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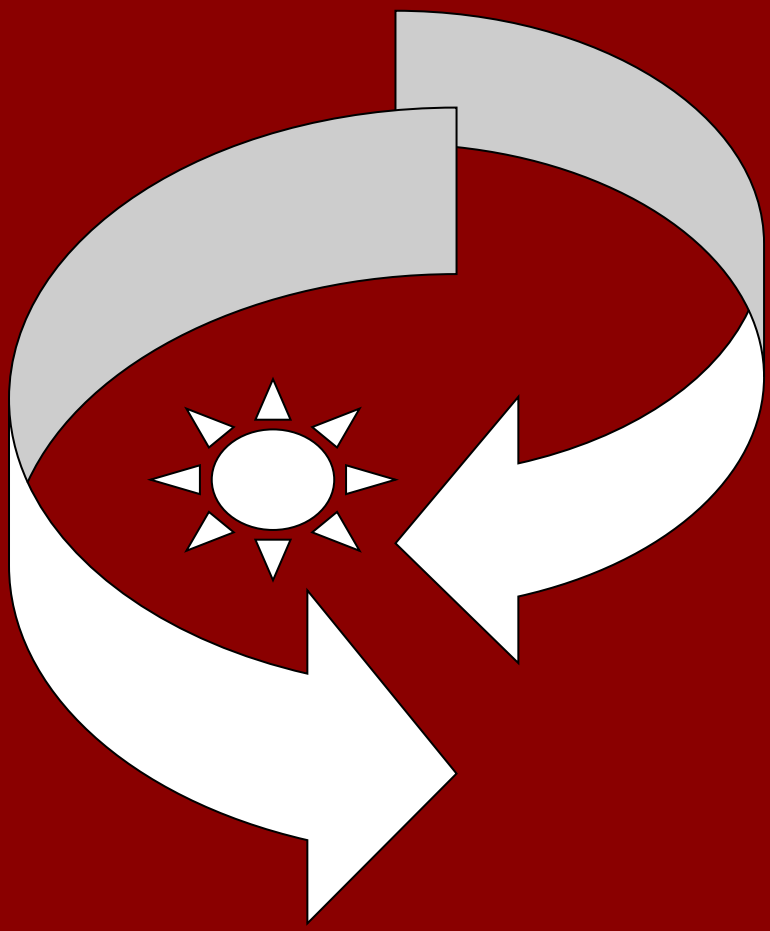

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Jurnal Perspektif Pembiayaan dan Pembangunan Daerah (The Journal of Perspectives on Financing and Regional Development) is reffered to be a forum for the delivery of scientific thought and analysis in the field of economics especially related to financing and regional development for faculty staff, researchers, alumni, students and broad community. Starting from Volume 6 No. 1, this journal is published into six times a year (originally published four times a year). The editor receives articles that have unpublished yet in any media, either inside or outside the country. The online version of this journal is available at http://online-journal.unja.ac.id/index.php/JES

Jurnal
Perspektif Pembiayaan dan Pembangunan Daerah
(Journal of Perspectives of Financing and Regional Development)

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Editor's Note

Since Volume 6, Issues 2 (September – October 2018), the Journal of Perspectives on Financing and Regional Development has been nationally accredited with SINTA (Science and Technology Index) score of S2, based on the Decree of the Director General of Development and Research Enhancement, Ministry of Research, Technology & Higher Education of the Republic of Indonesia, Number 10/E/KTP/2019 concerning the Ranking of Scientific Journal.

In Volume 6 Issue 5, 2019 is presented eight articles that come from Universitas Jambi (Indonesia), Universitas Andalas (Indonesia), Universitas Islam Indonesia (Indonesia), Universitas Mulawarman (Indonesia), Alex Ekwueme Federal University Ndufu-Alike (Nigeria), and University of Maiduguri (Nigeria)

Hopefully in the next issue can be presented articles with issues and from more diverse circles.

Happy joy reading

Editorial

An economic analysis of women's employment and divorce

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Abstract

Divorce is a condition that might bring economic and social problems. This study examined economic factors that affect probability of divorce on working women in West Sumatera based on Becker's theory of divorce. Variables tested in this study are income, working hours, number of children, education, sector of work and employment status of ever married working women aged 15 and over, with marital status married and divorce based on National Economy and Sosial Survey 2016. Logistic regression analyses used to obtain likelihood estimate for probability of marital dissolution of employed women. The result of the study revealed that those factors include income, working hours, number of children, education, place of work and employment status, significantly affect the probability of divorce. Education has the maximum likelihood among other factors. The working women with low education have highest risk of divorce followed by those who work more than 40 hours per week, low income (poor), having no children or children less than 2, work in non agriculture and employment status as an employee.

Keywords: Divorce, Working women, Becker's theory, Economic factors.

JEL Classification: J12, J21, J22

INTRODUCTION

Sustainable development (SDGs) within gender perspective provides opportunities for women to be actively involved in using their potential which is one of them is to strengthen the household economy. Their improvement in education and training increases the capacity of their abilities in addition to helping the family economy as well as a form of economic independence and changing of socio-economic status. The education and training gained plays an important role in shaping the independence of women and reducing the psychological obstacles both internally and externally that they face in a career (Elfindri & Bachtiar, 2004). One of the impacts has been seen by the increasing number of working women nationally but as well as in province such as West Sumatra. In the period year of 2013 - 2016, the Labor Force Participation Rate for women in West Sumatra experienced a significant increase of 5.85 percent from 47.63 percent in 2013 to 53.48 percent in 2016 (Central Bureau of Statistics, 2017). The increase in women's work participation certainly has a positive impact, but along with it can also cause problems related to their role in the family and society, including household instability which leads to divorce. This allegation appeared to see the condition of national divorce and the majority of regions in the same period also experienced a considerable increase. The statement *Indonesian in Emergency Of Divorce* is not excessive to describe the increase in divorce rates reaching 16-20 percent based on data from the Indonesian Ministry of Religion from 2009 - 2016. The trend of divorce that continues to increase

every year nationally looks alarming because it indicates the fragility of family institutions and which is shocking that more than 70 percent of divorced iniatiated by women (Research Development and Education Agency of Religion Ministry of Indonesia, 2016). This trend also occurred in West Sumatra, data released by Central Bureau of Statistics (2017) noted that in year 2013 there were 4,173 divorce cases initiated by wife or 67.6 percent of a total of 6,041 divorce cases and continued to increase so that in 2016 there were 5,193 divorce cases by wife initiative or 71, 5 percent of the 7,262 total divorce cases, made West sumatera as the highest ranked province in Sumatra and the fifth in Indonesia in the percentage of divorced women in 2016.

These two events, women's work participation and divorce are related to each other empirically. The increase in women's work participation is often seen as one of the reasons for the increase in divorce rates (Becker, 1981; Tzeng & Mare, 1995; Schoen *et al*, 2002). Factors owned by working women make them more likely to divorce than those who do not work such as income, working hours, business field and employment status. Working women have a greater risk of divorce than those who do not work. For married female workers, their economic factors such as income and working hours have a relationship and influence the risk of household conflict which can lead to divorce (Kalmijn & Poortman, 2006). Previous studies on the influence of women's economic factors at work on the probability of divorce have different findings. Working hours and wife's income have a positive effect on the risk of divorce, namely those who work 35-40 hours/week or more, among women with 35 hours/week or more working hours, low income groups have a greater divorce probability than high income earners (Greenstein, 1990). While women who are the breadwinners of families at greater risk of divorce from women in general, not affected by the economic conditions whether rich or poor (Teachman, 2010). From the results of family study in Japan revealed that the economic problems faced by the lower classes, the difficulty of balancing the time between work and family has an effect on the high risk of divorce (Raymo *et al*, 2013). Regarding education, studies in Indonesia found education had a negative and significant effect on divorce in Indonesia, a low level of education increased the risk of divorce, while higher education strengthened marriage (Hirschman & Teerawichitchainan, 2003). While child factor are very influential on divorce in Indonesia, which found the probability of divorce for couples who do not have children 6 times higher than those who have children in the same marriage (Guest, 1992). When viewed from place of work and employment status, in Korea women working in the agricultural sector are at lower risk of divorce compared to those who work in the non-agricultural sector and office workers or the private sector worker have the highest risk of divorce compared to own-account worker, labor, casual employee which are almost equal in their risk, while the lowest risk of divorce owned by family workers (Lee, 2006).

The massive divorce is a problem and needs serious handling because it has more negative impacts on individuals, society and the state. Divorce that continues to increase is a social pathology that is one sign of moral decline due to individualism and a decline in social capital that undermines the family so that at a certain time it can cause a large shock like what happened in most Western countries after 1965, namely increasing poverty and crime that affect the decline in the quality of human resources in subsequent generations (Fukuyama, 2000). Damage to family structure is related to the emergence of other social diseases such as drug abuse, LGBT (lesbian,gay, bisexsual and transgender), free sex and prostitution which will be a burden for the state to deal with it. In addition, divorce is also not profitable for the family's economic welfare. Researchers agree that

divorce can cause many problems due to a lack of capacity to meet household needs. Divorce can be said to cause a decrease in income of 30-70 percent in the first year (Hoffman & Duncan, 1988). With the decline in the welfare of many households, it will ultimately affect the welfare of the nation because the family economy is the basis of the national economy.

Seeing the negative impact that can be caused by divorce, the high rate of divorce which is dominated by wife initiative in West Sumatra needs to be a concern and studied to know the factors that influence it, especially for working women who are more risky. The cause of divorce is very complex and can vary for each individual, partner and even region. One of the arguments is that the economy based on Becker's divorce theory, explains that the work participation of married women will reduce the benefits of work specialization because it reduces the time value in household activities and childcare which can reduce demand for children so that the marriage benefits diminish and increase the risk of divorce. The wife's bargaining position increases when she has her own income, the results of her work make them more economically independent, which can encourage them to decide on marriage. The higher the income, the individual has the possibility to get a better partner than the partner they have, the more prosperous they are, the greater the chance for divorce. The increasing level of education has an ambiguous influence on the possibility of divorce. Women's education level can represent the quality of marital relations and the effect on marriage tends to be negative, but if it is associated with other factors such as work, income, the results can be different. High income and education can reduce the specialization of work based on gender, increasing the risk of divorce. Whereas children are special assets of marriage, investments that will lose its significant value outside of marriage. During the marriage, this increase in marital assets can reduce the possibility of divorce.

One of the reasons mentioned as the dominant cause but not many studies explain the conditions in West Sumatra yet are the economic factors inherent in working women themselves like income, working hours, number of children, education level, business field and employment status. This is interesting to study and analyze the probability of working women divorce in West Sumatra. By studying and analyzing it is expected that there are efforts to reduce divorce.

METHODS

This study uses a quantitative descriptive approach to analyze and describe the conditions of the object of research as well as analyze the theory through the measurement of research variables measured by numbers to prove the hypothesis and achieve the research objectives. The data used in this study originated from National Socio-Economic Survey (Susenas) 2016 with the scope of analysis on ever-married women who worked with their marital status as married and divorce. The criteria for the study sample were taken based on the sample set by BPS-Statistics of West Sumatra Province Susenas, a total sample of 10,200 households with 39,003 individuals in it. Total number of women selected 19,621 people, 7,457 were employed women. From the total number of working women selected as many as 5,837 samples with details of working women 15 years and above who are currently married 5,434 samples and divorced 403 samples. To see the probability of divorce in a working woman, logistic regression analysis was carried out with an opportunity range of events between 1 and 0, where Yi = 1 if divorced and Yi = 0 if married/not divorced. As for the independent variables, several variables were taken from Becker's research and previous studies in accordance with the availability of data

describing economic resources and related to working women divorce namely: income, working hours, number of biological children living together, education, place of work and employment status which constituted function of:

$$Yi = f\{X_1, X_2, X_3, X_4, X_5, X_6\} \quad \text{.....(1)}$$

with then the odds ratio can be written as follows:

$$\ln [Yi/(1-Yi)] = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 \quad \text{.....(2)}$$

with the hypothesis tested in this regression model are:
H_0 : There is no significant effect of independent variables on divorce for working women
H_a : There is a significant effect of independent variables on divorce for working women

The results of testing the regression variables together or partially on the probability of divorce for working women are Ho's rejection and Ha acceptance at a 95 percent confidence level ($\alpha = 0.05$). The measurement of the variables observed in this study can be seen in table 1.

Table 1. Research variable measurement

Symbol	Operasional definition	Categories
Y_i	Risk of Working Woman Divorce	1 = Divorce 0 = Married / not divorce
X_1	Income proxied from expenditure per capita	1 = not in poverty / ≥ poverty line 0 = in poverty / < poverty line
X_2	Working hours	1 = > 40 hours/week 0 = ≤ 40 hours/week
X_3	Children	1 = ≤ 2 orang 0 = > 2 orang
X_4	Education	1 = High education (Diploma 1 upper) 0 = Low education (Senior High School lower)
X_5	Place of Work	1 = Non Agriculture* 0 = Agriculture
X_6	Employment Status	1 = Employee 0 = Others**

* *Non Agriculture are mining, industry, electricity and gas, building/construction, trade, hotel & housing, transportation and warehouse, finance and insurance, other services.*

** *Others are own-account worker, employer assisted by temporary workers/unpaid workers, employer assisted by permanent workers/ paid workers, casual employee and family/unpaid worker.*

RESULTS AND DISCUSSION

The results of data analysis on female individuals identified 8,530 people who did not work and 7,457 people worked. Judging from their marital status, married women who did not work numbered 3,408 (39.9 percent) and divorce amounted to 187 (2.2 percent). Whereas the total number of women who worked in status of married was 5,434 (72 percent) and divorce 403 (5.4 percent) so that the total number of married and divorced women who observed was 5,837 consisting of 93.1 percent married/not divorce and 6.9 percent divorced living in West Sumatra Province. This early identification shows the number and percentage of divorce is greater in working women than those who do not work. This finding proves that women who work are more divorced than those who do

not work, consistent with the study of Poortman & Kalmijn (2002) which states that women who work more tend to divorce than those who do not work.

Table 2. Distribution of working women by marriage status and economic variables

Variables	Working Women					
	Married	**%**	**Divorce**	**%**	**Total**	**%**
Income						
Not in poverty	5.313	93	389	7	5.702	100
In poverty	121	90	14	10	135	100
Total	5.434		403		5.837	100
Working hours						
> 40 hours per week	1.950	92	175	8	2.125	100
≤ 40 hours per week	3.484	94	228	6	3.712	100
Total	5.434		403		5.837	100
Children						
≤ 2	3.552	92	300	8	3.852	100
> 2	1.882	95	103	5	1.985	100
Total	5.434		403		5.837	100
Education						
Low Edu (Senior High School lower)	4.370	92	364	8	4.734	100
High Edu (Diploma1 upper)	1.064	96	39	4	1.103	100
Total	5.434		403		5.837	100
Place of Work						
Non Agriculture	3.392	93	267	7	3.659	100
Agriculture	2.042	94	136	6	2.178	100
Total	5.434		403		5.837	100
Employment Status						
Employee	1.619	93,2	119	6,8	1.738	100
Others	3.815	93,1	284	6,9	4.099	100
Total	5.434		403		5.837	100

Source: Susenas 2016.

Furthermore, the distribution of working women by marital status and economic variables in West Sumatera based on Susenas 2016 can be seen in table 2. It is shown in the table, the majority of working women about 97.69 percent living above the poverty line and only 2.31 percent experiencing poverty. Viewed from working hours there are still many women who are not full workers or those who work under normal working hours, 63.59 percent of them with working hours ≤ 40 hours per week and 36.41 percent have working hours > 40 hours per week. Working women have been shown tend to have fewer children, as seen from 65.99 percent of those who did not have children and had children ≤ 2 and who had children > 2 at 34.01 percent. While the percentage of working women in the non-agriculture was 62.69 percent and the remaining 37.31 percent worked in the agricultural sector. Judging from the status of employment, 29.78 percent of the women worked as employee while 70.22 percent worked other than employee. The highest percentage of working woman divorce in poor (low income) category while the lowest percentage of divorce occurs in highly educated working women at 4 percent. These results shows that women working in the low income category (poor) have fragile marriages while those who are highly educated have strong marital ties.

Seen also in table 2, the high percentage of divorce also occurs for women who work above 40 hours / week exceeding normal working hours with 8 percent. The same percentage also occurs for those with low education and those who do not have children

or have children less than 2. While the percentage of divorced people who work in the non-agriculture is 7 percent with a difference of 1 percent higher than those working in the agriculture. While the percentage of divorced employee is 0.1 percent lower than the percentage of divorced working women who work other than employee with 6.9 percent.

The results of testing the overall data in the research model seen in table 3 shows working women in the category of low income (poor), working hours ≤ 40 hours / week, the number of biological children more than 2 people, low education, working in the agriculture and employment status other than employee; have the probability of divorce only 6.1 percent.

Tabel 3. Logistic regression estimation results

	B	S.E.	Wald	Df	Sig.	Exp.(B)	95.0% C.I for Exp(B)	
							Lower	Upper
Income	-.578	0.292	3.928	1	0.047	0.561	0.317	0.994
Work Hours	.291	0.109	7.138	1	0.008	1.338	1.081	1.657
Children	.676	0.147	21.222	1	0.000	1.966	1.475	2.621
Education	-1.185	0.193	37.585	1	0.000	0.306	0.209	0.446
Place of Work	.259	0.120	4.635	1	0.031	1.296	1.024	1.641
Empl Status	.346	0.131	6.919	1	0.009	1.413	1.092	1.828
Constant	-2.804	0.308	82.765	1	0.000	0.061		

Source: Susenas 2016.

While partially, the result shows that education greatly influence the probability of working women to divorce seen from the odds ratio of the regression variables. The effects and risks of divorce for each variable in table 3 are described below:

Income and divorce

The estimation results show that income have significant effect which indicates that women working with low income tend to divorce more. The probability of working women with expenditure above the poverty line is 0.561 lower than those with expenditures below the poverty line. This finding shows a difference in the risk of divorce where Becker *et al* (1977) found a higher income had a higher risk of divorce while the results of the analysis showed that the category of women with greater expenditure as a benchmark of large income was less likely to divorce compared to those with low income who spend below the poverty line. In other words, working women in West Sumatra who are low-income (poor) have a higher risk of divorce than those who have a higher income (not poor).

The low expenditure per capita can also mean low household income which is not enough to meet the needs of household life so that the possibility of divorce is greater due to lack of economic cooperation between partners, while the possibility of divorce will be smaller when not experiencing poverty which is characterized by increasing expenditure of wife, at the same time also explains that economic cooperation between husband and wife as partners take place that would reduce the economic burden,so households can be more prosperous and lower the probability of divorce. This analysis certainly does not want to state that the widening wife's income can reduce the likelihood of divorce but can be seen more as a force that can stabilize married life.

Working hours and divorce

From the results of the test, working hours have a positive and significant effect on the probability of divorce, women with working hours above 40 hours/week have a chance of divorce 1,338 times higher than women with working hours with or below 40

hours / week. This result is in line with Becker's theory that women's work related to working hours can reduce marital benefits based on work specialization thereby increasing the possibility of divorce. Increased working hours of women will reduce the value of time in domestic work which then decreases interdependence with partners which results in the tendency to divorce increase because the division of labor is no longer mutually beneficial for couples. This finding is consistent with Greenstein (1990) proves that working women increase the risk of marital instability, especially those who have working hours above 40 hours/week. High working hours are seen as a cause that might lead to minimize interaction with partners and lower the time to complete household responsibilities that would give an impact on the quality of marriage which could increase the risk of divorce.

Children and divorce

The probability of working women divorce with less than or 2 children, 1,966 higher than those who have more than 2 children. The more number of children the less likely the working woman to experience divorce. The number of children has a negative and significant effect on the risk of divorce, this indicates that the number of biological children living with more than 2 people will be a consideration for working women to divorce. The greater the number of children, the greater the consideration not to divorce.

This finding is in line with Becker's theory that children are special assets of marriage that can increase the value of the couple to live together even referred to as a divorce inhibitor. The greater the amount of capital investment, the higher the cost of separating and reducing the possibility of divorce. In line with the theory, the estimation of this study indicates that the more the number of children which more than 2 have a significantly lower risk of divorce. Working women with children > 2 have a lower chance of divorce than those who have children ≤ 2.

Education and divorce

The logistic regression results show that highly educated working women have the possibility of divorce 0.306 times lower than working women with low education. In other words, those with low education have a greater risk of divorce compared to women who are highly educated. The results also support Becker's hypothesis that the high level of wife education is a proxy of greater economic resources as a factor that can support marital stability compared to those with low education. For those who are highly educated, with sufficient resources able to overcome obstacles such as financial problems, so that they have a much smaller risk of divorce.

Another reason for the greater likelihood of divorce from working women with low education is the selection of partners. Becker (1981) mentions women who are highly educated tend to marry men who are also highly educated and those with low education also tend to do the same so that those who are highly educated will enjoy greater marital benefits than those with less education and thus reduce the risk of divorce. Women's education level works closely and can represent their partner's socio-economic status. Usually, couples from working women who are highly educated tend to also have a higher education background and have a higher income than working-educated couples with low education.

Place of work and divorce

Logistic regression results show the probability of divorce of women work in non-agriculture sector 1,296 times compared to women who work in the agriculture. Becker (1981) although not explicitly stated that the risk of divorce would be higher in the non-

agriculture than agriculture, but he suggests that someone tends to get divorce when the benefits of marriage are reduced or try to obtain optimal marriage benefits which one of them is to find a better partner or spousal alternative. This explains that those who work in the non-agriculture have the opportunity to meet alternative spousal better because the working environment is heterogeneous so there is a greater risk of divorce than those who work in the agricultural sector with a more homogeneous environment. In line with these findings, Lee (2006) found the risk of divorce for women working in the agriculture was lower than the non-agricultural sector because their income tends to be lower so that they have a great dependence on their partners so that they will be divorced but the opposite conditions for those who working in the non-agricultural sector. When compared with similar studies in Finland (Jaloovara, 2003), the results were not different find the possibility of working women divorce either skilled or unskilled, professional and non-professional in the non-agriculture was higher than those who worked as farmers (agriculture).

Employment status and divorce

The probability of divorce for women working with the employment status as employee is 1,413 times greater than women working with employment status other than employee. This finding shows that women with relatively stable and stable jobs and income can reduce economic dependence on their husbands so that they have a greater risk of divorce. It's consistent with the research in Padang, which is the city with the highest divorce rate compared to other cities in the Province West Sumatra, who identified the more number of divorce of working women with the employee status as labor and private workers then followed by civil servant/police/army/pensioners (Nurhasanah & Rozalinda, 2014).

This study is also consistent with a study in Korea (Lee, 2006) which found a significant effect of employment status related to economic independence to the risk of divorce for working women explaining that office/private workers have the highest divorce risk because they usually have a solid position in the job market compared to other employment statuses such as labor, casual employee, and own-account worker with almost the same risk of divorce, while the lowest possibility of divorce is occured in family/unpaid workers. Those with employment status have income or paid relatively still have a higher probability of divorce because of the economic independence they have, compared to those with uncertain/irregular income or even unpaid since they are more dependent on their husbands economically. Thus, those who work as an employee have higher risk of divorce than those who work other than that such as own-account worker, casual employee and family workers.

The simple consequence of wife involvement in the work such as being an employee with a relative income can still reduce marital benefits if the husband contributes less to household income so that the possibility of separation is greater to increase marital benefits, especially in the working environment where there are spousal alternative to get.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Income, working hours, number of children, education, place of work and employment status are factors that have a significant effect on divorce for working women in West Sumatra in 2016. Economic difficulties or poverty experienced affect the risk of

divorce more than those who do not experience poverty. Those with large income or expenditures have a smaller risk of divorce as well as showing greater income tends to strengthen economic partnership so that it strengthens household stability. Furthermore, education stated by several previous studies as the most influential factor of divorce in Indonesia also becomes a factor with the greatest risk for working women. The divorce risk of working women with a low education is greater than those who are highly educated. The assumption that working women with high income and education are more at risk of experiencing divorce is not proven. Based on the results of the study, working women who have the highest risk of divorce when they are in the poor category; working hours > 40 hours / week; do not have children or the number of children ≤ 2; have low education, work in the non agriculture and employment status as employee.

Divorced women work is a complex issue. This research limited to only identifying and proving several economic variables related to divorce for women working in an analysis based on Becker's divorce economic theory. Further research is needed to recommend appropriate public policies to reduce divorce.

Recommendations

The number of divorces, especially the dominance of woman initiative, which continues to increase from year to year in West Sumatra needs to be reduced. Based on the findings, handling the problem of working woman divorce can be pursued by increasing the welfare of low income families (poor) through empowering women so that they can minimize the economic burden that often triggers conflict within the household. In addition, reguler family counseling to minimize conflict and a shift in the division of labor is needed especially for those who work as employee so that sharing of work within a household could still be done properly. Handling this problem is not enough just by emphasizing the improvement of the aspect of income or welfare only, but also needs to improve aspect of education. Sustainable efforts to improve education through formal study, especially for women and make the minimum educational requirements for Diploma 1 (D1) to get married need to be considered as a solution in hopes of increasing the quality of human resources and having readiness in dealing with marital problems. Improving the education level of working women in West Sumatra is expected to contribute more to marital stability.

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The role of Islamic social finance towards alleviating the humanitarian crisis in North-East Nigeria

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Abstract

This paper seeks to examine the role of Islamic social finance towards alleviating the humanitarian crisis in North East Nigeria. The paper revealed the various conceptual definitions of Islamic social finance, its various instruments, update on humanitarian situation. A modified revenue function model was adopted. The study revealed that zakat potentials in Nigeria is estimated to be between USD 8,776.5-USD 21,160.99 million which is alone adequate to fill the humanitarian funding gap. More so, Sadaqah and Waqf was analyzed based on the number of active Telecoms line subscribers and the population statistics of citizens within the ages of 15-69yrs and that If N20 is paid weekly at a 5% level of cash collection error rate, a total amount of about N162b and N106b could be realized yearly respectively which can be used to bridge certain sectors of humanitarian needs in areas of housing, primary health care centres, water, food, empowerment etc. Likewise, the said funds can still be used for investment purposes in areas like mudaraba term deposit, sukuk, stock etc most especially funds realized from cash waqf. The study concluded that by adequately combining the Islamic social finance tools while adopting technology in its collection process & monitoring, it will effectively bridge the humanitarian funding gap as well as resettling and empowering the IDPs. The study recommends legislation of act setting up zakat/waqf, public awareness should be properly done, use of crowd funding approach.

Keywords: *Islamic social finance, Internally displaced persons, Zakat, Waqf, Sadaqah, Humanitarian*

JEL Classification: G23, P40, I31

INTRODUCTION

> *"The culture and traditions of Islamic giving has been and continues to be a crucial element in dealing with global humanitarian needs. People in the Islamic world have been extremely generous despite the poor economic conditions in many countries in the Islamic world"* (Madani, 2016).

