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# IMPACT OF SMALL AND MEDIUM ENTERPRISES' INTERNAL FACTORS ON THEIR PERFORMANCE IN NORTH-WESTERN NIGERIA

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#### ABSTRACT

SMEs Sector is one of the leading sectors which contribute to the economic growth and development of many economies. However, the outstanding performance of the sector is facing serious problem especially in developing economies. This study investigates the impact of SMEs internal factors on their performance. The study used Stratified Sampling Technique and sampled 375 SMEs in the North-Western Nigeria. The study employed Generalised Ordered Logit Model (GOLOGIT2) because the data used in the study are categorically, ordered. The results vary in terms of its significance. It reveals that all the SMEs factors have positive impact on their performance proxied by the sales growth. The study recommends that new policies should be introduced to ensure effective supervisory guidelines that would limit the obstructing issues of the sector. This will lead to the improvement in their performance, which could be done by establishing an assisting institution that can stand as an agency in monitoring the activities of MFIs in discharging their primary responsibility to the SMEs. The study is limited to the North-Western region of Nigeria which may not be generalized because of differences in the economy of other locations in many developing economies. The study also focused on the social capital components and SMEs factors. Therefore, future studies could employ other regions, states, or different country, which would give further insight on more important issues which tackle the performance of the sector in comparison with the different locations. It also suggests that other SMEs internal or external factors, as well as microfinance facilities could also be utilized to further examine the influence of enterprise on their performance in diverse economy.

**Keywords:** Trust, Network, Number of Employees, Technological Innovation, Sales Growth.



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# **1. INTRODUCTION**

Small and Medium Enterprises (SMEs) sector is described as one of the sectors that have been contributing to the development of many countries. The Organization for Economic Co-operation and Development (OECD), in 2017 described SMEs as the driving force for inclusive and prosperous societies. Alexander et al. (2010) asserted that SMEs contribute significantly to the innovative developments towards the economic growth of most developed and emerging nations. Etuk, Etuk, and Michael (2014) and Muriithi (2017) also approved that well achieved SMEs will establish wealth and provide merit of employment and source of income. SMEs were able to enhance the creation of employment in various developing and developed economies (Avyagari, Demirguc-Kunt, & Maksimovic, 2011; Etuk et al., 2014). According to the reports of the Small and Medium Enterprise Development Agency of Nigeria (SMEDAN) and the National Bureau of Statistics (NBS) survey (2012), SMEs are the primary employment provider in Nigeria and have significantly affected the GDP. Overall, the SMEs sector has contributed about 61 percent to the South Africa employment and an estimated 57 percent to the GDP for more than a decade (Abor & Ouarter, 2010).

There are no collective criteria on definitions and classifications of SMEs throughout the world, but most commonly used are the number of employees, business turnover, and capital investment (Abe, Troilo, & Batsaikhan, 2015). The classification by size is the best way as this offers a real-world grouping of SMEs (SMEDAN, 2012). The characteristics of the categories of SMEs in Nigeria embrace the classification based on employment and assets, excluding land and buildings (SMEDAN, 2012). It is depicted in Table 1.

Size of the Enterprise	Number of Employees	Assets in (Million) Naira	
Micro Enterprise	Less than 10	Less than 5	
Small Enterprise	10 - 49	5 - less than 50	
Medium Enterprise	50 - 199	50 - less than 500	

Table 1. Categories of Enterprise in Nigeria

Source: Small and Medium Enterprise Development Agency of Nigeria and National Bureau of Statistics (2012).

Table 1 shows the three categories of enterprises in Nigeria, microenterprise, small enterprise, and medium enterprise. It explains the categories based on employment



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and assets. Consequently, the number of employee's category of SMEs is given less consideration in Nigeria, and therefore, the assets-based criteria are mostly considered to be the priority for SMEs (Etuk *et al.*, 2014).

