative factor abundance. Kreickemeier (2008) noted that the Heckscher-Ohlin structure predicts that trade liberalization would result in a reduction in unemployment only if the country in question is labor-abundant and would increase unemployment in a labor-scarce economy. Thus, given that the Nigerian economy is labor-abundant, following the Kreickemeier (2008) proposition, it is expected that trade policy would influence employment through the provision of job opportunities.

Empirical evidence from existing literature explains the relationship between trade openness and unemployment rate. With respect to Nigeria, there is a paucity of knowledge as regard the relationship between trade openness and unemployment rate. However, there are non-indigenous empirical studies that have examined the relationship between trade openness and unemployment rate. Famode, Makalamba and Ngbolua (2020) examined the impact of trade openness on unemployment rate in Democratic Republic of the Congo (DRC) for the period 1991 to 2017. Employing the vector error correction estimation technique, the study observed that trade openness insignificantly influenced unemployment rate. Madanizadeh

and Pilvar (2019) examined the relationship between trade openness and labour force participation rate for a panel of 93 countries over the period 1990 – 2012. Using fixed effect panel estimation technique, the study observed that trade openness significantly promote labour force participation rate. Mohler, Weder and Wyss (2018) examined the relationship between international trade and unemployment in Switzerland. The study covered the period 1991 – 2008 with about 33,000 employees in the manufacturing sector. Using the panel regression technique, the study observed an insignificant relationship between international trade and unemployment. Martes (2018) analyzed the relationship between trade openness and unemployment rate for 28 OECD (Organization of Economic Corporation and Development) countries. The study covered the period 2000 – 2016 and the panel regression estimation technique was employed. The findings of the study showed that trade openness had significant and negative impact on unemployment rate both in the long run and short run. Awad-Warrad (2018) analyzed the impact of trade openness and economic growth on unemployment reduction in the Arab region. The study focused on 7 Arab countries (Algeria, Bahrain, Egypt, Jordan, Oman, Saudi Arabia and Tunisia) and covered the period 1990-2015. Using panel weighted least square estimation technique, the study observed that trade openness and economic growth significantly reduced unemployment in the Arab region.

Keawphun (2016) examined the impact of trade opening on unemployment using a linear regression model for 89 Countries for the period 1994 to 2005. Evidence from the study revealed that trade openness had negative relationship with unemployment. Anjum and Perviz (2016) examined the relationship between trade openness and unemployment for labour and capital abundant countries. The study focused on a panel of 75 labour abundant countries and 44 capital abundant countries for the period 1990 -2012. Using pooled mean group estimation technique, the study observed that in the long run, trade openness had a negative and significant impact on unemployment rate in labour abundant countries, while in capital abundant countries trade openness had positive and significant impact on unemployment rate. Carrere, Grujovic and Robert-Nicoud (2015) examined the link between trade openness and frictional unemployment in 31 OECD Countries. The results of the study revealed that trade openness contributes significantly to reduction in unemployment in the sampled countries. Carrere, Fugazza, Olarreaga and Rodert-Nicoud (2014) examined the relationship between openness to trade and unemployment rate for a panel of 97 countries. The study covered the period 1995 to 2009 and the result of the study showed that the relationship between trade openness and unemployment rate depends on the covariance between sectoral labour market frictions and comparative advantages. A positive covariance implies that trade liberalization leads to increase in unemployment while a negative covariance signifies that trade liberalization leads to reduction in unemployment.

Ventura (2014) examined the impact of trade openness on female unemployment rate in developing countries over the period 1990 – 2012. The study covered 119 countries and utilized pooled ordinary least squares estimation technique. The result of the study showed that trade openness increased female unemployment rate. Gozgor (2013) examined the impact of trade openness on unemployment rate in G7 countries (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States). Using panel estimation technique, the study observed that trade openness and globalization had negative and significant impact on unemployment rate. Halit (2013) analyzed the relationship between trade liberalization and growth rate of sectoral employment in developed and developing countries. Using panel regression estimate, the study observed that trade liberalization had negative and significant impact on industrial sector employment in developed countries. Also, the study found that trade liberalization significantly enhanced employment in industry and services sectors in developing countries while trade barriers significantly reduced employment growth in services sector in the developed countries. Newfarmer and

Sztajerowska (2012) examined the relationship between trade and employment. The study noted that trade played a vital role in job creation, increased wages in both rich and poor countries, and improve labour working conditions. Jaewon (2011) examined the link between international trade and unemployment rate for a panel of 20 OECD countries. The study covered the period 1961 to 2008 and the study concluded that international trade influenced aggregate unemployment as it interacts with rigid labour market institutions. Also, the study observed that with average degree of labour market rigidities, an increase in international trade had insignificant impact on unemployment rate.

Felbermayr, Prat and Schmerer (2011) analysed the relationship between unemployment and trade openness for a panel 20 OECD countries. The results of the study showed that increased trade openness is causally associated to a lower structural rate of unemployment through total factor productivity in the long-run. Costinot (2009) examined the determinants of trade protection in a small open economy with search frictions. The study observed that jobs generate rents, whose access depends on the level of trade protection. That is by increasing the domestic price of a good; a government may attract more firms in a particular industry and in turn increases the probability that workers will find jobs in this sector. Dutt, Mitra and Ranjan (2008) analyzed the relationship between international trade and unemployment for a panel of 92 countries over the period 1990 - 2000. The study employed two alternative models – Ricardian and Heckscher-Ohlin, and the result of the study supports the Ricardian model, that international trade had negative impact on unemployment while the result did not find support for the Heckscher-Olin model that the relationship between international trade and unemployment changes from negative to positive, as countries move from labour-abundant to capital abundant.

The empirical studies reviewed above show clearly that there is an absence of indigenous studies explaining the link between trade policy and unemployment rate. Therefore, there is a need to examine the relationship between trade policy and unemployment rate with respect to Nigeria.

3. Methodology of Research

To examine the relationship between trade openness and unemployment in Nigeria, this study specifies the model below:

$$UMP = f(TRDP) \quad (1)$$

Introducing other control variables which are identified in the literature as important factors influencing unemployment rate (see Famode Makalamba and Ngbolua, 2020; Awad-Warrad, 2018; Nwaka, Uma and Tuna, 2015), equation (1) becomes

$$UMP_t = f(TRDP_t, GRT_t, GSIV_t, PCI_t,) \quad (2)$$

Linearing equation (2):

$$UMP_t = \delta_0 + \delta_1 TRDP_t + \delta_2 GRT_t + \delta_3 GSIV_t + \delta_4 PCI_t + \varepsilon_t \quad (3)$$

From equation (3), *UMP* is the dependent variables while *TRDP, GRT, GSIV* and *PCI* are the independent variables. *UMP* is unemployment rate, *TRDP* is trade openness measured by trade openness, *GRT* is the growth rate of real gross domestic product, *GSIV* is government size measured by the ratio of aggregate government expenditure to real gross domestic product, *PCI* is per capita income, δ_0 is constant and ε_t is the stochastic error term. Theoretically, the expected relationship between trade openness and unemployment rate is indeterminate as argued in the literature while it is expected that an increase in economic

growth *(GRT)*, government size *(GSIV)* and per capita income *(PCI)* would reduce unemployment rate. This study employed both descriptive and appropriate econometric techniques based on the preliminary econometric tests such as the unit root and co-integration estimate. The data for this study is obtained from the Central Bank of Nigeria, Statistical Bulletin, 2018 edition.

4. Data Analysis and Results

4.1. Descriptive Statistics and Covariance Estimate

The descriptive statistics on Table 1 shows that the average values of the trade openness (*TRDP*), unemployment rate (UMP), growth rate of real gross domestic product (GRT), are 7.84, 12.47 and 3.24 respectively while the average values of government size (GSIV) and per capita income (PCI) are 2.10 and 0.24 respectively. The standard deviation reveals that unemployment rate (UMP) and trade openness are the most unstable variables with 9.39 and 9.62 while per capita real income (PCI) is the least volatile variable with (0.07). It is worthy to note that the skewness statistics of growth rate of real gross domestic product (GRT) is negatively skewed while the other variables such as unemployment rate, trade openness, government size and per capital real income were positively skewed. The Kurtosis statistics reveal that rate of real gross domestic product (GRT) is leptokurtic, which implies that the distributions are peaked relative to normal distribution, while per capita income (PCI) and government size (GSIV) are platykurtic, meaning that the distribution of the variables are flat relative to normal distribution. Meanwhile, unemployment rate (UMP) and trade openness (TRDP) are mesokurtic, implying that the variables have normal distribution that is the distribution of the variables is bell shaped. Interestingly, the Jarque-Bera statistic for the null hypothesis of normal distribution for unemployment rate (UMP, government size (GSIZ) and per capita income (PCI) cannot be rejected at five percent level, while the null hypothesis of normal distribution for trade openness (TRDP) and economic growth (GRT) is rejected.

Table 1: Descriptive Analysis

Variables	UMP	GRT	GSIZ	TRDP	PCI
Mean	12.473	3.244	2.103	7.844	0.244
Std. Dev.	9.391	6.123	1.891	9.623	0.073
Skewness	0.966	-3.249	0.425	1.069	0.774
Kurtosis	3.121	16.454	1.824	2.818	1.960
Jarque-Bera	5.938	353.446	3.334	7.286	5.503
Probability	0.051	0.000	0.189	0.026	0.063
Observations	38	38	38	38	38

Source: Authors' computation 2020.

The covariance estimate of the independent variables is presented on Table 2. It is observed from the Table that the independent variables have positive covariance estimate. This suggests that the independent variables have positive relationship with each other, that is, the pairs of independent variables move in the same direction.

Table 2: Covariance Matrix

Variables	TRDP	GRT	GSIZ	PCI
TRDP	90.17347			
GRT	18.37626	36.50908		

GSIZ	14.69008	3.369782	3.482631	
PCI	0.392318	0.079506	0.117822	0.005258

Source: Authors' computation 2020.

4.2. Unit Root Test

The Phillips-Perron (PP) test was adopted to investigate the unit root test. The results of the unit root test presented in Table 3 revealed that all the series were integrated of order one, which implied that the variables are I(1) variables except per capital income. The results revealed that per capital income (PCI) is I(0) series. Consequently, the mix order of integration necessitates the use of Auto-regressive Distributed Lag Bound co-integration technique.

Table 3: Phillips-Perron (PP) Unit Root Test

Variables	Level	After Differencing	Status
UMP	0.9265	-6.0645*	I(1)
GRT	-4.8858**	-7.6898	I(0)
GSIZ	-0.8017	-6.9639*	I(1)
TRDP	-1.5384	-5.5219**	I(1)
PCI	-0.3002	-2.9333	I(1)

Source: Authors' computation 2020. Note: * and ** denote 1% and 5% critical values respectively.

4.3. Co-integration Estimate

The bound co-integration result presented in Table 4 shows that the value of the F-statistics for the estimating model which is 4.6674 is greater than the upper bound critical value at 5%, suggesting the presence of co-integration among the variables in the model, thus the study presents the long run ARDL Bound co-integration regression estimate.

Table 4: ARDL Bound Co-integration Test

Estimated Model	F-Statistics	
	4.6674	
Critical Values	**Lower Bound**	**Upper Bound**
1%	3.74	5.06
5%	2.86	4.01

Source: Authors' computation 2020.

4.4. Regression Estimates on Trade Openness and Unemployment Rate in Nigeria

The ARDL regression estimate presented in Table 5 shows that trade openness had significant and negative impact on unemployment rate in Nigeria over the years under review. This can be attributed to the fact that different trade policies over the years influenced unemployment rate, especially in terms of inflow and outflow of foreign commodities and services. Notably, the implementation of these policies may have influenced unemployment rate in Nigeria. This finding is consistent with those obtained by Keawphun (2016), Carrere, Grujovic and Robert-Nicoud (2015), and Felbermayr, Prat and Schmerer (2009) but in contrast to the findings by Jaewon (2011). Also, it is observed that per capita income, trade openness and government size have significant impact on unemployment in Nigeria, except economic growth rate. It is worthy to note that the current negative relationship between unemployment rate as dependent variable with trade openness and per capital income as independent variables follow the economic intuition. Meaning that, increases in volume of trade and per capita income bring about decline in the rate of unemployment in Nigeria. In addition, the coefficient of multiple determinations (R-squared) revealed that 96 per cent of variation in unemployment rate is jointly explained by the independent variables while the

remaining 4 per cent of the variations in the unemployment rate is explained by variables not included in the model. This implies that the variables employed in the model are suitable for the analysis. Also, the result of the Durbin-Watson Stat of 1.99 revealed that the model is free from serial correlation.

In addition, the error correction mechanism results revealed the level of adjustment within the model. The negative and statistically (-0.3506) significance of the ECM term at 5% level, indicates a 35.06 per cent level of adjustment in terms of speed, which explain how the variables within the model adjusted over time i.e. from the short-run period to the long run period.

Table 5: ARDL Regression on Trade Policy and Unemployment Rate in Nigeria

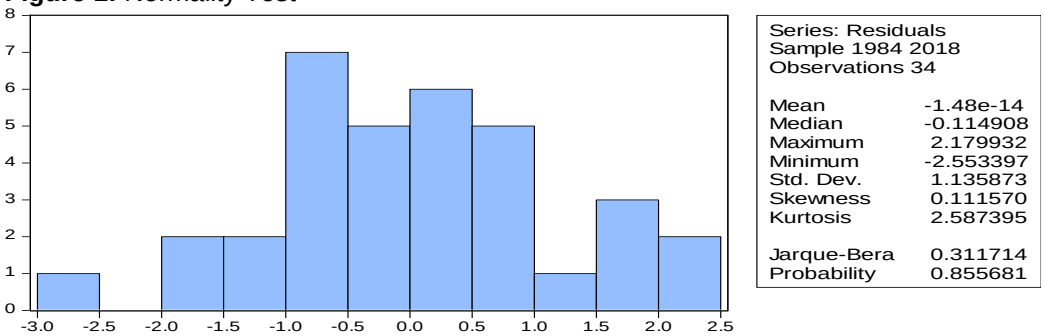
Variables	Coefficients	Std. Error	t-Statistics	Prob.
C	1.9796	2.1562	0.9181	0.3659
PCI	-119.252	43.7785	-2.7239	0.0107
TRDP	-0.3637	0.0834	-4.3612	0.0001
GSIZ	3.8432	0.6708	5.7289	0.0000
GRT	-0.0876	0.0616	-1.4221	0.1653
Coint-Eq(-1)*	-0.3506	0.0936	-3.7458	0.0008
R-squared:	0.9614	**AdjustedR-Squared**:		0.9537
F-Statistics (Prob.)	124.463(p<0.05)	**Durbin-Watson Stat.**		1.99

Source: Authors' Computation, 2020.

4.5. Diagnostics Tests

The diagnostics tests for the regression estimate as shown by the normality, Breuch-Godfrey Serial Correlation LM and heteroskedasticity ARCH tests, suggest the appropriateness and robustness of the estimate. The results normality test showed that the Jarque-Bera probability value was greater than 0.05 suggesting that the residuals from the estimate were normally distributed. More so, the Breuch-Godfrey Serial Correlation LM and heteroskedasticity ARCH tests showed the absence of serial correlation in the estimates. The probability values from both estimates were insignificant at one percent critical level. The results of the diagnostics tests further strengthen the appropriateness of the ARDL regression estimates.

Figure 1: Normality Test



Source: Authors' Computation 2020.