Nigeria is made up of six (6) geo-political zones namely; North West, North East, North Central, South East, South West and South South. The North East comprises of six (6) states; Adamawa, Bauchi, Borno, Gombe Taraba and Yobe state. The region is faced with high level insecurity which is attributed to a group called *Boko Haram* that emanated from Borno state. Boko Haram is a nickname that was labeled to a militant group which in Hausa means "Western education is a sin", is a jihadist militant

organization based in the northeast of Nigeria, North Cameroon and Niger. The group original name is "Congregation and People of Tradition for Proselytism and Jihad" (*Jama'a Ahl al-sunnah li-da'wa wa al-jihad*). It is an Islamist movement which strongly opposes man-made laws and Westernization. It was founded by Mohammed Yusuf (Wikipedia, 2017).

This was a movement that started in 2001 but later gained momentum. The inability of the government to proactively contained the group at their early stage lead to the crisis in 2009. This crisis spilled over most of the states within and outside the north east states. Worse hit by the insurgents was Borno, Yobe and Adamawa states which resulted to the death of about 20,000 citizens, over 1M displaced persons and property (ies) worth USD5.9billion were lost (BOSG Report, 2016).

However, the effect of the crisis is multidimensional such as economic, political, socio-economic effect on the north east economy. From the economic view point; it has crippled the economic (business) activities within the areas, inflation is on the increase due to supply deficit, food insecurity, lack of investments, declining state revenue and lack of improvement in infrastructural development etc. The socio-economic implications is that it has lead to increase in crime rate, destruction in the population structure, unemployment, migration, illiteracy rate etc. Also, the political implication is that citizens were disenfranchised during election, political killings under the guise of insurgency etc.

Consequently, these activities of the insurgents have expose about 7.7 million people which are now in need of life-savings assistance which about 3.7million are food insecure (FOA,2017; OCHA,2018), 1.8 million people are internally displaced persons (IDPs) out of which 80% are from Borno state, the epicenter of the crisis and over 60% are living in host communities. With a IDPs figure of 1.8 million, the region is now considered third position globally after Syria and Afghanistan (Economic Confidential, 2016). The worrisome part of this insurgency is the increase number of internally displaced persons which are mostly women and children accompanied with different illness.

These situations have attracted the attention of both Government and Non-Governmental Organization within and outside the region because the host government and its facilities are overstretched; they have limited resources and their negligence to utilize their existing enabling environment like Borno State Zakat and Endowment Board Law, 2001 and Yobe State Religious Affairs Board 2001 to raise the required funds. However, to alleviate the sufferings of 6.1 million people in dire need of life-savings aid in Borno, Adamawa and Yobe, the United Nations and Partners appealed for USD1.05billion for 176 projects to be implemented by 60 humanitarian organizations. This is considered as the sixth largest single-country appeal globally. According to the Financial Tracking Service (FTS), USD504million which is about 48.1 percent of the funds have been received, thereby creating a funding gap of 51.9 percent which is about USD546million. Major donors were from USA, UK, European Commission, Canada, Norway, Swedan, Netherland etc.

In lieu of this funding gap, the Nigerian Government setup the Nigeria Humanitarian Fund (NHF), one of the world's 18 country based pooled funds, with a target of USD100 million has raised USD63 million, including USD19.7 million in 2018 (OCHA,2018). With all these efforts, there is still a funding gap, thus the need to bridge this vacuum. This scenario calls for an alternative source of funding. Hence, the need for a financing option called 'Islamic Social Financing' or 'Social and faith-based financing'. Islamic Social Finance, are important additional sources of financing that

can be better leveraged to reduce vulnerability and humanitarian crisis. Every year, Muslims worldwide donate generously to Islamic Social Finance mechanisms to alleviate human suffering (World Humanitarian Summit, 2016). It is against this background that this paper was carried out.

LITERATURE REVIEW

Conceptual review

Social finance

Social finance is an approach in investing and managing a certain fund with the purpose of solving societal challenges (MaRS, 2016).Social finance is defined as provision of financial services to achieve social protection of the poor; reduction in their vulnerability through community, microfinance, social enterprise finance, outcome-based philanthropic grant-making and program-related investments (Islamic Social Finance Report,2015; Aliyu Dahiru *et al*, 2018).

Islamic finance

Kammar *et al* (2015) sees Islamic finance as the provision of financial services in accordance with the Islamic jurisprudence (*Shariah).* Tabash and Dhankar (2014) defined Islamic finance as structuring financial instruments and financial transactions to satisfy traditional Muslim structures against the payment of interest and engaging in gambling. Similarly, the Falex Financial Dictionary (2012) sees Islamic finance as the range of financial transaction that conforms to the *shariah* or Islamic law.

Islamic social finance

Islamic social finance therefore refers to the provision of financial services to the vulnerable members of the society to achieve socio-economic welfare. It comprises three main sectors vis-à-vis *zakat/sadaqah, waqf* and Islamic microfinance. The institutions are meant to serve as platforms for empowering and disbursing wealth and income in the society.

Instruments of Islamic social finance

According to maiden Islamic Social Finance Report (2014) sector comprises the traditional Islamic institutions based on philanthropy-*zakat, sadaqah,* and *waqf*; those on mutual cooperation such as *qard* (loan) and *kafala* (guarantee); and also, the contemporary Islamic not-for-profit microfinance that use for profit modes to cover primarily their cost and sustain their operations

Zakah

Zakah or alms tax can be defined as that portion of a man's wealth which is designated for the poor. The word is derived from the Arabic verbal root meaning "to increase" "to purify" and to bless. *Zakat* is considered as the fourth pillars of Islam. It's a word that is associated with salat in eighty (82) quranic verses. Allah (SWT) and his messenger (PBUH) has enjoined upon us to give zakah.

Zakat seems to have a very specific purpose and remains obligatory to the community and any avoidance attracts a very strong penalty. However, it is pertinent to note that *zakah* has been practiced by past prophets. For instance Q19:31-By Prophet Jesus; Q19:55-Prophet Ishmael ordained on his people; Q2:83-Children of Israel; Q21:73-Prophet Abraham etc.

Allah (SWT) has instructed Muslims to pay *zakah* in the following verses Q2:43 " *And Establish the prayer; give Zakah……*so also in Q9:71,103, 104,Q22:41 etc. also there are different hadiths by the prophets enjoining Muslims faithfuls to pay *zakat*

while stressing its importance. For instance "Abu Hurairah narrated that the prophet said" *when you pay the zakat you have fulfilled what is required of you.*[1]

Zakat rate enjoined upon Muslims to pay is 2.5% or 1/40 (though the rich can be charged extra if what is realized is not enough to reduce poverty) which is usually paid once a year (Islamic year) and it should be paid on any amount of money remaining after meeting the expenses. The recipient of *zakat* is clearly stated in the holy Quran (9:60). "*the alms are only for the poor and the needy, for those who collects them, for whose heart are to be reconciled, for the freedom of those who are captives and in debt, for the cause of Allah (SWT) and for the wayfarers.* In addition, those people that are forbidden to receive *zakah* are the unbelievers and atheist, Banu Hashim Father, Sons and the wife.

Having established its permissibility in Islam we shall consider its relevance in the Christianity. The bible states " *At the end of every third year you shall bring out all the tithe of your produce in that year, and shall deposit it in your town*" (Deu 14:28). Also Gen 14:19-20 " *Blesssed be Abram by God Most High, Possessor of heaven and earth; and blessed be God Most High, who has delivered your enemies into your hand!" And Abram gave him a tenth of everything*. Similar verses are Gen.28:20-22, Lev 27:30-34 etc. Technically, this reveals that *Zakat* is also permissible in Christianity.

Sadaqah* or *infaq fi sabilillah

Sadaqah linguistically is derived from the root verb *sadq* or *sidq* which means to speak the truth, to be sincere. *Sadaqah* is a term applicable to the concept gift offered to someone from ones rightfully owned holding without remorse or regret or without any ulterior motives in secret for the pleasure of Allah. Thus, it involves the following ingredients; legitimacy of one's holdings, sincerity of intention, ultrusiun motives and the condition that it is for Allah. Allah (SWT) has enjoined his entire *ummah* to perform sadaqah in Q58:13, Q2:271, 262, 263. *Sadaqah* is not limited to monetary aspect alone, non monetary aspect is also welcome. However, the Holy Quran has stipulated who sadaqah is meant for especially in Q9:69, Q2:273 etc just as the case of *zakat*.

Sadaqah is considered as a means of purification, cleansing, redemption, atonement for sin as stipulated in the following verses Q9:103, Q2:196, Q2:271, Q2:280, Q5:5:45,Q2:72, Q2:267, Q30:39, Q12:88, Q64:16, Q663:10, Q57:18 and Q4:114 etc. The use of this instruments is also permissible in Christianity as obtained in the following verses; Proverb 19:17 which states that" *One who is gracious to a poor man lends to the LORD, and he will repay him for his deed*" and also such act is rewarding as stated in Matt 19:21 that" *Jesus said to him, if you wish to be complete, go and sell your possession and give it to the poor, and you will have treasure in heaven; and come, follow me".* Similar verses can be found in Isiah 58:7, Matt 5:42, 25:35, Luke 14:13, 18:22 etc.

Qard al hassan loan

This is also called Good Loan, benevolent loan. It is considered as a type of loan whereby the lender does not charge any interest or additional amount over the money lent. Most of the existing micro credit (loan) availed to beneficiaries by the government via its micro finance banks are interest based. Despite a reduction in its interest element to single digit in as far as its not zero.

[1] Different narrations on the same subject can also be found in Sahih Al Bukhari Vol2,Book 2 (Obligatory Charity Tax-*Zakat*, No.702-765 and also At- Tirmidhi Vol2,Book 2, No.617-681 etc.

Interest on loans as clearly spelt out in the Quran is prohibited as stated 12 different verses of the Quran. For instance Q2:275, Q 2:278 so also there are different hadiths that prohibits interest in all its forms. Therefore, non compliance to Allah's command, make such funds to lacks his blessing. Interest on loan has the following effects, it's a repression of the needy, it further widen the distribution of wealth, it creates inflationary tendencies, its an unjust income, its markdown the future, it causes economic volatility.

Waqf

Waqf is an Arabic word derived from a root verb *waqafa*. Its plural is *awqaf*. It refers to an Islamic endowment of property to be held in trust and used for a charitable or religious purpose. Waqf is made up of different kinds (Kafh, 2007).

Religious *Waqf:-*This form of *waqf* serves as an addition to the social welfare of any society as it assist to satisfy the religious needs of the people and thus reduce the direct cost of providing religious services.

Philanthropic *Waqf:* This form of *waqf* is targeted at supporting the poor in the society such as providing public utilities for the needy or poor such as libraries, education, health services etc.

Posterity or Family *Waqf*: In this form *waqf* the revenue must be given to the *waqf* founder and his or her descendents and only the surplus if any should be given to the poor.

However, a new form of *waqf* called cash *waqf* and *waqf* of intellectual property has been the order of the day. Cash *waqf:*- This form of cash serves as a *waqf* instead of the popular building or land. It is very flexible and thus allows distribution to the poor anywhere. This was first introduced in Othman era in Egypt. Whereas the *Waqf* of intellectual property:-this consists of copyrights of books.

Waqf has certain distinct features such as:- Perpetuity:- This implies that once a property is decided as waqf so shall it be and the condition specified by the *waqf* founder must be followed in as far as it does violate *shariah*.

Furthermore, *waqf* has two beneficiaries-family members and the general society. The latter is very relevant towards poverty alleviation. For instance, *waqf* via schools, hospitals etc students and patients attends at little or no cost. This will aid the development of human capital which invariably creates a productive workforce, thus assisting in poverty alleviation because with a productive workforce, GDP will increase, unemployment will decrease so also income inequality gap will be bridged.

Although the Holy Quran does not directly define *waqf* or make any particular reference to it, however, it encourages Muslim to perform charity and donation. Allah has promised multiple rewards for those who generously spend their wealth in his path (Mohammed, 2014). This is supported by the following verses; "*They ask you what they should spend.Say: Whatever you spend of good must be for parents and kindred and orphans and al-masakin (poor) and the wayfarer and whatever you do of good deeds, truly Allah knows it well* (Q2:215)". Related verses can also be seen obtained in Q2: 254, 270 and 280.

In a similar view, there are hadiths which further supports *waqf*. Abu Hurairah reported Allah's messenger as saying: *When a man dies, all his acts come to an end, but three: recurring charity, or knowledge (by which people benefit), or a pious offspring, who prays for him*" .[2]

[2] Muslim, 1992: bab3, hadith 14.

However, the concept of *waqf* is not entirely new to the non-Muslims as well because it has been practiced non-Muslims during the Ottoman period (Shaham, 1991; Azniza & Mohamed,2015). Though, several verses of the bible have stressed the need for charity such as Hebrew 13:16, proverbs 19:17, II Corinthians 9:7 etc. Therefore, based on the submission given, we can explicitly deduce that *waqf* is permissible for Muslims and non Muslims. Having discussed the instruments of Islamic Social Finance, it is pertinent to present a snapshot of the Humanitarian situation in the North East Region.

RESULTS AND DISCUSSION

Humanitarian situation update in North East Region

In order to present a snap shot of the humanitarian situation up in the North East region of Nigeria, we shall consider some key areas; Food Security, Protection, Health, Nutrition, Shelter and Non-Food items, Education and Water, Sanitation and Hygiene (WASH).

Table 1. Humanitarian performance snap-shot as at 2018

Area	People in need	People nargeted	People reached	Breakdown of people reached by category			Funding coverage (%)
				Displaced	Returnee	Remaining people in need	
Food security	3,700,000	3,700,000	3,105,058	1,356,539	616,782	1,131,737	45.40
Protection	5,800,000	2,700,000	1,619,259	1,097,182	120,880	319,408	13.50
Health	5,400,000	5,100,000	2,631,792	490,304	37,173	2,104,315	24.5
Nutrition	3,500,000	2,700,000	893,597	161,524	153,117	578,956	66.4
Shelter & non-food item	2,100,000	1,300,000	152,513	70,188	0	82,325	11.8
Education	2,800,000	2,200,000	110,297	25,147	12,664	72,486	10.8
WASH	2,900,000	2,100,000	2,315,139	1,331,136	75,281	908,772	20.1

Source: OCHA, 2018

From the Table 1, all the sectors could not achieve 100% of its target. Funding could be the key reasons because apart from Nutrition which has a funding coverage of 66%, all the sectors have funding coverage less than 50 percent. By and large, certain progress has been achieved so far, thus the need to sustain and improve on the performance.

Potentials of Islamic social finance tools towards alleviating humanitarian crisis in North East Nigeria.

In order to discuss this section, we shall explain it alongside with the various instruments of Islamic Social Finance.

Zakat

According to the IDB's research institute, global *Zakat* collections alone are estimated to come up to a total of at least US$500 billion a year. This is about 20 times more than total global humanitarian aid (GlobalSadaqa Beta,2018). Despite the fact that there are no reliable data currently to depict accurately how much *zakat* is being paid by Muslims around the world and how much is spent. However, a beautiful system of *Zakat* alone should be sufficient to alleviate the global humanitarian crises which Nigeria and North East region is not an exception.

More so, previous estimates have revealed that USD200 to USD I trillion is spent from Islamic charitable giving (*zakat*) every year in Muslim Countries. This further

place *zakat* within the 10 highest donors (Majis & Amma,2016). In Nigeria, the potential of *zakat* in 2013 is estimated to be between 0.86-2.08 % of GDP or USD 8,776.5-USD 21,160.99 million (IRTI-Islamic Social Finance Report, 2015; Aliyu Dahiru *et al*, 2018). This amount realized is sufficient to get rid of the funding gap identified in Food Security, Protection, Health, Nutrition, Shelter & Non-Food items, Education & Water, Sanitation & Hygiene; thereby alleviating the humanitarian crisis in the country.

Table 2. Summary of humanitarian funding gap

Area	People in need	Remaining people in need	Funds budgeted ($million)	Funds received ($million)	Funds unmet ($million)
Food Security	3,700,000	1,131,737	435.1	197.3	237.8
Protection	5,800,000	319,408	113.7	15.3	98.4
Health	5,400,000	2,104,315	109.6	26.8	82.8
Nutrition	3,500,000	578,956	107.1	71.1	36
Shelter & Non-Food item	2,100,000	82,325	67.4	7.9	59.5
Education	2,800,000	72,486	60.9	6.6	54.3
WASH	2,900,000	908,772	48.7	9.8	38.9

Source: OCHA, 2018

Relating the estimated sum of the funding gap of over USD 600 million (N183 billion @ N305-$1) to the potentials of *zakat* that have a minimum & maximum value of USD 8,776.5-USD 21,160.99 million, it is obvious that the *zakat* can be used alone successfully to curb the humanitarian crisis without reverting to other instruments of Islamic Social Finance. To actualize this potential and to minimize the issues faced in *zakat* management system such as transparency & accountability/corruption issues, ineffective collection mechanism and skeptism on the part of contributors regarding distribution impact etc, hence the need to adopt an innovative approach called Crowd funding. It is the practice of funding a project or venture by raising small amounts of money from a large number of people, typically from the internet (Wikipedia,2018).

Crowd funding is not a new concept and the largest platforms move billions of dollars every quarter. Most importantly, Crowd funding provides platforms that are transparent and with progress updates on campaigns – features which are clearly needed to improve the traditional Islamic social finance system. Crowd funding has been highly successful in non-Muslim jurisdictions such as the US, Europe and China. In 2015, a worldwide estimate totaling USD34 billion was raised via crowd funding (Wikipedia, 2018).

Islamic crowd funding, on the other hand, has only started to gain momentum, with a handful of Islamic crowd funding platforms starting to generate considerable traction and impact. Some of the selected examples of newly emerged Islamic social enhance crowd funding platforms include Humancrescent.org and GlobalSadaqah.com, among others (GlobalSadaqah, 2018).

Sadaqah

Sadaqah also can also be a contributory tool in curbing the humanitarian crisis in the region. Though, despite its status as voluntary and not a compulsory act, it is considered as a cogent pillar in Islamic Social finance. For the purpose of this study, we shall demonstrate its potentials in terms of cash basis.

To buttress this argument of cash *sadaqah* potentials, a projected cash flow is further conducted. A simple revenue function (P*Q) is adopted and modified. (i.e Price X Quantity) as thus; T= S_A*Pop. Where T: Total cash generated, S_A: *Sadaqah* amount

voluntarily contributed per individual active lines; Pop: Total Population of active lines. Therefore, relating the works of Mohd, *et al* (2012) to the Nigeria case with a total population of active lines of about 164,865,417. This estimation is done under the following assumptions: a) It will consider only population of active line users; b) Every citizen voluntarily in respective of religion contributes a minimum of N20 per week; c) Payment can be spread with the week for individual lines with sufficient airtime; d) No carryover of payment to another week; e) 5% level of cash collection error rate (i.e. some remain uncollected, some did not pay in full, some lines went inactive or dormant and some paid above N20 etc) is considered; f) Use of existing structure and facilities of government/mobile operators; g) *Sadaqah* funds are to be managed by prudent and efficient trustees; h) Provision for lump sum payment (i.e, one off on per monthly); i) All active lines will be considered on case by case basis; j) 10% proceeds should be considered as administrative expenses.

Table 3. Projected cash inflows (active lines)

Descriptions	**Cash *Sadaqah* of N20 per week (NGN)**	**Assume if 5% error rate (NGN)**
Total cash realised per week	3,297,308,340	3,132,442,923
Total cash realised per month	13,189,233,360	12,529,771,692
Total cash per annum (52wks)	171,460,033,680	162,887,031,996

Source: Authors Computation, (2019)-For Research Purpose

Based on this stream of income generated from *sadaqah* in Table 3, it could cater for the IDPs in the following areas as presented in Table 4 as thus:

Table 4. Projected expenditure(s)

S/N	**Sector**	**Location**	**Estimated unit cost**	**Estimated total cost**
1	Health (PHC)	5 units of PHC each in 65 LGA's of Adamawa, Borno & Yobe)	29,115,628.36***	28,387,737,651
2	Housing (2-Bedroom)	3 States (2,000 Units)	3,029,400**	18,176,400,000
3	Water (Boreholes)	5 each per polling units out of the 8,255 PU in Borno, Adamawa & Yola)	575,000*	28,479,750,000
			Total	**75,043,887,651**

*Source: *Castle (2017). **Building Contractors Secret (2017); ***Badeshi (2017).*

*Note: *Cost of Boreholes ranges from N150k- N1,000,000 depending on location(Avg.taken); ***Avg. was taken from the total contract awarded for the construction of PHC across the Country between 2014 and 2015. For Research Purpose.*

The Table 4 depicts that in its first year of adoption, funds to be realized can be able to build about 975 Primary Health Care (PHC) centers spread across the LGAs across in the Borno, Adamawa & Yola with an estimated cost of N28b. In the housing sector, part of the funds can also be used to build about 6000 housing units across the Borno, Adamawa & Yola (2-bedroom apartments) at the cost of N18b so also same funds can be used in the provision of about 49,530 boreholes spread across the polling units in Borno, Adamawa & Yola with a total cost of N28b.

Furthermore, after these expenditures, part of the funds can be invested so as to sustain the performance and empowerment program/ capacity building programs thereby making the affected persons to be independent and productive. If this tempo can be sustained for a period of 1-5years on the identified sectors, it can go a long way to resettle the internally displaced persons and returnees in the North east especially Borno Yobe and Adamawa to their various localities, thus alleviating the humanitarian crisis.

Waqf

Waqf is driven by spirituality, social justice, and personal satisfaction of the donors and it is purposely meant to provide key essential services like health, education etc so as to improve the welfare of the people in the society at no cost. This was evidenced during the Ottoman Empire in which the *waqf* was incorporated in its fiscal system to cater for its public expenditures for decades. In addition, prophet Muhammad (Pbuh) also used *waqf* to finance for weaponry in times of war via the fruits from Orchards left by Mukhayriq and well as financing the economy (Siddiqi,1995). This reasons for the background of *waqf*, formed the justification, the argument of bridging infrastructural deficit via *waqf*. The global size of waqf asset is estimated between USD105billion to USD1 trillion (SFC, 2017).

However, existing literatures like Cizakca (1998), Mohammed *et al* (2012), Kahf (1998) and Islahi (1992) have also been captured along such lines. Cizakça (1998), he stressed that economists looking at the *waqf* system would be perplexed by the fact that a myriad of essential services such as health, education, municipal, etc., have historically been provided at no cost whatsoever to the government. Therefore, ceteris paribus, the *waqf* system can contribute significantly towards that ultimate goal of so many modern economies as it leads to a massive reduction in government expenditure, freeing government funds to other sectors, with its attendant benefits of economic development.

However, for the purpose of clarity, this section will limit its discussion to the cash *waqf, w*hich refers to "the devotion of an amount of money by a founder and the dedication of its usufruct in perpetuity to the prescript purposes" (Magda Ismail, 2008). Relating the cash *waqf* model to the Nigeria case in ensuring bridging of funding gap, it consists of three major phases namely: the phase of cash collection rate, the investment phase and the implementation phase.

The first phase which is the cash collection rate is considered as the bedrock in which other phases are built upon. This has to do with how long it takes to mobilize these funds. This fund can be traced to the contribution from the general public which is usually voluntary in nature. This can be in physical cash or through other platforms like E-*waqf* funds which is deducted from their bank account or via mobile by sending coded SMS to a designated sever number ordering for deduction from his or her airtime. This is considered as the easiest means for the public to join *Waqf* scheme.

However, a key mitigating factor to the cash collection rate is population. However, available records have shown that Nigeria has a population of about 193M (NBS,2017) out of which 49.3% are Muslims, 48.8% are Christians while 1.9% traditional beliefs (Pew Survey, 2012). However, the main contributor would be from the Muslim faction of the population.

The second phase which is the investment phase has to do with investing the said *waqf* funds directly or indirectly. These can be via *mudarabah* deposit, *sukuk* (Islamic bond), Islamic mutual fund and *shariah* compliant stocks. Also, part of the funds or proceeds from such investment are either plough back or used at the last phase called the implementation phase. At this stage, the funds can be used four key purposes such as education, health, housing, social and community services so as to alleviate the humanitarian crisis..

In addition, to buttress the argument on cash *waqf* potentials, a projected cash flow is further conducted. Adopting same simple revenue function (P*Q) is adopted and modified. (i.e Price X Quantity) as thus; $T= W_A*Pop$. Where T: Total cash generated,

W_A: *Waqf* amount contributed per individual; Pop: Total Population. Therefore, relating the works of Moh'd, et al (2012) to the Nigeria case with a total population of about 193,392,517 out of which 107,842,572 are within the age of 15-69years (NBS, 2017). Populations within this age bracket are considered as the active population. This estimation is done under the following assumptions: a) It will consider only population within the age bracket of 15-69 years; b) Every citizen in respective of religion contributes a minimum of N20 per week; c) 5% level of cash collection error rate (i.e. some remain uncollected, some did not pay in full, some individuals are dead, some underage later qualified within the age bracket and some paid above N20 etc) is considered; d) Use of existing structure and facilities of government; e) *Waqf*s are managed by prudent and efficient trustees; f) 10% to be considered as administrative expenses.

Table 5. Projected cash inflows (population)

Descriptions	Cash *Waqf* of N20 per week (NGN)	Assume if 5% error rate (NGN)
Total cash realised per week	2,156,851,440	2,049,008,868
Total cash realised per month	8,627,405,760	8,196,035,472
Total cash per annum (52wks)	112,156,274,880	106,548,461,136

Source: *Authors computation, (2018)-for research purpose*

Table 5, shows the total cash *waqf* realized if Nigerians within the age bracket (15-69yrs) donate N20 per week. This is to generate about N2,049,008,868 and N8,196,035,472 and weekly and monthly respectively while total of N106,548,461,136 will be generated on yearly basis. And, in worst case scenario if only Muslims donates to the cash *waqf*, then it will be N53,274,230,568 which is approximately 50% of based on the available records on Muslim population. However, from the projected funds realized, if it can be judiciously invested in *mudarabah* deposit, the proposed income will be as thus:

Under this investment option, it is assumed that the *Mudarabah* term deposit rate is 5%, Profit & Loss ratio is 50:50 (Bank and the SPV). The *Mudarabah* calculator is adopted.

Table 6. Proposed investment of *Waqf* funds

Duration of W*aqf* funds realised	Amount invested @ 90days	Profit earned
Total cash realised per week	2,049,008,868	12,757,185.35
Total cash realised per month	8,196,035,472	51,028,741.40
Total cash per annum (52wks)	106,548,461,136	663,373,638.17

Source: http://www.bankislam.com.my/home/calculators/deposit-calculator-using-profit-sharing-ratio/.

From Table 6, the said funds earned from the profit of the investment can be channeled towards cushioning some of the humanitarian gap while the principal amount remained unspent. This could serve as a continuous stream of income towards bridging the deficit mostly especially in taking care of human capital development and empowerment.