Despite the contribution of the SMEs sector, it also faced with several challenging factors that affect their performance, especially in developing countries. These factors include the shortage of finance, lack of innovative technology and inadequate personal saving. Most literature identified the shortage of access to finance (loan) as among the main factors that impede the performance of SMEs (Okpara, 2011). Access to finance (loan) plays an important role in boosting the performance of SMEs in both developed and emerging economies. Zeng, Xie, and Tam (2010) added the need for training, organizational and technological innovations also influenced SMEs performance. Similarly, prospective entrepreneurs and SME owners in developing economies like Nigeria and specifically in the study area, were excluded from accessing a business loan, access to saving and training which form part of the most important services of microfinance to SMEs (Omotayo, Sajuvigbe & Oluwayemi, 2017). Based on the issues discussed above this study examine the impact of the relevant internal factors on the performance of SMEs in the North-Western Nigeria, considering trust, network, number of employees and technological innovation as the independent variables of the study.

#### 2. LITERATURE REVIEW

This section consists of the theoretical review as well as the review of the empirical literature.

#### **Resource Based Theory (RBT)**

The concepts of the RBT focused on a broader rational which brought together different academic field. RBT is a well-known theory that widely stresses on measures that advance the growth and performance of a firm. Thus, the fields of study concerning RBT aims at expressing the prominence of a firm's specific resources in attaining their growth and performance. The origin of the RBT is traced back to earlier research. Looking back, the component of the RBT can be in the work of Coase (1937), Selznick (1957), Penrose (1959), Stigler (1961), Chandler (1962), and Williamson (1975). At that level, the emphasis has been put on the importance



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of resources and its inferences for firm performance. The theory assumes that the foundation for improvement in the competitive market of a firm relies on the organization's capacity to use the substantial available of valuable tangible and intangible capital (resources). Moreover, the goal of RBT is to show the prominence of firm-specific resources in accomplishing sustainable competitive advantage and, therefore, leading to the growth and performance of the firm. Nothnagel (2008) revealed that strategic resources could lead to sustainable competitive advantages.

Since the RBT is stressing about the resources, performance, and market as the basis of the competitive advantage of a firm's growth, therefore, sales growth is one of the yardsticks of the firm's growth, as expressed by the theory. Similarly, Moreover, the independent variables used in this research, consist of tangible resources (Number of employees and innovative technologies) and intangible resources (trust and network) that will be utilized by a firm to increase its profitability and sales which will lead to the improvement of performance and growth of the firm.

#### Trust and the performance of SMEs

Trust is often viewed as a measurement of social relations associated with interdependence among actors, risk, and uncertainty with regards to the actions of the other party to a business and anticipations that the other party will not abuse the trusting actor's vulnerability (Nahapiet, & Ghoshal, 1998). Brown et al. (2015) modelled four ordered probit specifications for firm performance in the UK and discovered a positive relationship between employee trust and the financial performance of a firm. Kiprotich (2014) established a positive impact between trust and the sales growth (performance) of Kenyan SMEs. In the same vein, Ofori & Sackey (2010) analyzed data from a survey of 100 registered firms in Ghana club, using the method of Analysis of variance (ANOVA) they found that there is a strong positive relationship between trust and firm performance. Similarly, Tundui and Tundui (2013) Indicated that an effective social capital, rely on building and maintenance of trust. Adding that social networks and norms of behavior is also paramount towards achieving an excellent social capital. The result is in support of the findings of Cooke (2007). On the one hand, Rus and Iglic (2005) examine the effects of different types of trust on SMEs performance. They analyzed 284 and 210 SMEs in Bosnia and Slovenia, respectively, and highlighted that interpersonal trust negatively affects the performance of SMEs. In the same argument, Guo (1999)



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examined the impact of owner-manager trust on the performance of SMEs and revealed a negative influence of trust on the performance of low technology SMEs. Other studies that found a negative effect of trust on firm performance include Selnes and Sallis (2003). Based on the literature this study hypothesized that:

#### *H*<sub>1</sub>: *Trust has a positive relationship with SMEs performance*

# Network and the Performance of SMEs

It has been construed that the notion of social capital is network and indicates that research and development, and network social capital rise as one of the corresponding theatres driving forces for innovation output. (Cainelli et al. 2007). Previous empirical studies highlighted a significant relationship between network and different organizational performance. For Instance, Liao and Welsch (2003) established that there is a positive relationship between the degree of business formation, performance, and growth of small businesses with the utilization of appropriate forms of social capital. Stam, Arzlanian, and Elfring (2013) investigated a relationship between social capital and SMEs performance and analyzed the link between SMEs personal networks and the performance of SMEs. Using a metaanalysis study, they found a strong and significant positive relationship between the network diversity of SMEs and firm performance. On the contrary, other studies found a significant negative effect of network in some areas. For instance, a study conducted in Bulgaria by Simeonova-Ganeva et al. (2011) assessed the role of competitive approaches and social capital for entrepreneurial performance. They found a negative moderating effect of network on the relationship of cost leadership with the performance of a firm. In the same direction, Watson (2007) reveals a significant negative impact on firm growth and survival (performance). Therefore, this study submits the resulting hypothesis:

H<sub>2</sub>: Network has a positive relationship with SMEs performance



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#### Number of Employees and the Performance of SMEs

Some groups of employees have been considered as one of the avenues towards achieving a firm's performance or growth, which some studies termed as one of the indicators of the non-financial performance of a firm (Fowowe, 2017). Some studies measure the number of employees as one of the indicators of the size of the firm (e.g., Fang, Nofsinger & Quan, 2015; Kaen & Baumann, 2003). previous studies have examined a varied characteristic that relates to employees or employment on the performance or growth of a firm, either direct or indirect relationship. Crook, Todd, Combs, Woehr, and Ketchen (2011) employed 66 studies of human capital concerning firm performance and used three moderators suggested by Resource-Based Theory (RBT). They found that human capital is strongly associated with firm performance specially when operational performance that is not subject to profit appropriation is used. Lööf and Heshmati (2008) stated that an increase in the growth of a firm leads to growth in the number of employees. Kaen and Baumann (2003) Investigate the relationship between profitability and size (number of employees). They discovered that out of the 64 sampled firms about 32 observed increased profit at a decreasing rate, and profit declined as the firm grow. They also established that there is no correlation between the number of employees (size) and the profitability in terms of the remaining half of the sampled firms. However, they found that given a level of total assets and sales, firms with a fewer number of employees display a significant increase in profitability growth. This could mean that the level of SME size in terms of a number of employees, could lead to more profitability growth at their level, than the rate at which they grow towards becoming large firm. Thus, based on the conflicting results in the literature, this study hypothesised that:

H<sub>3</sub>: Number of Employees has a positive relationship with SMEs performance

### **Technological Innovation and the Performance of SMEs**

Technological innovation denotes to a comprehensive process for new product or process for market application, which involved a sequence of actions like viable production and explosion and the development of new ideas (Liu, Eubanks and Chater, 2015). It tends to increase the level of productivity of a firm, which embodied in product capital (Goodwin, 2003). Previous studies conducted in Norway,



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Denmark, Belgium, and Austria have found a positive impact between technological innovation practices and the growth of a firm (Ebersberger *et al.*, 2010). Kafetzopoulos and Psomas (2015) Used the Structural Equation Modelling (SEM) and found a direct impact of technological innovation on product quality and the operational performance of a firm. Though, they reveal that there is no direct impact between technological innovation and the financial performance of the manufacturing firm. Radzi *et al.* (2017) used the partial least square method and analyzed 199 SMEs in Malaysia and reveal that there is a significant positive relationship between technological innovation drivers and their performance implications in manufacturing SMEs. Using the sample of 600 Australian manufacturing SMEs, the study found that innovation culture and technological capability shows an insignificant negative relationship with SME performance. Therefore, based on the inconsistent findings of the previous studies, this study hypothesized that:

H4: Technological Innovation has a positive relationship with SMEs performance

### **3. METHODOLOGY**

Wooldridge (2010) pointed out that responses that are categorically ordinal should be analysed using ordered logit model. As such, the dependent variables (sales growth) are ordered in form of different categories, which ranges from a decrease in either profit or sales to the maximum level, which is measured in Naira value. Therefore, the model is stated in equation one as:

Where:

 $Y_i$  is the dependent variable (exact profitability and sales obtained by SMEs in a categorical order) coded 1, 2... *n*,  $X_i$  is the vector of the independent variables,  $\beta$  represent the parameters to be estimated and  $\epsilon_i$  is the error term (logistic random variable) for the ordered logit model with:



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If  $Y_i$  is observed, its categories should be in the form of  $\{1,2,3,4,5\}$ . Therefore, they are presented as:

$Y_i = 1$	$if Y_i \le 1, \dots, \dots,$
$Y_{i} = 2$	$if 1 \le Y_i \le \sigma_1, \dots, \dots,$
$Y_i = 3$	$if \sigma_1 \le Y_i \le \sigma_2, \dots, \dots,$
$Y_i = 4$	$if \sigma_2 \le Y_i \le \sigma_3, \dots, \dots,$
$Y_{i} = 5$	$if\sigma_3 \leq Y_i, \dots, \dots,$

Where:

*Z* is defined as  $\beta'X_i + \epsilon_i$ , the conditional probabilities P(Y = 1|X), P(Y = 2|X), P(Y = 3|X), P(Y = 4|X) and P(Y = 5|X). Thus, the equations can be written as:

$$\begin{split} P(Y = 1) &= P \ (Z \le 1) \dots (9) \\ P(Y = 2) &= P \ (1 \le Z \le \sigma_1) \dots (10) \\ P(Y = 3) &= P \ (\sigma_1 \le Z \le \sigma_2) \dots (11) \\ P(Y = 4) &= P \ (\sigma_2 \le Z \le \sigma_3) \dots (12) \\ P(Y = 5) &= P \ (\sigma_3 \le Z) \dots (13) \end{split}$$

The specification of  $Y_i s$ 'based on the sales growth are as follows: decrease reflect  $Y_1 = 1$ , less than 300, 000 reflect  $Y_1 = 2$  which is considered to be the lower level of sales, 301, 000 – 400, 000 reflect  $Y_1 = 3$ , 401, 000 – 500, 000 reflect  $Y_1 = 4$ , while



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above N500,000 reflect  $Y_1 = 5$  which signifies that microfinance services and SMEs factors have different impacts on profitability and sales growth of SMEs. Therefore, the estimated model for both the profitability and sales growth is written as:

where:

 $Y_i$  represent the dependent variable (ordered) which reflect the categories of  $Y_i s'$  that is  $(Y_i = 1)$ ,  $(Y_i = 2)$ ,  $(Y_i = 3)$ ,  $(Y_i = 4)$ ,  $(Y_i = 5)$ ; TRT represent trust; NTW is the networking; NOE represent the number of employment of SMEs; TCI is the level of technological innovation of SMEs; while  $\epsilon_i$  is the error term.

The main assumptions that shaped the basis of the ordered logit model are frequently being violated (Williams, 2006). Accordingly, a solution must be sought, which could be the Generalized Ordered Logit (GOLOGIT) or Generalized Ordered Logit2 (GOLOGIT2). According to generalized ordered logit, the estimated parameters are entirely differentiated as against the parallel assumption of uniformity (Williams, 2006). On the other hand, according to the generalized ordered logit2, some of the estimated parameters could be the same and some could be differentiated. Williams (2006) maintained that GOLOGIT2 is more advantageous in the sense that it did not reject the parallel assumption as GOLOGIT rejected and also, it incorporated some of the assumptions of GOLOGIT being that some estimated parameters are differentiated.



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Table 2. Summary Description of Variables Estimated/Measurement					
Variables			Hypothesi	Adopted/Adapted	
Variab	les	Description/Measurement	zed Sign	(Source)	
SLS	Sales growth	Naira value (Increase from previous to current year)	DV	Brown et al. (2015), Fauster (2015), Gerba & Viswanadham (2016).	
TRT	Trust	Level of trust in terms of promises, honesty, fairness, and opinion (Likert scale variable)	+	Brown <i>et al.</i> (2015)	
NTW	Networking	Encouragement of information, support and jointly tackle issues (Likert scale variable)	+	Dai <i>et al.</i> (2015)	
NOE	Number of Employees	From 10 to less than 50= SEs (1) From 50 to 199= MEs (0)	+	Fang, Nofsinger & Quan (2015), SMEDAN & NBS SURVEY (2012)	
TCI	Technological Innovation	Firm's level of technology (Traditional, technology Semi- Technology, and modern technology)	+	Wolf, Stricker & Hagenloh (2013)	

Table 2. Summary Description of Variables Estimated/Measurement

#### 4. RESULTS AND DISCUSSION

The results of this study encompass the descriptive statistics and the results of the ordered logit model.