Table 6: Diagnostics Tests

Breusch-Godfrey Serial Correlation LM Test			
F-Statistics	0.1391	Prob. Value	0.8713
Obs*R-squared	0.6189	Prob. Chi-Square.	0.7338
Heteroskedasticity Test: ARCH			
F-Statistics	0.8506	Prob. Value	0.6248
Obs*R-squared	15.1172	Prob. Chi-Square.	0.5161
Scaled explained SS	2.9996	Prob. Chi-Square.	0.9998

Source: Authors' Computation 2020.

5. Conclusion and Policy Recommendation

The objective of this study is to examine the relationship between trade openness and unemployment rate in Nigeria from 1980 to 2018. The study utilized the auto-regressive distributed lag (ARDL) technique and the result of the study showed that trade policy had negative and significant impact on unemployment rate in Nigeria. Thus, the outcome of this study rejected the null hypothesis that trade openness had insignificant impact on unemployment rate in Nigeria. The finding of this study is in line with Heckscher-Ohlin theory, Madanizadeh and Pilvar (2019), Martes (2018), Awad-Warrad (2018) and Kreickemeier (2006). The result of this study is in contrast with Famode, Makalamba and Ngbolua (2020), Mohler, Weder and Wyss (2018) and Jaewon (2011). The implication of this result is that trade policy provides employment opportunities, which has contributed to the reduction in unemployment rate in Nigeria. Thus, the study concludes that trade policy is a significant determinant of unemployment in Nigeria. Drawing from the conclusion, the study recommends that government should put in place trade policy that should enhance the provision of employment opportunities and this would contribute significantly to reducing unemployment rate in Nigeria. There is also the need for conscious economic policies that would increase government expenditure in the real sector which is expected to promote aggregate volume of investment in the country and contribute to employment generation.

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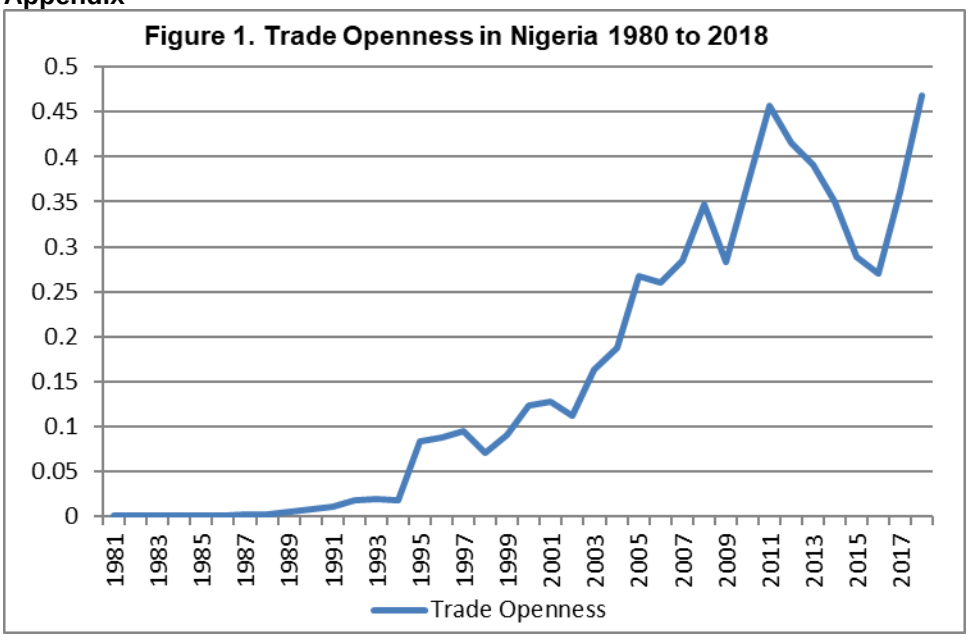
Appendix



Source: Authors' Computation 2020.

Source: Authors' Computation 2020.

THE APPROACHES OF THE ROMANIAN AUTHORS REGARDING THE CSR CONCEPT

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Abstract: *In Romania, large companies, most of which are multinationals, have made significant progress in integrating the concept of corporate social responsibility (CSR) into their activity. The concept of CSR in small and medium-sized companies is still in the early stages of reporting, but with great development prospects. Romanian companies have gradually begun to develop their own culture in terms of social responsibility. The main objective of this article is to analyze how Romanian authors approach CSR theories in their research. The CSR action is seen by the authors as an interdependent relationship between corporations and society. Social requirements are generally considered to be a way in which society interacts with the business environment and gives it a certain legitimacy and prestige. Given that the history of the concept of CSR is long and diverse, I must emphasize that this article focuses on the publications of Romanian authors who based their work on a theory of CSR, providing an original perspective and understanding of the concept of CSR. The research methodology approached involves analysis and synthesis appeal. The study shows that integrative theories are the most common, based on the papers of Romanian authors regarding the concept of CSR. Most articles are based on the idea that the business depends on society to continue its activity and to develop, there is an interdependent relationship between the company and society.*

Keywords: CSR theories, company, society, Romanian authors

JEL classification: M14; M40; M49.

1. Introduction

In the literature there are different perspectives on the concept of CSR both theoretical and practical, from different points of view regarding the role of corporations in society.
The researchers tried to define the concept of CSR using various theories such as stakeholders, integrative, instrumental, political, ethical and legitimacy theories.
Values and norms differ in their form between cultural spheres, countries and political systems and can be changed over time. The problem of how values and norms are formed is the key to understanding current developments and changes in social relations.
The main purpose of this article is to identify the theories underlying the CSR and to approach these theories of the various Romanian authors in their research in the period 2018-2019.
The methodology used in the writing of the paper starts with the analysis of the literature, and will be synthesized in the second part of the paper.
The result of the research shows that most articles of Romanian authors are based on integrative theories, which largely recognize an interdependent relationship between corporations and society.
The main contribution of this paper is a review of the most representative articles indexed in the recognized database of Web of Science in the period 2018-2019, and at the same time

seeing what would be the most representative theory on which the paper is based. Each author presents in his article the concept of CSR, but viewed from different perspectives, they constraining their work on different theories. The result shows that most of the works of Romanian authors are based on the integrative theory, so that the whole paper is built on an interdependent relationship between company and society.

2. Theoretical considerations

Corporate social responsibility (CSR) has been applied in the Romanian economic environment quite recently, taking over and developing practices and activities in that sphere to allow multinational partnerships.

The opinion of the authors Obrad et al (2011) regarding CSR integration in Romania is that corporate social responsibility actions have diversified and gradually became professionalized by the existence of multinational companies in the domestic economy, becoming in many cases, "a constant, integrated concern in their development strategy".

At international level, Garriga and Melé (2004) present a taxonomy of the main theories and approaches of CSR. As a starting point for their classification, the authors suppose that the most important theories and approaches of CSR have four dimensions, regarding profits, political performances, social requirements and ethical values. This hypothesis allows the authors to classify CSR theories into four groups: instrumental, political, integrative and ethical theories.

Instrumental CSR theories represent the traditional view on corporate social responsibility, in which the role of the state and the business environment are clearly differentiated.

The responsible behavior of companies supports achievement their goal of profitability, while their financial strength allows the fulfillment of CSR practices. CSR actions are based on financial resources, to satisfy the interests of those involved, the company and society, as well as on the dynamics of power between these parties (Siminica et al., 2019).

Theories in this category support the hypothesis that the sole responsibility of corporations is to generate economic benefits (Garriga and Mele´, 2004).

Scherer and Palazzo (2011) are of the opinion that *CSR theories of political nature* assume that companies assume a political role in addressing the problems caused by the insufficient state governance and maintaining certain social and environmental standards.

This group of CSR theories and approaches focuses on the interactions and connections between companies and society and at the same time its position on business and its inherent responsibility.

Integrative CSR theories largely recognize an interdependent relationship between corporations and society. These theories focus on integrating the expectations of stakeholders in corporate operations (Geva, 2008).

The company must follow expectations regarding the business environment: economic, legal, ethical and discretionary.

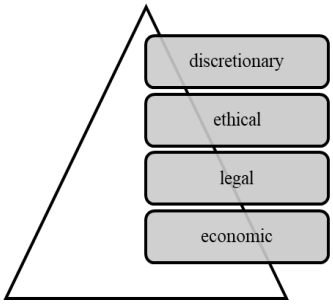

Figure 1: CSR from the perspective of society's expectations
Source: Carroll, A.B., 1991. The pyramid of corporate social responsibility: toward the moral management of organizational stakeholders, *Business Horizons*, 34(4), pp.39–48;

Carroll (1991) was the one who created the CSR pyramid (Figure no. 1) which ranks the social responsibility of companies on four levels, from the obligation to be profitable (economic level), continuing with the obligation to respect the law (legal level), followed by the obligation of the company to do what is right and fair (ethical level) and ending with the recommendation that the company contribute resources to the welfare of the community (discretionary level).
According to Friedman (1970), the *normative theory* of stakeholders on ethics and morality offers an objective for CSR literature, defending the ethical premise of companies that behave well from a societal perspective.
Companies can have a competitive advantage by communicating corporate values well from a societal perspective. These values must be part of the company's identity for the concept of CSR to be fully integrated (Farcane et al., 2019).
Recent research (Obrad and Gherhes, 2018) suggests that the concept of sustainability includes *ethical* issues that should guide the company towards a long-term vision. Ethical responsibility includes activities that are not necessarily presented in laws, but nevertheless society expects a business to respect the members of a society and prevent a negative impact on it.
Fernando and Lawrence (2014) believe that at the basis of CSR, there are two other theories: stakeholder theory and legitimacy theory. The *stakeholder theory* is closely linked to the creation of value for the entity and for the stakeholders.
Dumitru et al. (2017) studied the relationship between value creation and stakeholder theory through integrated reporting and they come to the conclusion that communication is an important element for value creation, and that there are discrepancies in the content of information reports that address different categories of stakeholders.
Kerscher and Schäfers (2015) is of the opinion that an essential condition for the *theory of legitimacy* is the concept of the social contract which claims that any organization within the society operates through a social contract. Legitimacy occurs when a value system of entities is consistent with the value system of the community to which the organization belongs (Stoica et al., 2019).
In contrast to classical economic theories, a corporation must seek societal approval of its operations and revenues to ensure long-term survival.

3. Research methodology

The research methodology of this paper starts with a first stage of scientific documentation about CSR theories. CSR research continues with the analysis of the content of 20 articles most relevant published in the period 2018-2019 in the Web of Science following key words:

CSR (Corporate Social Responsibility), Romania (Romanian), sustainability. The methodology approached involves analysis and synthesis appeal.
The aim of the research was to identify the theories that underlie the research of the Romanian authors.

4. The approaches of the Romanian authors regarding the concept of CSR

In table no. 1 are synthesized the ideas of the Romanian authors who approached in their research the concept of CSR and the relationship between company and society, with reference to the CSR theories analyzed in the first part of the paper.
The articles were chosen from those written in the period 2018-2019 in the Web of Science following key words: CSR (Corporate Social Responsibility), Romania (Romanian), sustainability. This short period of time was chosen because starting with 2018, in Romania companies with more than 500 employees are required to report non-financial statements related to 2017. In this way it is possible to observe how the authors perceive the concept of CSR and on what theory they are based.
Each analyzed article may be based on several theories from those presented above, but we have selected the most representative theory for that paper.

Tabel 1. The approaches of the Romanian authors regarding the CSR concept

Authors	Main idea	CSR theories
Androniceanu A. (2019)	-managers believe that limited financial resources do not allow them to develop CSR actions; they would like to take CSR actions only if its bring future benefits;	instrumental theories
Bucur et al. (2019)	-companies activities have financial, environmental and social consequences; CSR represents an interdependent relationship between the company and the society;	integrative theories
Burlea-Schiopoiu et al. (2019)	-CSR is the way in which an organization acts voluntarily to meet social and environmental objectives in its daily operations and, at the same time, to generate a profit for the company;	integrative theories
Cioca et al. (2019)	-benefits of CSR can be found in economic, social, and environmental areas; sustainability exists as long as there are requests from employees, laws regulations, or financial benefits;	integrative theories
Cosmulese et al. (2019)	-CSR is a means of communication to support the interests of stakeholders; the ability of such companies are to satisfy the stakeholders;	stakeholders theory
Cristache et al. (2019)	-by including the specific dimensions of a code of social responsibility in the strategies of the companies, it would contribute to the increase of their long-term performance;	legitimacy theory
Dinu and Bunea (2019)	-sustainable companies are the ones that anticipate future needs of society and they adapt their business according to their needs to their needs;	integrative theories

Farcane et al. (2019)	-CSR represents the relationship between business and society that is incorporated with ethical values; the values created must be among the values of the companies;	ethical theories
Hategan et al. (2018)	-CSR is a key concept for sustainability and managers should be aware of it that reporting activities brings benefits to the company and stakeholders;	stakeholders theory
Hategan et al. (2019)	-CSR is closely linked to the politics and legislation of each country, the content of non-financial reports depends on government policies and cultures;	political theories
Obrad et al. (2018)	-CSR represents the achievement of economic success in an ethical manner;	ethical theories
Marin-Pantelescu et al. (2019)	-CSR represents an approach of running and managing businesses with the conformity of protecting the environment, serving the common good of the company and society;	integrative theories
Saveanu et al. (2019)	-the attitude of the managers regarding the welfare of the company, the attitude of the company towards the CSR;	integrative theories
Siminica et al. (2019)	-the concept CSR is a strategic tool with which companies are trying to maximize financial performance concomitant with social and environmental aspects;	instrumental theories
Simionescu and Dumitrescu (2018)	-CSR has an active impact on the stakeholders and supports the voluntary actions, the community, these being carried out ethically and economically;	integrative theories
Socoliuc et al. (2018)	- CSR means having ethical and economic motivations than to immediately receive a positive response from stakeholders;	integrative theories
Stoica et al. (2019)	-in order to attain legitimacy, corporations have become more transparent and involved in social and environmental issues;	legitimacy theory
Voinea et al. (2019)	-the CSR practices not always reflect the societal views, more than that CSR addresses the relationship between government and society	political theories
Vuta et al. (2019)	-CSR involves managers, stakeholders, civil society, non-governmental organizations, the government; a company should be considered as a social institution that is social responsible.	integrative theories

Source: own representation based on the articles of the Romanian authors written in the period 2018-2019 in the Web of Science

Most authors present CSR activities as an interdependent relationship between company and society: the company without society cannot exist and vice versa.
Most Romanian authors are based on integrative theories in their works. In essence, integrative CSR theories present how the corporation focuses on detecting, scanning, and responding to social requirements in a way that generates social legitimacy, greater social acceptance, and prestige.
The integrative approach argues that organizations need to integrate the social needs of the community, as they depend directly on society to continue their work and grow.
According to Dinu and Bunea (2019), companies that want to be sustainable are those that anticipate the future needs of society and they adapt their business to their needs.
CSR is the way in which management manages material and financial resources so as to be in accordance with environmental protection, serving the common good of the company and society (Marin-Pantelescu et al., 2019).
The papers of the authors, Bucur et al. (2019), Burlea-Schiopoiu et al. (2019), Cioca et al. (2019) and Saveanu et al. (2019) are based on integrative theory. Sustainability exists as long as there are demands from employees, from society, from stakeholders and others.
Simionescu and Dumitrescu (2018), Socoliuc et al. (2018) and Vuta et al. (2019) shows that CSR has a positive impact on stakeholders and supports voluntary, environmental, economic, community actions, all of which are ethical, economic, legal and discretionary. A company should be considered as a social institution that is socially responsible.
Farcane et al. (2019) and Obrad et al. (2018) are the authors whose papers are based more on ethical theories. The business environment and society are or should be determined by ethical values. Organizations should adopt social responsibility as an ethical obligation, among other considerations.
Stakeholder theory is closely linked to creating value for the entity and for stakeholders. The papers of the authors, Hategan et al. (2018) and Cosmulese et al. (2019), emphasize the theory of stakeholders, on a voluntary basis, CSR reporting was determined by stakeholders other than the state. The more stakeholders are interested in the organization's resources, the more important the organization is, the greater the effort of the organization's management to be able to meet the expectations of stakeholders.
Siminica et al. (2019) and Androniceanu A. (2019) have as main foundation in their papers the instrumental theories. The CSR concept is a strategic tool with which companies try to maximize profits while social and environmental issues. Managers want the company to have CSR shares only if they guarantee its profit.
The authors, Hategan et al. (2019) and Voinea et al (2019), present in their paper that CSR is closely linked to the politics and legislation of each country, the content of non-financial reports depends on government policies and cultures. Political theories address the relationship between corporations, governments and society.
Legitimacy emphasizes that organizations are constantly trying to ensure that they are perceived as operating within the binding and norms of the society in which they operate.
Cristache et al. (2019) and Stoica et al. (2019) take the view that in order to gain legitimacy, corporations have become more transparent and involved in social and environmental issues.