Management of Islamic social finance system

Under this form of proposed Islamic Social finance system, Nigerians are considered as the founder whether it viewed based on individuals or active lines. As *founders*, they decide the purpose for which the funds will be expended for but in this case it is specifically to curb the humanitarian crisis in the North East region. This can

be in education, health, housing, water provision, social and community services, etc in as far as it constitutes expenditure that is *shariah* compliant. Individuals can contribute any form of resources that are deemed beneficial and can indeed help finance to fill the humanitarian gap.

The Islamic Social finance system is to be headed by a learned and renowned cleric and its management team while the board will constitute members from the State and NGO's. i.e., representative from the Ministry of Finance, Internal Revenue Board, Central Bank of Nigeria, Ministry of Budget and Planning, Nigeria Communication Commission, National Population Commission, telecom operators and representatives from the various religions like Nigeria Supreme Council for Islamic affairs, Christian Association of Nigeria. The Islamic Social finance system should be centrally coordinated with a well decentralized structure at the state and local levels but must be independence from government interference. Though, it will be managed under the platform of North East Reconstruction, Rehabilitation and Resettlement Agency. The crowd funding platforms can also be used to support the collection process.

However, as trustees or *mutawalli*, these stakeholders must cooperate to carry out key responsibilities like; creating awareness and collection *waqf/zakat/sadaqah* contributions, ensuring that the *funds* are used only for the purposes assigned by the founders, ensure the protection of the rights for both Muslims and non-Muslims, as beneficiaries and monitor the investment are *Shari'ah* compliant. See a flow chart of the Islamic Social finance management system.

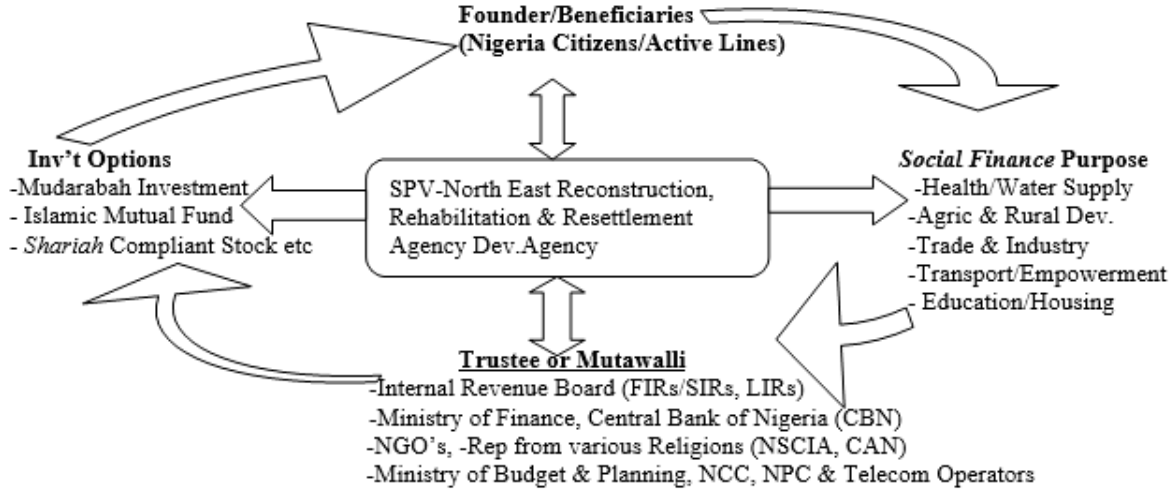

Figure 1. Flow Chart of Islamic Social Finance Management System
Source: Modified by Author from works of Azniza & Mohamed (2015) -For Research Purpose

The founders who are also considered as beneficiaries, donate their contribution either as *zakat, sadaqah* and *waqf.* The funds contributed are then managed by the trustees under a Special Purpose Vehicle called- North East Reconstruction, Rehabilitation & Resettlement Agency Dev.Agency. The agency will use part of funds contributed by the founders (Nigerian Citizens) for the purpose of filling the humanitarian gap as identified in Table 2 and also invest some funds in *mudaraba* investment, *Sukuk*, *shariah* compliant stocks etc. it is quite fundamental that such investment have to be *shariah* compliant. Consequently, the investment proceeds will then be used by the SPV towards assisting the beneficiaries.

Qard al hassan loan

This type of loan can be disbursed to the IDPs which could serve as a source of empowerment or initial capital to commence a particular business after when they have been trained in one skills acquisition programmes. These funds will be disbursed out of the total amount mobilized and it will not be interest based. The seed capital to undertake this task can be utilized from the profit earned from the *Mudarabah* deposit investment.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Nigeria most especially the North east states have never been faced with an insecurity situation that has taken long (over 9yrs) like this in history. This has continued to drain the region's resources, causes loss of lives and properties and has further resulted to a huge number of internally displaced persons (IDPs). In a bid to take care of this huge number of IDPs, it has over stretched the existing government facilities thus the need for intervention from NGOs. Though, their interventions was a welcomed one but they too are also constraint with resources considering the humanitarian situation been faced. This necessitates the need for an alternative source of financing. This is a system that been practiced since the time of the prophet (PBUH) and his followers and it is permissible to Muslims and non Muslims. Most countries like Malaysia, Kenya, Morocco, Sudan etc that are have adopted some of these tools in addressing the provision of essential facilities and eradicating of poverty at no cost to the government. Hence, Nigeria should not be an exception.

Therefore, the role of Islamic social finance tools to the current humanitarian crises been faced now especially in the north east states cannot be overemphasized as it will go a long way to assist in alleviating the crisis at no cost to the government without necessary overstretching them in all aspects. Consequently, this necessitate the need to welcome it as fiscal tools in order to aid the government in its governance process without any religious biasness so that the desired result can be achieved as the current humanitarian crises has no boundaries when it comes to religion or ethnicity.

Policy recommendations

Since these tools are permissible in *shariah* and has been practiced by non-muslims in the past, there is need to intensify effort on public awareness in order to enlightened the Nigerian populace about benefits of *waqf* via local media like TV, radio in local dialects, magazines, articles etc as this will go a long way to address some of the misconceptions about some of this tools

There is the need to have a legal framework such as *Zakat*/*Waqf* Act or creation of ministry as this will ensure transparency as its record will be subject to public scrutiny. More so, the *Zakat*/*Waqf* Advisory Board need to be setup so as to moderate its financing activities in ensuring that the government expenditure to be financed should not be vague and non *shariah* compliance.

There was case of corruption associated with previous implementation of *waqf/zakat*. In lieu of that there is need to improve the welfare of the staff involved and also train and retrain them on task ahead of them.

Taking into play that cash collection rate goes a long way to determine the performance of these system, there is to deploy of IT equipments, portals so as to fasten *waqf* cash collection rate so easy and convenience.

There is need to adopt a mix of financing tools so as to take care of the peculiarities that may exist and likewise Training, retraining and organizing development program for officers involved in the entire administration of *waqf* is highly required.

Ensuring that the *zakat*/*waqf* officers welfare are properly taken care off so as to avoid them tempering with the revenue generated and also Contracts for provision of infrastructural facilities to host communities should be awarded to their indigenes so that the community can know who to look up to incase whether the job is abandoned or done haphazardly.

The states like Borno, Yobe where relevant acts are already in existing which is not active, creates the need for it to be revisited in order meet best practices.

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The level of information technology adoption and its factors in micro, small, and medium enterprises in Jambi City, Indonesia

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Abstract
This study aims to analyze the conditions and the level of information technology (IT) adoption in micro, small, and medium enterprises (MSMEs) in Jambi City and its factors. The data was obtained by carrying out a sample survey on MSMEs in Jambi City. The study uses descriptive analysis and Structural Equation Modeling-Partial Least Square (SEM-PLS). The results of the study found that: 1) the level of IT adoption in MSMEs in Jambi City is still relatively low. About one third of MSMEs is still using IT only for internally oriented functional integration. On the contrary, only 1.89 percent of MSMEs have been in the stage of business scope redefinition under influence of IT; 2) Behavior intention has a significant effect on the level of IT adoption in MSMEs. Furthermore, there are five variables that influence behavioral intention of MSMEs related to the use of IT. Those are effort expectance, social influence, hedonic motivation, price value, and habit.

Keywords: *MSMEs, Information Technology, Adoption*

JEL Classification: O14, O33, L25

INTRODUCTION

Micro, Small and Medium Enterprises (MSMEs) are known to have an important role both in developed and developing countries, in employment, economic growth and industrial growth of a country (Mahemba, 2003; Tambunan, 2005; Rahmana, 2009). Empirical studies showed that MSMEs on an international scale are a source of job creation (Olomi, 1999; Lin, 1998; Westhead and Cowling, 1995). Almost 90% of the total businesses in the world are contributions from MSMEs (Lin, 1998).

In Indonesia, in terms of quantity, 99.97% of the total business in Indonesia turned out to be people's economy sector (MSME), and became very strategic because it was able to absorb 99.5% of the workforce (Ririh, Anggarhini, Amalia. 2011). MSMEs in Indonesia also have an important role in maintaining economic stability. When the 1998 economic crisis occurred, only MSMEs survived from the collapse of the economy, while the larger businesses fell by the crisis.

Basri (2003) argued that SMEs in Indonesia can survive in times of economic crisis caused by 4 (four) things, namely: (1) Some SMEs produce consumer goods, especially those that do not last long, (2) Majority of SMEs rely more on non-banking financing for its business funding, (3) SMEs generally carry out strict product specialization, in the sense that they only produce certain goods or services, and (4) the formation of new SMEs as a result of the termination of employment in formal sector.

However, to compete in multilateral free trade (WTO), regional (AFTA), informal cooperation (APEC), and ASEAN Economic Community (AEC), SMEs are required to make changes in order to improve their competitiveness, so that they can continue to run and develop. One of the changes is starting to use information technology (IT). A case studie in Europe showed that more than 50% of productivity was achieved through investments in IT.

Same as in other regions in Indonesia, MSME of Jambi City has also shown its important role in people's economy. The 2016 data showed that there were 10,588 MSMEs in Jambi City. Based on the data, there were 8,469 micro enterprises, 1,765 small enterprises, and 354 medium enterprises that were employing 16,394 people, 8,950 people, and 5,310 people respectively.

Considering the important role of MSMEs, it is necessary to conduct further studies on MSMEs in Jambi City, particularly those related to the adoption of IT in order to improve competitiveness in the face of competition on the global market.

LITERATURE REVIEW

Information technology

Information Technology (IT) is a technology used to create, store, exchange and use information in a variety of ways. Computers and communication tools are part and a combination of IT (Sawyer, 2007; McKeown, 2009). According to Martin (1999) and Lukas (2000), IT is not only limited to computer technology used to store information, but also includes communication technology to transmit information in electronic form.

The advancement of technology has been exceptionally fast. Many new discoveries in technology show the rapid advancement of technology, from simple to cutting-edge technology. The use of IT improves the quality of life, and supports daily activities and applies both to business and government (Cortada, 2009).

McLeod (2005) stated that there are three fundamental roles of IT in business: (1) support of its business processes, (2) support of decision making by its employees and managers, and (3) support of its strategies for competitive advantage. Yuliana (2000) explained that IT can provide business strategy advantages to win competitions in terms of global dissemination, interaction, customization, collaboration, electronic commerce (EC) and integration.

Adoption of information technology

Adoption is the initial acceptance of an object. Adoption of technology is one step that must be done before implementing technology in a business field (Perdana, 2011). Adoption of technology is one of the important factors in improving product quality, because technology becomes one of the drivers of environmental change (business world), so that it can compete in increasingly competitive conditions (Lee et.al, 2012). In some developed countries, the adoption of new technologies in an industrial system can contribute 40-50% to their economic growth. Even in Japan it can contribute 66% to its economic growth (Nazarudin, 2008).

Nagi (2010) and (Kim & Crowston, 2011) stated that adoption is a series of stages, awareness, individual intentions that arrive at the act of accepting an object and implementing or using. Furthermore, related to MSME, Knol and Stroeken (2001) proposed a scenario that could be used to measure the phase of IT adoption. IT adoption of SMEs is divided into six levels as summarized in Table 1.

Related to the factors that influence technology adoption, there are various behavioral theories which are widely used by researchers, including the Theory of

Reason Action (TRA) (Kings and Gribbins (2002), Theory of Planned Behavior (TPB) (Chau and Hu 2001), Task-Technology Fit Theory (TFT) (Dishaw, Strong, and Bandy, 2002), Technology Acceptance Model (TAM) (Davis, 1989) and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al (2003)

Table 1. The phase division of the IT scenario model

Phase	Description
0	No usage of information technology
1	Internally oriented functional integration. Phase one is aimed at the computerisation of existing activities to improve efficiency. As a result, the emphasis is placed on internally oriented integration of existing activities. Often programs are used to register, wholly or partly, the information flows from the primary process. in SMEs, generally standard integrated programs are used.
2	Internally oriented multifunctional integration. In phase two the improvement in effectiveness is realised through internally oriented multifunctional integration. This lends more depth and breadth to the integration mentioned in phase one. The programming from phase one is applied in a more advanced and refined way.
3	Externally oriented process integration. Phase three is aimed at the improvement of the present product-market combination through a type of process integration, in which a greater emphasis is placed on the externally oriented improvement of business processes. This means that the strategic position of the enterprise in the market and supply chain is the focal point of attention. Information technology is implemented in such a way that it makes a fundamental contribution to the customer approach and supply chain integration
4	Business process redesign. Phase four encompasses the redesign of business processes to extend the external orientation. As a result, the enterprise has the ability to orient itself towards innovative product-market combinations. Information technology functions more as *enabling technology* in this phase.
5	Business scope redefinition under influence of information technology. Phase five is related to the revision of business goals under the influence of information technology so that the enterprise undergoes a complete external re-orientation.

Source: Knol and Stroeken (2001)

This study used the UTAUT model, especially UTAUT Version 2, UTAUT model, which was proposed by Venkatesh et al (2003). This model consists of 4 determinants of IT objectives and uses. Those are performance expectancy, effort expectancy, social influence, and facilitating conditions. Also 4 variables as moderators between determinants and IT objectives and uses are gender, age, experience, and voluntariness.

Performance expectancy is defined as the degree to which the user expect that using the system will help him or her to attain gains in job performance. Effort expectancy can be explained as the degree of ease associated with the use of the information system. Social influence is defined as the degree to which an individual perceives that important others believe that will influences him using the new system and is a determining factor for behavioral intention in using IT and facilitating conditions is reffering to the resources and the availability of support for user behavior**.** Furthermore, performance expectancy, effort expectancy, social influence, and facilitating conditions are relating to behavioral intention as the main behavior in technology acceptance which ultimately results in use behavior as the behavior to be achieved in the use of technology.

UTAUT was extended from organizational context to individual consumer context in 2012 by adding three new constructions namely habit, hedonic motivation

and, price value. Habit can be defined as the degree to which people believe the behavior to be automatic as a result of learning, hedonic motivation can be described as a benefit derived from using technology and regarded as an important role in determining technology acceptance, and price value can be described as the user's view between which technology is truly needed and which is not. UTAUT 2 also has three moderating variables namely age, sex and experience (as in Figure 1)

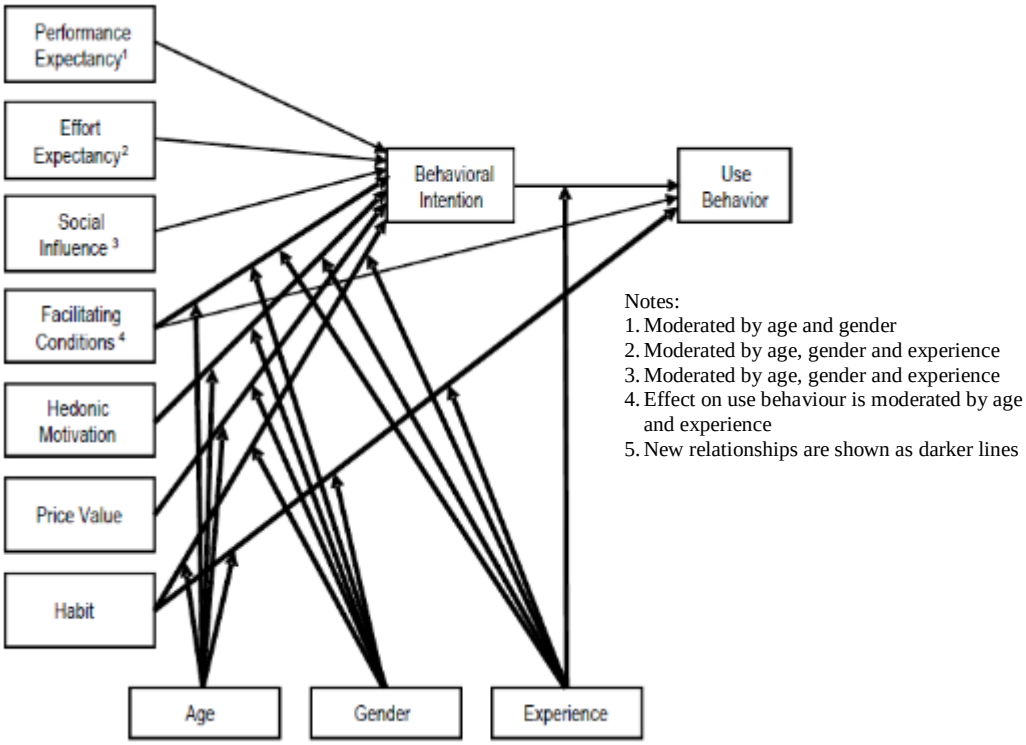

Figure 1. UTAUT version 2 (Venkatesh et al., 2012)

Research position

There are two points that distinguish this study to the previous studies. First, *use behavior* (IT use behavior) as a variable in previous studies was generally using frequency as its indicator of technology use. However, in this study, five stages of technology adoption as stated by Kim & Crowston (2011) and Nagi (2010) will be used. Next, the moderating variable used is not only the individual characteristics of the user (manager/owner of the MSME), but also the characteristics of MSME, namely capital and business turnover. Individual characteristics modeled into moderating variables on behavioral intentention while characteristics of business modeled into a moderating variable on the phase of technology adoption.

RESEARCH METHODS

The data for this study is primary data sourced from MSME actors in Jambi City. Research population for the study is all MSMEs in Jambi City (10,588 enterprises). The sample is set at 2.5 percent of the total population, which is 265 units of MSMEs. The study used proportional random sampling based on the scale of the firms/enterprises.

Primary data was collected by using questionnaire directed to SMEs. Also interview guides were used for "in-depth interview" to selected SMEs in order to obtain a variety of qualitative information to supplement quantitative information obtained from questionnaire.

Table 1. Sample proportion of MSME

Scale of Business	Population (units)	Sample (units)
Micro	8469	212
Small	1765	44
Medium	354	9
Total	10588	265

Preliminary data analysis is done descriptively using descriptive statistical tools and single frequency tables and cross tabulations. After that, to analyze the factors influencing the level / phase of technology adoption, a Structural Equation Modeling – Partial Least Square (SEM-PLS) is used as Figure 2.

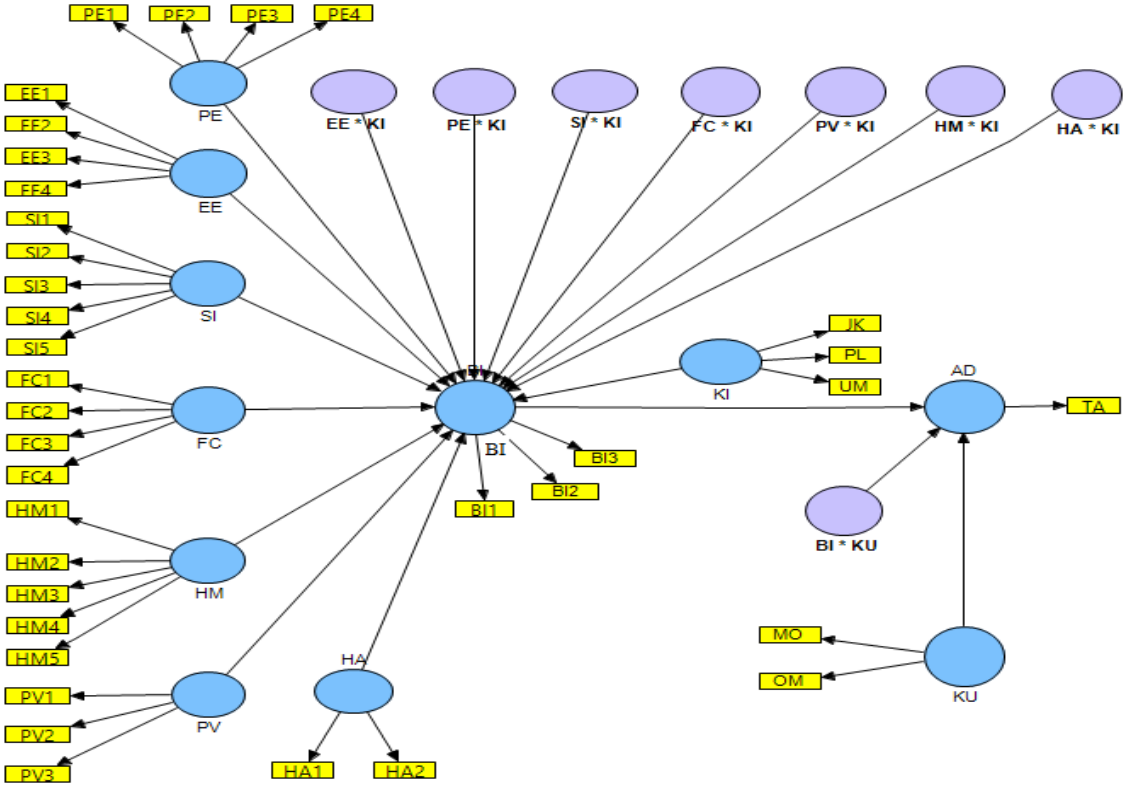

Figure 2. Research Model

The definition and measurement of variables in the research model are given in the Table 2.

Table 2. Definition and measurement of variables

Variable	Definition and Measurement
Performance Expectancy = PE	Degree to which the user expect that using the system will help him or her to attain gains in job performance. Using four indicators measured in Likert scale: PE1 = IT usability in work PE2= IT capability in completing work faster PE3 = IT capability in increasing productivity PE4= IT capability in obtaining better results
Effort Expectancy = EE	Degree of ease associated with the use of IT. Using four indicators measured in Likert scale: EE1 = ease of understanding IT procedures EE2= ease of being skilled using IT EE3= ease of using IT EE4= ease of learning to operate IT

Variable	Definition and Measurement	
Social influence = SI	Degree to which an individual perceives that people influence him/her using IT. Using five indicators measured in Likert scale SI1 = support from government SI2 = motivation from other MSMEs SI3= advice from influential people SI4 = advice from important people SI5 = support/assistance from influential people	
Facilitating conditions = FC	Degree to which an individual believes that the availability of technical and organizational infrastructure support the use of the system. Using four indicators measured in Likert scale: FC1 = have physical IT resources, FC2 = have the knowledge to use IT, FC3 = system compatibility, FC4 = have expert to help with the difficulties	
Habit = HA	The tendency to perform automatic behavior due to learning. Using two indicators measured in Likert scale: HA1 = accustomed to working with IT, HA2 = must use IT to finish the job,	
Hedonic Motivation = HM	Degree of pleasure and comfort using IT. Using five indicators measured in Likert scale: HM1 = right and good idea to use IT, HM2 = IT makes work more attractive, HM3 = using IT is fun HM4 = IT makes work more entertaining HM5 = likes to learn to use IT	
Price Value = PV	The perceived benefit of the financial costs for IT. Using three indicators measured in Likert scale: PV1 = there is a free version of IT, PV2 = the price of IT product is reasonable, PV3 = the IT product has a pretty good price	
Behavioral Intention = BI	The degree to which someone will use IT in the future. Using three indicators measured in Likert scale: BI1 = will use IT in the future, BI2 = will use IT for work, BI3 = plan to use IT more often	
Phase of technology adoption = AD	Measured by an ordinal scale referring to Knol and Stroeken (2001)	
Characteristics of MSMEs' actors		
Age = UM	Divided into five groups 1 =< 19 years old 2 = 20 – 29 years old 3 = 30 – 39 years old	 4 = 40 – 49 years old 5 = 50 +
Sex/Gender = JK	1 = male	0 = female
Experience= PL	Business experience (years) 1= < 2 2= 2 - 4	 3= 4 - 6 4= > 6
Business characteristics of MSMEs		
Capital = MO	Capital in rupiah	
Turnover = OM	Turnover in rupiah per month	

RESULTS AND DISCUSSION

Ownership and utilization of information technology

The ownership of IT equipment in MSMES in Jambi City is relatively good. Of the 265 business units, there were only 37 business units (13.96 percent) which did not have at least one IT device/equipment. Most others have had at least one of these devices intended for business management (Table 3).

There are two types of IT devices commonly owned by MSMEs in Jambi City, that are mobile phones/smartphones and PC/laptop. It can be seen from the fact that 73.21 percent of the business units have mobile phone/smartphone and 54.34 percent of the business units have PC/laptop for managing their business

Table 3. Distribution of MSMEs based on the ownership of information technology equipments/devices in Jambi City in 2018

Type of Device	Have		Don't Have		Total	
	Freq.	%	Freq.	%	Freq.	%
Computer PC/Laptop	144	54.34	121	45.66	265	100.00
Printer	74	27.92	191	72.08	265	100.00
Mobile phone/Smartphone	194	73.21	71	26.79	265	100.00
Telephone	42	15.85	223	84.15	265	100.00
Facsimile (Fax Machine)	9	3.40	256	96.60	265	100.00

Source : Field survey, 2018

Use of computers/laptops for business

There are various types of IT devices that can be used in managing a business. Even so, this section will specifically analyze the use of computers/laptops as the main device and the most commonly used in IT.

The use of computers/laptops for businesses in MSMEs in Jambi City showed a relatively diverse condition. The two main types of use are to access the internet (78.47 percent) and information systems (61.81 percent) (Table 4)

Table 4. Distribution of the use of computers for businesses in MSMEs in Jambi City in 2018

Use of Device	Use		Don't use		Total	
	Freq.	%	Freq.	%	Freq.	%
Making financial statements	85	59.03	59	40.97	144	100.00
Making a work report	76	52.78	68	47.22	144	100.00
Correspondence	58	40.28	86	59.72	144	100.00
Designing products	79	54.86	65	45.14	144	100.00
Accessing the internet	113	78.47	31	21.53	144	100.00
Information system	89	61.81	55	38.19	144	100.00
Presentation	13	9.03	131	90.97	144	100.00
Others	10	6.94	134	93.06	144	100.00

Source: Field research, 2018

Utilization of the internet for business management and development

It can be stated that internet utilization by MSMEs in Jambi City has been relatively good. Nearly two thirds (171 business units of 64.53 percent) of MSMEs have used internet for their business activities (Table 5).

