Is Children The Source of Happiness?
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Abstract
Wellbeing is one of the development goals in many countries, including in Indonesia. Many factors can impact a person’s happiness, one determinant is having children. Happiness is created through altruism. Parents care of their children’s wellbeing, and their utility increases. Children’s wellbeing is achieved when they have high quality that enable them to perceived in the community. Happiness can be approached using the happiness index. This study aims to find out the impact of children: number and sex composition of their children on parents happiness. Using the Indonesian Family Life Survey 2014 and multinomial logistic regression, happiness is measured by the question about satisfaction with the whole life at this moment. Descriptive analysis shows that happiness will increase when men or women has one child, then the happiness level decreased as the increase of the number of children. Supporting the analysis, multinomial logistic regression shows that men who had children with either complete or incomplete sex composition are more likely to be happier than men who do not have children. Meanwhile, women will be happier if they have children with complete sex composition. However, multinomial logistic regression result shows that having more children significantly decreases the happiness level either in men or women.

Keywords: number of children; children sex composition; happiness; ifls5

1 Introduction
Wellbeing of the whole community is one of the goals in development. Alatartseva and Barysheva (2015) mentioned that there are two perspectives of wellbeing i.e. objective and subjective wellbeing. Objective wellbeing or called material wellbeing is wellbeing measured from one’s economic condition, whereas subjective wellbeing is an individual judgement on his wellbeing condition. Subjective wellbeing has the same meaning with life satisfaction or happiness (Veenhoven, 2012). The results of the Happiness Measurement Survey (SPTK) conducted by the BPS – Statistics Indonesia in 2017 showed that the happiness index of the Indonesian population is 70.69 with the measurement scale of 0-100. Compared to some countries in the world, World Happiness Report 2017 showed that Indonesia is ranked 81 out of 155 of the happiest countries in the world. This measurement based on the results of a Gallup World Poll (GWP) survey where the level of happiness is measured using questions about life evaluation (Helliwell, Layard, & Sachs, 2017). From these two data it can be said that the condition of Indonesian happiness is only slightly above average.

One's happiness is influenced by various factors, including resources, assessment of needs and wants, individual participation and existence (Shin & Johnson, 1978). Resources include income, marital status and number of children. Assessment of needs and wants such as living standards, leisure, health, and education. Individual participation includes group activity and work status. The existence of life is a comparison of the existence of oneself to others as well as the existence of oneself today compared to the past. From these explanations, the number of children is one of the factors that affect happiness. Hoffman and Hoffman (1973) in Hoffman, Thornton, & Manis (1978) put forward a theory about the value of children or better known as Value of Children (VoC) Theory. Hoffman’s VoC theory shows that happiness is one of the values a person can gain if he has children.

The value of parental happiness when having children can be explained by altruism that exists in humans. Altruism is quite important in family life. Altruism is defined as the attachment of others, the desire to improve others well-being (Batson, 2014). Altruism is based on feelings of love, affection and attention (Pollak, 1985). Smith (1853) in Becker (1981) mentioned that a person will feel their own feelings of pleasure and pain, the warmest object of affection is the people who usually live together like children, parents, or other. Altruism makes parents want to give the best for their children, or in other words altruism parents priority to quality than the quantity of children (Ishikawa, 1975). Having children and the quality of his child can improve parents utility which can be measured with information about happiness (Frey & Stutzer, 2002; Graham, 2005).
This study aims to find out the effect of children on happiness among married men or ever married women in Indonesia. Happiness is seen from the individual perception towards his life satisfaction, while children is seen from the number of children and children sex composition.

2 Literature Review

In economic theory, children are considered to have a certain value so that the decision to have children is a result of cost and utility considerations. Becker (1960) in his theory New Home Economics said that the demand for children by married couples depends on rational calculations of the costs and benefits of children. If the cost incurred is greater than the benefits derived from having a child then the couple will choose not to have children, otherwise if the cost incurred is less than the benefits derived from having children then the couple will decide to have children.

Hoffman and Hoffman (1973) in Hoffman et al. (1978) proposed a theory about the Value of Children Theory (VoC). Hoffman found that the Value of Children can be analyzed from the side of the parents' psychological satisfaction. The VoC by Hoffman and Hoffman is grouped into nine categories: maturity status, social identity, self-expansion, morality, love and affection, stimulation and happiness, creativity, power and influence, social comparison, and economic utility. Hoffman's theory shows that happiness is the values that a person can acquire when having children.