5. Conclusion

Given that all corporate social responsibility information is centralized in a non-financial report, it should be based on all six theories presented above. With these theories, non-financial reporting of companies would be transparent and credible to all stakeholders.
Most authors present CSR activities as an interdependent relationship between company and society: the company without society cannot exist and vice versa. The most commonly

used theories to define CSR are integrative theories, followed by political theories, ethical theories, legitimacy theory and stakeholder theory. CSR is seen as an approach of some actions, after which it will have to win both the company and the company, between the two, having a direct and reciprocal relationship.
The limit of this paper can be considered the small number of reviewed articles and a future direction of research can include several articles written by foreign Romanian authors and authors from other EU member states.

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DIGITALIZATION: THE USE OF BLOCKCHAIN IN PUBLIC SECTOR

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Abstract: *In a world of nonstop developing technology, Blockchain has become a trusted tool to apply transparency in the public sector. The consensus mechanism provides trusted data that can support clear and adjusted as well as well-structured procedures. Nowadays, the public sector can increase trust by adapting Blockchain applications in the services offered to be e-government portals. In this paper, the researchers review the literature to identify the potential use cases and application of Blockchain in e-government services. This new technology along with its related applications will be discussed and defined. Moreover, the possibilities of using Blockchain in the public sector and its impact on organizational transformation, financial management, and performance are increasing.*
The study concluded that the use of blockchain technologies and applications is still limited in the public sector. Obstacles and barriers are related mostly to (security and privacy) and law and by-laws support. This paper will provide a useful reference for researchers in blockchain applications and their impact on e-government and propose future research questions that need to be addressed to inform how the public sector should approach the blockchain technology adoption.

Keywords: Blockchain, E-Government, Public sector, electronic government

JEL classification: D73, H83

1. Introduction

Nowadays, the world is witnessing the adoption of a wide of new technologies within several sectors, for instance public, energy, industrial as well as the service sector, and Blockchain Technology (BCT) is considered to be one among the foremost recent technologies.
BCT is considered to be one of the most important technology which will influence society and business in the future (Webb 2016). BCT stores identical information but in different nodes, in which information can be added only when the nodes reached consensus. Furthermore, when new transactions are added, the previous information con is not removed, which will enable the nodes to trace the history. Consequently, BCT emerges as innovative tools that prove to be useful in several application scenarios. Some of the highest-ranked worldwide private companies, which are associated with the industrial sector, like IBM, Microsoft, Intel, and NEC, are currently investing and capitalizing in BCT, to enrich their portfolio of products (Karame 2016). Moreover, Companies that are producing services as well as dealing with the final customer are applying BCT to extend their consumer trust. FedEx, Marks & Spencer (M&S), and even the fast-food restaurants started using BCT. Burger King of Russia has launched its cryptocurrency token in Russia, called WhopperCoin.

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Also, innovation and imbalance driven by blockchain provide an excellent opportunity for the public sector.
Moreover, BCT can store equivalent data at different nodes, in which data will only be added when the nodes have reached consensus. New transactions are often added, but previous information cannot be removed, enabling all nodes to trace the history. Thus, BCT emerges as an innovative tool that proves to be useful during several application scenarios. A number of the highest-ranked worldwide private companies, which are associated with the economic sector, like IBM, Microsoft, Intel, and NEC, are currently investing and capitalizing in BCT, to complement their portfolio of products (Karame, 2016). Moreover, Companies that are producing services also as handling the ultimate customer are applying BCT to extend their consumer trust. FedEx, Marks & Spencer (M&S), and even the nutriment restaurants started using BCT. Burger King of Russia has launched its cryptocurrency token in Russia, called Whopper Coin. Additionally, innovation and imbalance driven by blockchain provide an excellent opportunity for the general public sector.
The label of e-Government contributes to the enhancement of the public sector by using data technologies (Rumman et al. 2018). Adopting the e-Government trend aimed to maintain and provide a technological environment inside the government. The government will experience a business model transformation, changing the atmosphere of the public organization and was expanded to reach a point of transforming the relationships between citizens and government., businesses and other non-state actors (Janowski 2015). Hence, adopting the latest technologies to enhance the public sector services delivery has become even more critical for government organizations.
Blockchain is presented as a serious enhancement and development player with great potential in public sectors (Casey et al. 2016). In other words, BCT has the potential in forming government operations more effectively and dynamically by improving the public services delivery and increasing trust in public sectors (Konashevych 2017). As a result, governments around the world have started exploring the potential concerns and benefits of blockchain-based applications integrated into the public sector (Hancock 2016).
Even though various sectors have become more interested in using Blockchain technology, a few studies examined the use of Blockchain technology in the public sector. This research will try to answer questions such as What is this technology? And what are the related technologies to the public sector? What is the impact of these technologies on the organization itself? Moreover, what are the challenges and the benefits and the best practices of using this technology in the public sector? Furthermore, this research will try to find the appropriate solutions to mitigate threats as a challenge that faces the public sector.

2. Blockchain Technology (BCT)

Blockchain's origin goes back to 2008 when it had been introduced as computer science design to secure direct trading of assets between peers who may not have sufficient confidence in each other. A distributed append-only ledger is the essential core innovation that blockchain introduces in which messages could be irrevocably recorded. Maintaining central intermediaries was eliminated right after this new concept was introduced, which has potentially large political and economic implications. Obviously, electronic ledgers became a universal way of record-keeping. Thus, blockchain technology started to expand rapidly beyond the original payment system applications. Today, BCT is being more explored growing developer community, as they are seeing it as a general-purpose technology (Brynjolfsson et al. 2000), which will transform both the public sector and the industry (Smith, Stirling, and Berkhout, 2005).
Blockchain is one of the most well-known and used distributed technological ledger. Blockchain is a technological ledger in which value-exchange transactions (in the form of

cryptocurrencies, tokens, or information) are sequentially grouped in the shape of blocks. Each block must contain a signature that contains precise data (a string of data) of that block. Next and previous blocks are linked with that signature as well up until the primary block. The recording of blocks cannot be changed, and data cannot be deleted across a peer to peer network, using cryptographic trust and assurance mechanisms. Cryptocurrencies can be defined as a decentralized subset of digital currencies, based on a set of algorithms and protocols. These algorithms and protocols enable a peer-to-peer, cryptographically based payment mechanism, a medium of exchange, and a store of value, the best-known example being bitcoin (Allessie et al. 2019). Moreover, a token is a digital item that represents neither a physical object of value nor the right to perform some operation.

Blockchain finds its origin when being mentioned in a paper that was published by an anonymous (group of) author(s) called Satoshi Nakamoto. Within this paper, Bitcoin was introduced and presented as a purely peer-to-peer (P2P) electronic transaction network. This network allows financial transactions to be directly transferred without the need for a financial institution (Nakamoto 2008). In other words, blockchain technology makes it possible for two identified actors (called nodes) to make transactions in a peer-to-peer (P2P) network and store these transactions in a distributed way across the network (Back et al. 2014). This operation registers all transactions along with the owners of the assets being interacted. Blockchain has 3 types of networks: (a) Public; (b) Consortium; and (c) Private (Figure 1).

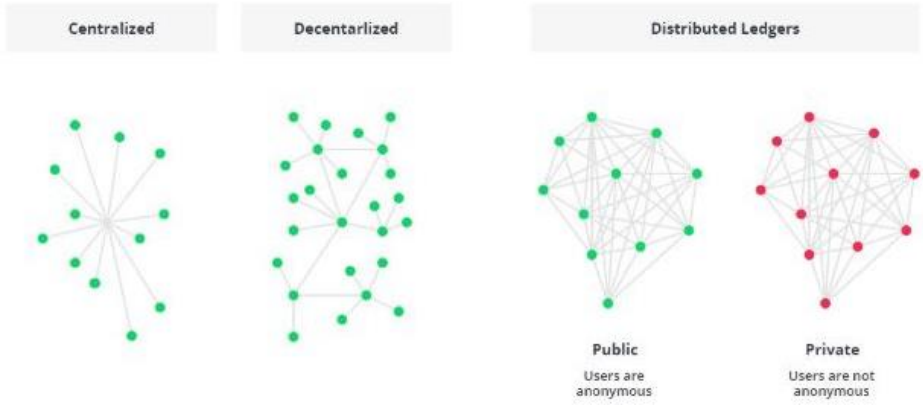

Figure 1: Blockchain networks types
Source: (Lastovetska 2019)

Users within the P2P network can verify transactions by a ‘consensus mechanism’. This mechanism lets the users of the same network validate and update the registry within the entire network (Allessie, Sobolewski, and Vaccari, 2019). In centralized systems, the accuracy of the system in a traditional way, in which an intermediary or an administrator. Whereas the BTC processes will determine trust and accuracy of the information within the system.. A consensus mechanism may be considered a process in which nodes agree on the proposed transactions during a distributed network. Moreover, this mechanism presents the recording information in the ledger by a manner that ensures data integrity, immutability, and consistency. There are certain conditions, protocols, and rules which govern and enable this distributed mechanism to network the recording, completion and execution of data. In other words, the consensus is often built with regards to the previous transaction, forming transactions sequence, sort of a ledger. In blockchains, transactions are clustered and shaped into a block in which this block must contain numerical data that refers to the

previous block. Within the case of Bitcoin, after a registering new transaction, a replacement block is made with the occurrence not only of the new data but also linked to the previous block data, afterwords, the data will be validated across the network. This process forms a sequence of blocks: hence the name 'blockchain'.

Blockchain technology can be seen as a complex process; however, few individuals can fully describe or even understand with certainty the basic elements of blockchain technology. This most likely true especially for cross-disciplinary researchers from non-technical disciplines. Reasons might be the complex interplay of blockchain elements and resulting properties that are hard to grasp in detail and the lack of a solid shared knowledge (Holotescu 2018) the main building blocks or components of Blockchain that were found:

- Cryptography: This technology is mainly based on encryption and electronic signature operations that take place within multiple processes, through which the identity of the user and the permission of those who have the right to access information are identified, and this process contains three main elements Hash (unique code for each transaction), Public Key Cryptography, and Digital Signature.
- Consensus Mechanism: The technique is based on what is known as synchronizing the records from the users of the network to ensure that the new process added to the chain is intact and does not contain contradictory information. This process is called "mining" in Bitcoin. Examples are: Proof-of-Work (PoW), Proof of Stake (PoS).
- Data Store: It is an electronic ledger in which all unconfirmed operations are combined with blocks using the consensus algorithm, and each new block is linked to the previous and ready to like to the new blocks.
- P2p Network: It is the network through which information transfers and exchanges are carried out in blockchain technology exchanging and transferring information and transactions done without the need of a third party as in traditional exchanges. For example, in bitcoin, the sender creates a transaction in which the information about the recipient and a digital signature to prove the authenticity of the message and the value of money (Nakamoto 2008), this information is transmitted over the network from users so that the information is validated via a "mining" process and then stored in the digital ledger (Swan 2015).
- Node: User or computer within the blockchain.

2.1. Blockchain Technology Applications

At the present time, many sectors are seeking to use blockchain technology to improve their services or even reduce costs in general, Goyal Indicated in his study that the applications that use blockchain technology are divided into four main categories: currency, smart contracts, securities and record-keeping (Figure 2)(Goyal 2018).

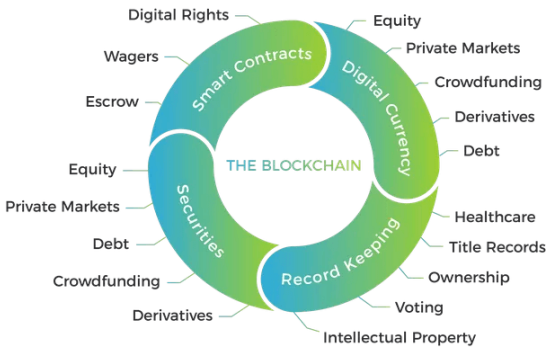

Figure 2: Blockchain Applications
Source: (Goyal 2018)

The expansion of the Blockchain applications was developed in four stages as per the following:

- **Currency**: One of the first sectors that used the blockchain is (the cryptocurrency), where Satoshi Nakomoto pointed to this technology by applying an electronic cryptocurrency called the "Bitcoin" where payment and exchange of money are made through the network using the blockchain technology without the need for intermediaries such as banks or financial institutions (Nakamoto 2008).
- **Open Source**: The blockchain technology was developed as an open-source, and this made many electronic currencies to join bitcoin, such as (ether (ETH), stellar (XLM), and USD Digital (USD-D) to use blockchain and take advantages of the effectiveness and potential of the new technology.
- **Transaction Records and Records of Right**s: In this stage, the use of the blockchain has moved to a new stage, which is the management of goods and services, not just the information used in electronic currencies.
  Examples of this phase include the use of a blockchain as a repository of property rights records, land records, document storage, and even casting votes.
- **Automatization**: This stage seeks to automate all transactions and information in the future so that this technology is used in all aspects of life and in various sectors, now the blockchain is used to implement smart contracts and analysis of transactions by other devices such as cases used in the Internet of things.

2.2. Examples of the Use of BCT In Public Sector

There are many applications of BCT used by governments around the world and here in table 3, the researchers summarized the most use cases and applications of Blockchain technology in the government services and public sector identified from the literature.

Table 3: Blockchain applications

BCT application	Country	Descriptions
ID management	Estonia	The government uses the blockchain technology to store individuals 'identities and manage them electronically over the network, and thus use this electronic identity in various other government transactions. This application allows individuals to access their data and share it with other parties without the need for a third party.(Shrier, Wu, and Pentland, 2016)
Payments and Taxation	United Kingdom, Ukraine, Switzerland	A number of countries use blockchain to verify transactions and track them in the payment and tax process, and these processes via blockchain are faster and more transparent than the traditional method that requires a third party to perform verification and tracking operations.
Record store	UAE, Estonia, United States, China, Russia	Each user on the blockchain receives a "gold copy" of the record contains the information as a block. If the record changes, a new block is added and the revised file is synchronized across the network, all this process usually performs in only a few seconds. with more and more changes are made, new blocks are added, to form a chain.
Voting systems	Ukraine, Estonia, and Australia.	The tendency of many countries to use the blockchain technology to conduct electronic voting operations, because this technology has proven the ability to maintain confidentiality, transparency, and safety of users, and through this technology, the application

		of voting freely and more democratic is more possible (Swan 2015).
Healthcare	United States, Estonia	The entry of blockchain technology into the health sector considered a major revolution, as this technology helps in preserving patients' information and health history, and this information can be accessed by other health service providers such as doctors, pharmacists, even insurance companies. In addition, this technology allows researchers to support their researches in the health field, as it provides a huge database that can be accessed at any time (Swan), and this increases transparency and the costs associated with it. Finally, blockchain technology enables governments to track health records and that increase accountability, and even provide support and advice to make better decisions in this area (Swan 2015).
Ownership transfer (land title)	Ghana, Georgia, Sweden, Honduras	According to (EVRY's Innovation Lab 2015) the use of the blockchain started with the Assets registry in 2013 and it was called the blockchain 2.0, the validation of transactions before the blockchain was a challenge requiring a central authority, but the blockchain technology changed that and now that does not require a central authority or a third party to verify or validate the transactions and users can store the information with the digital signature and timestamp which can be verified by other users on the network.