Table 5. Distribution of internet usage by MSMEs in Jambi City in 2018

Internet Usage	Use Internet		Don't Use Internet		Total	
	Freq.	%	Freq.	%	Freq.	%
Browsing to see the features of other similar products	92	53.80	79	46.20	171	100.00
Browsing to find ways to improve product quality	105	61.40	66	38.60	171	100.00
Browsing to find out what their competitors are doing	66	38.60	105	61.40	171	100.00
E-mail/chat to communicate with consumers	120	70.18	51	29.82	171	100.00
E-mail/chat to communicate with suppliers	67	39.18	104	60.82	171	100.00
E-mail/chat to communicate with product distributors/marketers	61	35.67	110	64.33	171	100.00
Mailing list for product promotion	24	14.04	147	85.96	171	100.00
Providing online orders/transactions	54	31.58	117	68.42	171	100.00
Website for promotion	35	20.47	136	79.53	171	100.00
Blog for promotion	19	11.11	152	88.89	171	100.00
Social media for promotion	131	76.61	40	23.39	171	100.00
Others	6	3.51	165	96.49	171	100.00

Source : Field survey, 2018

Furthermore, the purposes of internet usage by MSMEs in Jambi City are also relatively diverse. The largest proportion (76.61 percent) of the purpose of internet usage by MSMEs in Jambi City is to promote their products through social media. Also the types of intenet usage which are also relatively dominant (done by more than half of the MSMEs) are e-mail/chat to communicate with consumers, browsing to find ways to improve product quality, browsing to see the benefits / features of other similar products.

Adoption of information technology by MSMEs in Jambi City

Based on the analysis of the ownership, level of utilization and usage of IT in business development and its future plans, the phase of IT adoption in MSMEs in the Jambi City are given in the Table 6.

Table 6. The phase of IT adoption in MSMEs in Jambi City

Phase	Decription	Frequency	Percentage
0	No usage of Information Technology	94	35.47
1	Internally oriented functional integration	90	33.96
2	Internally oriented multifunctional integration	40	15.09
3	Externally oriented process integration	19	7.17
4	Business process redesign	17	6.42
5	Business scope redefinition under influence of information technology	5	1.89
	Total	265	100.00

Table 6 shows that IT adoption in MSMEs in Jambi City is still relatively low. More than a third (35.47 percent) have not used IT at all. About one third is still at the 1st stage of IT adoption which is internally oriented functional integration. At this stage, the use of IT is only for business administration interests in a simple manner such as making work reports and communicating with consumers.

On the contrary, only 1.89 percent of MSMEs in Jambi City have been at the 5th stage level of IT adoption. At this stage, the use of ICT is quite wide in scope, for example, to communicate with consumers, establish cooperation with business partners, use their own applications or softwares to run their business, and plan to open a branch in another place.

Factors influencing the level of IT adoption in MSMEs in Jambi City

Initial model testing and modification of the model

Before carrying out further analysis, an evaluation of the initial model proposed is mainly carried out primarily related to the validity and reliability of the indicators on the latent variable (construct). Validity test uses the convergent test and discriminates the validity of the indicator. Reliability test uses two criteria, namely composite reliability and cronbachs alpha.

Convergent validity test was carried out based on the correlation between the item score and the construct score. Reflectif indicators is said to be high if it correlates more than 0.70 with the construct measured. Discriminant validity test was done by comparing the value of the square root of average variance extracted (AVE) of each construct with the correlation between constructs in the model. If the square root value of AVE for each construct is greater than the value of the correlation between constructs in the model, then it can be concluded to have good discriminant validity value.

The construct reliability test is measured by two criteria, namely composite reliability and cronbachs alpha. It was done to assess whether an indicator is truly reliable in measuring the construct. The construct is stated to be reliable if the value of composite reliability and cronbachs alpha are above 7.0.

Based on the initial model testing, it was found that all indicators were valid and reliable in measuring constructs except individual characteristic variables (KI) and facilitating condition (FC). Gender (JK) and experience (PL) as indicators of KI and FC4 (have expert to help with the difficulties) as indicators of FC are not valid and reliable, so they are excluded from the model (Figure 3).

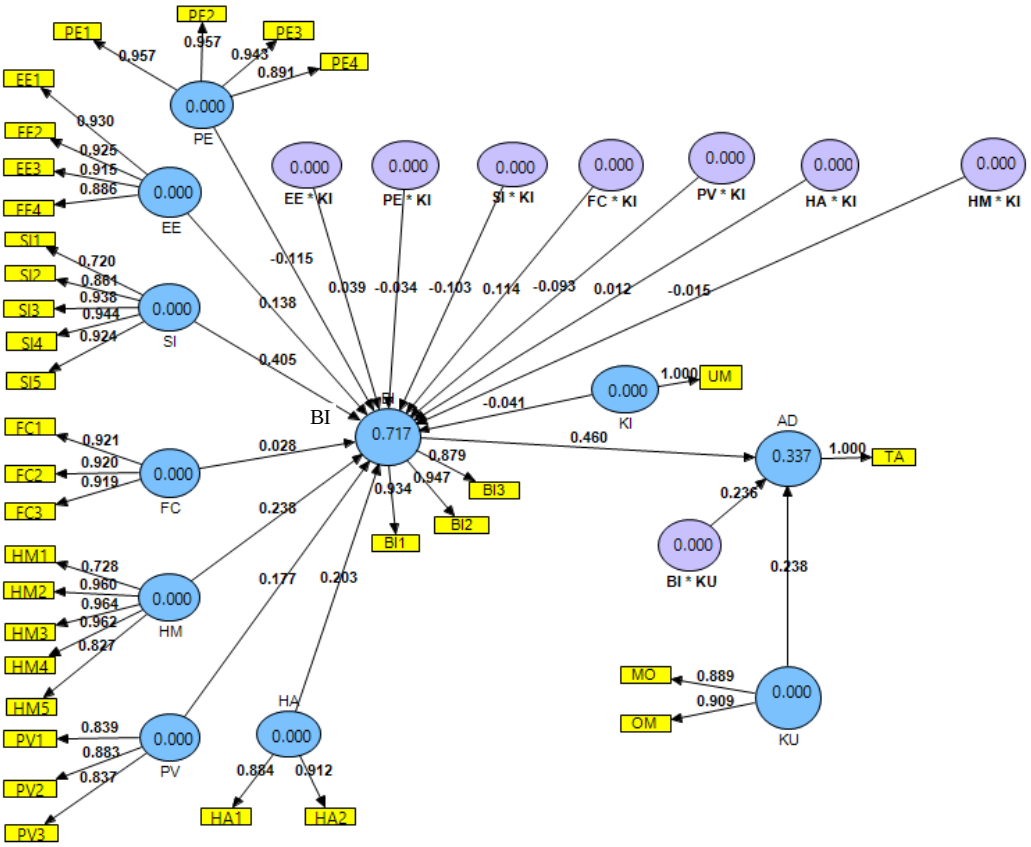

Figure 3. Modification of the model

Convergent and discriminant validity tests

Based on Figure 3, it shows that the correlation (loading) of all indicators with constructs is above 0.7, so that all indicators are valid. The same thing can also be seen in the discriminant validity test (Table 7). The square root value of AVE for each construct shows greater than the correlation value between constructs in the model.

Table 7. Correlations between constructs and square root value of AVE

	Correlation											square root of AVE
	BI	**EE**	**FC**	**HA**	**HM**	**KI**	**KU**	**PE**	**PV**	**SI**	**AD**	
BI	1.00											0.92
EE	0.58	1.00										0.91
FC	0.60	0.68	1.00									0.84
HA	0.64	0.66	0.68	1.00								0.90
HM	0.67	0.59	0.63	0.65	1.00							0.89
KI	-0.20	-0.22	-0.15	-0.21	-0.12	1.00						1.00
KU	-0.04	-0.07	0.05	0.00	0.08	0.19	1.00					0.90
PE	0.61	0.70	0.71	0.66	0.71	-0.14	0.06	1.00				0.94
PV	0.63	0.55	0.60	0.59	0.66	-0.15	0.13	0.70	1.00			0.85
SI	0.60	0.25	0.39	0.29	0.33	-0.08	0.12	0.39	0.35	1.00		0.88
AD	0.44	0.46	0.49	0.51	0.42	-0.16	0.29	0.54	0.49	0.40	1.00	1.00

Reliability test

The value of crobanch alpha and composite reliability is given in the Table 8. Table 8 shows that all variables have composite reliability and crobanch alpha values above 7.0. In conclusion, the model has good reliability.

Table 8. Crobanchs alpha and composite reliability

	Cronbachs Alpha	Composite Reliability
BI	0.909436	0.943357
EE	0.934485	0.953239
FC	0.909539	0.943026
HA	0.760323	0.892582
HM	0.93343	0.951346
KU	0.763475	0.894026
PE	0.953636	0.966568
PV	0.820374	0.889080
SI	0.927004	0.945334

Goodness-of-fit model evaluation

Goodness-of-fit evaluation was done by looking at the R-squared value. Structural models that have R-squared value of 0.67 indicate that the model is "good", r-squared value of 0.33 indicates that the model is "moderate", and r-squared value of 0.19 indicates that the model is "weak".

Based on the results of the analysis found that the R-squared value for "BI model" is 0.7165 and the R-squared value for "AD model" is 0.3370. This means that the goodness of fit of the "BI model" is good and the "AD model" is moderate

Interpretation of relationships between variables

The relationship between variables can be seen from the parameter coefficient value and significance of t statistics. A relationship is said to be significant if t statistic is greater than t table (significance 10% = 1.64).

Based on figure 4, it shows that of the seven variables that influence behavioral intention (BI), five variables show a significant influence, that are, effort expectance (EE), social influence (SI), hedonic motivation (HM), price value (PV), and habit (HA), while the other two variables, performance expectance (PE) and facilitating condition (FC), do not show a significant influence. The insignificance of performance expectance (PE) in this study is not in line with some of the results of previous studies, including Oswari, Suhendra, Harmoni (2008) Gefen and Straub (2000), Suhendra, Hermana and Sugiharto (2009). Likewise, the insignificance of facilitating conditions in this study is different from the results of Anderson and Schwager's research (2004), Suhendra, Hermana, Sugiharto (2009)

BI has a significant influence on the level of IT adoption in MSMEs (AD). The moderating variable that moderates BI (i.e individual characteristics (KI) with a single indicator which is age) does not have a significant influence.

The results of this study are not in line with the research of Koning (2006), Chuang (2009) and Tsourela and Roumeliotis (2015) who found that both the age of top management teams and workers in the small businesses were significant predictors of the extent of IT adoption. In addition, all the interaction variables (PE*KI), (EE*KI), (SI*KI), (FC*KI), (HM*KI), (PV*KI) and (HA*KI) also do not show significant effect/influence to BI. Based on this, it can be stated that age (as a single indicator of KI), does not moderate the influence of PE, EE, SI, FC, HM, PV and HA on BI, but has the potential to become a moderating variable (homologiser moderation)

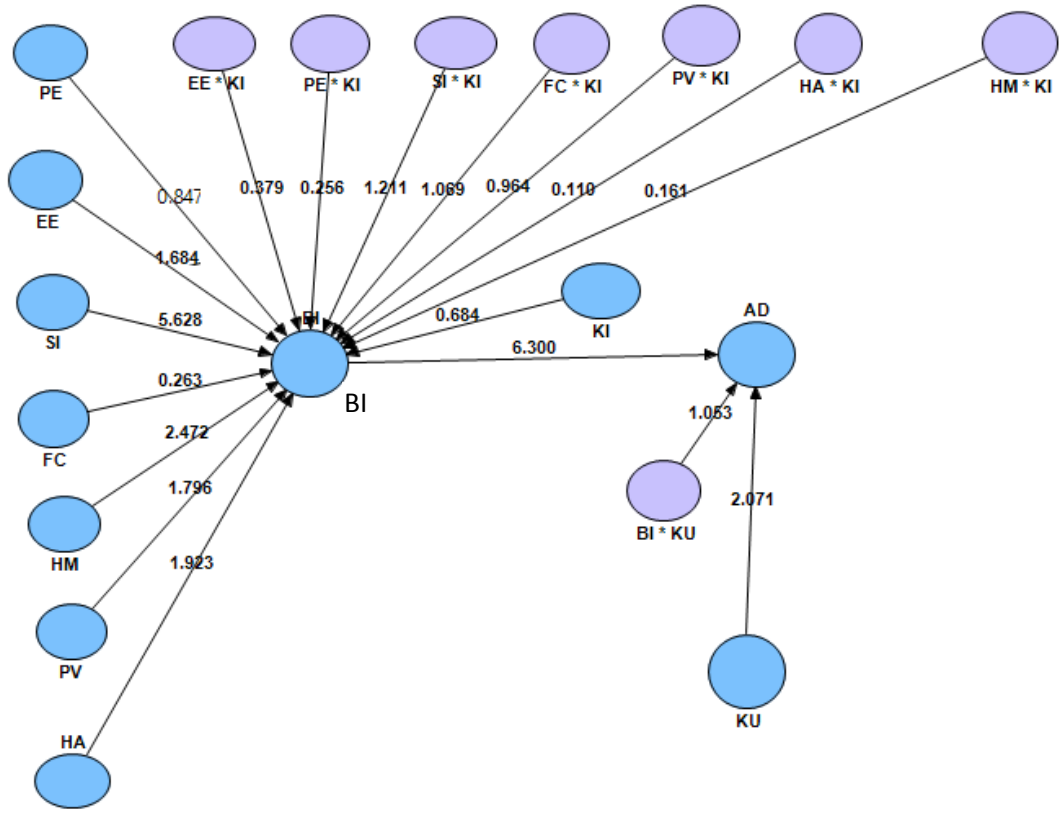

Figure 4. t-statistics of the model

Furthermore, the variable that moderates AD (ie business characteristic variables (KU) with two indicators, business capital (MO) and turnover (OM)) has a significant effect. Business capital and business turnover basically refers to the scale of business. Thus, the results of this study are in line with the results of research Dutta and Coury (2003,) and Irefin, Abdul-Azeez, and Tijani, (2012). The research has shown a negative relationship between business size and ICT adoption. Large businesses that possess adequate financial resources, maturity, knowledgeable employees and operation performance are likely to adopt ICT not Small enterprises that are still under nurturing. In order to get scale of economy, the more business size, the more intention business could adopt ICT.

However, its interaction variable (BI*KU) does not have a significant effect. In other words, KU as the variable is categorized as moderating predictor, moderating variable that only acts as predictor in the formed relationship model.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

IT adoption of MSMEs in Jambi City is still relatively low. More than a third of MSMEs have not used IT at all. About one third of them are still in 1st stage of IT adoption (internally oriented functional integration). On the contrary, only 1.89 percent of them have been at 5th stage of IT adoption (Business scope redefinition under influence of information technology).

Referring to the UTAUT2, there are five variables that influence behavioral intention of MSME actors related to the use of IT. Those are Effort Expectance (EE), Social Influence (SI), Hedonic Motivation (HM), Price Value (PV), and Habit (HA).

Behavioral intention also has a significant influence on the level of IT adoption in MSMEs (TA).

In terms of its moderating variable, individual characteristic (Age) doesn't moderate the influence of PE, EE, SI, FC, HM, PV, and HA on BI, but has the potential to be a moderating variable)

In the context of its moderating variable, individual characteristics (age) do not moderate the influence of PE, EE, SI, FC, HM, PV and HA on BI, but have the potential to be a moderating variable (homologiser moderation). Furthermore, the variable moderating TA (ie business characteristics) only acts as a predictor in the relationship model that is formed.

Recommendations

Behavioral intention significantly influences the phase of IT adoption in MSMEs. Therefore, it is necessary to intervence in enhancing the factors influencing behavioral intention of MSME actors in order to increase the usage of IT in MSMEs.

For further research, in the development of the model, other individual characteristics that can be assessed have to be explored and included in the model of factors influencing IT adoption in MSMEs that are more appropriate for Indonesia's conditions.

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Modeling the effects of health care expenditure and economic growth in Nigeria: An econometric analysis

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Abstract

Literature abounds that labor quality, in the form of human capital, clearly contributes significantly to productivity growth, but very few analysts have been interested to locate potential human capital growth outside education. Such interest will help ascertain the effectiveness of public health expenditure on health and the impact of good health to economic growth in Nigeria. This research empirically attempts to analyze health outcome and economic growth; proxied by life expectancy at birth and gross domestic product per-capita respectively using quantitative analysis. To avoid the possibility of encountering simultaneity error, we use the three stage -least -square (3SLS) regression to estimate the result. The result shows simultaneity between health outcome and economic growth. The results equally show that health expenditure is significant in determining health outcome but has no significant relationship with economic growth. As a recommendation government must increase budgetary allocation to the health sector and effectively monitor its utilization.

Keywords: *Economic growth, Life expectancy, Health outcome*.

JEL Classification: H51, H53, II8, O1, J24

INTRODUCTION

An increase in healthcare expenditure contributes to human capital development which also leads to increase in the productivity of labour. Although literature abound that labor quality, in the form of human capital, clearly contributes significantly to productivity growth, yet very few analyst have shown interest to locate potential human capital growth outside education. This practice has a tendency to overlook the need to consider health as a critical aspect of human capital, and therefore an important determinant of economic growth. Meanwhile the debate has not subsided as to the real outcome of health expenditure, as some researchers (Bokhari et al, 2007; Rajkyman & Swaroop, 2007) posit negative effect on economic growth.

Healthier workers are mentally sound and physically more energetic and robust. They are more productive and by implication earn higher wages, all things being equal. They are also less likely to be absent from work because of illness (Bloom et al 2004). Health, in the form of life expectancy, has appeared in many cross country growth regressions, and investigators generally find that it has a significant positive effect on the rate of economic growth (Bloom &Canning, 2000, 2003). It is worrisome that even with this background knowledge in third world countries little attention is paid to people's welfare in terms of health care maintenance (Eric Arthur and Hassan E. Oaikhenan,

2017). It is equally appalling that most of these countries in Africa spend enormous income in health tourism. Nigeria with a population of about 170 million people is a typical case to consider. The expenditure pattern of Nigeria shows that only paltry amount is budgeted for health care yearly. For example, in 1997, 4.6% of gross domestic product (GDP) is accounted to have been spent on healthcare. The figure rose to 6.6% in 2005 and later fell to 5.8 in 2009. Much of what is known about health care in Nigeria is the Out-of-pocket health expenditure otherwise known as pay at point of service. About 70% of Nigerians settle their health expenses through this process far above 20 percent maximum of the World Health Organization (WHO) (Ichoku et al,2009). Public financing of healthcare in Nigeria is inadequate. The foregoing may suggest that most governments in Africa and in particular Nigeria have not sufficiently understood the relationship among health, its outcome and economic growth (Jacob et al., 2018 and Olufunmilayo, 2018).

The neoclassical growth theory of Robert Solow (1956) and Swan (1956), perhaps may have lost intellectual appeal or rather could be said to be insufficient anymore in explaining the technological progress of the production function. It is the new growth theories - Lucas (1988) and Romer (1990), Mankiw et al (1992) etc., that have expanded and expounded the growth model to include knowledge capital, skills and experiences owned by labour. Thus growth became a function of human capital and not physical capital only. Regrettably, human capital development has necessarily been associated with the level of one's education and sparsely health. Most researchers see health as playing a passive role in human capital index, and therefore take a cursory view of it as an important component of Human Capital Development (HCD). However, recent studies -McCoskey (1998), Carrion-I-Silvestre (2005), and Narayan 2006) have found health as a significant factor to be included in a growth model. Health as human capital affects growth directly through, for example, its impact on labour productivity and the economic burden of illness Bloom and Canning (2003).

Empirically, research on the results of government spending on health is abounding though mixed (Barro, R. (1996), Hamoudi, A., & Sachs, J. (1999), Sachs, J., & Warner, A. (1997), but it is heavily skewed toward positive outcomes from increased public spending. Empirical findings such as: Kim Tae and Lane Shannon (2013) with data from 17 OECD countries between 1973 and 2000, found a statistically significant association between government health expenditure and public health outcomes and further findings show a negative relationship between government health expenditure and infant mortality rate, and a positive relationship between government health expenditure and life expectancy at birth.

Onisanwa (2014) for Nigeria, show that Health indicators have a long run impact on economic growth; Boussalem et al (2014) for Algeria, found there is a long-run causality from public spending on health to economic growth and no short run causality from public spending to economic growth. Bedir Serap (2016) found income level as the main factor in determining the level of healthcare expenditure. Other previous works on this include (see Bloom and Canning (2005); Narayan (2006); Huang (2009); Wang (2011) and Mehrara (2011). The few examples above may not suffice but it goes a long way to show that the effect of health on economic growth has not been settled empirically.

The main objective of this study is to include health in a well-specified aggregate production function in an attempt to determine the impact of healthcare expenditure on health outcome (Life expectancy) and determine the impact of health on economic growth (GDP per-capita) in Nigeria for the existence of an effect of health on labor productivity. We perceive a simultaneous equation problem (whether growth causes health or health

causes growth) because one of the endogenous problems may appear as an explanatory variable. Economic theory tells us if one or more variables are correlated with a disturbance term it becomes useful to apply a model of growth that will treat the simultaneity problem. Simultaneous equation model is best used when there is evidence of simultaneity among variables. This will help to check which one causes the other. On the basis of the above, ordinary least square (OLS) regression becomes insufficient and we therefore resort to the use of three-stage-least square (3SLS) regression. It becomes pertinent to measure the existing investment in health vis-a-vis its contribution to economic growth.

METHODOLOGY

We begin with the AK-model, which is an endogenous growth model, the model sums up physical and human capital accumulation into capital accumulation and does not make distinction between capital accumulation and technological progress. For this reason, there can never be disguised unemployment, i.e., marginal productivity cannot fall to zero. By the AK-model of the form: Y=AK, where Y=national income, K= stock of capital and A =constant returns to capital.

The econometric model approach employed by Nwanosike et al (2015) is adopted to analyze the inter-relationship between fiscal policy and economic growth in Nigeria based on their methodological relevance in explaining precisely, the growth effect on Nigerian economy. The adopted empirical studies models are formulated using the Solow growth theory which states that labour and capital affect economic output. The adopted econometric model is expressed as:

Y=F(H)

Thus, mathematically stated as:

$$Y = \alpha_0 + \alpha_1 H + \mu \qquad (1)$$

Where Y is health outcome, F is functional notation, a_0= intercept or constant; a_1= parameters or co-efficient of explanatory variables; and u = error term, H stands for health inputs. In line with economic theory, we added health expenditure, health policy and education into the health production function to determine their impact on life expectancy at birth. However, the empirical models adopted from the work of Bloom et al (2004) and Nwanosike et al (2015) is modified taking into consideration the main focus of this study, which is to determine the impact of healthcare expenditure on health outcome (Life expectancy) and determine the impact of health on economic growth (GDP per-capita) in Nigeria for the existence of an effect of health on labour productivity. Empirically, Anyanwu et al (2007) and Bakare et al (2011) have shown that health is affected by health expenditure, literacy rate and income per capita. Also Nwanosike et al (2015) used health production function to show the relationship between health outcome and health inputs.

Therefore, the empirical model for this study is specified as:

Model I: Impact of health expenditure on health outcome (life expectancy at birth)

$$\mathrm{Leb} = f(\mathrm{femedu}, \mathrm{gdppc}, \mathrm{ghe}, \mathrm{co2em}) \qquad (2)$$

The Mathematical form of the model:

$$\mathrm{leb}_t = \alpha_0 + \alpha_1 \mathrm{femedu}_t + \alpha_2 \mathrm{gdppc}_t + \alpha_3 \mathrm{ghe}_t + \alpha_4 \mathrm{co2em}_t \qquad (3)$$

Econometrically:

$leb_t = \alpha_0 + \alpha_1 ghe_t + \alpha_2 gdppe_t + \alpha_3 logfemedu_t + \alpha_4 co2em_t + v_{1t}$……..……….(4)

To take care of possibility of multi-colinearity, we take the log transformation of the variables. Thus:

$logleb_t = \alpha_0 + \alpha_1 logghe_t + \alpha_2 loggdppe_t + \alpha_3 logfemedu_t + \alpha_4 logco2em_t + v_{1t}$....(5)

Where: $logleb_t$ = log of life expectancy at birth, $logghe_t$= log of government health expenditure, $logfemedu_t$= log of female education, $loggdppc_t$= log of gross domestic product per-capita, $logco2em_t$= log of carbon-dioxide emission, α_0= constant, α_1, α_2,α_3 and α_4=structural parameters, v_{1t}= noise that takes care of other variable that could affect health that are not in the model.

Model II: Impact of health outcome on economic growth

$gdppc = f(ghe, leb, gfcf, lfpr)$…………………………….………………………(6)

mathematically:

$gdppc_t = \beta_0 + \beta_1 ghe_t + \beta_2 leb_t + \beta_3 gfcf_t + \beta_4 lfpr_t$…………......……………..……..(7)

Econometrically:

$gdppc_t = \beta_0 + \beta_1 ghe_t + \beta_2 leb_t + \beta_3 gfcf_t + \beta_4 lfpr_t + v_{2t}$………..…..…..…(8)

log transformation of the variables:

$loggdppc_t = \beta_0 + \beta_1 logghe_t + \beta_2 logleb_t + \beta_3 logfcf_t + \beta_4 loglfpr_t + v_{2t}$…….....(9)

where: $loggdppc_t$ = log of gross domestic product per-capita; $loggfcf_t$= log of gross fixed capital formation; $logleb_t$= log of life expectancy at birth; $logghe_t$= log of government health expenditure; $loglfpr_t$ = log of labour force participation rate; v_{2t}= white noise which takes care of other variables that are supposed to be in the model but are not. β_0=constant, β_1,β_2,β_3 and β_4 are the structural parameters.
Structural Form Model as below:

$logleb_t = \alpha_0 + \alpha_1 logghe_t + \alpha_2 loggdppc_t + \alpha_3 logfemedu_t + \alpha_4 logco2em_t + v_{1t}$ … … . ....(10)

$loggdppe_t = \beta_0 + \beta_1 logghe_t + \beta_2 logleb_t + \beta_3 logfcf_t + \beta_4 loglfpr_t + v_{2t}$……….(11)

Reduced Form Model

$logleb_t = z_{10} + z_{11} logghe_t + z_{12} logghe_t + z_{13} loggfcf_t + z_{14} logffpr_t + z_{15} logco2em_t + \varepsilon_{1t}$……... (12)

$loggdppc_t = z_{16} + z_{17} logghe_t + z_{18} logfemedu_t + z_{19} loggfcf_t + z_{20} loglfpr_t + z_{21} logco2m_t + \varepsilon_{2t}$……………………............................……………….(13)

The structural model has 10 parameters while the reduced form model has 12 parameters, thus it is over identified. Therefore three-stage-least-square (3SLS) estimation is appropriate for the study. A Priori Expectation: gdp>0, leb>0, ghe>0, gfcf>0,fem>0,lepr>0,C02<0**.**

Method of Data Analysis and Source of Data: Simultaneous equation model is best used when there is evidence of simultaneity among variables. This will help to check which one causes the other. Due to this, ordinary least square (OLS) regression becomes insufficient and we therefore resort to the use of three-stage-least square (3sls) regression. The 3SLS regression will give a result that is reliable for policy makers to fall back on. This is so as it will help to identify quickly if economic growth causes health or if health causes economic growth and whether policy makers should adopt policies to

improve health or to promote economic growth. The data for this study is obtained from secondary sources, particularly from Central Bank of Nigeria (CBN) publications such as the CBN Statistical Bulletin, CBN Economic and Financial Review Bulletin (2015) and data from World Bank economic indicator 2016.