Bulatao (1981) suggested that there are several stages of family formation that affect the value and the disadvantages of having children, namely the early stage, the middle stage and the final stage. The initial stage was defined as the first child ownership, the middle stage was the stage in which the couple has two to five children, while the final stage was the stage where the couple has six or more children. In the early stages, having children was the result of social pressure while in the middle and final stage was the result of a rational calculation of the profit and loss of having children. In the early stages, the value of the child related to the value of building a family. In the middle stage, the child's value contained a family balancing value and a specific value such as gender preferences. In the final stages, the value of the child contained the economic strengthening of the family and the economic value of the children will be prominent at this stage. The disadvantages of having children could also be translated into the stages of family formation. In the early and middle stage, the loss of having children was related to the commitment to the family which is indicated by the limited time with the spouse and parents. In the final stage, the loss of having children was closely related to the economic problem that is the financial burden due to the number of children. The value and loss of the child at each stage of the family establishment was a reflection of one's happiness because of the child's ownership.

Various studies had been done to know the impact of fertility on one's happiness, especially in developed countries. But not much had been done in developing countries. The results of previous studies showed that the greater number of children, the higher level of happiness either in men (Aasve, Mencarini & Sironi, 2015; Conzo, Fuochi & Mencarini, 2017) or in women (Aasve et al., 2015; Baranowska & Matysiak, 2011; Mu & Xie, 2016). The results of other studies show the opposite, either fertility has a negative effect on happiness or fertility has no significant effect on happiness (Kohler, Behrman & Skyth, 2005; Margolis & Myrskyla, 2011; Matysiak, Mencarini & Vignoli, 2016; Vanassche, Swiecaawood & Matthejs, 2013).

Someone’s happiness is affected by various factor, there are age, marital status, working status, education, economic wellbeing, residence and health status. Baranowska and Matysiak (2011) said that the impact of age on happiness follow U upside down’s shape. Aasve et al. (2012) found the opposite that the impact of age on happiness follow U shape. Marital status impact on someone’s happiness. Margolis and Myrskyla (2016) found that marital status plays an important role to increase happiness, where married person is more likely to be happy than those who are cohabitated, divorced, widowed or unmarried. Landiyanto et al. (2011) found that married person is more likely to be happy than those who are cohabitated, divorced or widowed because marriage is officially considered as providing security to someone for their future. Working status has significant impact on happiness. Angeles (2010) conducted research in UK and found that someone who work both men and women are more likely to be happy than those who do not work. Matysiak et al. (2016) found that women who work are less likely to be happy than women who do not work. Some studies showed that the higher one’s education will increase happiness (Cunado & de Gracia, 2011).

Aasve et al. (2015) found that residence impact on someone’s happiness. Urban facilities are better than rural, so person who live in urban area is more likely to be happy than person who live in rural area. Economic wellbeing also impact on happiness. Aassve et al. (2012) and Angeles (2010) found that happiness level increase as the increases of economic wellbeing. Health status also impact on someone’s happiness. Some studies found that healthy people are more likely to be happy than people who are sick (Cunado & de Gracia, 2011; Margolid & Myrskyla, 2011).
3 Methodology/Materials
3.1 Data dan Unit Analysis

This study uses the Indonesia Family Life Survey (IFLS). IFLS is one of the surveys that provides information about happiness, number of children ever born and the demographic social characteristic of the respondents so that it can be used for analysis in this study. IFLS is a longitudinal survey conducted in Indonesia. IFLS1 was implemented in 1993-1994 in 13 provinces in Indonesia. IFLS2 was implemented four years later (1997-1998). IFLS3 was implemented in 2000 and IFLS4 in 2007-2008. While IFLS5 implemented in 2014-2015. IFLS2 to IFLS5 uses the same sample as IFLS1 (panel data). The IFLS1 sample was 7,224 households, and individual data collected over 22,000 individuals. Although not all data can be retrieved for five times IFLS, but the response rate is quite high. In this study, IFLS data to be used is IFLS5 data from 2014-2015 because IFLS5 is the latest IFLS and the only one wave which provided question about life satisfaction.

The unit analysis used in this study is married men and ever married women aged 15 years and older. A person is categorized as ever married women if the marital status is married, widowed or divorce. Restrictions on marital status and age in this study due to limited information from existing data. The question of the number of children ever born is asked to women aged 15-49 years in each IFLS wave. Meanwhile, the question of happiness is also asked to respondents aged 15 years and over. Of the 58,253 IFLS samples in 2014, 8,909 married men and 12,517 women ever married 15 years and older who became unit analysis. Questions about the children ever born in IFLS were asked to women 15-49 years old, and not asked to men. Therefore, to get the number children ever born from men is derived from the approach of the number of children of the couple currently owned. That’s why, men who became unit analysis on this study are only married men.