3. Characteristics of BCT

Blockchain has 4 key characteristics (Nielson 2018)and these characteristics can provide the governments the opportunities to gain more benefits from these technologies. Here you can see the main characteristics that we found in previous literature in Table 4 and after that the potential benefits that governments may get from this technology.

Table 4: BCT characteristics

Characteristics	Descriptions
Decentralization	In traditional transactions you need a central authority or a third party to verify the authenticity of the transactions, whereas, blockchain technology does not need this central authority and the transactions are validated by the participating users in the network, moreover, they can keep an identical copy of the shared electronic ledger. This characteristic provides multiple advantages such as (fault tolerance, data consistency, higher user control, attack resistance, and transparency) and finally remove all third party agencies such as financial institutions, notary, or other intermediary institutions. (Kshetri 2017).
Persistency	Blockchain uses the "consensus process", which is a process to ensure the validity of transactions by users on the network and after this process the transactions stored in the digital ledger and it becomes impossible to modify, delete or even copy them. With this feature, blockchain technology provides fraud protection, ownership assurance, and consistent records of stored transactions (Morgen E. Peck, 2017).
Anonymity	Interactions in blockchain technology are directly between users without the need of intermediaries and by using pseudonyms far from their original identities and using public-key cryptography, and in this way, this technology provides greater privacy than traditional transactions that use the original identities of individuals (Kshetri 2017).
Auditability	Transactions are stored in a chain where the new transaction after verification is linked to an old transaction in the digital ledger and is ready to receive a new transaction. Therefore, in this way, the transactions are linked to a time

	series of the date of adding each transaction, therefore by using this mechanism these transactions can be tracked and easily verified.

4. Organizational, Financial and Performance impact

It is possible that the BCT reaches an inflection point and start getting a wide acceptance by governments around the world in the years to come if these benefits and challenges can be identified clearly. However, Ølnes, Ubacht and Janssen, (2017) expressed that, until now, those benefits have not been proven by empirical evidence. The main benefits found in previous literature of applying blockchain technology in governments are claimed to be:

4.1. BCT Impact on Organizational Transformation

Blockchain changed how the organization model is shaped. These technologies transformed the old organizational model into a more decentralized model using Telecommuting as a way of work to offer services or goods to active consumers. This transformation of a new organizational model might also establish a new generation of organizations (Shrier, D., Wu, W. and Pentland, A., 2016).. In other words, non-physical organizations could be the norm and the best future model. In this way, non-physical organizations will have no offices, physical assets, or even employees. Blockchain as technology came as a support to establish non-physical organizations to exchange value in a secure and decentralized way (Allessie et al. 2019).

4.2. BCT Impact on Financial Management

The advantages of blockchain technology can be determined in the financial markets as well. In that, it will play the role of mediator by creating a decentralized and secure record, which is a research block in itself that gives each party the ability to verify the validity of the deal and speed up the settlement process, and allow greater accuracy of trading, and can be completed Quite the fees of brokers, and it has changed from some circles by influencing the process of fixing the share price, as stated in the report of the British «Dieut» Foundation. Documenting financial transactions can also be conducted through personal keys that verify ownership of the assets, a variable used for digital signatures but can be stolen or lost in the same way that passwords are lost due to breaches or malware (Tan, B. S., & Low, K. Y., 2019). Developers have already come up with solutions to protect private key owners and blockchain technology assets. For example, all parties within a network can agree that most parties must sign before agreeing to a deal (Le, V. T., Pahl, C., El Ioini, N., & D'Atri, G., 2019). This will prevent hackers from changing ownership by stealing one key, and such multiple signature transactions can be programmed directly into asset trading applications.

Money market workers need to develop themselves to become an effective part of technological developments and this means hiring and training blockchain technology developers or partnering with them. Although this technology is still new and its capabilities are still being explored, companies must jump to unite forces with other parties in their operating environment.

One of the most important solutions that BT can offer in case of adoption is offering a real-time accounting system. The time lag can be fixed by using BT, in which it allows stakeholders to see all transactions in real-time status (Potekhina, A., & Riumkin, I., 2017). Throughout the studied literature, many pieces of research show that there are usually delay in the annual and quarterly financial reports. In some cases, an average of 1.96% market drop can be a result of these delays as well as sometimes a decline in the stock returns will be affected by late reporting (Bartov, DeFond, Konchitchki, 2015). A transparent blockchain accounting system can mitigate these delays and problems, especially since all financial transactions cannot be changed and used accurately.

4.3. BCT Impact on Performance

Performance comparison structures and management accounting overall considered to be a key position in generating decision-making facts and general performance warning signs for identifying and managing the overall performance of the place such structures (Jumah, A., & Alnsour, Y., 2019). For Instance, ERP, and corporate talent systems has become automated in general and thus enable entry to massive amounts of statistics (big data) very briefly a period.

If you do not return immediately "once records are entered in the useful ERP system, Business Intelligence may make management, records management and accounting management immediately available and publish them throughout the life of the organization, whether or not specific facts On CEO's dashboards or CEO's smartphones "There is a price to use the facts in this additional Open method that is potentially a loss of privacy, which raises challenges about how excellent governance ideas (such as accountability ownership of facts, a voice in questioning the integrity of records or Its privacy is about Criticisms of public performance and securing this data) seem crucial (Brennan, N. M., Subramaniam, N., & van Staden, C. J., 2019).

Challenges of Using BCT in Public Sector

In previous literature, challenges that face these technologies are described as many and different. For example, challenges related to the technology itself and others related to the regulations and policies and finally some challenges related to the technology infrastructure. Literature summary is shown in the below table.

Table 5: BCT challenges in previous literature

Challenge	**Previous literature**
Challenges related to the technology (Security and Scalability, Usability, Interoperability/Compatibility, Reliability, Flexibility, Cost-effectiveness, Computation efficiency, General application platform, Storage size, Immaturity, Design variables)	(Ahram et al. 2017; Angraal et al. 2017; Dübder et al. n.d.; Ølnes, Ubacht, et al. 2017; Lander et al. 2017; Sharples et al. 2016; Marsal-Llacuna 2018)
Regulations and infrastructure support	(Moura et al. 2017; Sullivan et al. 2017; Dübder et al. n.d.; Ølnes & Jansen 2017; Lander et al. 2017; Ahram et al. 2017; Batubara et al. 2018)
Organizational readiness, Acceptability, Implications, Trust, Auditing	(Ahram et al. 2017; Batubara et al. 2018; Lastovetska 2019; Ølnes, Ubacht, et al. 2017; Sharples et al. 2016)

One more challenge lies in the immaturity of the BCT itself, which is still evolving. Governments should do small scale BTC application experiments to materialize the potential and to avoid costly failures. Decision designing can determine how BCT can be beneficial. For large scale implementation, it is important to focus on a theme that should be (design for flexibility). This requires strong governance as the main characteristic of BCT has built-in mechanisms (consensus protocol and immutability of the records) that are at odds with the flexibility(Allessie et al. 2019).

5. Conclusion

Blockchain is a general-purpose technology that offers trending ways for private and public organizations to record transactions, ownership, certificates and events. BCT is a revolutionary technology in which it transformed the old mechanisms to serve its best in applying massive benefits on organizations, Financial Management and performance in the public sector. BCT is a distributed Ledger Technology (DLT) that provides a trusted, transparent, and decentralized data management in an auditable and immutable manner. This study explored the potential applications and used cases of Blockchain technology for public sector services. Furthermore, this study shows that there is a huge potential in the use of Blockchain for government services since it can deliver government services in a distributed, voluntary, and cheaper way. Moreover, this research tried to include a literature review to make it possible to identify the impact of using BCT in organizations especially in the public sector, as well as its identified challenges. Future research should focus more on the BCT solutions in how to overcome the mentioned challenges as well as using a critical assessment of potential benefits of the public sector adoption of BTC which can include stewardship and accountability role. Nonetheless, more research can discuss diverse ways of creating trust and several vocal points related to BCT challenges such as organizational transformation, dis- and re-intermediations, governance models, design variables, auditing and the effects on the benefits and limitations are needed.

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TAXATION AND ECONOMIC DEVELOPMENT IN THE FORMER COMMUNIST BLOC. A PANEL DATA APPROACH

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Abstract: *Taxation and its implications are an increasingly debated topic since taxation is a very important tool for the governments of all countries in controlling public finances. At the same time, taxation regulates in one way or another the wealth of a country and, implicitly, of its citizens. In this sense, through this paper we aim to analyse the impact of taxation on economic growth felt by citizens, and our attention has been focused on EU Member States from the former Communist Bloc: Hungary, Poland, Romania, Slovakia and Slovenia. To measure the economic growth felt by the citizens, the best proxy is GDP per capita. Regarding taxation, we resorted to the use the revenues registered from personal income tax, corporate income tax and VAT. The chosen countries share a similar past and had in one way or another the same starting point in the 1990s. These countries are also from the same geographical region (Central and East European countries) and have to some extent comparable economies. Furthermore, we performed an econometric analysis with panel data for the period 2003-2018. The results thus obtained from the econometric tests indicated by an econometric model with random effects showed a direct positive relationship between the dependent variable and the independent variables. The coefficients obtained were statistically significant in the case of independent variables represented by the revenues from personal income tax and VAT, while the coefficient related to revenues from corporate income tax proved to be statistically insignificant.*

Keywords: taxation, economic development, Communist Bloc, panel data

JEL classification: H20, H31, C33

1. Introduction

We are facing a context where there is a continuous transformation in all the economies and the subject of taxation is a matter of interest for both academics and practitioners. Despite the fact that we are discussing about current EU Member States, each country has the freedom to choose and build its tax system.

As for the EU Member States that were part of the former Communist Bloc, they have a gap in terms of the development of economies in the capitalist era. Compared to other Member States, they were under Soviet occupation until the 1990s and after this period, these countries started almost from scratch in building their capitalist economies. Therefore, all these states had a common starting point, but the level of development was in one way or another different in the post-communist period.

However, the states in question agreed with the rigors, but also with the benefits of capitalist economies and, in turn, became EU member states. Thus, through this paper we aimed to analyse the relationship between the main elements of taxation and economic growth felt at the level of citizens (best expressed by GDP per capita).

Thus, starting from the specific econometric methodologies, as well as from the results presented in the specialized literature, we performed an econometric analysis in which we estimated econometric models using panel data with the help of State software. The tax

elements included in the econometric model were represented by the revenues from Corporate income tax ("CIT"), Personal income tax ("PIT") and Value added tax ("VAT").
Further, in the next chapter, we will present a brief synthesis of the main results identified in the literature, and in Chapter 3, the econometric results will be presented and debated.

2. Literature review

In the recent period, the importance of taxation, as well as its effects on economic growth have become an increasingly debated topic in the literature. A variety of studies focus on the effects of taxation on the main elements of the economy, with an emphasis on economic growth and several studies involve statistical/econometric analysis.
This approach on carrying out econometric studies on the relation between the fiscal elements and the economy is an older one, but in the following, we will refer to some more recent and relevant studies for the subject approached in this paper.
Through a linear regression with panel-corrected standard errors, Dolenc & Laporsek (2010) analyzed the PIT impact on the employment growth for EU27 Member States in the period 1999-2008 and. Their results showed a negative relationship between those two elements and they found that a decrease in PIT revenues could lead to an increase in the demand on labour and employment.
Szarowská (2013) used a panel regression and Pairwise Granger Causality Tests in order to analyse the effects of changes in tax burden on economic growth. The results on the 24 EU Member States showed a negative effect of taxes on labour on economic growth, while for consumption taxes the effect found was a positive one.
Stoilova & Patonov (2012) found a significant positive effect of PIT and SSC revenues on the long-term economic growth, by using a similar econometric methodology.
The literature also offers us certain studies on the case of Romania. By using a Vector Autoregressive model based on quarterly data, Bazgan (2018) found that a positive change in the indirect taxes structure would have a strong positive outcome on the economic growth over a medium-term period. Meanwhile, a positive change in the direct taxes structure would have a negative outcome on short-term and following the medium-term the impact is returning to a positive one. By the means of regression, Surugiu and Surugiu (2018a) found a negative impact of distortionary taxes on economic growth and a positive one of non-distortionary taxes for the period 1991-2013 in the case of Romania. Further, based on a similar study, but using only direct (CIT and PIT) and indirect taxes (VAT), Surugiu and Surugiu (2018b) only use the direct taxes (CIT and PIT) and indirect taxes (VAT) found that both types of taxes have a significant positive impact on the economic growth in the period 1995-2014.
Further, Hakim (2020) used a panel with 51 countries and the dynamic panel generalized method of moments' estimation in order to investigate the impact of direct and indirect taxes on economic growth for the period 1992-2016. The related results showed that direct taxes have a significant negative impact on the economic growth, while indirect directs have positive but insignificant impact. Lymonova (2019) and Alfo et al. (2020) obtained similar results. Through a Granger causality analysis, Vatavu et al. (2019) found that taxes support economic growth. Durovic-Todorovic et al. (2019), Dackehag & Hansson (2012), Topal (2019), Bakari et al. (2019), Andrašić et al. (2019) and Kalaš et al. (2018) obtained similar results.
Therefore, a variety of studies on this topic is found in the specialized literature, including studies containing econometric analysis.

3. Econometric results

As mentioned, within this paper we carried out an econometric analysis by using panel data. The econometric models were obtained in Stata software. Therefore, in the following we present the methodology used and the results obtained.

3.1. The methodologies used

The equation that was the basis of the obtained models is the following:

$$GDPpc\_p_{it} = \beta_0 + \beta_1 \times CIT\_p_{it} + \beta_2 \times PIT\_p_{it} + \beta_3 \times VAT\_p_{it} + u_{it} \quad (1)$$

Where:

- GDPpc_p = the Gross domestic product per capita expressed as growth percentages from previous year;
- CIT_p = the Corporate income tax expressed as growth percentages year by year;
- PIT_p = the Personal income tax expressed as growth percentages year by year;
- VAT_p = the Value added tax expressed as growth percentages year by year;
- β_0 = the constant;
- $\beta_1 – \beta_3$ = the coefficients for each independent variable;
- u = the error term;
- i = the country;
- t = the time (year).

Our analysis focuses on the period 2003-2018, and the necessary data were extracted from the Eurostat database. The countries subject to the econometric analysis were Hungary, Poland, Romania, Slovakia and Slovenia.

3.2. Testing for data stationarity

Before estimating econometric models, we tested the dataset used for unit roots/stationarity. We run the Levin-Lin-Chu unit-root test available in Stata for all the dataset used by using the command *xtunitroot*. The output for each dataset is presented in tables 1-4 below.