FINDINGS AND ANALYSIS

Unit root test

Unit root test is a test conducted to check for the stationarity of time series variables. Stationary time series variables have mean and variance constant over the period. The null hypothesis is that there is no stationarity. But if the test-statistics is greater than the critical value in absolute terms we reject the null hypothesis. Table 1.1 below is the ADF unit root test. It shows that all the variables are stationary at first difference. That is, they are integrated of order one. The null hypothesis which is not supposed to be rejected if the critical value at 5 percent level was greater than the test-statistics is rejected.

Table 1. ADF unit root test result (1980-2015)

Variables	ADF test statistics (first difference)	Remarks (5% level of significance
GDPPC	-4.837	Stationary I(1)
LEB	-6.861	Stationary I(1)
FEMEDU	-9.328	Stationary I(1)
GHE	-6.154	Stationary I(1)
GFCF	-4.628	Stationary I(1)
CO2EM	-9.668	Stationary I(1)
LFPR	-3.974	Stationary I(1)

Source: author's computation from STATA 13

According to the result, we do not reject the hypothesis that there is stationarity, hence the ADF test statistics is greater than the critical value at 5% percent critical value.

Simultaneity test

According to the Hausman-specification test, the null hypothesis is that there is no simultaneity. If the coefficient of the residual is statistically significant we reject the null hypothesis of no simultaneity.

Table 2. Simultaneity Test

Variable	Coefficient	P-value
Residual	1.956711	0.004
R-Square	0.9681	
p-value of F-statistics	0.0000	

Source: STATA output; p-value in parenthesis

From the Table 2, the residual (resid) coefficient is statistically significant with a probability (0.000) less than 0.05. Thus we reject the null hypothesis of no simultaneity and proceed to use two-stage-least square as the most consistent and efficient estimator.

Regression result for life expectancy at birth

To achieve objective one which is to know the impact of health expenditure on health outcome, we ran the three-stage-least square regression. The result shows that 96 percent of health outcome (life expectancy at birth) is explained by the independent variables: gross domestic product per capital (GDPPC), female education (FEMEDU), public health expenditure (GHE) and carbon emission (CO2EM). This is as the

coefficient of determination is 0.9560. It also means that 4 percent of the life expectancy at birth is explained by other variables outside this model. The Chi2 probability is less than 0.05 this shows that the model of health outcome is statistically significant. Also GDPPC met the apriori expectation with a positive coefficient and it is statistically significant with a probability (0.000) less than 0.05 at 5 percent level of significance. This means that during the period covered by this research gross domestic product per capital had a significant impact on life expectancy at birth in Nigeria. This is in line with the findings of Onisanwa (2014). The value of the coefficient is 0.1142 which means that an increase in gross domestic product per-capital by one percent will increase life expectancy by 11.4 percent.

Table 3. Three-stage-least-square regression for life expectancy (LEB)

Variables	Coefficient	P-value
Log(GHE)	0.0058531	0.000
Log(GDPPC)	0.1142181	0.000
Log(FEMEDU)	0.2154653	0.301
Log(CO2EM)	-0.096328	0.323
R-Squared	0.9560	
P(Chi^2)	0.000	

Source: author's computation from STATA 13

Government health expenditure (GHE) follows the apriori expectations with the positive sign of the coefficient and it is significant with the probability (0.000) less than 0.05 at 5 percent level of significance. Thus public health expenditure impacted on life expectancy at birth in Nigeria during the period covered by this research. This is in line with the work of Anyawu et al (2007) and Bakare et al (2011), but against the work of Kim et al (2013). The coefficient value is 0.0058 that is an increase in health expenditure by one percent will increase life expectancy by 0.58 percent. This small percentage could be due to low health expenditure.

Female education (FEMEDU) coefficient is positive which is in line with the theoretical expectations. However it is statistically insignificant with probability value (0.301) more than 0.05 at 5 percent level of significance. This implies that female education had no significant impact on life expectancy in Nigeria throughout the period covered by this work. The coefficient is positive and equal to 0.2155 that is, an increase in female education by one percent will increase life expectancy by 22 percent.

Carbon emission (CO2EM) has a negative coefficient which is in line with the theoretical expectation. However, it is insignificant in determining life expectancy at birth. This might be related to the fact that Nigeria is not as industrialized as the developed world for carbon emission to affect the lives of its citizens. However, an increase in carbon emission by one unit will reduce life expectancy by 0.09 percent. Carbon emission had no impact on life expectancy at birth for the period covered by this work in Nigeria.

The 3SLS regression result for economic growth is presented in Table 4. From the result, the coefficient of determination is 0.9250. It means that 93 percent of economic growth is explained by life expectancy at births (LEB), government health expenditure (GHE), gross fixed capital formation (GFCF) and labour force participation rate (LFPR). The CHI^2 has a probability (0.0000) less than 0.05 at 5 percent level of significance; this means that the model of economic growth is statistically significant.

The coefficient of LEB is positive which is in line with the theoretical expectation. It is statistically significant with probability (0.000) less than 5 percent level of significance. This implies that life expectancy had an impact on per-capita GDP

in Nigeria over the period covered by this work. An increase in life expectancy by one unit will increase gross domestic product per-capita by 6.65 units.

Table 4. Regression result of per-capita GDP

Variables	Coefficient	P-value
LogLEB	6.65188	0.000
LogGHE	-0.326003	0.000
LogGFCF	0.0159897	0.342
LogLFPR	-0.8731544	0.291
R-Squared	0.9250	
P(Chi^2)	0.000	

Source: author's computation from STATA 13

Government health expenditure is statistically significant with probability (0.000) less than 0.05 and has a negative coefficient which does not follow the theoretical expectation. This implies that government health expenditure significantly impacted on per-capita GDP over the period covered by this work. The negative coefficient of -0.0326 implies that an increase in government expenditure by one unit reduces gross domestic product per-capita by 3.2 percent. And it could be possible that the negativity is caused by inequality in healthcare funding and corruption on the side of Nigerian government. This contradicts the work of Bakare et al (2011) who found a significant and positive relationship between health expenditure and economic growth.

Gross fixed capital formation coefficient is positive. This is in line with the theoretical expectation. But it is statistically insignificant to impact on gross domestic product person employed in Nigeria for the period under consideration. It is likely to be as a result of insufficient infrastructures and inefficient funding of capital project by Nigerian government. Thus a unit increase in gross fixed capital formation will increase gross domestic product by 1.6 percent.

Labour force participation rate coefficient is positive and it follows the apriori expectation, but it is statistically significant in determining gross domestic product per-capita in Nigeria as of the period covered by this work. However an increase in larbour force participation rate by one unit will increase per-capita GDP by 87 percent.

Summary of research findings

There is simultaneity between life expectancy at birth (leb) with gross domestic product per-capita. There is long and short run causality from life expectancy at birth and gross fixed capital formation to per-capita GDP. While there is only long run causality from government health expenditure and labour force participation rate to per-capita GDP, it follows the work of Beheshti et al (2008) who found only one long run relationship between health expenditure and economic growth in Iran. Further, there is long run causality from per-capita GDP, female education, and government health expenditure and carbon-dioxide emission to life expectancy at birth. This contradicts the work of Riman et al (2010).

Life expectancy has a positive and significant impact on economic growth in Nigeria. This can be observed by the significant nature of the variable as it has probability of 0.000 less than 0.05 level. Per-capita GDP has a positive and significant impact on health outcome in Nigeria, with a probability of 0.000 less than 0.05 at 5 percent level of significance. This is in line with the findings of Onisanwa (2014).

Health expenditure has a positive and significant impact on health outcome in Nigeria with the probability (0.000) less than 0.05 at 5 percent level of significance. This follows the works of Anyanwu et al (2009) and Bakare et al (2011), but against the

work of Kim et al (2013). Further, health expenditure has a negative and significant impact on economic growth in Nigeria, but can only exert long run causality to economic growth. This might be due to the fact that health expenditure are not properly channeled to the right source and as well as corruption in Nigeria. This is in line with the work of Eneji et al (2013) who found that government total health expenditure has a negative impact on gross domestic product. Female education is statistically insignificant with probability value of 0.323 more than 0.05 at 5 percent level of significance, however, an increase in female education by one percent will increase life expectancy rate by 22 percent.

CONCLUSION AND RECOMMENDATIONS

Conclusion

It is important to note that one of the objectives of this work is to determine the impact of health expenditure on health outcome, as well as ascertain the impact of health outcome on economic growth. The analyses show that health expenditure impacted on health outcome for the period covered and that it has a negative relationship with economic growth. Also, health outcome impacted on economic growth and vice versa. Therefore we conclude that there is bi-causality between economic growth and health outcome, arising from the presence of simultaneity. And that health expenditure has an impact on economic growth in Nigeria.

Recommendations

Nigeria should give more attention to improving health budget since good health is associated with productive capacity. Policy makers should focus on improvement of health if growth is to be sustained. Gas emission should be controlled further as it does not enhance health and growth

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APPENDIX

Apendix 1. Data for regression model

YEAR	LEB	FEMEDU	GDPPC	GHE	GFCF	CO2EM	LFPR
1980	45	43.493	1118.824	70000	36.23	13.7	55.64
1981	46	43.7	1080.717	80000	35.22	14.9	55.43
1982	46	43.588	1312.406	100000	31.95	15	55.81
1983	46	42.977	1603.407	80000	23	7	56.63
1984	46	43.035	1464.005	100000	14.22	5.6	56.56
1985	46	44.02	1398.523	130000	11.96	7.6	56.57
1986	46	44.289	1476.526	130000	15.15	8.6	56.45
1987	46	44.385	1312.593	40000	13.6	11.3	56.71
1988	46	42.413	1141.06	420000	11.87	11.2	56.74
1989	46	44.994	1195.211	580000	14.25	18.73	56.76
1990	46	43.194	1239.649	500000	40.12	19.61	56.964
1991	46	43.805	1362.265	620000	39.97	19.8	56.939
1992	46	44.118	1319.782	150000	38.97	18.3	56.898
1993	46	43.727	1292.471	3870000	38.77	17.9	56.845
1994	46	44.065	1286.834	2090000	44.97	16.9	56.78
1995	46	44.543	1266.518	3320000	40.4	15.27	56.704
1996	46	45.29	1231.511	3020000	29.82	26.21	56.601
1997	46	45.11	1261.141	3890000	35.22	26.56	56.478
1998	46	45	1264.512	4740000	38.33	28.51	56.333
1999	46	43.83	1266.779	16640000	36.39	26.92	56.164
2000	47	43.93	1241.287	15220000	35.33	16.97	55.968
2001	47	44.41	1274.931	24520000	41.34	14.1	55.732
2002	47	44.38	1297.931	40620000	6.33	13.9	55.458
2003	48	44.46	1313.375	33270000	7.94	13.93	55.14
2004	48	44.884	1412.904	34200000	12.99	19.13	54.774
2005	50	44.35	1841.611	55660000	44.44	17.51	54.911
2006	50	45.98	1856.225	62250000	39.8	21.87	55.054
2007	50	46.13	1956.689	81910000	63.43	23.4	55.203
2008	50	46.34	2035.831	98220000	89.9	21.49	55.353
2009	51	46.66	2106.743	90200000	89.24	23.54	55.502
2010	51	47.3	2193.445	99100000	120.27	21.96	55.646
2011	52	48.3698	2302.829	231800000	142.32	29.16	55.789
2012	52	48.36	2351.281	197900000	126.94	29	55.928
2013	52	48.7	2386.758	179990000	101.7	28.25	56.059
2014	52	49.21	2448.9	1959800000	17.24	29	56.181
2015	53	49.23	2535.068	2577720000	22.7	28	56.306

SOURCE: Authors compilation from the World Bank Development Indicator and Central Bank of Nigeria statistical bulletin.LEB= life expectancy at birth, FEMEDU=female education, GHE=government health expenditure, GFCF=gross fixed capital formation, CO2EM= carbon emission,LFPR=Lbour force participation rate.

Potential analysis of small and medium industries (SMIs) in Lima Puluh Kota Regency, West Sumatra

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Abstract

Small and Medium Industries (SMIs) play an important role in the industrial sector of the Lima Puluh Kota Regency, even though the growth rate has fluctuated in the last six years. The purpose of this study is to identify the potential of Small and Medium Industries (SMIs) Lima Puluh Kota Regency that have comparative and competitive advantages. The analytical methods are location quotient (LQ) and shift-share analysis. Using a variable value of industrial production based on Indonesian Standard Business Classification in five digits of industrial commodity was found, the basic organic chemical industry for raw materials for dyes and pigments, embroidery industry, wood container industry, garment industry of leather, industrial stone goods for home use stairs and displays, the gypsum industry, the components and equipment industry of two- and three-wheeled motorcycles, the soft drink industry and the coconut oil industry are industries that have a comparative as well as a competitive advantage. These industries are suggested to be lead industries in the development of Small and Medium Industries (SMIs) in Lima Puluh Kota Regency.

Keywords: *Small and medium industries (SMIs), Location quotient (LQ), Shift-share analysis, Comparative advantage, Competitive advantage*

JEL Classification: L25, L52

INTRODUCTION

In the economic development, the industrial sector is the leading sector that will encourage other sectors to develop. Various literature and empirical studies have proven this issue. The industrial sector processes natural resources into products that have higher added value. So that, with the advancement of the industrial sector, the total value added produced will be greater and have an impact on increasing regional economic growth. The development of the industrial sector will increase employment, reduce poverty and increase gross regional domestic product.

In 2011-2016, the economic growth rate of Lima Puluh Kota Regency on average slowed -0.17%. The lowest growth rate in 2015 was 5.56% (Figure 1). One effort that can be made to increase the acceleration of economic growth is by strengthening the industrial sector. According to Adrimas (2008), industrial development needed to support the acceleration of regional economic development is based on local resources and labor intensive. Furthermore, Permana, Marimin, & Suprayitno (2015) explained that in regions in developing countries, SMIs were the main driver of economic growth.

According to the industry grouping by the Indonesian Ministry of Industry, the industrial sector of Kabupaten Lima Puluh Kota belongs to the Small and Medium Industries group. In Figure 1, it is known that the growth rate of the industrial sector has fluctuated in the last six years. The average growth of the 2011-2016 industry is 5.15%, below the sectoral growth average of 5.96%. In terms of sectoral contribution, the industrial sector tends to decline with the average decline in 2011-2016 being -0.13% (Gross Regional Domestic Product based on constant price of 2010). The tendency to decrease the contribution of the industrial sector has occurred since 2002. This indicates a decline in the performance of the industrial sector (SMIs).

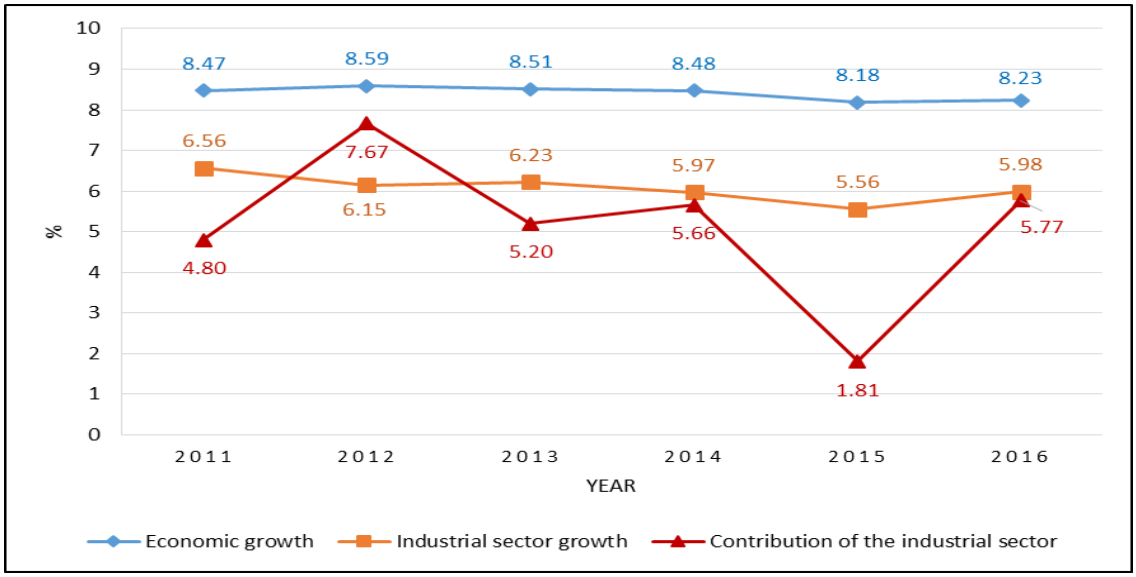

Figure 1. Economic growth rate, industrial sector and contribution of the industrial sector, Lima Puluh Kota Regency in 2011-2016

Source: Central Bureau of Statistics, Limapuluh Kota Regency, 2016-2017

Based on these problems, an analysis is needed to determine the potential of SMIs in Lima Puluh Kota Regency. Then, as a guideline in the development of the industrial sector based on Legislation Number 3/2014 concerning Industry. According to this legislation, the Regional Government needs to determine the leading industry in the region so that the development of the industrial sector is directed, consistent and can encourage economic growth. The direction of industrial development is outlined in the district/city industrial development plan. This plan is prepared by referring to the national industrial development master plan and national industrial policy. Furthermore, it must be based on the potential of regional industrial resources, provincial spatial plans, regional spatial plans, harmonious balance with socio-economic activities and environmental carrying capacity. So that, the purpose of this study is to identify small and medium industries (SMIs) that have comparative and competitive advantages that will be leading industries in Lima Puluh Kota Regency.

Sunaryanto (2006) in Permana, Marimin, & Suprayitno (2015), stated that the characteristics of SMIs are their ability to survive and easily enter the market and are easily out of the market (easy market entry and out of market). SMIs has a higher resistance when compared to large scale industries. The intended resilience is the ability of the SMIs to adapt to market conditions and unfavorable economic conditions. SMIs

is intensive labor, has a small scale of business and investment value, and utilizes local resources with simple processing techniques.

Government policy for empowerment of SMIs is outlined in Law Number 3/2014 section 72. The objectives to be achieved from SMIs are: (1) competitive of SMIs; (2) significant role in strengthening the structure of the national industry; (3) alleviating poverty through expanding employment opportunities; and (4) produce industrial goods and/ or services for export. In section 73, it is explained that in formulating the SMIs development policy, at least it refers to: regional industrial resources (local resources), strengthening and deepening the structure of the national industry and the development of national and global industries. Efficient utilization of local industry resources will enhance the comparative and competitive advantages of SMIs. So that SMIs developed into a highly competitive industry. Therefore, the formulation of appropriate policies for leading SMIs, strengthening institutional capacity and providing facilities are the strategies needed for the development of SMIs.

Tarigan, (2009) explained that comparative advantage was first put forward by David Ricardo (1917) in the theory of trade between countries (international). This theory was then applied to the regional economy. An area is said to have a comparative advantage if the role of a sector/commodity is greater than the role of the reference sector/commodity area. This means that these advantages are relative to the reference area. According to this theory the economy of a region is divided into two (2) main sector groups, namely the Base Sector (B) and the Non-Base Sector (S). The Base Sector is a sector that is the backbone of the regional economy because it has a relatively high comparative advantage. While the Non-Base Sector is other sectors which are less potential but function as supporting the Base Sector or Service Industries.

Douglas C. North (1956) in Sjafrizal (2014) explains that economic growth is determined by the amount of competitive advantage possessed by a region. If a region can encourage the growth of sectors that have competitive advantages as a basis for export activities, then the economic growth of the region concerned will increase rapidly. This theory is known as economic base theory. Competitive advantage according to Tarigan (2009) analyzes the ability of a region to market its products outside the region/overseas/global market. The difference with comparative advantage is that we do not compare the potential of the same commodity in one area with another. However, we compare the potential of a region's commodities to all other regional commodities in the global market.

Previous research related to this research was carried out by Pinem (2016). The research conducted a study in Binjai City to find a strategy for developing industrial estates through analysis of the leading sectors of Binjai City. This study uses the LQ method, Shift Share and SWOT to find the right industry to be developed in the City of Binjai according to its regional potential, then see its suitability with the Binjai City's Regional Spatial Plan about industrial sector development areas. From the research it was found that the potential sectors to be developed in Binjai City were the construction, finance and services sectors. So that the industrial policy directives that are set are not in accordance with the potential of the region.

The research conducted by Pradigda (2016) with the title "Strategic Planning for Regional Development Based on Regional Products, Study on the Office of Industry and Trade at Blitar Regency". This study aims to determine the priority superior products of Blitar Regency and its development strategies. In determining superior products through two stages, namely identification of superior processing sub-sectors

through shift share analysis, then identified superior products are based on the leading industry sub sector. The Analytical Hierarchy Process (AHP) method is used to determine priority superior products. The results of the study found that coconut shell craft as a superior product of Blitar Regency with its development strategy based on the SWOT matrix was an S-O strategy.

Research by Irmawati (2015) on Analysis of Leading Industries in Central Java Province by using processing industry data for 2007-2012. The purpose of this study was to identify the types of industries that are leading industries in Central Java Province. The analytical tools used are LQ analysis (Static LQ and Dynamic LQ) and Shift Share. The results showed that industries that were the leading industries in Central Java Province included the beverage industry, tobacco processing industry, textile industry, apparel industry, wood industry, printing industry, furniture industry, and other manufactur industries.

Bao-jin, Xing-peng, & Li-na (2010) research, entitled Industrial Structure Evolution and Economic Growth in Dingxi City Based on Shift-share Method and Location Quotient Analysis, used statistical data from 2004-2008. Shift-share and LQ Analysis are used to compare the economic development of regions in Dingxi City in 2004 and 2008. This study analyzes the advantages and disadvantages of industrial structure, competitiveness and the impact of existing industrial structures on economic growth. The finding is that industrial development focuses on primary, secondary and tertiary industries. The efforts put forward to accelerate the economic development of regions in Dingxi City, among others, increase input in the characteristics of agriculture, encourage the development of primary industries, accelerate the development of large and medium-sized industrial companies, enhance secondary industrial development, strengthen environmental improvements comprehensively in tourist areas, and actively developing tertiary industries.

METHODS

To identify SMIs which have comparative and competitive advantages in Lima Puluh Kota Regency by using LQ and shift share analysis. The variables that can be used are labor, value added, population, land area, production value, and regional income (Tan, 2010). In this study we use the production value variable of SMIs Lima Puluh Kota regency and West Sumatra Provinces in 2011-2016 based on the grouping of Indonesian Standard Business Classifications 2009. The industrial grouping data used is Indonesian Standard Business Classifications two digits and five digits of industrial, so that we can obtain leading SMIs at the level of the main groups and groups (commodities). The data used is secondary data obtained from the Department of Industry and Labor, Lima Puluh Kota Regency and the Office of Industry and Trade of West Sumatra Province.

Indonesian Standard Business Classifications 2009 is an Indonesian business field grouping adopted by the Central Statistics Bureau (BPS) based on International Standard Classification (ISIC Rev.4). The manufacturing industry in Indonesian Standard Business Classifications is included in category C. While the industrial grouping code based on Indonesian Standard Business Classifications 2009 is two digits can be seen in Table 3. The industrial data used is Indonesian Standard Business Classifications industry grouping two and five digits. From this analysis, the leading industries will be obtained according to the main groups and groups (commodities).

Table 1. Type of industry based on two digits Indonesian Standard Business Classifications 2009

Code	Industry	Code	Industry
10	Foods	22	Rubber, Rubber Products and Plastic Items
11	Drinks	23	Non-Metallic Mining Goods
12	Tobacco Manufacturing	24	Base metal
13	Textile	25	Metal Goods Not Machines and Equipment
14	Garment	26	Computers, Electronics and Optics
15	Leather, Leather Goods and Footwear	27	Electrical equipment
16	Wood, Wood Products (excluding furniture) and Cork, Woven Goods from Bamboo, Rattan and the like.	28	Machinery and Equipment
17	Paper and Paper Products	29	Motorized Vehicles, Trailers and Semi Trailers
18	Printing and Reproduction of Recording Media	30	Other Transport Equipment
19	Coal and Petroleum	31	Furniture
20	Chemicals and items from chemicals	32	Other Manufacturing
21	Pharmacy, Chemical and Traditional Medicine Products	33	Machine Repair and Installation Services

Source: Central Bureau of Statitics, 2009, Indonesian Standard Business Classification

Analysis of location quotient (LQ) is a method that compares the role of a sector in an area with the role of the sector at a broader level. In this case the area of the Lima Puluh Kota Regency and the Province of West Sumatra as a reference area. So that there will be an SMIs groups and commodities that has a comparative advantage relative to other regions (Sjafrizal, 2014). According to Tan (2010), the limitations of the LQ method are simple calculation techniques so that accurate data is needed to avoid seasonal and annual bias. For this reason, LQ analysis needs to be done in a time series so that the average LQ value is obtained. In this study, LQ analysis was conducted in time series for the SMIs in 2011-2016.

LQ values can be measured using the following formula:

$$LQ_{ij} = \frac{y_{ij} / \sum_i y_{ij}}{\sum_j Y_{ij} / \sum_i \sum_j Y_{ij}}$$

Where:

LQ_{ij} : Industrial LQ value in Lima Puluh Kota Regency
y_{ij} : production value of industry i, Lima Puluh Kota Regency
$\sum_i y_{ij}$: Total production value of industry i, Lima Puluh Kota Regency.
$\sum_j Y_{ij}$: production value of industry i, West Sumatra Province
$\sum_i \sum_j Y_{ij}$: Total production value of industry i, Province of West Sumatra

Provisions in the assessment of comparative advantage of LQ values are, if the value of LQ> 1 means that the portion of industrial production value in Lima Puluh Kota District to total industrial production in Lima Puluh Kota Regency is greater than the portion of production value for the same type of industry for the area of West Sumatra Province. This indicates that industry i is a base or industrial industry that has a comparative advantage (superior area). Whereas if LQ <1 means industry i is non-base or not a regional superior industry.