#### **Descriptive Statistics**

The descriptive statistics in this study represent the frequency distribution of the study variables that involved the frequency distribution of the Non-Likert Scale and dichotomous independent variables and their related items, the frequency distribution of the dependent variables, and their related items.



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<b>Table 3.</b> Frequency Distribution of the Dependent Variable and its related item					
Variable	Frequency	Percent (%)	Cumulative Percent (%)		
Dependent Variables:					
Sales Growth					
Decrease	16	4.27	4.27		
Less than N300,000	123	32.80	37.07		
N301,000 - N400,000	152	40.53	77.60		
N401,000 - N500,000	58	15.47	93.07		
Above N500,000	26	6.93	100.00		
Dependent variable related					
items:					
Sales increase perception					
Yes	354	94.40	100.00		
No	21	5.60	5.60		

The sales growth of SMEs is the dependent variable as a proxy of firm performance. Table 3 specified that SMEs with sales between N301,000 – N400,000 are represented by 40.53 percent which is the highest percentage in the categories of the sales growth. The level of the sales increase in this category might be a result of SMEs improvement in business strategy, which makes their clients realize and accept their products or services. The second-highest percentage in the categories is about 33 percent which category of less than N300,000, followed by N401,000 to N500,000 which is 15.47 percentage and above N500,000 category of sales is about 7 percent.

<b>Table 4.</b> Conclution matrix for the variables used in the study (003–375)					
	SLS	TRT	NTW	NOE	TCI
SLG	1.0000				
TRT	0.1327*	1.0000			
NTW	0.0824	0.4829*	1.0000		
NOE	0.3275*	-0.0011	-0.0728	1.0000	
TCI	0.3107*	-0.0409	-0.0262	-0.2125*	1.0000

**Table 4.** Correlation matrix for the variables used in the study (Obs=375)

Note: SLG=Sales Growth: TRT=trust; NTW=networking; NOE=Number of Employees; TCI=Technological Innovation.

Table 4 exhibits that the correlations between trust and sales growth are positives, although, they are weak and significant. The relationship between sales growth and



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trust is (0.133). Other regressors that indicate a positive, weak and significant correlation with sales growth include number of employees (0.328) and technological innovation (0.311).

#### The result of the ordered logit model

The result of the ordered logit model explains the objective of the study which is the impact of SMEs internal factors on the sales growth of SMEs.

#### The Parallel Assumption Test for Sales Growth

The test of the parallel assumption of the ordered logit is the post-estimation diagnostic check that determines whether or not the ordered logit estimation is valid. Therefore, the parallel assumption must be achieved for the result to be valid. It is prepared in Table 5.

	Sales Growth		
Tests	Chi 2	Difference	P>Chi2
Wolfe Gould	50.69	24	0.001
Brant	6315	24	0.000
Score	43.65	24	0.008
Likelihood ratio	45.33	24	0.005
Wald	51.31	24	0.001

 Table 5. Tests of the Parallel Regression Assumption

Based on the test, the result of the parallel assumption is violated. It assumed that all the P values are (significant) less than five percent (5%). It appears that the ordered logit assumption is not achieved. As such, a Generalized Ordered Logit Model 2. (GOLOGIT2) was design, with the assumption that some of the coefficients of a model may be the same while some may be different, and therefore, it overpowered the GOLOGIT which assumes that the whole coefficients are different in the estimated model (Williams, 2006). Additionally, one of the vital essential advantages of GOLOGIT2 is that it is not restricted to select among model in which all parameters are constrained as against another one without constraints (Williams, 2006). With regards to the discussion above, this study considered the regression of



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the GOLOGIT 2 which is presented in Appendix. However, the summery of the result is presented in Table 6.

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<b>Table 6.</b> Summary of the (GOLOGI12) Estimates for Sales Growth			
Variables	Coefficients		
TRT (1):	4.097 (0.003)		
NTW (4):	1.435 (0.012)		
NOE (3):	1.019 (0.066)		
TCI: Semi (3):	-0.365 (0.447)		
TCI: Modern (3):	1.201 (0.025)		
Constant (1):	4.739(0.923)		
Constant (2):	7.97 (0.001)		
Constant (3):	11.459(0.606)		
Constant (4):	12.606( - )		

TRT=Trust, NTW=Networking, NOE=Number of Employees, TCI=Technological innovation, Numbers represent the different category based on the categories of the dependent variable, Constant=Representing the value of each item with a dummy variable such as: TCI and NOE.