Table 1: The output of unit roots test for GDPpc_p

xtunitroot llc GDPpc_p		
Levin-Lin-Chu unit-root test for GDPpc_p		
Ho: Panels contain unit roots	Number of panels = 5	
Ha: Panels are stationary	Number of periods = 16	
AR parameters: Common		
Panel means: Included		
Time trend: Not included		
ADF regressions: 1 lag		
LR variance: Bartlett kernel, 8.00 lags average (chosen by LLC)		
	Statistic	p-value
Unadjusted t	-5.4243	**0.0031**
Adjusted t	-2.7324	

Source: own processing using Stata

Table 2: The output of unit roots test for CIT_p

xtunitroot llc CIT_p		
Levin-Lin-Chu unit-root test for CIT_p		
Ho: Panels contain unit roots	Number of panels = 5	
Ha: Panels are stationary	Number of periods = 16	
AR parameters: Common		
Panel means: Included		
Time trend: Not included		
ADF regressions: 1 lag		
LR variance: Bartlett kernel, 8.00 lags average (chosen by LLC)		
	Statistic	p-value
Unadjusted t	-5.7263	**0.0026**
Adjusted t	-2.7985	

Source: own processing using Stata

Table 3: The output of unit roots test for PIT_p

xtunitroot llc PIT_p		
Levin-Lin-Chu unit-root test for PIT_p		
Ho: Panels contain unit roots	Number of panels = 5	
Ha: Panels are stationary	Number of periods = 16	
AR parameters: Common		
Panel means: Included		
Time trend: Not included		
ADF regressions: 1 lag		
LR variance: Bartlett kernel, 8.00 lags average (chosen by LLC)		
	Statistic	p-value
Unadjusted t	-5.6625	**0.0062**
Adjusted t	-2.5025	

Source: own processing using Stata

Table 4: The output of unit roots test for VAT_p

xtunitroot llc VAT_p		
Levin-Lin-Chu unit-root test for VAT_p		
Ho: Panels contain unit roots	Number of panels = 5	
Ha: Panels are stationary	Number of periods = 16	
AR parameters: Common		
Panel means: Included		
Time trend: Not included		
ADF regressions: 1 lag		
LR variance: Bartlett kernel, 8.00 lags average (chosen by LLC)		
	Statistic	p-value
Unadjusted t	-8.1629	**0.0000**
Adjusted t	-5.0728	

Source: own processing using Stata

As we can be observed in the above outputs, the p-values associated with the unit-roots tests are lower than the 5% significance threshold for all the dataset. Therefore, we rejected the null hypothesis that states the presence of unit-roots, which means that all the variables

are stationary. This result may be caused by the use of data in the form of growth rates (compared to the previous years).

3.3. The fixed effects model

Initial econometric tests showed that the individual effects are not negligible. Consequently, we proceed to estimate econometric models with panel data. The first model estimated was the model with fixed effects ("FE model"). We use the function *xtreg* from Stata and the output resulted is presented in Table 5 below.

Table 5: The output of FE model estimation

xtreg GDPpc_p CIT_p PIT_p VAT_p, fe						
Fixed-effects (within) regression						
Group variable: country				Number of obs = 80		
R-square overall = 0.7834				Number of groups = 5		
				Obs per group = 16		
F(3,72) = 85.22						
Prob > F = 0.0000						
GDPpc_p	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
CIT_p	0.0596401	0.0298035	2.00	0.049	0.000228	0.1190523
PIT_p	0.2449891	0.0454647	5.39	0.000	0.1543568	0.3356214
VAT_p	0.3710471	0.0462954	8.01	0.000	0.278759	0.4633352
cons	0.0188101	0.0052123	3.61	0.001	0.0084195	0.0292006

Source: own processing using Stata

The output show that the registered value of Prob (F) fulfils the conditions to conclude that the model is valid. Its value is greater than 0.05 (5%) and all the coefficients different from zero. The validity is also shown through the R-square value (that are over 50%).
The values of associated probability for each independent variable are greater than the threshold of 0.05. Therefore, we can assume that all the independent variables have a significant influence on the dependent variable. This is also reinforced by the t-values registered.

3.4. The random effects model

Further, we estimate the model with random effects ("RE model") by using the same function (*xtreg*). The output of RE model estimation is presented in Table 6 below:

Table 6: The output of RE model estimation

xtreg GDPpc_p CIT_p PIT_p VAT_p, re						
Random-effects GLS regression						
Group variable: country				Number of obs = 80		
R-square overall = 0.7835				Number of groups = 5		
				Obs per group = 16		
Wald chi2(3) = 275.03						
Prob > chi2 = 0.0000						
GDPpc_p	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
CIT_p	0.0558396	0.0300782	1.86	0.063	-0.0031126	0.1147919
PIT_p	0.2554725	0.0454281	5.62	0.000	0.166435	0.3445099
VAT_p	0.3835876	0.0466186	8.23	0.000	0.2922167	0.4749585
cons	0.0175193	0.0052575	3.33	0.001	0.0072148	0.0278238

Source: own processing using Stata

The results from the RE model are quite similar to the ones from FE model. The main difference is that the independent variable is greater than the threshold value of 0.05 and is not significant from a statistical point of view. The rest of the comments mentioned for the FE model are also applicable in the case of RE model.

3.5. Choosing the most appropriate model

Further, in our analysis it was necessary to decide which model fits better. Consequently, in order to decide between the FE model and RE model, we use the Hausman test and the results are presented in Table 7 below.

Table 7: The output of Hausman test

hausman fe re				
	- Coefficients -			
	(b) fe	(B) re	(b-B) Difference	sqrt (diag(V_b - V_B)) S.E.
CIT_p	0.0596401	0.0558396	0.0038005	.
PIT_p	0.2449891	0.2554725	-0.0104834	0.0018249
VAT_p	0.3710471	0.3835876	-0.0125405	.
b = consistent under Ho and Ha; obtained from xtreg				
b = inconsistent under Ho and Ha; obtained from xtreg				
Test: Ho: difference in coefficients not systematic				
chi2(3) = (b-B)' [(V_b - V_B)^(-1)](b-B) = 3.81				
Prob>chi2 = 0.2829				
(V_b - V_B is not positive definite)				

Source: own processing using Stata

According to these results, since the probability associated to the Hausman test is over the threshold of 0.05, the use of RE model would be more appropriate (Baltagi, 2005).

3.6. Testing for serial correlation

An additional test performed in our analysis is related to serial correlation. Thus, in order to the autocorrelation in panel data we used the Wooldridge test. This test has as null hypothesis that states there is no first-order autocorrelation within the dataset. By using the command *xtserial* in Stata we run this test and the results are presented in table 8 below.

Table 8: The output of Wooldridge test for autocorrelation in panel data

xtserial GDPpc_p CIT_p PIT_p VAT_p
Wooldridge test for autocorrelation in panel data
Ho: no first-order autocorrelation
F(1,4) = 0.363
Prob > F = 0.5792

Source: own processing using Stata

Since the associated probability of this test is 0.57, greater than 0.05, we cannot reject the null hypothesis and we conclude that the data used does not have first-order autocorrelation. The autocorrelation may cause smaller standard errors of the coefficients than they actually are and can cause a higher value of R-squared.

3.7. Economic interpretation

The econometric analysis were judged and interpreted based on the methodologies and indications of Baltagi (2005), Torres-Reyna (2007) and Wooldridge (2010).
In terms of economic interpretation, the coefficients obtained within the RE model indicates us the following:

- *The impact of CIT*: One percentage point increase in CIT revenues leads to an increase by 0.05 percentage points of GDP per capita, provided that the other independent variables are constant. The small value of this coefficient can indicate that the taxation of corporations has a limited impact on economic growth. However, under the RE model CIT is not significant from a statistical point of view;
- *The impact of PIT*: One percentage point increase in PIT revenues leads to an increase by 0.25 percentage points of GDP per capita, provided that the other independent variables are constant. The direct positive relationship between PIT and GDP per capita might be seen in the sense that, in the case where PIT revenues are higher, consequently the revenues of the citizens are higher. Another way of interpreting this coefficient is that PIT might be less harmful to economic growth;
- *The impact of VAT*: One percentage point increase in VAT revenues leads to an increase by 0.38 percentage points of GDP per capita, provided that the other independent variables are constant. This high value of the coefficient could easily be perceive in the way that the economies from the former Communist Bloc are consumption-based economies. In this case, one can argue that consumption leads to economic growth for the citizens of these countries.

The results obtained in this paper largely follow the last trend of the results found in the recent literature. This study represents a contribution to the literature with a specific analysis on the countries from the former Communist Bloc and conclusive economic and econom tric results.

4. Conclusions

Through this paper, we analysed the impact of the main elements of taxation on the economic growth felt at the population level (GDP per capita as proxy) in the case of countries from the former Communist Bloc that are currently EU Member States.
According to the econometric tests performed, we reached to an econometric model with random effects that assumes the fact that the variation across countries are random and uncorrelated with the predictor or with the independent variables. The model obtained showed a positive direct relationship between all the tax elements included and the GDP per capita. However, from a statistical point of view, CIT is not significant.
It is self-evident that the economic development is affected by numerous factors, but the analysis carried out in this paper focused only on the fiscal elements, which only represent a part of these factors.
On the specific case of PIT, even though the related result is not in agreement with most of the studies found in the specialized literature, our result is still aligned with the ones obtained by Stoilova & Patonov (2012) and Surugiu & Surugiu (2018b) that showed a positive influence of PIT on the economic growth.

Further, in terms of econometric analysis, by extending the comparison, similar results were found at the level of Eastern Europe countries and the developed European Countries by Vatavu et al. (2019).
The positive relationship between PIT and GDP per capita is also aligned with the results obtained by Andrašić et al. (2019) at the level of 35 OECD countries. In comparison, in our analysis, the impact of PIT is statistically significant, but the impact of CIT is not.
Therefore, one can argue that the countries from the former Communist Bloc used the taxation in a positive way and succeeded to sustain their economic development through the tools of taxation.
In general, the results are consistent with the specialized literature. This paper represents a contribution to the literature through an analysis of the effects of taxation elements on economic growth at a specific level, namely at the level of the countries from the former Communist Bloc that are currently EU Member States.

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Bio-note

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START-UPS AND INTERNATIONALISATION: THE CASE OF ROMANIA. PART 1. THEORETICAL OVERVIEW

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Abstract: *Within the general concept of companies, start-ups are, more practically than theoretically, a distinct category including the so-called newly born companies struggling for existence and confirmation. Although theories of start-ups are still emerging, it is known that these companies are set up to put in practice great ideas and they grow to reach the success desired by their founders. The definition is, from a strict scientific point of view, approximate and quite inconsistent, which is why the clarification of the category of start-ups can be done using contributions from the theories of management, organization, complexity, and entrepreneurship or life stages, while admitting that a clear picture of these entities is not yet available. Regardless of the multitude of perspectives, researchers and practitioners agree that growth is therefore an essential part in the development, consolidation and orientation of start-ups. It is therefore not uncommon to find that the vast majority of European start-ups are interested in internationalizing, or expanding their internationalization, in the immediate future, despite considerable difficulties and challenges, exacerbated by lack of experience and the market power of new companies. The situation of start-ups in Romania is a bit more complex and certainly not as enthusiastic - a series of constraints, objectives and subjective, make the expansion on new markets an option not as attractive for young small and medium Romanian companies.*

Keywords: start-ups, internationalisation, European Union, Romania.

JEL classification: M13, O19, F23.

1. Introduction

The idea of starting and launching a business comes from a fairly common rationale (practically and theoretically acceptable), of the evolution of organizations and companies. The economy is full of experiences and evidence that organizations have a development that can be interpreted in terms of "biological", conception: birth, launch, development, maturity, decline and disappearance, but, surprisingly, there is a rather low emphasis in economic theory on the very early stages of a company, i.e. the launching phase, the start-up. The lack of well-documented analyses on this early phase of companies is not without problems, controversies and challenges: Who are these entities?, What distinguishes them from other organizations?, How do they turn into actual companies?, Is there a specific moment which turns the start-up into a successful company or, respectively, one fated to a modest existence or even a rapid disappearance?

Start-ups have been identified and characterized by several important features. First of all, it is a high failure rate. Whether we are talking about new companies born to highlight an idea ("special" in the opinion of the founder), or we are talking about small companies set

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up without great ambitions, often for the simple survival of the founder and his family, most of these entities fail to survive and less than a third of them turn into companies (Rogers, 2009) (Badulescu & Badulescu, 2014). Secondly, failure occurs for several reasons, such as lack of funding, team management problems, insufficient business knowledge, technological backwardness, which seem to be, if not exclusive, at least very specific to the start-up period. Third, there is in the (short) life of start-ups "a stage or a few critical moments, often difficult to explain (Van de Ven, et al., 1984) that makes the difference between resistance and disappearance, between survival and success. Finally, as a "moral reward" for crossing this difficult path, most of the start-ups which survive and succeed have a strong motivational effect on future entrepreneurial ideas and intentions, which often compete with the economic or innovative contribution of their own business, and we refer here to the so-called "success stories" (Salamzadeh, 2015).

Start-ups: brief overview

We can find five main approaches or perspectives from which start-ups can be understood. Incomplete if taken separately, together they can contribute to a better understanding of this phenomenon, and we refer here to: a. Managerial perspective, b. Organizational perspective, c. Entrepreneurial perspective, d. Life cycle theory and, finally, d. the perspective of complexity theory. Van de Ven et al. (1984) were among the first researchers to consider three main approaches to the study of start-ups, i.e. entrepreneurial, organizational and environmental, and argued for the need to understand these new businesses by integrating the three perspectives.

Organizational theories are quite poor in arguments about the evolution of start-ups, the start-up phase, and most existing theories and perspectives in the science of the organization are focused on answering questions about more sophisticated stages of the company's existence, such as the theory of organizational ecology (Scholz & Reydon, 2009), organizational configurations (Miller, 2000), contingency theory (Tosi & Slocum, 1984), resource dependence theory, uncertainty theory (Kamps & Pólos, 1999) etc., as well as the specific contributions of Gartner (1985) and Katz and Gartner (1988) related to this category (Salamzadeh, 2015).

The management theory starts from its general principle, i.e. fulfilling of goals by coordinating the efforts of individuals and teams in order to achieve the proposed objectives. In fact, management theories have less to do with start-ups in an organizational sense, but more with those entities (individuals or teams) that coordinate their efforts towards common goals, and one of these goals could be setting up and launching a business. Management scholars are increasingly interested in studying start-ups (Salamzadeh, 2015), especially in the field of strategic management (Pettigrew, et al., 2001), small business governance (Ritchie & Richardson, 2000), human resource management (Miles & Rosenberg, 1983), team management (Kaiser & Müller, 2013).

In the opinion of Van de Ven et al (1984), the entrepreneurial approach to start-ups is based on the characteristics of the founder and leader of a new organization, eclipsing, by pushing forward the features of the founding entrepreneur, certain aspects of the organization, the reasons and the way of resolving conflicts and crisis situations, the stages of growth. As Salamzadeh (2015) argues, entrepreneurial theories of start-ups fall into two categories: (1) theories at the macroeconomic level (Schumpeter, 1934), population ecology (Hannan & Freeman, 1977), and (2) theories at micro and meso economic level (Vesper, 1990), (Bhave, 1994), (Lim, et al., 2008). Unlike organizational and management theories, this theory is much more focused and adapted to start-ups, at least for the fact that entrepreneurial theory deals with elements such as idea, creativity, innovation, development of new products or services, opportunities and others, which are actually the motivations and strengths of launching new companies. Moreover, some of the motivations and entrepreneurial resilience

are closely related to going through the early, often difficult stages of any business or organization. Secondly, the transformation of the idea into a business is a central point of entrepreneurial theory, and the launch and the first stages of a start-up (legal formalities, risk management, evaluation and exploitation of opportunities, team building) are the "vehicle" through this transformation of the idea into a functional business can be achieved. Researchers also commonly use "organizational life cycle theory" to investigate the problem of developing start-ups. It presumes organizational growth as a consistent and predictable process, similar to the life cycle of an individual (or of a known biological entity), i.e. birth, maturity, aging and death. The basic argument of this theory is constructed as follows: the process of organizational growth consists of different stages, and an organization faces different problems at each stage. Therefore, an organization must possess different management skills, make different decisions and have a structure adapted to each stage (Adizes, 1989), (Greiner, 1972), (Kazanjian, 1988). In terms of the number of stages identified, theories are beginning to differ - from a simpler model of the three stages such as Smith et al. (1985) or Bhave (1994), up to the four-step model (Hanks & Watson, 1993), five-step model (Greiner, 1972), (Galbraith, 1982), and up to the ten-step model (Block & MacMillan, 1985), (Adizes, 1989).