3.2 Variable

Happiness is the dependent variable and focus of this study. Happiness is grouped into three categories, unhappy, somewhat happy and happy. The happiness variable is derived from the question of life satisfaction that is "Please think about your life as a whole. How satisfied are you with it?". The question of life satisfaction has five choices of answers that are completely satisfied, very satisfied, somewhat satisfied, not very satisfied and not at all satisfied, which then grouped into happy, somewhat happy and unhappy. Respondent who answer completely satisfied and very satisfied are grouped into happy. Respondent who answer somewhat satisfied is grouped into happy. Respondent who answer not very satisfied and not at all satisfied are grouped into unhappy. As a whole. How satisfied are you with it?". The question of life satisfaction has five choices of answers that are completely satisfied, very satisfied, somewhat satisfied, not very satisfied and not at all satisfied, which then grouped into happy, somewhat happy and unhappy. Respondent who answer completely satisfied and very satisfied are grouped into happy. Respondent who answer somewhat satisfied is grouped into happy. Respondent who answer not very satisfied and not at all satisfied are grouped into unhappy.

The main independent variables used in this study are the number of children ever born and children sex composition. The children sex composition is grouped into three categories namely no children, have children with incomplete sex composition and have children with complete sex composition. In addition to the number of children and the children sex composition, this study also wants to know some factors that affect happiness such as age, marital status, working status, education, residence, economic welfare and health status. The age variable consists of age and age squared because according to Angeles (2010) and Aassve, Goisis & Sironi (2012) the relationship between age and happiness is non-linear. Marital status consists of marriage and divorce. Working status consists of working and not working. Residence consists of urban and rural areas. Educational variables are grouped into three categories: low (elementary school or lower, including those who never went to school), middle (junior or senior high school) and high (college or above). The economic wellbeing variables measured using monthly household expenditures are also grouped into three categories: low (40 percent lowest), middle (40 percent medium) and high (20 percent highest). The health status variables measured with self rated health (SRH) and group into two categories, that are healthy and unhealthy.

3.3 Analysis

In this study, the methods used are descriptive and inferential analysis. Descriptive analysis is used to describe the happiness general condition of married men and women ever married in Indonesia based on individual characteristics such as number of children, sex composition of children, age, marital status, working status, education, residence, economic welfare and status health. Inferential analysis is used to see the effect of child number and children sex composition on happiness. The inferential analysis used in this research is multinomial logistic regression analysis.

**Multinomial logistic regression for married men**

I. The tendency of men to be happy compared to unhappy

\[
\ln \left( \frac{\pi_1}{\pi_0} \right) = \beta_{10} + \beta_{11} CEB + \beta_{12} sex1 + \beta_{13} sex2 + \sum \beta_{1j} Xij + \varepsilon_i
\]

II. The tendency of men to be somewhat happy compared to unhappy

\[
\ln \left( \frac{\pi_2}{\pi_0} \right) = \beta_{20} + \beta_{21} CEB + \beta_{22} sex1 + \beta_{23} sex2 + \sum \beta_{2j} Xij + \varepsilon_i
\]
Multinomial logistic regression for women ever married

I. The tendency of women to be happy compared to unhappy
\[
\ln \left( \frac{\pi_1}{\pi_0} \right) = \beta_{30} + \beta_{31} \text{CEB} + \beta_{32} \text{sex1} + \beta_{33} \text{sex2} + \sum \beta_{3j} X_{ij} + \epsilon_i
\]

II. The tendency of women to be somewhat happy compared to unhappy
\[
\ln \left( \frac{\pi_2}{\pi_0} \right) = \beta_{40} + \beta_{41} \text{CEB} + \beta_{42} \text{sex1} + \beta_{43} \text{sex2} + \sum \beta_{4j} X_{ij} + \epsilon_i
\]

4 Results and Findings

Descriptive analysis shows that there is no significant difference in the number of children between men and women. Most of the samples have 2 children, either on men (30.90 percent) or women (29.60 percent). IFLS 2014 data processing shows that the average number of children owned by men and women also has no significant difference, i.e. 2.3 for men and 2.4 for women. This shows that men and women in Indonesia on average have two to three children. In contrast, a small percentage of the sample had no children, 9.27 percent in the men sample and 8.99 percent in women.

Children sex composition owned by men and women samples does not have a significant difference. The children sex composition in this study is grouped into three categories, there are having no children, incomplete and complete sex composition. Most of the samples have children with an incomplete sex composition there are 54.83 percent of men and 55 percent of women who had only son or daughter.

The percentage of married men aged 15 years or above who are the most studied here are 26-45 years old (60.66 percent), working (95.43 percent), medium-educated (45.72 percent), lived in urban areas (55.80 percent), from medium economic wellbeing (43.66 percent), and healthy (80.92 percent). In line with the distribution of male samples, the percentage of women ever married aged 15 years or above who are the most studied here are 26-45 years old (57.95 percent), married (90.72 percent), working (63.67 percent), medium-educated (44.79 percent), lived in urban areas (57.30 percent), medium economic wellbeing group (42.87 percent), and healthy (75.94 percent).