To measure the magnitude of competitive advantage, the shift-share analysis method is explained by Blair (1991) in Sjafrizal (2016) with the following formulations:

$$\Delta y_i = [y_i (Y^t / Y^o - 1)] + [y_i (Y_i^t / Y_i^o) - (Y^t / Y^o)] + [y_i (y_i^t / y_i^o) - (Y_i^t / Y_i^o)]$$

$$\Delta y_i = RS_i + PS_i + DS_i$$

Where:

Δy_i	:	Increase in value added sector i
y_i^o	:	Sector value added at the regional level at the beginning of the period
y_i^t	:	Value added of sector i at the regional level at the end of the period
Y_i^o	:	Value added sector i at the national level at the beginning of the period
Y_i^t	:	Value added sector i at the national level at the end of the period

The equation above shows that an increase in production or value added of a sector at the regional level can be decomposed on 3 parts:

1. *Regional Share (RS)*: $[y_i (Y^t/Y^o - 1)]$ is a component of regional economic growth caused by external factors, namely: increasing regional economic activities due to national policies that apply to all regions.
2. *Proportionality Shift (PS/ Mixed Shift)*: $[y_i (Y_i^t/Y_i^o) - (Y^t/Y^o)]$ is a component of regional economic growth caused by a good regional economic structure, which specializes in fast-growing sectors such as the industrial sector.
3. *Differential Shift (DS/ Competitive Shift)*: $[y_i(y_i/y_i^o) - (Y_i^t/Y_i^o)]$ is a component of regional economic growth due to competitive regional specific conditions. This element of growth is a regional competitive advantage that can drive the export growth of the region concerned.

The differential shift (DS) component in the shift share equation is the value used to determine the competitive advantage of the SMIs. Provisions in evaluating competitive advantage is if DS is positive, it is said that this SMIs is an industry that has a competitive advantage/competitiveness. If it is negative, it is said that this type of industry does not have competitive advantage. The negative differential shift, explains that industrial growth at the regional level is lower than the industrial growth at the national level.

RESULTS AND DISCUSSION

The results of the analysis with the Location Quotient (LQ) method on SMIs Lima Puluh Kota Regency using two digits Indonesian Standard Business Classifications are presented in Table 2. SMIs are spread across 20 industries in Lima Puluh Kota Regency. There are four industrial groups that have not grown, namely: (1) leather industry, leather goods and footwear; (2) pharmaceutical industries, chemical and traditional medicinal products; (3) basic metal industry, and (4) electrical equipment industry.

The results of the analysis show that the tobacco processing industry has the highest average LQ value, followed by the paper and paper products industry. Other industries that have a large LQ value of 1 in sequence are: (1) the food industry, (2) the motor vehicle industry, trailers and semi trailers, (3) the textile industry, (4) the wood industry, wood products and cork (excluding furniture), woven goods from bamboo, rattan and the like, (5) non-metal excavation industry, (6) industrial chemicals and goods from chemicals. Overall there are 8 types of industries with a large average LQ value of 1. This industry is considered to have a comparative advantage compared to

other industries. This means that the role of this industry in Lima Puluh Kota Regency are relatively larger than the same industry in West Sumatra Province. Factors that make these industries have comparative advantages, among others, are due to the natural conditions of the Lima Puluh Kota Regency, examples: industrial chemicals and goods from chemicals. Factors that make these industries have comparative advantages, among others, are due to the natural conditions of the Lima Puluh Kota Regency. Examples of chemicals. In addition, the textile industry and other handicraft industries are due to the special skills that the community has for generations.

While the other 12 industries with an average LQ<1, are interpreted as not having comparative advantages, namely: (1) drinks, (2) apparel, (3) printing and reproduction of recording media, (4) coal and petroleum, (5) rubber, articles of rubber and plastic, (6) metal goods not machinery and equipment, (7) machinery and equipment (8) other processing (9) computers, electronics and optics (10) other means of transportation (11) furniture, (12) machine-equipment repair and installation services. In 2015, the coal and petroleum industry had a LQ value of 1.55, but this industry only developed in 2015 so that the average LQ value was small than 1. The machinery and equipment industry in 2011-2013 also had LQ values> 1, but 2014-2016 has decreased so that the average LQ <1. This indicates that these industries still have the potential to have a comparative advantage in the future.

Table 2. LQ analysis result of SMIs 2011-2016

NO	Code	Year						LQ
		2011	2012	2013	2014	2015	2016	Average
1	10	1.57	1.72	1.62	3.47	4.08	3.59	2.67
2	11	0.52	0.75	0.90	0.38	0.55	0.58	0.61
3	12	18.23	22.21	23.61	9.17	15.97	16.96	17.69
4	13	1.76	1.88	2.28	1.74	2.03	2.02	1.95
5	14	0.40	0.47	0.45	0.37	0.29	0.26	0.37
6	15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	16	1.88	2.44	2.62	0.99	1.58	1.70	1.87
8	17	14.02	17.95	18.76	8.18	13.49	7.03	13.24
9	18	0.01	0.02	0.02	0.01	0.00	0.01	0.01
10	19	0.00	0.00	0.00	0.00	0.00	1.55	0.26
11	20	1.41	1.16	1.22	0.54	0.79	0.88	1.00
12	21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	22	0.39	0.50	0.54	0.23	0.01	0.01	0.28
14	23	2.27	2.50	0.92	0.44	1.58	0.41	1.35
15	24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	25	0.12	0.14	0.15	0.09	0.16	0.15	0.13
17	26	0.05	0.07	0.07	0.03	0.05	0.05	0.05
18	27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	28	1.14	2.03	2.17	0.03	0.04	0.04	0.91
20	29	2.20	2.79	2.63	1.02	1.58	1.62	1.97
21	30	0.76	0.47	0.45	0.19	0.26	0.29	0.41
22	31	0.36	0.54	0.57	0.24	0.37	0.39	0.41
23	32	0.99	0.38	0.38	0.17	0.23	0.55	0.45
24	33	0.34	0.39	0.40	0.14	0.20	0.24	0.29

Source: Department of Industry and Labor Lima Puluh Kota Regency and West Sumatra Provinces, data is processed by researchers, 2019.

The results of the analysis with the shift share method, shown in Table 3. In Table 3 also displayed the results of LQ method analysis, so that it can be seen the comparison

of the results of the analysis. There are 6 types of industries with positive differential shift values, namely: (1) food, (2) drinks, (3) textiles, (4) metal goods not machinery and equipment, (5) computer, electronic and optical computer industries, (6) furniture. By considering the differential shift value in shift share analysis, it can be analyzed whether the competitiveness of an industry. The value of a positive differential shift can be categorized as an industry that has a competitive advantage. While twenty other industries do not have competitive advantages. In Table 3, It is known that the food industry and the textile industry are industries that have comparative and competitive advantages. The results of the analysis show that these two industries have the potential to become the leading SMIs of Lima Puluh Kota Regency. This industry which has high competitiveness which will be able to accelerate to increase the gross regional domestic product.

Table 3. Comparison LQ and shift share analysis of SMIs at Lima Puluh Kota Regency in 2011-2016

NO	Code	Industry	LQ Average	Differential Shift (Rp.000)
1	10	Foods	2.67	307,410,825
2	11	Drinks	0.61	419,015
3	12	Tobacco Manufacturing	17.69	(41,699)
4	13	Textile	1.95	6,494,081
5	14	Garment	0.37	(3,382,897)
6	15	Leather, Leather Goods and Footwear	0.00	-
7	16	Wood, Wood Products (excluding furniture) and Cork, Woven Goods from Bamboo, Rattan and the like.	1.87	(2,981,548)
8	17	Paper and Paper Products	13.24	(264,213)
9	18	Printing and Reproduction of Recording Media	0.01	(1,260,815)
10	19	Coal and Petroleum	0.26	-
11	20	Chemicals and items from chemicals	1.00	(63,706,354)
12	21	Pharmacy, Chemical and Traditional Medicine Products	0.00	-
13	22	Rubber, Rubber Products and Plastic Items	0.28	(41,957,472)
14	23	Non-Metallic Mining Goods	1.35	(92,408,578)
15	24	Base metal	0.00	-
16	25	Metal Goods Not Machines and Equipment	0.13	374,393
17	26	Computers, Electronics and Optics	0.05	3,313
18	27	Electrical equipment	0.00	-
19	28	Machinery and Equipment	0.91	(3,992,514)
20	29	Motorized Vehicles, Trailers and Semi Trailers	1.97	(1,489,571)
21	30	Other Transport Equipment	0.41	(1,226,889)
22	31	Furniture	0.41	2,328,606
23	32	Other Manufacturing	0.45	(831,148)
24	33	Machine Repair and Installation Services	0.29	(579,894)

Source: Department of Industry and Labor Lima Puluh Kota Regency and West Sumatra Provinces, data is processed by researchers, 2019.

The results of processing using SMIs data based on five digits Indonesian Standard Business Classifications (by commodity) can be seen in Table 4. There are 68 SMIs as a whole, 52 SMIs groups have comparative and or competitive advantages, 16 SMIs do not have comparative and/or competitive advantages. There are 45 SMIs with an average value of LQ>1, 14 SMIs with positive differential shift (Ds) values, and 8 SMIs with an average LQ> 1 and positive Ds. SMis with the highest LQ average is, other water biota fumigation industry (19,18), basic organic chemical industry for dyestuff and pigment raw material (19,18), ready-made mortar or concrete industry (18,95), industry clove cigarettes (18,39), and the tobacco drying and processing industry (17,18).

Table 4. Leading SMIs of Lima Puluh Kota Regency

No	Code	Industry comodity	Average LQ	Differential Shift
1	10292	Other Water Biota Fumigation Industry	19.18	0.00
2	20116	Basic Organic Chemical for Raw Materials for Dyes and Pigments, Dyes and Pigments Industry	19.18	0.00
3	23957	Ready-to-use Mortar or Concrete Industry	18.95	(35,500.00)
4	12011	Cigarette Industry	18.39	0.00
5	12091	Tobacco Drying and Manufacturing	17.18	(41,479.07)
6	10779	Other Cooking Products Industry	16.92	(338,463.76)
7	23919	Fireproof Goods from Clay / Ceramics, Others Industry	16.53	(15,380.37)
8	16294	Rattan and Bamboo Wood Kitchen Tools Industry	15.04	(112,000.00)
9	20121	Natural / Non Synthetic Fertilizers Primary Macro Nutrients Industry	14.46	(1,202,181.11)
10	17099	Other industrial paper and board items which are not classified	13.47	(279,206.62)
11	16230	Wooden Containers	13.32	79,225.08
12	14112	Leather Clothing	12.99	81,061.83
13	30912	Components and Supplies of Two and Three Wheeled Motorcycle	12.53	597,938.36
14	32111	Jewel Industry	12.03	(2,181,650.00)
15	16293	Wood Carving Craft Not Mebeller	11.76	(1,737,751.10)
16	22123	Crumb Rubber	11.63	0.00
17	26210	Computer and / or computer assembly	11.56	(7,200,000.00)
18	23943	Gypsum	9.95	52,037.23
19	10611	Grain Cleaning and Grains	9.94	(19,228,729.45)
20	13112	Yarn Spinning	8.73	(9,595.68)
21	23963	Stone Goods for Household and Display Purposes	7.87	151,768.54
22	10399	Other Manufacturing and Preservation of Fruits and Vegetables	7.66	0.00
23	10520	Liquid Milk and Milk Powder Manufacturing	7.43	0.00
24	13121	Weaving Industry (Not Weaving Burlap Sacks and Other Sacks)	5.94	(2,176,900.01)
25	10722	Red Sugar Industry	5.61	(375,809.56)
26	10801	Animal Food Ration Industry	5.58	(9,574,977.40)
27	16221	Building Goods From Wood	5.27	(52,347,425.26)
28	23942	Limestone	5.09	(7,657,463.58)
29	32909	Other Manufacturing Not Classified Elsewhere	4.49	(1,604,977.04)
30	16292	Woven Industry From Non-Rattan and Bamboo Plants	3.62	(371,223.32)
31	13942	Rope Industry	3.33	(3,768.44)
32	10761	Coffee and Tea Manufacturing	3.33	(8,905,998.07)
33	10391	Soybean Tempe	3.09	(21,278,336.85)
34	10740	Macaroni, Noodle and Similar Products	2.79	(705,754.31)
35	10794	Crackers, Chips, Peyek and the like	2.42	(10,468,582.14)
36	10618	Manufacture Of Various Kinds Of Flour From Grains, Grains, Beans, Tubers, And The Like.	2.40	(89,319.58)
37	11040	Soft Drinks	2.33	904,468.17
38	23932	Manufacture of household appliances from clay / ceramics	2.14	(2,547.63)
39	29200	Four Wheel Or More Motorized Vehicle Body	2.09	(1,315,573.59)
40	13912	Embroidery	2.04	10,040,369.99
41	10710	Bread and Cake Products Industry	1.55	(3,750,282.04)
42	19292	Coal Briquette Industry	1.46	0.00
43	23921	Manufacture of Bricks From Clay / Ceramics	1.40	(94,404,710.41)
44	28210	Agriculture and Forestry Machinery Industry	1.33	(6,156,951.20)
45	10422	Coconut Oil Industry	1.17	71,870.15
46	25920	Industrial Services For Various Special Works On Metals And Goods From Metals	0.80	181,956.18
47	16299	Manufacture Of Wood, Rattan, Cork, And Other Non-Certified Products	0.70	53,572.38
48	25931	Industrial Cutlery and Hand Tools for Agriculture	0.53	301,223.91
49	31001	Wood Furniture Industry	0.42	2,329,828.22
50	11050	Industry of Drinking Water and Mineral Water	0.33	671,537.34
51	22299	Other Plastic Goods Industry Not Classified Elsewhere	0.10	31,113.77
52	25111	Manufacture of Non-Aluminum Metal Products Ready to Install for Buildings	0.04	61,017.13

Source: Department of Industry and Labor Lima Puluh Kota Regency and West Sumatra Provinces, data is processed by researchers, 2019.

The results of the LQ analysis show that 66% of the commodities SMIs in Lima Puluh Kota Regency have comparative advantages. The results of shift-share analysis, 21% of SMIs have a competitive advantage. So that overall 10% of SMIs have a comparative and competitive advantage. This is an indication that the industrial sector, especially SMIs, has the potential to develop more optimally. Industrial development is still at an early stage, where existing industrial commodities are in the form of one-step processed products after raw materials. To develop this industry, downstream industries are needed. Industries that are found to have advantages and have the potential to become large industries, must be made mapping of product development.

The basic organic chemical industry for raw materials for dyes and pigments with gambier commodities is a potential SMIs of Lima Puluh Kota Regency with the highest average LQ, but from data processing with the shift-share method has a differential shift value of zero (0). Based on data from the potential of the SMIs of West Sumatra Province, gambier producers in West Sumatra are only found in Lima Puluh Kota Regency. It can be concluded that the commodity gambier has an absolute advantage. The shift-share method cannot identify this through the differential shift value. Because the value of the differential shift is the difference in the growth of Regency commodities with the Province. If the growth is the same, then the differential shift value becomes zero (0). If the growth of SMI in the district is higher, then the differential shift value will be positive. And if the SMI growth in the Regency is lower, the differential shift value becomes negative.

Commodity from industrial organic raw material for raw materials for dyes and pigments is gambier. Gambier is in the district Kapur IX, Pangkalan Koto Baru, Lareh Sago Halaban, Harau, Mungka and Bukit Barisan. Gambier is the main export commodity of Lima Puluh Kota Regency, but still an upstream industry with very simple technology. The average number of business units in 2011-2016 is 4.298 business units, in the small industry category. The number of workers absorbed by the 2011-2016 average is 12,766 people. Production of gambier Lima Puluh Kota Regency is the largest in West Sumatra and Indonesia, with the number of production in 2016 is 8,096 tons. The commodity of gambier manufacturing industry is gambir mortar which is the raw material for dyes. The development of processed products from other gambir is gambir leaf tea. The development of gambir industry is very necessary, because this industry has the potential to become a big industry. Gambir manufacturing products can still be developed further through product development research. So that the added value of gambir products can increase to higher.

The production center of the embroidery industry is in the district Payakumbuh and Mungka. The commodity is embroidery material/fabric for clothing, headscarves and mukena. The average number of business units in 2011-2016 is 138 units. The number of workers absorbed 2,787 people. Embroidery industry in the form of small industries and medium industries. Other industries which have comparative and competitive advantages in the District of Lima Puluh Kota are spread over 13 districts, namely Harau, Payakumbuh, Situjuah Limo Nagari, Lareh Sago Halaban, Luak, Akabiluru, Guguak, Mungka, Suliki, Gunuang Omeh, Bukit Barisan, Pangkalan Koto Baru and Kapur IX. The number of business units of these industries is a small average of 20 business units with employment of 5-150 people. We can conclude that SMIs that has advantages in Lima Puluh Kota Regency have characteristics, are labor intensive, workforce with simple expertise, use simple technology, limited capital and use raw materials sourced from agricultural, plantation, forestry, mining products. Industries that

are developing are directed towards the agro industry. This is in accordance with the opinion of Tarigan (2009), comparative advantage can be owned by an area including due to natural factors and also the skills of the people who have been entrenched.

Determination of SMIs that will become a leading industries by choosing SMIs that has a comparative advantage as well as a competitive advantage. Other SMIs that only have comparative or competitive advantages, become potential IKMs which are the next priority. Based on analysis of LQ and shift-share, industries which are priorities in the development of SMIs in Lima Puluh Kota Regency are as follows:

1. Basic Organic Chemicals for Raw Materials for Dyes and Pigments Industry.
2. Embroidery Industry.
3. Wooden Containers Industry.
4. Leather Clothing Industry
5. Stone Goods for Household and Display Purposes Industry.
6. Gypsum Industry.
7. Components and Supplies of Two and Three Wheeled Motorcycle Industry.
8. Soft drink Industry.
9. Coconut Crude Oil Industry.

The leading SMIs from the results of LQ analysis and shift share can be used as a reference in determining priority SMIs in regional industrial planning policy making. This policy in addition to considering competitive and comparative advantages, also considers other aspects such as the sustainability of the availability of raw materials and environmental aspects.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

From LQ and shift share analysis, we have found there are 66% SMIs that have comparative advantages, 21% SMIs have competitive advantages and 10% SMIs have both. SMIs that have a comparative as well as competitive advantages are basic organic chemical industries for raw materials for dyes and pigments, embroidery industry, wood container industry, garment industry of leather, industrial stone goods for household use and displays, cast industry, component industry and two and three-wheeled motorcycle equipment, soft drink industry and coconut oil-eating industry.

Recommendations

Based on the results of this study, it is expected that the Lima Puluh Kota Regency as policy makers, to prioritize the development of SMIs that have comparative as well as competitive advantages by considering aspects of employment, availability of renewable raw materials and environmental aspects. To develop SMIs, downstreaming industries are needed because existing industrial commodities are in the form of one-step processed products after raw materials. Industries that are found to have advantages and have the potential to become large industries, must be made mapping of product development. Then, other SMIs that do not have comparative or competitive advantages remain driven through consistent policies and guidance, so that later they can grow into industries that have a comparative and competitive advantage.

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Rating of LQ-45 stock index performance credibility in Indonesia Stock Exchange

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Abstract.
This study aims to analyze stock performance credibility using the Capital Asset Pricing Model (CAPM) method, the Arbitrage Pricing Theory (APT) method, the Fama-French Three-Factor Model (FFTFM), and the 2013-2017 LQ-45 Stock Performance rating. The technique used for sampling is purposive sampling. The samples in this study are 23 companies. The results show that the CAPM model is more accurate in stock credibility assessment than the APT model and the FFTFM.

Keywords: *Capital Asset Pricing Model, Arbitrage Pricing Theory, Fama-French Three-Factor Model*

JEL Classification: G11, G12

INTRODUCTION

In emerging markets such as Indonesia, the company's credibility is very important, the majority of companies operating in the Indonesian stock market are more focused on the company's credibility and reputation. Biswas (2006) found that the company's reputation and credibility will positively encourages potential investors to believe and decide to invest in the company. Similarly, Sallam (2011) explained that the stock performance credibility has a positive impact on prospective investors' attitude towards promotional activities and self-image.

Du (2018) found that investors were very concerned about the credibility of stock performance, Du found strong evidence that there was no symmetrical relationship between the market and good and bad news. During the period, the study sample showed that investors were more pessimistic about bad news and doubled in believing in buying shares when situation on the stock market was in good condition. It shows that this study has a significant effect that in making stock purchase decisions, the credibility of stock performance is very important. In addition, investors are more interested in good news from national and international institutions.

According to Wijaya (2000), CAPM is a model to explain the expected return. Understanding Capital Asset Pricing Model (CAPM) is a pricing model of securities (assets) at risk in the assessment of risks usually ordinary shares are classified as risky investments. Own risk means the possibility of deviating from the actual acquisition of possibility, whereas the degree of risk is the sum of possible fluctuations (potential fluctuation).

According to Husnan (2016), APT basically uses the idea that two investment

opportunities have identical characteristics that cannot be sold at different prices. If the assets with the same characteristics are sold at different prices, then it will be possible to arbitrate by buying cheap assets at the same time selling at a higher price in order to obtain profit without risk. The Arbitrage Pricing Theory (APT) does not use any assumptions about the market portfolio. APT only says that certain factors influence a stock's profit level; the number could be more than one.

Researches on CAPM and APT continue to develop, and many researchers are still not satisfied with CAPM and APT results. Some researchers finally found that the Fama-French Three-Factor Model (FFFTFM) is a strong model and a high level of significance in assessing the level of return and risk of shares in a company's stock performance credibility. Fama and French used three factors, namely market (CAPM), size, and book-to-market ration (APT), to explain stock portfolio returns.

Based on previous research and supporting theories on CAPM, APT and FFTFM, the researchers are interested in combining these three methods to analyze credibility ratings in LQ-45 stock groups, as these leading stocks are selected stocks that meet certain criteria in terms of good liquidity, large market capacity value, high trading frequency, good growth prospects, and good financial conditions.

METHOD

Population and Sample

The population in this study is the LQ-45 company listed on the Indonesia Stock Exchange (IDX) during the period 2013-2017. Purposive sampling was carried out on the basis of the following criteria: 1) companies registered in LQ-45 on the Indonesia Stock Exchange (IDX) that have complete and reliable financial data of the truth in 2013-2017; 2) companies in LQ-45 whose shares were actively traded on the Indonesia Stock Exchange in 2013-2017; 3) companies in LQ-45 on the Indonesia Stock Exchange (IDX) that have complete data on variables for research in 2013-2017; 4) companies that remain consistent and have never been issued in LQ-45 in 2013-2017.

Types and data sources

The data used in this study are monthly data for 2013-2017 period that includes stock prices, Composite Stock Price Index (CSPI), inflation, SBI interest rates, rupiah exchange rates, and the amount of money in circulation (MI). Data is collected from the Indonesia Stock Exchange (IDX), Bank Indonesia, and Indonesia Capital Market Directory (ICMD).

Analysis tools

Comparative analytical models are used to find differences in the accuracy of the Capital Asset Pricing Model (CAPM), Arbitrage Pricing Theory (APT), Fama-French Three-Factor Model (FFTFM) in predicting the LQ-45 index's credibility. In this study, the analysis to be used involves the following steps:

a. Testing period for testing differences in the accuracy of the CAPM, APT, and FFTFM in predicting risk and return LQ-45.
b. Calculating stock LQ-45 companies' stock returns (actual returns).
c. Calculating market returns.-
d. Calculating Beta (β) using the formula of the market model that expresses the actual return with market return.

e. Capital Asset Pricing Model, with the equation (Lam, 2005)
$E(Rp) = Rf + \beta [(Rm) – Rf]$
In which:
Rp = Return Portofolio
Rf = Return Risk Free Asset
Rm = Return Market; and
β = Beta (volatility of share I towards premium)

f. Arbitrage Pricing Theory
To calculate the expected income securities in the APT model can be used formula as follows:
$E(Ri,t) = a_i + b_{i1}F_{1t} + b_{i2}F_{2t} + b_{i3}F_{3t} + b_{i4}F_{4t} + b_{i5}F_{5t} + b_{i6}F_{6t} + b_{i7}F_{7t} + e_{it}$
In which:
E(Ri,t) = The level of expected income securities i in period t
Ai = Constants
b_{ik} = Sensitivity of security income i to factor k in period t
F1 = Unexpected changes in inflation rates
F2 = Unexpected Exchange Rate of Rupiah against Dollar
F3 = Unexpected SBI Interest Rate Change
F4 = Unexpected level of circulating money
F5 = actual return
F6 = return market
F7 = return free risk
e_{it} = random error

g. Fama-French Three-Factor Model (Kampman, 2011)
$E(Ri) = Rf + \beta_3 [E(Rm)-Rf) + bsmb(SMB) + bhml(HML)$
In which:
E(Ri) = Expected return;
Rf = return risk free asset
E(Rm) = expected return market
β = Beta
bsmb = SMB coefficient
SMB = The portfolio return is made based on the size of a small company minus the size of a large company
bhml = HML coefficients
HML = Returns from portfolios made based on books to high market equity are calculated by books to low market equity.

h. Mean Absolute Deviation (MAD)
The mean absolute deviation is a value calculated by taking each prediction error's absolute number divided by the number of periods of data. MAD is available for CAPM, APT and FFTFM models

Variable definitions and measurements

The definitions and measurements of variables in this study are given in Table 1 as follows:

Table 1. Variable definitions and measurements

Variable	Definition and measurements
Stock Return (Ri)	difference in stock price i period t with stock price i in period t-1, divided by stock price i period t-1
Market Return (Rm)	difference in period I Composite Stock Price Index with Composite Stock Price Index i in period t-1, divided by period t-1 i Composite Stock Price Index
Risk Free Asset Return (Rf)	interest rate (SBI) for one month divided by twelve months
Unexpected changes in inflation rates	the difference in changes in the actual inflation rate with changes in the expected inflation rate
The level of the exchange rate of the Rupiah against the dollar is unexpected	the difference from the actual exchange rate of the Rupiah against the Dollar with the value of the exchange rate of the Rupiah against the Dollar in the expected period
Unexpected SBI Interest Rate Change	difference from changes in actual SBI interest rates and changes in expected SBI interest rates
Unexpected level of circulating money	the difference from the actual amount of money in circulation with the expected amount of money in circulation

RESULTS AND DISCUSSION

LQ-45 company stock return

Of the 23 LQ-45 companies that were analyzed, only four companies with an average stock return per month were negative. Most of the others (19 companies) have a positive average value of monthly stock returns..