Despite the differences between the different life cycle models, their promoters usually consider that the growth and development of enterprises is a progressive and linear process and that all enterprises have to face certain key problems at each stage (Kaulio, 2003), (Kazanjian, 1988). Because entrepreneurs must overcome these problems before their business can enter the next stage of development, this theoretical perspective assumes that the development of the start-up is predictable and that entrepreneurs can plan management activities and adjust the organizational structure over time.

Accepting the existence of stages and moments in the “life of an enterprise”, but partially contesting their content and succession, the complexity theory starts from the idea that the development of a start-up is dynamic, non-linear and unpredictable. Moreover, since the development of a start-up must begin with an initial event, immediately after the occurrence of this event, the development of the start-up is in a dynamic state of co-evolution with management, with the subjectivity of entrepreneurial decisions and it never reaches the kind of equilibrium observed in biological evolution. In other words, the development of a start-up can be seen as the attempt to "create order", and the use of complexity theory to study the launch and development of a start-up allows us to observe how each start-up constantly creates new orders in the environment (Tsai & Lan, 2006) to determine the company to continuously adapt to a system, marked by “continuous change”. Life cycle theory concerns the development of a start-up from a relatively holistic point of view, being particularly concerned with changes in the structure of the organization from its birth to its death (Katz & Gartner, 1988). Complexity theory is partially validated by statistical data - over 30% -40% of enterprises do not have a process of progressive and linear growth assumed by life cycle theory (Slevin & Covin, 1998), (Tsai & Lan, 2006), and the development a new start-up is subject to various phenomena, non-homogeneous, dynamic and complex, difficult to integrate into the schematics of some stages (regardless of their number) as they are proposed in the theories of the life cycle of start-ups. One of the explanations probably comes from the fact that the logic of cycle theories is, at the same time, its weakness - life cycle theory assumes that the environment is predictable, one stage contains the germs of the next stage and that, therefore, change, breaking rhythm, return, alternation, shock are "exceptions". In contrast, in complexity theory the course of a firm is individual, organizations are dissipative structures in a state of imbalance and it is assumed that (unpredictable) change of environment is a rule, not an exception (Tsai & Lan, 2006). All these approaches also show, indirectly, that start-ups are not simple entities, small variations of future large

organizations, but are diversified and have a complex nature, specifically marking a certain stage of life of companies.

2. Start-ups and the challenge of internationalization

The internationalization of start-ups is a specific theme of this group of companies, probably, from our point of view, a little overestimated or often presented in a favourable light, as intrinsic in the development of this type of business. Marked by inherent problems (Badulescu, 2013), such as (i) *financial challenges and constraints, (ii) lack of qualified human resources (or unwilling to enter an incipient, insecure business); (iii) support mechanisms and immature entrepreneurial ecosystem, (iv) low attention paid to environmental elements that can be easily transformed from opportunities into risks*, it is hard to believe that most start-ups are well equipped to deal with these problems multiplicated on various markets, in an international context.

2.1. Development and internationalization of start-ups: the European profile

However, there is a certain category of start-ups, the so-called *born global*, which means that they operate across borders and, in some cases, they open an office in several countries since the beginning of the first operations. Growth is a crucial part in targeting start-ups and therefore 88.0% of start-ups participating in surveys within the European Union (Steigertahl & Mauer, 2018) (Bormans, et al., 2020) stated that they intend to go international, or increase their degree of internationalization in the next 12 months.

Most European start-ups expand first into the European Union and usually start with neighbouring countries, before moving to wider international markets - 77% of participants reported internationalization plans in the EU over the next 12 months, and about 36% want to do it outside the EU (especially in North America, followed by Asia), 26% in the EU and outside the EU, and 11% have no such intention.

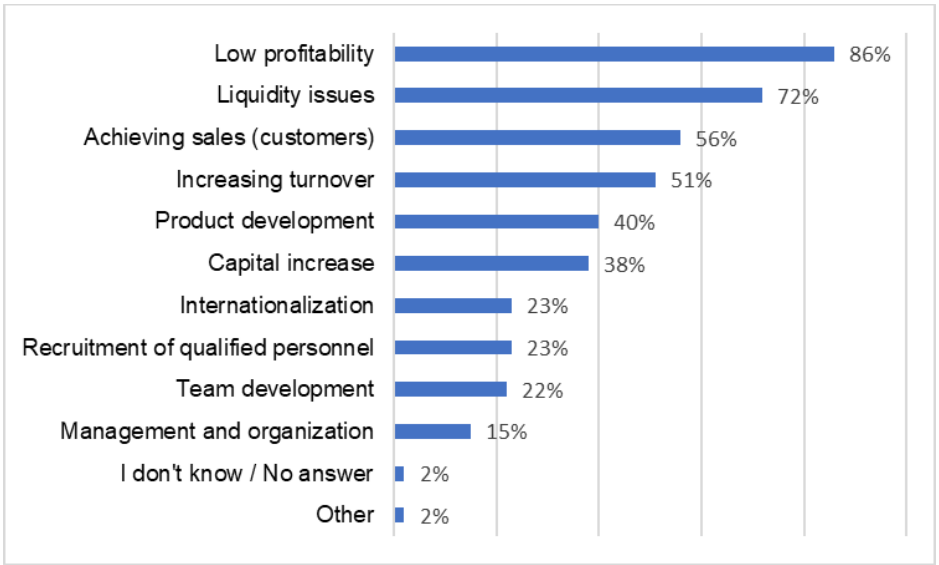

Figure 1: Challenges faced by start-ups in developing and internationalizing their businesses

Source: (Bormans, et al., 2020), (Steigertahl & Mauer, 2018).

Growing across borders is, however, difficult, and the founders face many challenges (Figure 1). The lack of genuine cross-border partnerships (55.4%), lack of adequate financial support (42.6%) and differences in legislation and regulations (38.3%) are the biggest obstacles, followed by the adaptation of production / products (23.3%), language barriers (20.7%) and cultural differences (32.4%). Internationalization is difficult, but necessary to overcome the biggest business challenges of start-ups. Profitability (86.2%) and cash flow (72.3%) (see Figure 1) are considered by most start-ups to be their biggest challenges and they are usually addressed by expanding the activities of start-ups. Switching to another market means access to a larger number of potential customers, a larger group of people to recruit from and, often, new capital markets, to address additional funding.

The financing sources for growth and expansion, international or not, are often different, not so much in their variety but in frequency of use, compared to already established firms or young firms, but not necessarily innovative. The traditional ways - the personal savings of the founders (77.8%) or the support of family and friends (30.2%) are the most frequently invoked, but they are followed by business angels (29.0%), venture capital 26.3%) or various capital investors (21%), government grants / financing (20%), crowdfunding (18%). This order differs from that of regular SMEs which are counting for financing for personal savings, support from family and friends, own sources and bank loans in most cases. To the extent that they can be set up, start-ups also use internal sources (e.g. undistributed profit, active sales, depreciation, by 15.7%), bank loans (7.4%) or other sources (4.8%).

Another way to overcome challenges and to access new opportunities can be through collaboration with other businesses. According to the results of the initial survey, 29% of start-ups collaborate with large companies and corporations, 41% with consolidated SMEs, 10% with universities, 9.5% with other start-ups, 8% with government agencies and 3.5% with NGOs and other entities (Bormans, et al., 2020). Thus, 27% of the start-ups participating in the survey are engaged in active collaborations with very large corporations, and 68% of these collaborations are cross-border. Among the various reasons for collaboration are image transfer and reputation (42%), but especially access to new customers and new markets (83.8% of participants). In the initial phases, collaboration between SMEs is almost three times more frequent (79%) than collaboration with large corporations, 60% of these collaborations being cross-border (Steigertahl & Mauer, 2018).

2.2. Romanian SMEs and start-ups face to expanding on new markets and internationalization

Regarding the field of Internationalization of SMEs, based on the latest available data, Romania performs in accordance with the EU average in this regard. Although Romania has one of the lowest scores in the EU for SMEs that are exporting online and outside the EU and for SMEs exporting goods outside the EU, Romania performs substantially above the EU average in terms of procedures and formalities prior to import-export operations (European Commission, 2019a).

Moreover, The World Bank's *Doing Business Romania 2020* Report shows that Romania has, out of all 10 chapters, the maximum performance (100) and rank 1, at Trading across Borders, as follows:

Table 1. Main indicators for Romania for the criterion ”Trading across Border” in Doing Business 2020 Romania Report

	Romania	Europe & Central Asia	OECD high income	Best Regulatory Performance
Time & cost to export:				
Border compliance (h)	0	16.1	12.7	1 (19 Economies)
Documentary compliance (h)	1	25.10	2.30	1 (26 Economies)
Border compliance (USD)	0	150	136.8	1 (19 Economies)
Documentary compliance (USD)	0	87.60	33.40	0 (20 Economies)
Time & cost to import:				
Border compliance (h)	0	20.40	8.50	1 (25 Economies)
Documentary compliance (h)	1	23.40	3.40	1 (30 Economies)
Border compliance (USD)	0	158.80	98.10	0 (28 Economies)
Documentary compliance (USD)	0	85.90	23.50	0 (30 Economies)

Source: Word Bank Group, *Doing Business 2020* Romania (2020, pp. 50-54)

In recent years, Romania has made limited progress in policies and economic measures to support SMEs in this field, only a few implemented programs providing financial and information support to SMEs that help them to internationalize, i.e. to do business abroad, the establishment single access points for information on rules and regulations in foreign markets.

Regarding start-ups, official statistics (INSSE, Eurostat, etc.) are very poor in highlighting aspects of internationalization. The most suggestive data and with a reasonable degree of certainty, can be retrieved survey-based researches conducted by reputable bodies and entities. Although the primary value of this information is certain, it also has a number of drawbacks - as a rule, they do not have a certain repetitiveness over time, which would allow evolving analysis of certain indicators or phenomena; the objectives of the research are different and, as such, the data presented are difficult to compare, or have a conjunctural character, determined by tracking the effects of a particular event or program, and the results may be distorted by the particular criteria and objectives of the research. In the following, we will use mainly three data sources: (1) European Commission Startup Monitor Project 2019 (Bormans, et al., 2020), (2) Ernst & Young Study (2019) - Business Barometer start-ups in Romania, and, respectively (3) The research conducted by the National Council of Small and Medium Private Enterprises in Romania (CNIPMMR) and the Romanian Commercial Bank (BCR) on the beneficiaries of the 2017 edition of the Start-up Nation program - Entrepreneur profile Start-Up Nation (2019).

According to the European Start-up Monitor (Bormans, et al., 2020), (European Commission, 2019a), Romanian start-ups have a low degree of internationalization, most of these businesses addressing with their products or services the local market, more precisely targeting the consumers in the communities where the start-up carries out its activity (36%). For the national market, an approximately equal percentage (34%) of start-ups offer products and services, and only a third of the businesses at the beginning went abroad, 10%

of the total going to the regional market and about 20% reaching global markets (European Commission, 2019a).
As future plans for their business (Figure 2), the majority of respondents in the EY study (Ernst & Young Global Limited, 2019) are considering expanding their business to another area (65%). Regarding a possible expansion abroad intended in the short or long term, a third of the surveyed entrepreneurs affirm their intention to expand abroad (28%), but most of them (45%) do not consider this strategy for the future. According to them, one third of entrepreneurs do not have a clear image of what they will do in the future in terms of exit strategy, their limited experience in entrepreneurship being one of the reasons (Ernst & Young Global Limited, 2019).

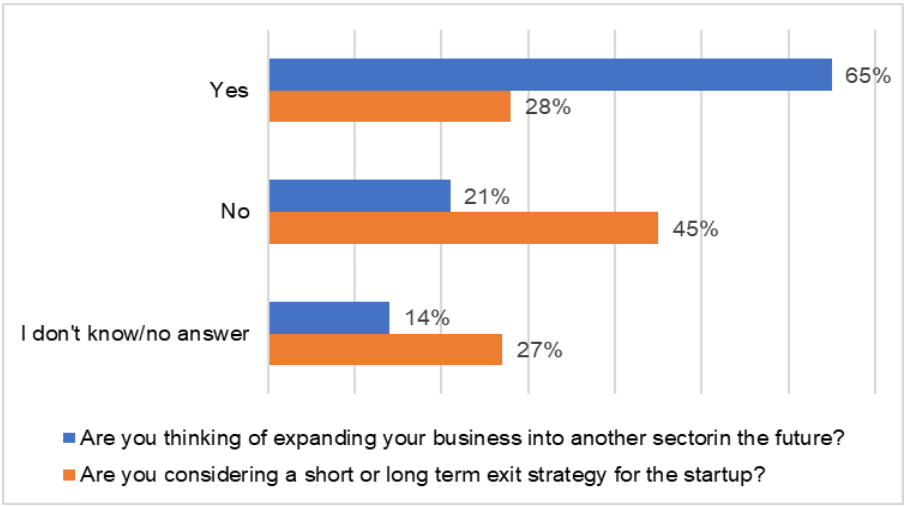

Figure 2. Strategies of expansion or exit, on short term or long term, in the case of start-ups
Source: (Ernst & Young Global Limited, 2019)

As part of future plans to expand into new, internal or external markets, entrepreneurs at the beginning of the road plan to access new external markets in a proportion of about 50%. The most mentioned area of expansion is the regional one, Europe, which is targeted by 51% of those who want to enter new geographic markets. A very large number of start-ups want to enter the American market (17%). A relatively small proportion of such companies (10%) are thinking of expanding nationally in other cities in Romania that they have not accessed so far (Ernst & Young Global Limited, 2019), see Table 2.

Table 2. If you plan to expand into new internal or international markets, which would be the markets targeted?

Internal	Romania (10%)		
International	Europe (51%), from which:	Germany	7%
		Bulgaria	3%
		Hungary	1%
	Asia (5%), from which:	China	2%
	America de Nord (18%), from which:	USA	17%
		Canada	1%
	Africa (1%)		
	Global (3%)		

Source: (Ernst & Young Global Limited, 2019)

Start-ups are vulnerable and depend on a number of interdependent resources that work together to support themselves in the development stages. The biggest obstacles that start-up entrepreneurs face in 2019 are related to the lack of capital for investments (45%), the limited promotion budget (38%), but also the need for new customers they do not know where to find (34%). The insufficient qualified personnel is also a serious challenge faced by an important part of Romanian start-ups (35%) and which makes their development difficult.

Completing the above, the CNIPMMR study, starting from the fact that the financing offered can fuel the long-term development plans of the start-ups, intended to examine the potential of the companies financed by the Start-Up Nation program in internationalization area. (National Council of Private Small and Medium Enterprises in Romania (CNIPMMR), 2019a). The results indicate that just over a third (37%) of businesses consider that they have such potential, the rest either do not know if internationalization is a possible option (38%) or believe that they do not have the potential to internationalize the business (25%), at least at the time of the study.