The result indicates that the higher the level of trust (4.10) and network (1.44) the higher the sales growth of SMEs. Moreover, with regards to the number of employees, technological innovation which have dummy variables the contribution of the number of employees based on SEs (1.019) category to sales growth is lower if compared with that of the category of MEs (11.46) but increases the SMEs sales growth because both are significant and positive. Similarly, the contribution of technological innovation based on modern technology (1.20) is higher. Also, the contribution of traditional technology (7.97) to the sales growth is higher which is represented by the value of the constant as the base, which is significant and positive, while semi technology is not statistically significant in explaining its contribution to the sales growth of SMEs. In general, the results of the variables employed in this study shows that there is a significant impact of SMEs internal factors on their performance (sales growth).



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### 5. CONCLUSION AND RECOMMENDATIONS

This study examines the impact of SMEs internal Factors on the performance of SMEs in the North-Western Nigeria specifically the study examines the impact of trust, networking, number of employees and technological innovation on the sales growth of SMEs. Based on the result of the Generalised Ordered Logit Mode 2, the results reveals that there is a strong relationship between the SEMEs internal factors and their performance. primarily, there is a significant positive contribution of all the variables involved in the study. However, the level of contributions varies amongst the internal factors of the SMEs especially the variables that have dummy variables such as number of employees (category of employees) technological innovation (semi technology, traditional and modern technology).

Based on the outcome of the results of this study it is recommended that, the management of SMEs should embark on the provision of a good information system as well as a scheme of activities that will encourage a mutual understanding and relationship with their employees. Also, as it is observed that an increase in the number of employees leads to the increase in the performance of SMEs, the government should provide more opportunity to the SMEs sector in terms of the government programs that involved supporting low-income earners with financial aid to open up new businesses that create an avenue for employment generation. The government can also help the existing SMEs with financial support to increase their scope to have access to increase the number of their employees as well as the market advantages.

Furthermore, the adoption of modern technology is said to have increased the performance of SMEs. Therefore, the government should provide the optimal equipment, innovative and technical know-how as well as digital and sound information technology that will enable the SME sector to be updated to ease their financial activities and products and to increase the profitability and sales growth.

The study is limited to the scope of North-Western Nigeria. Therefore, all the findings and conclusions of this study are within the scope of the study area. Although it is not within the scope of this study to cover all the six geo-political zones of Nigeria. Nevertheless, a study that can conduct similar research in one or



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more of the remaining five zones of Nigeria or any developing country within the African or Asian countries is a welcome development.

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# APPENDIX

**Table 7.** Generalized Ordered Logit Estimates (GOLOGIT2)

Variables	Sales Growth			
(1)	Coefficient	Standard	t	<i>p&gt;t</i>
	β	Error		-
TRT	4.097	1.368	2.99	0.003
NTW	3.194	0.834	3.83	0.000
NOE	3.639	1.251	2.91	0.004
TCI: Semi Tech.	14.751	49.515	0.30	0.766
Modern Tech.	17.620	49.509	0.36	0.722
Constant	4.739	48.834	0.10	0.923
(2)				
TRT	0.161	0.338	0.48	0.633
NTW	0.331	0.218	1.52	0.129
NOE	0.107	0.716	0.15	0.880
TCI: Semi Tech.	-0.209	0.361	-0.58	0.563
Modern Tech.	0.695	0.482	1.44	0.150
Constant	-7.966	2.346	-3.39	0.001
(3)				
TRT	-0.183	0.429	-0.43	0.669
NTW	0.472	0.286	1.65	0.100
NOE	1.019	0.553	1.84	0.066
TCI: Semi Tech.	-0.365	0.479	-0.76	0.447
Modern Tech.	1.201	0.535	2.25	0.025
Constant	-11.459	22.219	-0.52	0.606
(4)				
TRT	0.807	1.108	-0.73	0.466
NTW	1.435	0.571	2.51	0.012
NOE	-4.721	48.650	-0.10	0.923
TCI: Semi Tech.	0.564	0.885	0.64	0.523
Modern Tech.	-0.211	-1.115	-0.19	0.850
Constant	-12.646	-	-	-