Tabel 2. Average stock returns per month of LQ-45 companies in 2013-2017

No	Company	Code	Stock Returns
1	Astra Agro Lestari Tbk	AALI	0.0308
2	Adaro Energy Tbk	ADRO	0.0051
3	Akr Corporindo Tbk	AKRA	0.0108
4	Astra International Tbk	ASII	0.0011
5	Bank Central Asia Tbk	BBCA	0.0148
6	Bank Negara Indonesia (Persero) Tbk	BBNI	0.0178
7	Bank Rakyat Indonesia (Persero) Tbk	BBRI	0.0184
8	Bank Mandiri (Persero) Tbk	BMRI	0.0132
9	Bumi Serpong Damai Tbk	BSDE	0.0148
10	Gudang Garam Tbk	GGRM	0.0086
11	Indofood CBP Sukses Makmur Tbk	ICBP	0.0168
12	Indofood Sukses Makmur Tbk	INDF	0.0062
13	Indocement Tunggal Prakasa Tbk	INTP	0.0029
14	Jasa Marga (Persero) Tbk	JSMR	0.0007
15	Kalbe Farma Tbk	KLBF	0.0086
16	Lippo Karawaci Tbk	LPKR	-0.0053
17	PP London Sumatra Tbk	LSIP	-0.0018
18	Media Nusantara Citra Tbk	MNCN	-0.0017
19	Perusahaan Gas Negara (Persero) Tbk	PGAS	-0.0083
20	Tambang Batubara Bukit Asam (Persero) Tbk	PTBA	0.1568
21	Telekomunikasi Indonesia (Persero) Tbk	TLKM	0.0166
22	United Tractors Tbk	UNTR	0.0095
23	Unilever Indonesia Tbk	UNVR	0.0209
	Rata-rata		0.0155

Source: PT. Indonesia Stock Exchange, Data processed by author

The highest average stock return per month is Tambang Batubara Bukit Asam (Persero) Tbk (PTBA) which is equal to 0.1568 per month, whereas the lowest average return per month is shares of Perusahaan Gas Negara (Persero) Tbk (PGAS), namely 0.0083 per month.

Furthermore, average stock return per month of each LQ 45 company from 2013 to 2017 is positive at 0.0155. It means that investors responded positively to stocks in the capital market from 2013 to 2017, particularly LQ-45 shares.

Market return

The return market was highly fluctuating between 2013 and 2017. The highest return market was 17.43 per cent in January 2015, and the lowest return market per month was -12.15 per cent in February 2016. This high fluctuation of the return market shows that the average return of all IDX-listed companies fluctuates as well.

Table 3. Average market return per month of LQ-45 companies in 2013 - 2017

Month	Year				
	2013	2014	2015	2016	2017
January	0.0303	0.0289	0.1743	-0.1070	0.0008
February	0.0756	0.0483	0.0415	-0.1215	0.0126
March	0.0296	0.0390	0.0457	-0.2033	0.0332
April	0.0217	0.0092	-0.0671	-0.0987	0.0183
May	0.0096	0.0099	-0.0544	-0.0917	0.0061
June	-0.0465	-0.0045	-0.0359	-0.0022	0.0139
July	-0.0309	0.0433	-0.0787	0.0862	-0.0010
August	-0.0916	0.0118	-0.0843	0.1156	0.0019
September	0.0286	-0.0043	-0.1162	0.1076	0.0072
October	0.0454	-0.0115	-0.0065	0.1391	0.0149
November	-0.0485	0.0092	0.0508	0.1143	-0.0108
December	0.0012	0.0148	0.0340	0.1563	0.0499
Average	0.0020	0.0162	-0.0081	0.0162	0.0122
Standard Deviation	0.0475	0.0196	0.0813	0.1133	0.0163

Source: PT. Indonesia Stock Exchange, Data processed by author

Based on the average market return per month, it can be seen that the average market return of the lowest LQ-45 companies occurred in 2015, with a value of -0.0081. The highest average market return occurred in 2016 amounting to 0.0162. Nevertheless, market return fluctuations (seen from the standard deviation value) were also relatively high in that year compared to other years. The lowest monthly market return fluctuation occurred in 2014.

Systematic risk of LQ-45 shares

The risk of a stock against market risk can be measured by systematic risk. A stock's systematic risk measures the sensitivity of a security's profits in response to market profits movement.

From Table 4, it can be seen that almost all beta shares of LQ-45 sample companies are positive. Only five of the 23 companies had negative beta values, while 18 other companies had positive beta values.

The average of beta value was 0.0995. It means the relationship between the return market and the stock returns of each LQ-45 company were in the same direction. The highest beta stock was owned by Bank Rakyat Indonesia (Persero) Tbk's equivalent of 0.5543, meaning that Bank Rakyat Indonesia (Persero) Tbk's stock return

was most sensitive to the return market compared to other stock returns.

On the contrary, the lowest beta was owned by Tambang Batu Bara Bukit Asam (Persero) Tbk shares, which was -3,2130. This means that the relationship between the return market and the return of Bukit Asam (Persero) Tbk's shares was inversely proportional.

Table 4. Systematic Risk or Beta of LQ-45 Companies in 2013-2017

No	The name of the company	Code	*Beta*
1	Astra Agro Lestari Tbk	AALI	-0.0771
2	Adaro Energy Tbk	ADRO	0.1737
3	Akr Corporindo Tbk	AKRA	0.7442
4	Astra International Tbk	ASII	0.3193
5	Bank Central Asia Tbk	BBCA	0.3578
6	Bank Negara Indonesia (Persero) Tbk	BBNI	0.5029
7	Bank Rakyat Indonesia (Persero) Tbk	BBRI	0.5543
8	Bank Mandiri (Persero) Tbk	BMRI	0.5455
9	Bumi Serpong Damai Tbk	BSDE	0.4760
10	Gudang Garam Tbk	GGRM	-0.0466
11	Indofood CBP Sukses Makmur Tbk	ICBP	0.2028
12	Indofood Sukses Makmur Tbk	INDF	0.1090
13	Indocement Tunggal Prakasa Tbk	INTP	0.3189
14	Jasa Marga (Persero) Tbk	JSMR	0.1170
15	Kalbe Farma Tbk	KLBF	0.1620
16	Lippo Karawaci Tbk	LPKR	0.2186
17	PP London Sumatra Tbk	LSIP	-0.0945
18	Media Nusantara Citra Tbk	MNCN	0.1364
19	Perusahaan Gas Negara (Persero) Tbk	PGAS	0.2510
20	Tambang Batubara Bukit Asam (Persero) Tbk	PTBA	-3.2130
21	Telekomunikasi Indonesia (Persero) Tbk	TLKM	0.0797
22	United Tractors Tbk	UNTR	0.4730
23	Unilever Indonesia Tbk	UNVR	-0.0231
	Average		0.0995

Source: PT. Indonesia Stock Exchange, Data processed by author

Comparison of accuracy of CAPM, APT and FFTFM in analyzing performance ratings of LQ-45 shares.

Investment policymakers like the government, the private sector, investors, both institutions and individuals are very much in need of the ability to estimate the return of a security for many investment decisions. There are various methods to estimate the return of a security. Related to this, the results of CAPM, APT and FFTFM methods calculations in LQ45 companies are given in Table 1.

The average MAD CAPM model is 0.3666, the average MAD of the APT model is 0.3832, and the average MAD of the FFTFM model is 0.4046. This shows that the MAD CAPM model is the lowest in comparison with MAD APT and MA FFTFM. Thus, the CAPM model is more accurate than the APT model and FFTFM in predicting the credibility ratings of LQ-45 stocks in the 2013 to 2017 period.

The results of this study support the research of Bucher (2016), Kun, Kim, and Taejin (2016) and Akbar and Nguyen (2015), which suggested that the CAPM has advantages that investors can use for short-term calculations; easy to use because the data needed is easy to obtain and it does not take much time to get the results of the

stock return estimation.

CAPM provides the right prediction between the risk relationship of an asset and the level of expected return, although there is still disagreement or debate among academics and researchers. On the other hand, the CAPM shows that in historical relations there was no relationship between stock returns and market beta. One solution is therefore to develop a multivariable model; risk is assumed to be caused by a number of different factors. However, for several studies, CAPM is widely used and still has the correct accuracy widely used and still has the right accuracy.

Table 5. LQ-45 index performance in period 2013-2017

No	The name of the company	Code	Index Performance			MAD Index		
			CAPM	APT	FFTFM	CAPM	APT	FFTFM
1	Astra Agro Lestari Tbk	AALI	0.7116	0.7560	0.1451	0.7103	0.7547	0.1438
2	Adaro Energy Tbk	ADRO	0.1469	0.1260	0.3120	0.1467	0.1257	0.3117
3	Akr Corporindo Tbk	AKRA	0.5459	0.3322	0.2119	0.5455	0.3317	0.2114
4	Astra International Tbk	ASII	0.0381	0.1827	0.7965	0.0381	0.1827	0.7965
5	Bank Central Asia Tbk	BBCA	0.1872	0.6137	0.3012	0.1866	0.6131	0.3006
6	Bank Negara Indonesia (Persero) Tbk	BBNI	0.7397	0.3915	0.6780	0.7389	0.3907	0.6772
7	Bank Rakyat Indonesia (Persero) Tbk	BBRI	0.8394	0.1030	0.8970	0.8386	0.1022	0.8962
8	Bank Mandiri (Persero) Tbk	BMRI	0.1525	0.1879	0.6497	0.1519	0.1873	0.6491
9	Bumi Serpong Damai Tbk	BSDE	0.1906	0.7170	0.2972	0.1900	0.7164	0.2966
10	Gudang Garam Tbk	GGRM	0.0189	0.1487	0.3413	0.0185	0.1483	0.3409
11	Indofood CBP Sukses Makmur Tbk	ICBP	0.7104	0.1080	0.4960	0.7097	0.1073	0.4953
12	Indofood Sukses Makmur Tbk	INDF	0.3075	0.4989	0.2838	0.3072	0.4987	0.2835
13	Indocement Tunggal Prakasa Tbk	INTP	0.1661	0.7316	0.3571	0.1660	0.7315	0.3570
14	Jasa Marga (Persero) Tbk	JSMR	0.1224	0.6370	0.6276	0.1223	0.6370	0.6276
15	Kalbe Farma Tbk	KLBF	0.1125	0.3342	0.6224	0.1121	0.3338	0.6220
16	Lippo Karawaci Tbk	LPKR	0.9802	0.1908	0.1715	0.9805	0.1910	0.1717
17	PP London Sumatra Tbk	LSIP	0.9822	0.2737	0.1005	0.9823	0.2738	0.1006
18	Media Nusantara Citra Tbk	MNCN	0.8623	0.2888	0.1735	0.8624	0.2889	0.1736
19	Perusahaan Gas Negara (Persero) Tbk	PGAS	0.1156	0.3398	0.1144	0.1159	0.3402	0.1147
20	Tambang BatubaraBukit Asam (Persero) Tbk	PTBA	0.1076	0.2899	0.2220	0.1008	0.2831	0.2152
21	Telekomunikasi Indonesia (Persero) Tbk	TLKM	0.1391	0.1462	0.3278	0.1384	0.1455	0.3271
22	United Tractors Tbk	UNTR	0.1143	0.9789	0.3670	0.1139	0.9785	0.3666
23	Unilever Indonesia Tbk	UNVR	0.1563	0.4519	0.8760	0.1554	0.4510	0.8751
	Average					0.3666	0.3832	0.4067

Source: PT. Indonesia Stock Exchange, Data processed by author

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

When doing investments, investors will consider and choose high company stock returns. An analysis of the company's performance can predict the amount of stock returns to be obtained. The methods used in this study to evaluate company performance are CAPM, APT and FFTFM. Each of these methods shows a different level of accuracy.

The study concluded that the CAPM model is more accurate than APT and FFTFM in the credibility rating of the LQ-45 index performance for the period 2013 to 2017 in the Indonesia Stock Exchange.

Recommendations

It's suggested for investors that the simplest and easiest variable in considering a company's credibility rating is the CAPM model, using only the variables of the return and market and risk of the company. For further research, it is expected that other models can be used to assess stock performance credibility.

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Analysis of deposit savings in Islamic and conventional banks

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Abstract

Indonesia is a country that implements a dual banking system. The progress of the conventional financial industry coincides with the development of the Islamic financial sector. This study discusses the influence of external factors namely inflation, broad money (M2), BI rate and internal factors namely return on asset (ROA) and operational efficiency ratio (OER) on profit-sharing of Islamic banking deposits and conventional banking deposits interest. The method used in this study was the Error Correction Model (ECM). Based on the results of the study, it can be concluded that inflation and broad money (M2) affects the profit-sharing of deposits. Whereas the conventional bank deposit interest is influenced by ROA, OER, BI rate, inflation, and M2. The fluctuation of external and internal variables has an impact on Islamic banks and conventional banks in determining interest and profit-sharing of deposits.

Keywords: *ROA, OER, BI rate, inflation, broad money, deposits, profit sharing*

JEL Classification: G21, E51, E43

INTRODUCTION

Banks have an important role in fostering the economic growth of a country. All business sectors, including industry, trade, agriculture, plantation, services, housing, and so on, are in desperate need of banks as partners in developing their businesses (Ismail, 2011). However, the fall of the Indonesian banking industry in 1998, the lack of liquidity and the loss of public confidence in the banking sector resulted in a negative balance on the clearing accounts of these banks by the central bank of the Republic of Indonesia (Bank Indonesia/BI). Many people withdrew their money from their savings and caused these banks to have liquidity problems. To anticipate these conditions, the government provided liquidity assistance to banks experiencing liquidity issues and guaranteeing programs to the people's deposits.

Islamic commercial banks and conventional banks that opened sharia branches are developing. It was supported by the persistence of Islamic banks at a time where there was a severe crisis in the banking industry in 1998. The sharia banking system in the form of profit-sharing at the Muamalat Bank caused the bank to survive influence the soaring deposit rates so that operational costs are lower than conventional banks (Subekti, 2004).

The impact of the economic turmoil in 1998 is that the macro-economy was very influential on the development of the banking industry. Monetary policy is an integral part of the macroeconomic policy. Monetary policy is therefore created to support the achievement of macroeconomic objectives. As the monetary authority, Bank Indonesia had the task of regulating the funds allocated to circulate money and influencing the interest rate in such a way as to meet macro policy objectives (Iswardono, 1994).

Islamic banks can be considered as one financial industry. It has different markets for its main activities than conventional banking. This paper will look at the influence of economic growth, inflation, the money supply (M2), and the BI rate on Indonesia's banking development.

THEORETICAL FRAMEWORK

Influence of inflation on deposits interest and profit-sharing of deposits

High inflation is an economic problem, causing purchasing power (income) falls. People who have fixed income will continue to be harmed while those who do not have regular income sometimes get benefit from it. Thus, inflation can affect income distribution. Inflation is the connecting variable between the interest rate and the effective exchange rate, where both of these variables are important in determining growth in the production sector (Sukirno, 2011).

Sriyana (1995) stated that inflation is the most important factor causing a high level of public expenditure. So, if public expenditure increases without being balanced by the increasing income, the people's buying power will decrease. The government may need to control the inflation rate in the public interest.

H1: inflation has a negative effect on deposits interest and profit-sharing of deposits.

The influence of the broad money on deposits interest and profit-sharing of deposits

The money supply is a relatively new subject of study compared to the money demand. This condition was caused by the assumption that the central bank could directly determine the money supply so that other external factors could not influence it (Iswardono, 1999).

Antoni (2015) showed that all aggregate finance (narrow and broad money) was claiming positive trends. The financial sector fostered economic growth and the right interest rate was used as a basis for policymaking.

H2: the broad money has a negative effect on deposits interest and profit-sharing of deposits.

The influence of the BI rate on deposits interest and profit-sharing of deposits

The BI rate is an interest rate policy that reflects the monetary policy stance set by Bank Indonesia, the central bank of the Republic of Indonesia, and is announced to the public (www.bi.go.id). Board of Governors holds meetings every month and the policy is implemented by Indonesian banks through liquidity management on the money market to meet operational objectives of monetary policy. The operational objectives of monetary policy are reflected in the development of overnight interbank money market interest rate (PUAB o/n / *Pasar Uang Antar Bank* overnight). This movement in PUAB rates is expected to be followed by developments in deposit rates and in turn bank lending rates.

According to Andrianus (2006), interest rates influenced individual decisions about choosing to spend more money or save money in the form of savings. The interest rate itself is a price connecting the present with the future.

H3: BI rate has a positive effect on deposits interest and profit-sharing of deposits.

Effect of ROA on deposits interest and profit-sharing of deposits

The ratio is used to measure the ability of a bank's management to gain profit as a whole. The greater the ROA of a bank, the greater the bank's level of profit, and the better the position of the bank in terms of asset use. The ratio is as follows (Dendawijaya, 2001):

$$\text{ROA}=\frac{\text{net profit}}{\text{total assets}} \text{ x } 100\%$$

Arif (2014) stated that profitability ratios are measured by ROA. It means that if the bank has a high level of profitability, it will increase third-party funds. ROA is one of the large funds' determinants that will be deposited in Islamic banks.
H4: ROA has a positive effect on deposits interest and profit-sharing deposits.

Influence of OER on deposits interest and profit-sharing of deposits

According to Bank Indonesia (BI), operational efficiency ratio (OER) is used to measure the effectiveness of provisions. BI has determined that the OER's best rate is below 90%. If the OER ratio exceeds 90% to nearly 100%, it means that the bank is inefficient in carrying out its operations. Bank Indonesia Circular Letter No. 6/23/DPNP (2004) was formulating OER calculation as follows:

$$\text{OER} = \frac{\text{total operational cost}}{\text{operational income}} \text{ x } 100\%$$

According to Arif (2014), the higher the level of OER, the more inefficient the bank is in the operational cost, which means that the cost is greater than income from operations. This could be due to the fact that bank efficiency is a determinant of the customer's decision.
H5: OER has a negative effect on deposit interest and deposits profit-sharing.

RESEARCH METHODS

The objects of the study were Islamic banks and conventional banks in Indonesia. Data from Islamic banks and conventional banks were collected by the researcher and the data itself have been published by Bank Indonesia (BI), the Financial Services Authority (OJK), and the Central Statistics Agency (BPS).

The variables used in this study were return on asset, operational efficiency ratio, BI rate, inflation, and broad money (M2).

The data used are time series data for the period of 2008 – 2017. The method used for analyzing data was the Error Correction Model (ECM):

Islamic bank ECM model:

$$\Delta \text{DPS\_}S_t = \alpha_1 + \boldsymbol{\beta_1}(\boldsymbol{e_{t-1}}) + \sum_{i=0}^{m} \boldsymbol{\alpha_{1,i}}, \Delta \boldsymbol{IR_{t-1}} + \sum_{i=0}^{m} \mathbf{b_{1,i}}, \Delta \boldsymbol{M2_{t-1}} + \sum_{i=0}^{m} \mathbf{C_{1,i}}, \Delta \boldsymbol{INF_{t-1}} + \sum_{i=0}^{m} \mathbf{d_{1,i}}, \Delta \boldsymbol{ROA_{t-1}} + \sum_{i=0}^{m} \mathbf{e_{1,i}}, \Delta \boldsymbol{OER_{t-1}} + \boldsymbol{\varepsilon_{1t}}$$

Conventional bank ECM model:

$$\Delta \text{DI\_}K_t = \alpha_1 + \boldsymbol{\beta_1}(\boldsymbol{e_{t-1}}) + \sum_{i=0}^{m} \boldsymbol{\alpha_{1,i}}, \Delta \boldsymbol{IR_{t-1}} + \sum_{i=0}^{m} \mathbf{b_{1,i}}, \Delta \boldsymbol{M2_{t-1}} + \sum_{i=0}^{m} \mathbf{C_{1,i}}, \Delta \boldsymbol{INF_{t-1}} + \sum_{i=0}^{m} \mathbf{d_{1,i}}, \Delta \boldsymbol{ROA_{t-1}} + \sum_{i=0}^{m} \mathbf{e_{1,i}}, \Delta \boldsymbol{OER_{t-1}} + \boldsymbol{\varepsilon_{1t}}$$

IR : BI rate
INF : Inflation
M2 : Broad money
ROA : Return On Asset
OER : Operational efficiency ratio
DPS : Profit-sharing of deposits
DI : Deposits interest
$\beta_1 \sim \beta_5$: The level of adjustment of parameters, namely the adjustment factor for correction of long-term errors.
$\boldsymbol{e_{t-1}}$ **:** A pre-correction error requirement.
$\boldsymbol{\alpha_i \sim e_i}$ **:** Short-term dynamic adjustment factor.

m : Lag period for all variables
$\varepsilon_{1t} \sim \varepsilon_{5t}$: White noise.

RESULT AND DISCUSSION

Error Correction Model (ECM) is used as an econometrics tool calculation and descriptive analysis method aims to find the long-term and short-term effects resulting from the co-integration of variables. Before the estimation process, several steps must be carried out as follows:

Stationarity test

In order to obtain a stationarized data at the level of conventional banks and Islamic banks, namely the BI rate and OER, first difference test was conducted. It was due to some variables are not stationary. The result showed that the on the more negative variable from the critical point value of 5% and the p-value had a value smaller than 0.05, so H_0 was rejected. It can be concluded that the data were stationary (no root unit).

Co-integration

Co-integration test then was performed to find out whether there was a long-term relationship between the variables used in this study. The following tables are presented as co-integration results of the data used in this research using the Residual Based Test Method.

Table 1. Conventional bank co-integration test

Phillips-Perron Statistic Test		Adj. t-Stat	Prob.*
		-5.330976	0.0000
Test critical values	1% level	-3.486064	
	5% level	-2.885863	
	10% level	-2.579818	

Table 2. Islamic bank co-integration test

Phillips-Perron Statistic Test		Adj. t-Stat	Prob.*
		-8.091148	0.0000
Test critical values	1% level	-3.486064	
	5% level	-2.885863	
	10% level	-2.579818	

From Table 1 and Table 2, they were known significantly to co-integration over the long-term and short-term. It could be seen from the significance of the probability value that was smaller than test critical value 1%, 5%, and 10%. Moreover, t-statistic value was greater than Mackonnion Critical Value so that data was co-integrated.

Error Correction Model (ECM) test

The Table 3 shown by the model explained that it has a long-term and short-term relationship. Both in the long-term and short-term, ROA does not have a significant effect on the deposits interest of conventional banks. It can be seen from the probability value of ROA, in the long-term of 0.9427 and the short-term of 0.1401.

Both in the long-term and short-term, OER has a significant effect on the deposit interest of conventional Banks. This can be seen from the probability value of ROA, in the long-term of 0.0070 and the short-term of 0.000. In the long-term, OER has a positive effect, but in the short-term, OER has a negative effect on the deposit interest of conventional banks.

Table 3. ECM estimation results on conventional banks

Variable	Coefficient	Std. Error	t-Statistic	Prob.
		Long-term		
C	103725.2	53414.58	1.941889	0.0546
ROA	9.563573	132.6653	0.072088	0.9427
OER	-1475.125	537.1844	-2.746031	0.0070***
INF	8832.552	4157.057	2.124712	0.0358**
IR	0.012018	0.003213	3.740061	0.0003***
M2	-514697.2	195912.6	-2.627178	0.0098***
		Short-term		
C	1151.341	1970.670	0.584239	0.5602
D(ROA)	345.4523	232.4717	1.485997	0.1401
D(OER)	-2265.611	531.3309	-4.264030	0.0000***
D(INF)	3270.102	10652.98	0.306966	0.7594
D(IR)	-378008.2	286667.8	-1.318628	0.1900
D(M2)	-0.012826	0.003902	-3.286719	0.0014***
RES(-1)	-0.326343	0.068594	-4.757621	0.0000

***α 1% ; **α 5% ; *α 10%

In the long-term, INF has a significant positive effect, but in the short term, INF does not have a significant effect on the conventional bank deposit interest rates. This can be seen from the probability value of INF, in the long-term of 0.0358 and the short-term of 0.7594

In the long-term, IR has a significant positive effect, but in the short-term, IR does not have a significant effect on the conventional bank deposits interest rates. This can be seen from the probability value of IR, in the long-term of 0.0003 and the short-term of 0.1900.

Both in the long and short-term, M2 has a significant negative effect on the deposit interest of conventional Banks. This can be seen from the probability value of M2, in the long-term of 0.0098 and the short-term of 0.0014.

Table 4. Results of ECM estimates on Islamic banks

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Long-term				
C	-28340.66	36985.22	-0.766270	0.4451
ROA	-1983.668	5309.466	-0.373610	0.7094
OER	37.11357	326.9243	0.113523	0.9098
IR	-3161.872	2890.163	-1.094012	0.2763
INF	139405.0	137850.2	1.011279	0.3140
M2	0.038531	0.003003	12.83278	0.0000*
Short-term				
C	1665.865	538.5112	3.093464	0.0025
D(ROA)	434.7713	2349.658	0.185036	0.8535
D(OER)	-54.47244	83.48005	-0.652520	0.5154
D(INF)	1578.644	2854.441	0.553048	0.5813
D(IR)	29401.78	60578.89	0.485347	0.6284
D(M2)	-0.002103	0.001236	-1.701793	0.0916*
RES(-1)	-0.125705	0.033720	-3.727914	0.0003

*α 1% ; **α 5% ; ***α 10%

From the internal and external factors on the study, only broad money (M2) has a significant effect on profit-sharing of deposits in Islamic banks (Table 4). In the long-term, M2 has a positive effect. Conversely, in the short-term, M2 has a negative effect on profit-sharing of deposits in Islamic banks.

Discussions

The effect of inflation on the profit-sharing of deposits and deposit rates

Inflation does not affect the profit-sharing of deposits in Islamic banks, both long and short-term, while inflation has a positive long-term effect on conventional bank deposit rates. This research is supported by studies of Maulana (2017) and Effendi (2017) which stated that deposit rates respond positively to inflation. They stated that the ongoing inflation resulted in the increasing money supply in the economy, so banks raised their interest rates to attract the public making investment.

Inflation does not affect the profit-sharing of deposits; this finding is supported by Panorama's (2016) study which stated that savings do not affect inflation. In this condition, the withdrawal of Islamic banking savings funds is very possible in order to meet public consumption. Rare to overcome so that customers do not turn to conventional banks. So raising the profit-sharing rate makes the customer keep their money in Islamic banks.

High inflation is an economic problem causing the purchasing power (income) goes down. Individuals who earn a fixed income will be at a disadvantage while those who do not have a fixed income sometimes benefit. Thus, inflation can affect the income distribution. Inflation is the connecting variable between the interest rate and the effective exchange rate, where these two variables are important variables in determining growth in the production sector. Therefore, it is expected the role of the government to deal with rising inflation with the right policies immediately.

The central bank can carry out a discount policy by raising the interest rate. The goal is to encourage people to save money in the bank, so that both the money supply and the inflation rate can be reduced.

The effect of the broad money on the profit-sharing of deposits and deposit rates.

Broad money (M2) has a significant negative effect on the short-term and has a positive effect on long-term to deposit rates and profit-sharing of deposits. The finding of this research is similar to Panorama's (2016) study in which the money supply (M2) had a positive effect, meaning that if the money supply (M2) rises, it will result an increase in deposits. This finding is also supported by Sunaryati (2013), stating that the money supply had a negative and insignificant effect on the deposit sharing ratio.