3. Conclusion

In this paper we intended to explain and conceptualize start-ups by focusing on the problems and specificities of their life cycle. Our approach was to review the main theories on start-ups and the main challenges they may face at the beginning of the road, admitting that more careful research is needed on the stages of growth and challenges coming from various areas of the economic and social environment. However, growth is a crucial part in the orientation of start-ups and a large part of start-ups aim to grow rapidly, to expand into new markets, including through internationalization. By employing mostly studies based on surveys at EU and Romania level, we captured the special appetite of EU start-ups to capitalize on the advantages of the European single market and, hence, to prepare the conditions for real internationalization, on markets outside the EU, despite considerable difficulties and challenges. Regarding Romanian start-ups, we found out that they are constrained by additional challenges, internal or external. Although Romania is performing very well in terms of the legislative and organizational framework for trading across borders, there are a number of other issues that hinder access to the European single market and, even more so, in internationalization outside the EU. Probably this is an explanation of the fact that at most 50% (or even less) of Romanian companies believe that they have potential and want to expand in foreign markets (probably even fewer really do), compared to over 80% at the level European. The lack of training, the limited innovative character of the Romanian products, the competition and the lack of an authentic financial support make the Romanian entrepreneurs at the beginning of the road to be cautious in the option of internationalization. Of course, these are the first premises of our research, and therefore we intend to analyse in more depth in the second part of this research the relationship between the evolution of start-ups and the main indicators of internationalization, as shown by statistics and reports of European and international bodies.

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Bio-note

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START-UPS AND INTERNATIONALISATION: THE CASE OF ROMANIA. PART 2. EMPIRICAL RESEARCH

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Abstract: *Companies' creation and growth are a fervently debated topic in the literature and economic policies, at least for the fact that they are related to maintaining a critical number of active companies, an essential aspect of the functioning of the economy and society. Growth is associated with overcoming the stage of survival and ensures the development and consolidation of existing companies, meanwhile the establishment of the new ones means the replacement of those that disappear from the economic landscape. The launch and expansion of young companies could lead to a positive balance in terms of employment, income, incentive of demand to other sectors and regions, boosting their development. New firms are often associated with innovation and technological change, competitiveness and competition on the market. The survival, growth and consolidation of companies occurs not only as a result of quantitative accumulations, but also as a result of the incorporation of new technologies, an open attitude towards innovation, whether it is technical, managerial or commercial. Growth is therefore a normal phenomenon in the life of a company, which must be encouraged and supported by public measures as part of a smart and forward-looking economic policy. Growth may be local, but it usually takes place at national, regional and international levels. In the first part of this article we have presented and discussed the theoretical background as it results of previous researches and official studies and reports, internationalization opportunities and some features and trends of internationalization of companies in the EU, and Romania, respectively. We now present our investigation to determine whether, and to what extent, internationalisation is relevant to start-ups, if there is a possible correlation between the 6 selected indicators of internationalisation as revealed by World Bank Data on one hand, and the number of start-ups in Romania on the other hand.*

Keywords: start-ups, internationalisation, World Bank indicators, Romania.

JEL classification: M13, O19, F23.

1. Introduction

The European Commission (2020a) considers SMEs to be the "backbone" of the European economy; they account for 99% of all EU businesses, generating around 85% of new jobs in the last five years and covering two thirds of all EU private sector's jobs. SMEs and entrepreneurship are the vital element in ensuring growth, innovation, job creation and social integration in the EU (European Commission, Internal Market, Industry, Entrepreneurship and SMEs, 2020).

In the more than 10 years since Romania became a member of the European Union, significant efforts have been made to adapt policies and strategies to the single market, to

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create better framework conditions to initiate and develop new businesses and to provide access to financial and human resources, support structures and market opportunities. Among these, internationalization is particularly important for the SME sector because it opens up new markets and has the potential to significantly stimulate their competitiveness and growth (European Union Open Data Portal, 2015), (Bădulescu & Petria, 2011), (Badulescu et al, 2014). Internationalization can lead to gains in competitiveness at the enterprise level, which can ultimately translate into improved economic performance at national and European level (European Commission, 2010, p. 57), (European Commission, 2014).

There are several features of the internationalization of European companies: the size, age and experience of SMEs are important factors in their desire and ability to internationalize:

- The larger the enterprise, the more it tends to internationalize, (import-export operations are found in 24% -28% of micro-enterprises and up to 53% -55% in the case of medium-sized enterprises) (European Commission, 2010, p. 5).
- Export and import activities increase as an enterprise ages, from about 15% of enterprises by the age of 4, to almost 30% of enterprises that are at least 25 years old (European Commission, 2010: 6).
- In terms of experience, very few internationally inactive SMEs intend to start international activities in the near future.

SMEs usually start with imports, and some sectors tend to be more suitable for internationalization than others. Trade, manufacturing, transport and communications, and research are the most “international” sectors. Businesses involved in e-commerce are more active internationally. The diversity and novelty of the means of sale (including online) are positively correlated with the activity on the export or import markets, the internet facilitating for SMEs of all sizes overcoming some of the barriers to internationalization (European Commission, 2010, p. 7), (European Commission, 2014), (Badulescu, & Badulescu, 2012). In other words, although internationalization is more than necessary for the development of the small and medium enterprise sector, and current trends of globalization, expansion of the digital world, stimulation of innovation, but also the consistent support coming from EU, are favourable to European SMEs’ internationalization, the start-up situation does not become automatically favourable. Thus, start-ups are, mostly, very small companies that cannot benefit from the advantage of size and experience. On the other hand, the chance of digitalization and expansion of the Internet and global communications, the increase of the Information technology exports and High technology exports shares in total exports could represent a chance in the expansion and consolidation of the start-up sector.

This article is the second part of the research investigating the relationship between number of start-ups and internationalisation of the firms for the case of Romania after 2000. While in the first article we have presented and discusses the theoretical background as well as results of previous researches in the literature, we now present our investigation. The article is organized as follows: in section 2 we present the data and general methodology, in section 3 we present the correlations between the number of Romanian start-ups and each of the 6 measures for internationalisation, in section 4 we investigate the direction of the relations, in section 5 we present the regression results. In the final section we conclude and present the implications of our findings.

2. Data and methodology

We used data retrieved from Romanian statistics, i.e. Tempo online database (Institutul Naţional de Statistică, 2020), Eurostat (2020) and World Bank (The Global Economy, 2020). We used data available for the timespan 2000-2018 for: *Number of start-ups*, considered the dependent variable, and the following: *Trade openness, Exports of goods and services,*

Imports of goods and services, Foreign direct investment, Information technology exports, High technology exports considered independent variables. There are some missing values from the series, i.e. for *Information technology exports* it is missing the value for 2018, and for *High technology exports* the available data only ranges from 2007 to 2018. For the *Number of start-ups*, we eliminated the values for 2008 and 2014, as they were incorrect in the original source.

As methods, in order to investigate possible relationships between number of start-ups and internationalisation of the firms for the case of Romania after 2000, first we performed Spearman correlations to obtain an overview of possible associations. Secondly, we investigated the existence of Granger causality and the direction of the relationship. Thirdly, we created the simple linear regression models and thus we identified which model can be built in order to make predictions.

To perform the statistical analyses, we used R 3.6.3 and the addons: *lmtest*, *forecast* and *corrplot,* as well as MS Excel for basic data manipulation. In Table 1, we prefer mentioning p-values below 0.15 – an „almost significant" association can be a false negative due to insufficient data for some variables, and can be confirmed by other studies with larger samples.

3. Analysis of possible linear relationships

In order to determine whether, and to what extent, internalisation is relevant to start-ups, we initially analysed the possible correlations between the 6 indicators of internationalisation (the independent variables), on one hand, and the number of start-ups (the dependent variable) on the other hand.

It is evident that the number of start-ups does not follow a normal distribution (Shapiro-Wilk p-value<0.05, see also the quantile-quantile plot in Figure 1). Subsequently, we performed nonparametric Spearman rank correlations, which do not require normally-distributed variables.

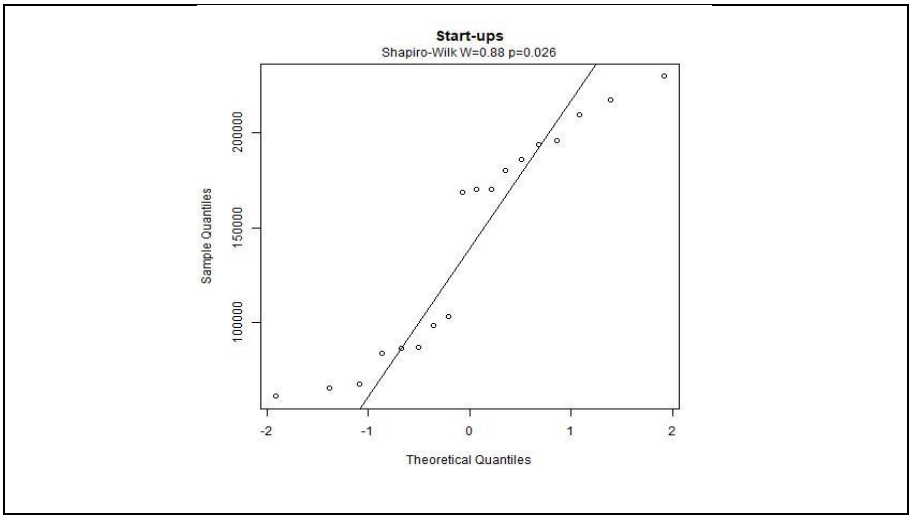


Figure 1. Quantile-quantile plot, Shapiro-Wilk W statistic and p-value for *number of start-ups*

The results are graphically summarized in Figure 2. Positive correlations are represented by blue discs, and negative correlations in red. The color intensity and the discs' diameter is proportional to the magnitude of the correlation.

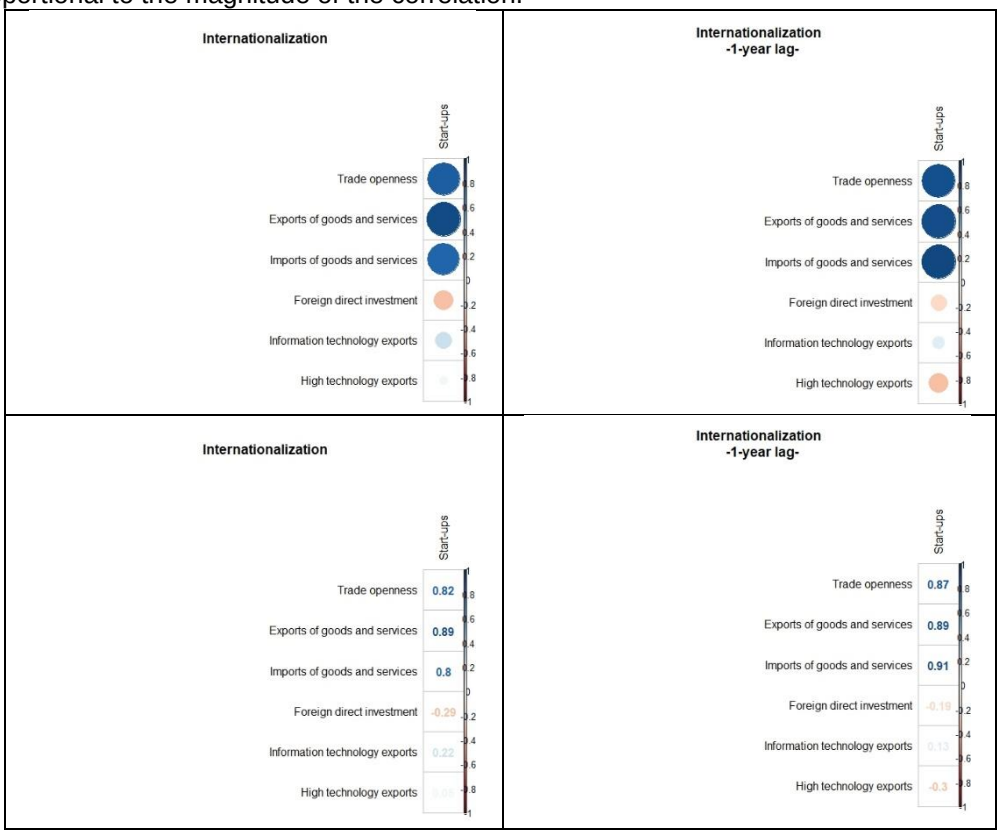


Figure 2. Plots of correlation matrix for internationalisation indicators and number of start-ups, România, 2000-2018

Additionally, Table 1 presents the results of each correlation. Significant correlation coefficients are marked with *. Moreover, since modifications in some dependent variables can have delayed effects, only noticed in the following year, we attempted to identify correlations between dependent values in year *n* v. the number of start-ups in year *n-1*. The results are presented in Table 1, in the „1-year lag" columns.

Table 1. Spearman correlations

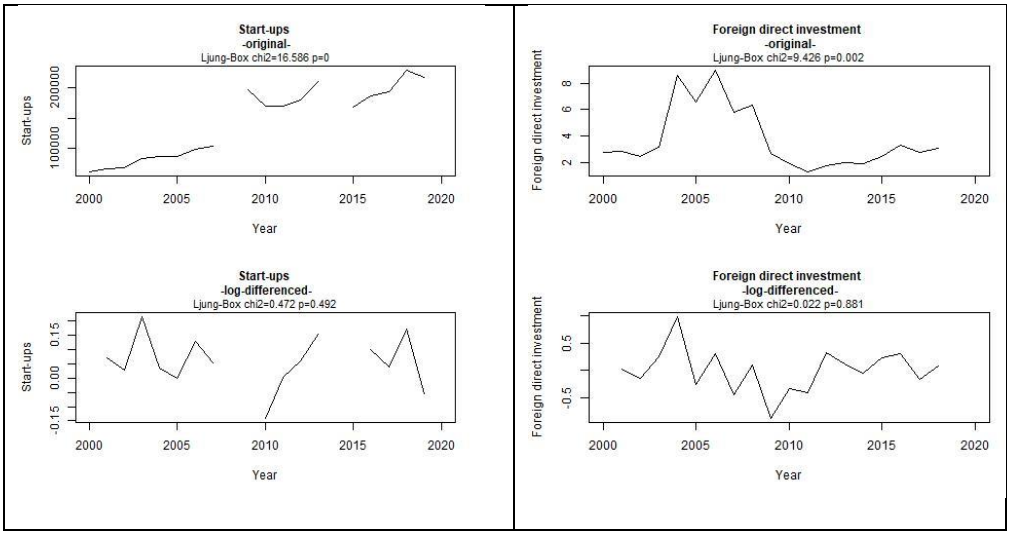
Independent variable	Current		1-year lag	
	Spearman ρ	**Value p**	**Spearman ρ**	**Value p**
Trade openness	0.82 *	<0.001	0.87 *	<0.001
Exports of goods and services	0.89 *	<0.001	0.89 *	<0.001
Imports of goods and services	0.8 *	<0.001	0.91*	<0.001
Foreign direct investment	-0.29	>0.15	-0.19	>0.15
Information technology exports	0.22	>0.15	0.13	>0.15
High technology exports	0.05	>0.15	-0.3	>0.15

As it is readily apparent in Table 1, similar effects are described for both current and 1-year lagged correlations: trade openness, exports and imports of goods and services are significantly and positively associated with the number of start-ups, while foreign direct investment, information technology and high-technology exports are not significantly associated with the number of start-ups.

4. Direction of causality

Before building regression models to predict changes in the dependent variable caused by modifications in one independent variable, we attempted to confirm the direction of dependence using Granger tests at 1-year lags (Granger, 1969). It should nonetheless be stated that no statistical technique can prove causality, the Granger test only being able to confirm temporal succession (i.e. that a change in the value of the independent variable at present will determine a *future* modification in the value of the dependent value, and not vice-versa) – see for example (Leamer, 1985)

Because the Granger test can only be applied to stationary time series, we tested for this property by employing the Ljung-Box test (p-value>0.05 is consistent with stationarity) (Ljung, Box, 1975). The tests were performed on both the original and transformed (log-differenced) series. The aspect and Ljung-Box results for each time series are plotted in Figure 3.



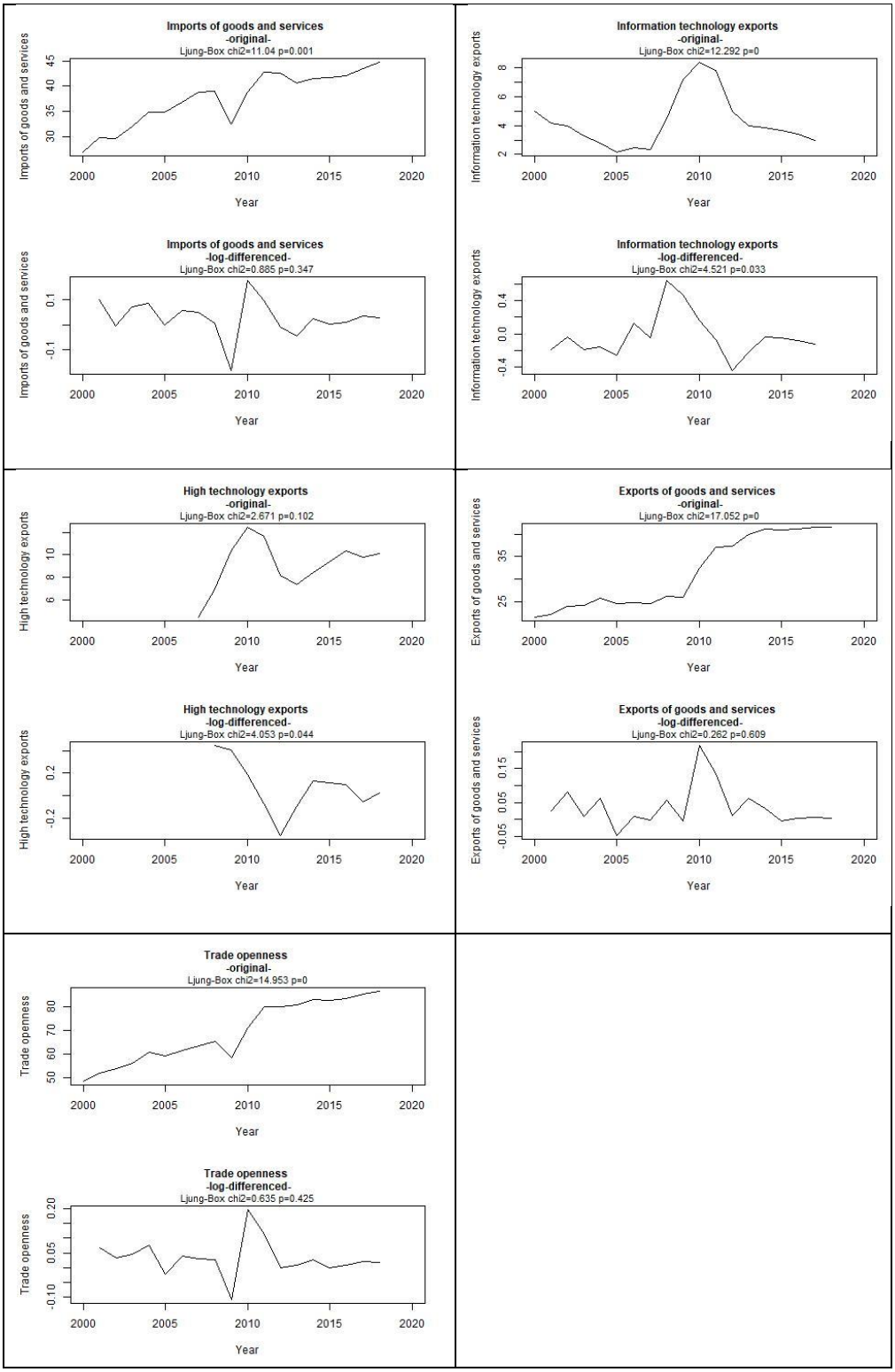


Figure 3. Plot of original and transformed time series and Ljung-Box test results

It can be noticed that neither the dependent variable time series (number of start-ups), nor most independent variable time series, are stationary. Consequently, we performed the Granger tests on the log-differenced time series. The results are presented in Table 2.

Table 2. Granger test results, treating the number of start-ups as dependent („Direct causality"), then independent („Inverse causality")

Variable	Direct causality		Inverse causality	
	F statistic	**p-value**	**F statistic**	**p-value**
Trade openness	2.233415	>0.15	0.059874	>0.15
Exports of goods and services	0.080858	>0.15	0.428751	>0.15
Imports of goods and services	4.953211	0.0502	0.001497	>0.15
Foreign direct investment	<0.001	>0.15	4.252949	0.0661
Information technology exports	1.41455	>0.15	0.01211	>0.15
High technology exports	2.882463	>0.15	0.875999	>0.15

We were unable to demonstrate the existence of Granger causality for any variable. However, the results suggest a possible „direct" causality for *Imports of goods and services*, and a possible inverse dependence for *Foreign direct investment.*

5. The analysis of linear relationships

In order to predict the evolution of the number of start-ups (the dependent variable) as a function of individual indicators of internalisation, we constructed simple linear regression models: $Number\ of\ start-ups = a \cdot Dependent\ variable + b + \epsilon$, where a=regression coefficient, b=intercept, ϵ=normally-distributed error term). The results are summarized in Table 3 as follows: coefficient (standard error), intercept (standard error), F-statistic (degrees of freedom), adjusted R^2, p-value for F-test.

Table 3. Regression analyses for the number of start-ups

Independent variable	a (se)	b (se)	F (df)	Adjusted R^2	p
Trade openness	3833 (562)	-123518 (39101)	46.56 (1, 15)	0.74	<0.001
Exports of goods and services	6380 (912)	-60069 (29272)	48.971 (1, 15)	0.75	<0.001
Imports of goods and services	8426 (1591)	-175173 (59889)	28.051 (1, 15)	0.628	<0.001
Foreign direct investment	-11386 (5705)	180669 (24690)	3.984 (1, 15)	0.157	0.064
Information technology exports	11387 (6925)	84321 (32368)	2.704 (1, 14)	0.102	0.122
High technology exports	6888 (4496)	116008 (43450)	2.347 (1, 8)	0.13	>0.15

As described in Table 3, 3 predictors show at least moderate (R^2>0.5) performance: Trade openness, Exports of goods and services, Imports of goods and services. As we notice în the Table 3, there are 3 predictors with moderate or better performances, namely: T*rade*

openness, Exports of goods and services, Imports of goods and services. We checked whether the models follow the assumptions of linear regression graphically, by means of diagnostic plots, and by employing the relevant statistical tests. The diagnostic plots and tests are presented in Tables 4 to 6 (Annexes) for each of the 3 regression models.

Examining the regression diagnostic results, we notice that no model entirely respects the premises of a linear regression model. However, given that variables "Trade openness" and "Exports of goods and services" slightly respect the four criteria, we consider that we can employ the two variables for making predictions.

Consequently, we have the following models:

1. Model $Start-ups = a \cdot Trade\ openness + b$:
   - The variation of "Trade openness" explains a large (i.e. 74%) proportion of the variation of the number of start-ups.
   - Increasing by 1 % the value of "Trade openness" is associated with an increase of about 3,830 of the number of start-ups.
   - Granger test failed to prove the existence of a short term (1 year) causality.
2. Model $Start-ups = a \cdot Exports\ of\ goods\ and\ services + b$:
   - The variation of "Exports of goods and services" explains a large (i.e. 72.5%) proportion of the variation of the number of start-ups.
   - Increasing by 1% the value of "Exports of goods and services" is associated with an increase of about 6,380 of the number of start-ups.
   - Granger test failed to prove the existence of a short term (1 year) causality.

After identifying the two satisfactory predictors, we attempted to perform a multiple regression analysis for the combination of "trade openness" and "exports of goods and services" as independent variables, but the results indicated lack of statistical significance for both predictors. Consequently, we had to limit the analysis to simple regressions, which present statistical significance and satisfactory predictive performance.

6. Conclusions

International markets are an important source of growth for small and medium-sized enterprises (SMEs), however, there are relatively few EU SMEs doing business beyond Europe. According to the European Commission (2020) only 600,000 SMEs, employing around 6 million people, export goods outside the EU. Within this segment, the number and share of start-ups is even smaller. In European Union policies, increasing the internationalization of SMEs is essential for European competitiveness, growth and innovation, but the effects on the training of young, ambitious and high-tech firms are relatively limited. Even if the European Commission says that SMEs are the backbone of the European economy, they can truly become a vehicle for restoring growth in the EU, if internationalization is to be done on a large scale (ECSIP Consortium, 2013), involving a wide variety of small young firms from all EU member states.

In this paper, we attempted to identify possible associations between the number of start-ups and various indicators of internationalization. Initially, the use of linear, nonparametric correlations, suggested the existence of positive relationships between the number of start-ups and indicators of trade openness and both imports and exports of goods and services, relationships which hold both for synchronous, and 1-year-lagged correlations.

However, we were unable to unequivocally demonstrate the direction of causality, with the exception of an "almost-significant" direct causality regarding imports of goods and services (i.e., that imports influence the number of start-ups, and not vice-versa), which we consider that it can eventually be confirmed by a larger study or as data for more years becomes available. Moreover, a linear regression model for the number of imports failed to observe the model's requirements. However, the other two independent variables satisfy, to some

extent, the model's criteria, and, despite the lack of proof for causality, can be used to estimate the number of start-ups.

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Bio-note

Anamaria Diana Herte graduated at *University of Oradea, Faculty of Economic Sciences* and now is Ph.D. student at the same university. In her doctoral research she focuses on the Start-ups in the contemporary economy.

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Annexes

Table 4. Diagnostic plots for ”Trade openness”

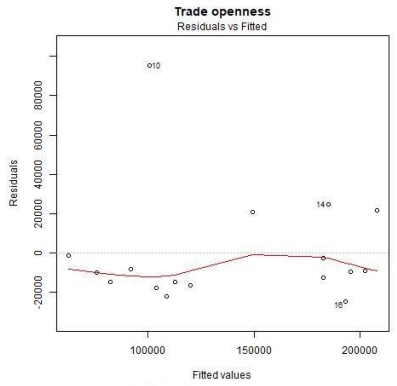
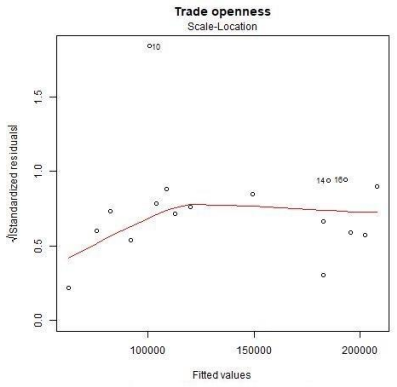
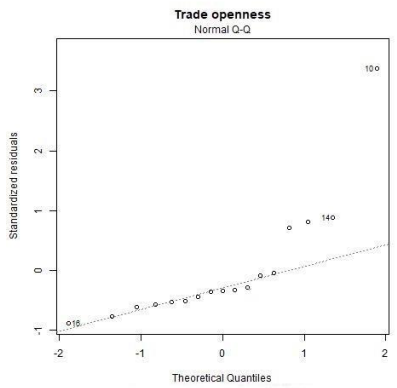
Linear relationship between the dependent and independent variable: residuals display a slight non-linearity. Linearity is observed.	
Homoskedasticity: residuals present a relatively constant spread. Breusch-Pagan Statistic = 0.4640, p=0.496 Homoskedasticity is observed.	
Independence of residuals: only the first residuals follow a relatively slight upward trend. Independence of residuals is borderline respected.	
Normal distribution of residuals: the last four residuals display visible deviations from the normal distribution. Shapiro-Wilk statistic = 0.69747, p<0.001 The residuals are not normally distributed.	

Table 5. Diagnostic plots for ”exports of goods and services”

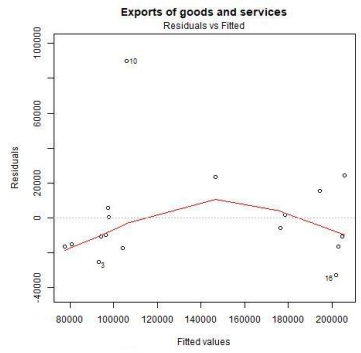
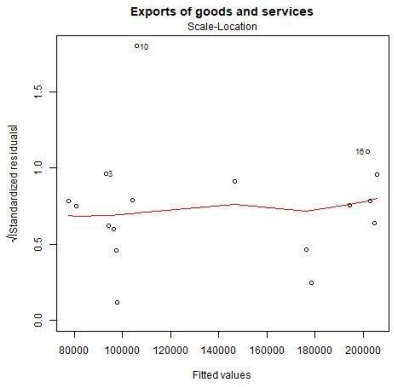
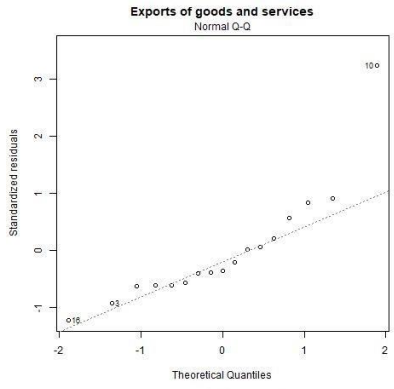
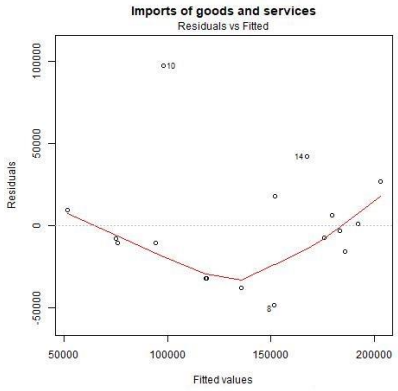
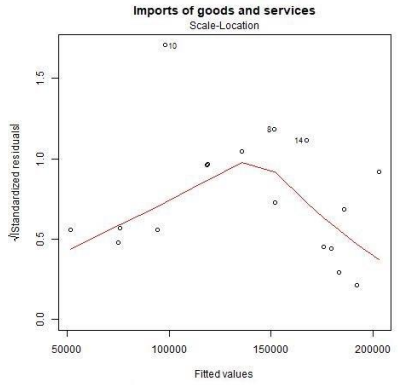
Linear relationship between the dependent and independent variable: residuals show a slight deviation from the horizontal axis in 0. Linearity is borderline respected.	
Homoskedasticity: residuals are uniformly spread. Breusch-Pagan Statistic = 0.26513, p=0.607. Homoskedasticity is observed.	
Independence of residuals: residuals do not follow any obvious trend. Independence of residuals is respected.	
Normal distribution of residuals: the last residual displays a severe deviation from the normal distribution; the other residuals are slighty deviated. Shapiro-Wilk statistic = 0.7926, p=0.002 The residuals are not normally distributed.	

Table 6. Diagnostic plots for ”imports of goods and services”

Linear relationship between the dependent and independent variable: a severe deviation from linearity is noticed. Linearity is not respected.	
Homoskedasticity: intermediate residuals are more highly spread. Breusch-Pagan statistic = 0.540, p= 0.462. Homoskedasticity is observed.	
Independence of residuals: residuals display an obvious upward, then downward trend. Independence of residuals is not respected.	
Normal distribution of residuals: the first and last residuals display deviations from the normal distribution; the other residuals closely follow the normal distribution. Shapiro-Wilk statistic = 0.899, p= 0.065 The residuals are borderline normally distributed.