The effect of BI rate on the profit-sharing of deposits in Islamic banks and conventional bank deposit rates

BI rate does not affect the profit-sharing of deposits in Islamic banks, both long and short-term, while the conventional bank deposit rates have a negative effect on the short-term and have no significant effect on the long-term. It is also supported by Panorama (2016) which stated that the BI rate did not significantly affect deposits. The increase of BI rate as the companion interest rate on commercial banks, both directly and indirectly, will impact Islamic banks' performance. The increase in BI rate will affect the interest rate, which will also be followed by the increase in deposit rates and lending rates in conventional banks. The rise in deposit rates will make the public prefer to save their money on the conventional banks than on the Islamic banks. This concept is different

from the Islamic banking system that uses a profit-sharing system on the use of funds by the borrower (either by the customer or the bank).

According to Prastowo's (2008) research, the increase in the BI rate had a positive and significant influence for banks by increasing deposit rates. This encouraged bank behavior in set deposit rates that follow the BI rate to maintain positive margins.

Banks want to maintain positive margins in interest rates funds and BI rate. The direction of monetary policy has not been fully responded by banks. This was reflected in continuing rises in deposit rates in the midst of the decline in the BI rate, among other things. This condition is expected to be a return on banking liquidity conditions.

The effect of ROA on profit-sharing of Islamic bank deposits and interest on conventional bank deposits

ROA does not affect the profit-sharing of Islamic banks deposits in the long and short-term. Furthermore, ROA also has no significant effect on deposits interest on conventional bank deposits, both in the long and short-term. Sudiyatno (2009) stated that ROA affected third-party funds. This condition would strengthen the perception of individuals to save their funds in the bank.

Effendi's research (2017) also supports the finding that ROA does not affect the profit-sharing of Islamic banks deposits. Deposits interest will decrease if ROA decreases because the profit or profitability of the bank is a bank's ability to make a profit. ROA shows a bank's ability to manage invested funds.

The effect of OER on profit-sharing of Islamic bank deposits and interest on conventional bank deposits

OER has a positive effect on the long-term and has a negative effect on short-term on conventional bank deposits interest while it does not affect the profit-sharing of Islamic banks deposits. This study supports the research of Wirawan (2016) that said OER had an effect on the deposits interest rate. In Islamic banks, this study supports the research of Andryani (2012) in which she stated that OER did not affect the profit-sharing of mudharabah deposits. Rahayu's research (2013) also stated that the OER variable did not affect the profit-sharing of deposits.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Deposit rates respond to the variables of ROA, OER, BI rate, inflation, and M2. It means that in the short and long-term, the deposit interest strongly responds to OER, the smaller the OER ratio means the more efficient the operating expenses incurred by the bank concerned thus reducing the likelihood of a bank in troubled condition. The decreasing OER will also increase bank income as well as affect conventional bank deposit interest rates.

Deposit interest responds to the M2 which means that the short-term M2 will raise deposit interest rates that will affect and increase the broad money (M2) in the community. It is also to increase the level of liquidity, so banks compete to get the maximum funds from the community by raising deposit rates.

Deposit rates will respond if the BI rate increases and decreases this will affect the level of banking liquidity. During the period of inflation, people have more money. The BI rate will affect the level of bank liquidity, such as the banking policy in determining the deposit interest rate. An increase in the deposit interest rate will result in people saving their money in banks. The turmoil of external and internal variables greatly affects Islamic

banks and conventional banks in determining interest and profit-sharing of deposits but it greatly affects conventional banks most.

Recommendations

In the context of the company's internal conditions, the company must increase efficiency in products, quality of human resources and technology level. The higher the level of these three aspects, the higher the return rate and the higher the level of trust in banks. It leads to high demand for investment in deposits and so forth.

External conditions are related to macroeconomic conditions, both social and political conditions. Government policies also influence investment decisions. Therefore, Bank Indonesia needs to keep taking a cautious stance in terms of prudential monetary and macro policies, taking into account of these external and internal factors.

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Determinant of the quality of the national financial audit report: study at National Auditor Board Jambi Province

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Abstract

This study aimed to examine the effect of training, experiences, gender, age and educational background possessed by the auditor on the quality of State Financial Audit results. This research used secondary data provided by Audit Board of the Republic of Indonesia Representative of Jambi Province in the form of 2016 and 2017 staffing data and Audit Reports. Multiple linear regression analysis was used for the analysis method. The study results found that the quality of the state financial audit was affected by experiences. However, the study failed to find the influences of age, education, and gender on the quality of state financial audit results. It provides empirical evidence that the auditor's ability to find and reveal findings has been influenced by experiences of the auditor.

Keywords: State financial audit, Training, Experiences, Gender, Education

JEL Classification: M42, M48

INTRODUCTION

Three packages of State Finance Laws, namely Law No. 17 Year 2003 on State Finance, Law No. 1 Year 2004 on State Treasury, and Law No. 15 Year 2004 on Examination of Management and Responsibility of State Finance, reinforced the position of the Audit Board as the only institution with the authority to carry out audits on the management and responsibility of state finance.

As a result, the role of Audit Board becomes more important and it can be seen from the strategic role of the Audit Board in resolving corruption cases as the concern of many parties. An Audit Board's investigative audit in 2009 revealed a state loss of 7.4 trillion in the case of Century Bank. Long before the case of Century Bank, an audit conducted by the Audit Board in 1999 even succeed in revealing the case of Bank Indonesia Liquidity Support/*Bantuan Likuiditas Bank Indonesia* (BLBI) which was detrimental to state finances amounting to 138.4 trillion (Pandoman, 2014).

In line with those successes, the audit reports of the Audit Board also have an important role in settling corruption cases. They are widely used as an initial source of information by law enforcement officials (Indonesian National Police, Corruption Eradication Commission/*Komisi Pemberantasan Korupsi* (KPK), and Public Prosecution Service of the Republic of Indonesia) in investigating corruption cases. Some cases that relied on the audit report of Audit Board as their initial source of information were case of official travel at Culture and Tourism Office of Jambi Province (Tempo, 2009) and case of misuse of grant funds of National Sports Committee of Indonesia (*Komite*

Olahraga Nasional Indonesia/KONI) of Bangka Regency, West Bangka, where the chairman was under arrest (Tribun Jateng, 2017).

The success of the Audit Board in revealing indications of corruption is inseparable from the auditor's ability to find and disclose as many as possible errors and fraud committed by the auditee in their audit reports. The role of detecting fraud is in fact the auditors' historical role (Rukmawati and Chariri, 2011; Irianto, 2003). Auditors are required to be able to reveal more fraud committed by the auditee.

Failure by auditor to disclose fraud will result in potential lawsuits from the public as the biggest stakeholders of the Audit Board's audit reports. Irianto (2003) stated that the huge number of lawsuits from users of financial information to auditors is due to the expectation gap related to the auditor's responsibility to detect fraud. Financial information users expect auditors to be able to detect and report fraud to the public, while auditors work based on audit standards which are sometimes not in line with public expectations.

Public believes that, in carrying out each task, the Audit Board must be able to disclose any fraud and disclose it in audit reports. On the other hand, auditors of Audit Board assume that their responsibility is to carry out auditing that refer to the SPKN (*Standar Pemeriksaan Keuangan Negara*)/State Financial Audit Standards. So, if they had conducted in accordance with SPKN, they assumed that their responsibilities were fulfilled regardless of whether or not there were findings related to state losses. Based on the explanation, it can be concluded that a good quality audit report is an audit report that is an accordance with the expectations of public, namely reports that disclose as many findings as possible related to errors and fraud committed by the auditee.

The existence of lawsuits affecting Audit Board auditors, however, raised public doubts. Some cases of lawsuits involvingauditors are the case of the KPK doing a sting operation or *Operasi Tangkap Tangan* (OTT) on Friday, May 26, 2017 at two locations, namely at Audit Board of Republic of Indonesia office and Ministry of Village, Development of Disadvantaged Regions and Transmigration/*Kementerian Desa, Pembangunan Daerah Tertinggal dan Transmigrasi* (Kemendes PDTT) office related to opinions to Kemendes PDTT (Detiknews, 2017), and other bribery cases that befell the West Java representative auditor relating to the provision of unqualified opinion for Bekasi City (tirto.id, 2017). The existence of potential lawsuits encourages auditors to be more careful in conducting audits and attempt to reveal errors and fraud committed by the auditee as much as possible.

Semester Audit Results II Year 2016 of Audit Board of Republic of Indonesia about the quality of Report on local government finances/*Laporan Keuangan Pemerintah Daerah* (LKPD) of provincial/regency/city governments in Jambi Province provided an overview of opinions of LKPD in 2012-2016 in Table 1.

The auditor's ability to find errors and fraud besides relied on his competence is also influenced by the auditee. Auditors will tend to find more errors and cheat from new auditee where their financial management is not as good as the auditee that has been established for quite a long time with good financial management. Jambi Province is a long-standing entity. The province consists of 12 entities, namely one province, two cities and nine regencies. The subjects of the research are auditors at Audit Board representative of Jambi Province office. Research on the quality of the results of state financial reports using the number of audit findings as a proxy for the quality of audit results has not been done much. The research conducted by Setyaningrum (2012) used the findings value as a proxy for the quality of Audit Board's AR, and also the study used independent variables in the form of auditor and auditee characteristics, and control variables in the form of the age of local government and the quality of previous year's audit reports.

Table 1. Opinions of LKPD Year 2012-2016 of provincial/regency/city governments in Jambi Province

Regency/City/Province	Year				
	2012	2013	2014	2015	2016
Batanghari Regency	WTP-PDP	WTP-PDP	WDP	WTP	WTP
Bungo Regency	WDP	WDP	WDP	WDP	WDP
Kerinci Regency	WDP	WDP	WTP-PDP	WTP	WTP
Merangin Regency	WDP	WDP	WDP	WDP	WTP
Muaro Jambi Regency	WTP	WTP	WDP	WDP	WTP
Sarolangun Regency	WDP	WDP	WDP	WDP	WTP
Tanjung Jabung Barat Regency	WDP	WDP	WDP	TMP	WTP
Tanjung Jabung Timur Regency	WTP-WDP	WTP-WDP	WDP	WDP	WDP
Tebo Regency	WDP	WDP	WDP	WTP	WTP
Jambi City	WDP	WDP	WDP	TMP	WTP
Sungai Penuh City	WTP	WDP	WTP-PDP	WTP	WTP
Jambi Province	WTP-PDP	WTP-PDP	WTP-PDP	WDP	WTP

Source: Semester Audit Results Summary (IHPS) I Year 2017 of Audit Board of Republic of Indonesia

The characteristics of auditors consist of educational backgrounds that are measured based on the education level of the team leader, professional skills measured based on the years of service of the team leader, and continuing education measured by the number of trainings attended by the team leader. The auditee characteristics consist of the size of the local government as measured by the total assets, the complexity of local government as a dummy variable, previous year's audit quality measured by the value of previous year's findings divided by previous year's asset, as well as the age of the local government since the issuance of legislation establishing the local government.

The research conducted by Setyaningrum (2012) found that auditor characteristics and auditee characteristics simultaneously affected audit quality but partially the characteristics of auditors consisting of educational backgrounds, professional skills, and continuing professional education did not significantly influence audit quality, whereas for auditee characteristics, only the size of local government was proven to negatively affect audit quality.

Based on the explanation above, the author is interested on conducting research on determinants of the quality of the national financial audit report. This study took cases at the National Auditor Board Jambi Province.

METHODS

Primary data for this study are from Audit Board of the Republic of Indonesia Representative of Jambi Province. The population in this study is all the auditors in Audit Board of the Republic of Indonesia Representative of Jambi Province, as many as 51 people. The entire population is determined as a sample of study (saturation sampling)

Data were analyzed descriptively to describe and summarize the important things from the data. To analyze the determinants of the quality of the national financial audit reports, the OLS regression model is used with the following equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon_i$$

where:
Y = quality of report
X1 = age
X2 = level of education
X3 = gender
X4 = experiences

The definition and the measurement of varibles as given as Table 2

Table 2. Characteristics of respondents

Code of variable	Name of variable	Measurement
Y	Quality of audits	Number of audit findings by auditor over the past two years (2016-2017)
X1	Age	Age of auditor at the time of study (in years)
X2	Education	Latest level of formal education of auditor, categorized and measured by 1=Diploma 3 (D3), 2=Diploma 4 (D4), 3=Strata 1 (S1), and 4=Strata 2 (S2)
X3	Gender	The gender of auditor, 0=female and 1=male
X4	Experiences	Length of years of service as auditor (in years)

RESULTS AND DISCUSSION

Characteristics of auditors

The characteristics of the active auditors with examiner-functional status at the Audit Board Representative of Jambi Province are given in Table 3. The proportion of auditors at Audit Board representative of Jambi Province based on gender was relatively balanced. Of the total, 54.9% were men and 45.1% were women. Based on the age, it showed that most of auditors (50.98%) were between 31-40 years old.

Table 3. Characteristics of respondents

Characteristics	**Frequency**	**Percentage (%)**
Gender		
Male	28	54.9
Female	23	45.1
Total	51	100.00
Age		
20-30	15	29.41
31-40	26	50.98
41-50	9	17.65
51-60	1	1.96
Total	51	100.00
Years of service		
11 - 20	48	94.12
21 - 30	2	3.92
31 - 40	1	1.96
Total	51	100.00
Level of education		
Diploma 3 degrees (D-3)	4	7.84
Diploma 4 degrees (D-4)	2	3.92
Bachelor degrees (Strata-1)	35	68.63
Master degrees (Strata-2)	10	19.61
Total	51	100.00
Position		
Middle auditor	2	3.92
Junior auditor	20	39.22
First auditor	29	56.86
Total	51	100.00

Based on work experience, 94.12% of the total auditor had been in their 11th to 20th year of service, 3.92% were in their 21st to 30th year of service, and 1.96% was in between his/her 31st and 40th year of service.

Based on the level of education, most of auditors (68,63%) had S1 as their highest level of education. Furthermore, 19.61% had a master's degree (S2), 7.84% had D3 degree, and 3.92% had D4 degree. Education major of auditors based on data of staffs from Audit Board, as follows: 56.45% were majoring in Accounting, 11.29% were majoring in Law, 9.68% were majoring in Engineering, 9.68% auditors were majoring in Management (9.68%) and others were majoring in Public Policy, Taxation, Administration, Computers, and even Agriculture as many as 12.90%.

Most of active auditors with examiner-functional status in Audit Board representative of Jambi Province were first auditor/*Pemeriksa Pertama* of 56.86% auditors, 39.22% auditors are junior auditor/*Pemeriksa Muda*, and 3.92% auditors are middle auditor/*Pemeriksa Madya*.

The quality of the audit report

The quality of the audit report was measured by the number of audit findings over the past two years. During 2016, Audit Board representative of Jambi Province generated 17 audit reports with a total of 83 findings. The report was based on the results of the audits of the government of Jambi Province and eight regencies/cities in Jambi Province.

During 2017, Audit Board representative of Jambi Province generated 12 reports with a total of 115 findings. The report was based on the results of audits of the government of Jambi Province and nine regencies/cities in Jambi Province, and also PDAM Tirta Mayang Jambi City.

Based on the results, it shows that there was a decrease in the number of agencies that were audited and the audit reports between 2016 and 2017. However, during those two years, there was an increase of audit findings. List of entities and reports on audit results are given in detail in Appendix 1 and Appendix 2.

Determinant of the quality of the national financial audit report

Model estimation of determinants of the quality of the national financial audit reports are given in Table 4 and 5. Table 4 shows the results of the ANOVA with a calculated F value of 56.89. It can be concluded that the regression model can be used to predict audit quality. Also, it can be said that all variables (experience, gender, age, and education) influence the quality of the audit of Audit Board representative of Jambi Province.

Table 4. ANOVA and coefficient of determination

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	37.124	4	9.281	56.896	.000[b]
Residual	7.504	46	.163		
Total	44.627	50			
R = 0.912		Adjusted R Square = 0.817			
R Square = 0.832		Std. Error of the Estimate = 0.40388			

The coefficient of determination basically measures how far the ability of the model to explain the variation of dependent variables (Gozali, 2011). It can be seen that the adjusted R square value is 0.832, which means that 83.2% of the variation in audit quality that can be explained by independent variables, namely age, education, gender and experience, whereas 16.8% of the variation is explained by other reasons outside the research model. The Standard Error Estimate (SEE) is 40.3%, the smaller the SEE value will make the regression model more precise in predicting the dependent variable.

Partially, the result seen in Table 5. Of the four independent variables that are included in the regression model, experiences have influence, whereas education, gender, and age have no influence.

Table 5. Regression estimation result

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1,402	,521		2,691	,010
Age	,022	,020	,149	1,070	,290
Education	-,059	,081	-,047	-,726	,472
Gender	-,187	,115	-,099	-1,623	,111
Experiences	,126	,022	,792	5,740	,000

Quality of audit can be achieved by fulfilling the competences of auditors realized through age and experience in conducting audits. Educated auditors and gender have an influence in generating audit that are needed and have an impact on improving audit quality.

Effect of age on audit quality

Age of auditor does not affect the quality of the audit reports. The results of this study are inconsistent with the research conducted by Widiarta (2013), who found that age affects the quality of audit reports. Widiarta (2013) explained that age is a factor in individual level that influences the professionalism of auditors. An auditor of the Audit Board (BPK) is required to be always professional when carrying out his/her duties. This is in line with the State Financial Audit Standards (SPKN) which obliges auditors to maintain their integrity, objectivity, independence, and professionalism in conducting audit. Ideally, their professionalism also improves as the age of a person increases. All auditors, both junior auditors and senior auditors, are bound by this professionalism.

On the other hand, professionalism is often associated with auditor compliance with audit standards in carrying out audits. The auditor's ability to disclose a finding is not only obtained through its compliance with audit standards. Moreover, the ability to disclose findings depends more on how the auditor can think creatively and develop alternative audit procedures to be able to detect possible fraud committed by the auditee.

Furthermore, Wirosari and Fanani (2017) explained that the older the auditor, the more conservative in obtaining evidence to reduce risk to a lower level, in other words, the procedure and sampling are more to prove the truth of the financial statements prepared by management so the degree of confidence in the opinion issued is greater.

Effect of education on audit quality

Educational background of auditor does not affect the quality of the audit reports. The results of this study in line with the research of Setyaningum (2012) which found that the level of education or educational background did not influence the quality of the audit reports. In contrast to the findings of this study, the auditor's educational background influences the auditor's ability to find and disclose errors and fraud.

Johnie (1993) explained that education is one of the competency requirements to fulfill the basic qualifications as an auditor, which is also the main consideration in this study for linking the influence of education on risk behavior in relation to audit risk on the entity's financial statements. Education should directly or indirectly influence the mindset and tendency of auditors in dealing with audit risk. According to the researcher, there are differences in the ability to find and disclose findings between auditors with level of education of Diploma 3, Diploma 4, Bachelor (Strata 1) and Strata 2.

Based on an interview with the Head of the Audit Board Representative of Jambi

Province, Mr. Parna, one of the requirements of an auditor these days is having a minimum of Bachelor's degree. However, employees who are accepted to work at Audit Board must attend basic trainings as an auditor. The basic trainings are divided into two, namely education for expert auditor for undergraduates and education for skilled auditor for diploma 3 graduates. Both trainings are intended to conform the auditor's knowledge about the concept of audit learned in college to the actual audit practices to be conducted when they works at Audit Board. By having these two basic trainings, both auditors have the same knowledge regarding audit practices.

Effects of gender on audit quality

Gender have no influences the quality of audit reports. The results of this study are not in line with the research of Sabrina and Januarti (2012) which concluded that gender affects the audit opinions. The characteristics of female and male auditors lied in their ability to process information. Meyers and Levy (1989) in the study of Sabrina and Januarti (2011) explained that the development of a theoretical framework called the selectivity hypothesis assumed men will be better than women in making decisions or judgments. Decisions in this case will affect the opinions that will be given.

If it is associated with the time of completion of tasks, men will be much faster in carrying out simple tasks because the heuristic processing strategies used by men can be used more quickly when compared to the elaborative processing strategies used by women. Women tend to be more efficient when facing complex tasks because women are more trained in using elaborative strategies than men who rarely use these strategies.

In addition, Riley & Chow (1992) and Jayathilake (2013) found that the behavior of avoiding risk would be lower in men compared to women. Furthermore, men have more intention in confronting something challenging or sensation making so that men will consequently tend to like risks, which will be inversely proportional to women that avoid risks more than man.

Effects of experience on audit quality

Experience have affected the quality of audit reports. The results of this study in line with Sukriyah and Inapty research (2009), but are not in line with the results of Setyaningrum's research (2012). Audit experience is not only based on year of service, knowledge regarding audit can also be obtained during an audit task. It includes on how the auditor communicates with the auditee, how an auditor plans alternative audit procedures to find fraud and errors, and how the auditor performs audit procedures effectively and efficiently, and so on. Knowledge of these matters will only be obtained by the auditor through a series of audit assignments. Through its audit assignments, an auditor can learn from senior auditors on how to find errors and fraud.

Once novice auditors find out how senior auditors find errors or frauds through certain audit procedures, they could use similar audit procedures on other audit entities and attempt to find the same errors or frauds. So, the more audit tasks done by an auditor, the more knowledge the auditor obtained about how errors and fraud occur and which audit procedures can be applied to detect such errors and fraud. Broader knowledge will improve the auditor's ability to find and disclose errors and fraud in his findings.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the results of this study, it can be concluded that the factor that influence the quality of the results of state financial audit is experiences. The results of this study did not succeed in finding the influence of age, education, and gender on the quality of the state financial audit reports. The most uninfluential factor in the quality of the state

financial audit reports is education, and then it is followed by age. This provides empirical evidence that the auditor's ability to find and reveal findings is influenced by experiences of the auditor.

Recommendations

First, further researches are expected to use other variables such as auditee characteristics (such as government size) and independence to be more comprehensive so that the results of the study are able to generalize the factors that influence the quality of the audit reports of Audit Board of the Republic of Indonesia. Measurement of educational background as a variable in this study used ordinal scale. Second, we recommend that interval scales and ratio scales in future studies can be considered for different research results. Third, the object of further research is better carried out for all active auditors with examiner-functional status who work in all representative offices in Indonesia using cross section data, so that research data is more varied and the results of adjusted R can be higher.

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APPENDIX

Appendix 1. List of entities and 2016 audit reports

No.	Entity	Total	Audit Reports
1	Jambi Province	1	Management and Accountability of Employee Expenditures and Goods Expenditures for Year 2016 of Provincial Government in Jambi
		1	Management and Accountability of Capital Expenditures Year 2016 of Provincial Government in Jambi
		1	Management of Local Government Governance Effectiveness in Fostering BUMD (Regional-Owned Business Entities) Year 2011-2016 of Provincial Government in Jambi
		1	Effectiveness of Local Government Governance in Regional Development Planning and Budgeting for 2014-2016 of Provincial Government in Jambi
2	Batang Hari Regency	1	Management and Accountability of Employee Expenditures and Goods Expenditures for Year 2016 of Batang Hari Regency Government in Muara Bulian
		1	Management of Local Government Governance Effectiveness in Fostering BUMD (Regional-Owned Business Entities) Year 2011-2016 of Batang Hari Regency Government in Muara Bulian
3	Bungo Regency	1	Management of Regional Assets for 2015 and Semester I of 2016 of Bungo Regency Government in Muara Bungo (SPI)
		1	Management and Accountability of Employee Expenditures and Goods Expenditures for Year 2016 of Bungo Regency Government in Muaro Bungo
4	Merangin Regency	1	Management and Accountability of Regional Expenditures for 2016 of Merangin Regency Government in Bangko
		1	Effectiveness of Local Government Governance in Regional Development Planning and Budgeting for 2014-2016 of Merangin Regency Government in Bangko
5	Sarolangun Regency	1	Management and Accountability of Regional Expenditures for 2016 of Sarolangun Regency Government in Sarolangun
6	Tanjung Jabung Barat Regency	1	Management of Regional Assets for 2015 and Semester I of 2016 of Tanjung Jabung Barat Regency Government in Kuala Tungkal
		1	Effectiveness of Local Government Governance in Regional Development Planning and Budgeting for 2014-2016 of Tanjung Jabung Barat Regency Government in Kuala Tungkal
7	Tanjung Jabung Timur Regency	1	Management of Regional Assets for 2015 and Semester I of 2016 of Tanjung Jabung Timur Regency Government in Muara Sabak
8	Jambi City	1	Management of Inpatient Care at H. Abdul Manap Hospital in Jambi City in 2013-2016 in Jambi
		1	Management of Local Government Governance Effectiveness in Fostering BUMD (Regional-Owned Business Entities) Year 2011-2016 of Jambi City Government in Jambi
9	Sungai Penuh City	1	Regional Revenue for 2015 and Semester I of 2016 of Sungai Penuh City Government in Sungai Penuh
	Total	**17**	

Source: IHPS I Year 2016 Audit Board of the Republic of Indonesia

Appendix 2. list of entities and 2017 audit reports

No.	Entity	Total	Audit Reports
1	Jambi Province	1	Special Purpose Audit for the Management and Accountability of Regional Expenditures of 2017 of Jambi Province Government in Jambi
2	Batang Hari Regency	1	Performance of the Implementation of Population Administration in Batang Hari Regency Government and Other Related Agencies of 2015 to Semester I of 2017 in Muara Bulian
		1	Special Purpose Audit (DTT) for Management and Accountability of Regional Expenditure of 2017 for Batang Hari Regency Government in Muara Bulian
3	Bungo Regency	1	Performance of the Implementation of Population Administration in Bungo Regency Government and Other Related Agencies of 2015 to Semester I of 2017 in Muara Bungo
4	Kerinci Regency	1	Performance for Fulfilling the Needs of Professional Teachers and Education Personnel of FY 2015 to Semester I of 2017 in Kerinci Regency Government
5	Merangin Regency	1	Special Purpose Audit (DTT) for Management and Accountability of Regional Expenditure of 2017 for Merangin Regency Government in Bangko
6	Muaro Jambi Regency	1	Performance of the Implementation of Population Administration of FY 2015 to Semester I of 2017 of Muaro Jambi Regency Government in Sengeti
7	Tanjung Jabung Barat Regency	1	Performance of Management of Drugs in the Implementation of National Health Insurance of Year 2016 and Semester I of 2017 of the Tanjung Jabung Barat Regency Health Office, FKTP, Regional Public Hospital (RSUD) K.H Daud Arif And Other Related Agencies
8	Tebo Regency	1	Special Purpose Audit (DTT) for the Management and Accountability of Regional Expenditures of FY 2017 of Tebo Regency Government in Muara Tebo
9	Sarolangun Regency	1	Special Purpose Audit (DTT) for the Management and Accountability of Regional Expenditures of FY 2017 of Sarolangun Regency Government in Sarolangun
10	Jambi City	1	Special Purpose Audit (DTT) for the Management and Accountability of Regional Expenditures of FY 2017 of Jambi City Government in Jambi
11	PDAM Tirta Mayang	1	Performance of Regional Water Supply Company (*Perusahaan Daerah Air Minum*/PDAM) Tirta Mayang of FY 2016 and Semester I of 2017 in Jambi
	Total	**12**	

Source: IHPS I Year 2017 Audit Board of the Republic of Indonesia

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