Figure 1 shows that in general Indonesian men and women are happy and somewhat happy. The percentage of happy women (45.77 percent) is higher than men (40.08 percent). There is no significant difference between men and women who feel somewhat happy. Meanwhile, men who feel unhappy (16.28 percent) is higher than women (12.23 percent). In other words, the picture above shows that women in Indonesia are happier than men. Zweig (2015) said that although there are inequalities between men and women such as, women have lower wages, lower education, more likely to become widows and worse health than men, but women are happier than men.
IFLS 2014 data also shows that men who are happy have 1 child but happiness decreases as the number of children increases. The percentage of men who feel somewhat happy will be happier as the number of children increases and peaks when they have three children. Contrary to the pattern of happy men, the percentage of women who feel happy is one who has one child. The percentage is slightly higher compared to those who have 2 children, happiness then will decrease as the number of children increases. At an unhappy level, the percentage of women ever married who have more children will be more unhappy. In general, it can be said that the more children among ever married women, the level of happiness will decrease.

Cross tabulation between children sex composition and happiness does not show significantly different outcomes, either in men or women. Table 2 shows several variables have significant differences between the level of happiness, there are education, economic wellbeing and health status. The percentage of men who feel happy is higher when the education level is higher. Otherwise, the percentage of men who feel happy is lower when the education level is lower. The percentage of men who feel happy is higher when economic wellbeing is higher. Otherwise, the percentage of men who feel happy is lower when the economic wellbeing is lower. The percentage of healthy men who are happy is greater than those who are sick. All of these patterns also occur among women.

**Table 1. Percentage of Married Men and Women Ever Married Aged 15 Years or Above According to Happiness Level and Social Demographic Characteristic**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Happy (1)</td>
<td>Somewhat happy (2)</td>
</tr>
<tr>
<td>Children sex composition</td>
<td></td>
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<tr>
<td>Don’t have children</td>
<td>46.31 (4)</td>
<td>43.29 (5)</td>
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<tr>
<td>Incomplete</td>
<td>46.54 (11)</td>
<td>41.68 (12)</td>
</tr>
<tr>
<td>Complete</td>
<td>44.45 (17)</td>
<td>42.17 (18)</td>
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<tr>
<td>Age group</td>
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<tr>
<td>15-25 years old</td>
<td>45.59 (23)</td>
<td>40.80 (24)</td>
</tr>
<tr>
<td>26-45 years old</td>
<td>40.08 (29)</td>
<td>43.75 (30)</td>
</tr>
<tr>
<td>46-59 years old</td>
<td>38.98 (35)</td>
<td>44.77 (36)</td>
</tr>
<tr>
<td>60 years or above</td>
<td>39.43 (41)</td>
<td>42.18 (42)</td>
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<tr>
<td>Marital status</td>
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<td></td>
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<tr>
<td>Marriage</td>
<td>- (47)</td>
<td>- (48)</td>
</tr>
<tr>
<td>Divorce</td>
<td>- (53)</td>
<td>- (54)</td>
</tr>
<tr>
<td>Working status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working</td>
<td>40.21 (59)</td>
<td>43.61 (60)</td>
</tr>
<tr>
<td>Not working</td>
<td>37.35 (65)</td>
<td>44.23 (66)</td>
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<tr>
<td>Characteristic</td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>----------------------</td>
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<td>--------------------------------------------</td>
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<tr>
<td></td>
<td></td>
<td>Happy</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
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<tr>
<td><strong>Education level</strong></td>
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<tr>
<td>Low</td>
<td></td>
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<tr>
<td>Middle</td>
<td></td>
<td>39.93</td>
</tr>
<tr>
<td>High</td>
<td></td>
<td>48.39</td>
</tr>
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<td><strong>Residence</strong></td>
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<tr>
<td>Urban</td>
<td></td>
<td>42.83</td>
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<tr>
<td>Rural</td>
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<td>36.62</td>
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<td><strong>Economic wellbeing</strong></td>
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<tr>
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<tr>
<td>Middle</td>
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<td>40.41</td>
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<td>High</td>
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<td><strong>Health status</strong></td>
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<td>42.53</td>
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<tr>
<td>Unhealthy</td>
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<td>29.71</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>40.08</strong></td>
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</table>

Source: Processed by author from IFLS2014 data

There are four models in this study. Model 1 is a model to find out the effect of the number of children and children sex composition on men’s happiness without the control variables. Model 2 is Model 1 added with the control variables. Model 3 is a model to find out the effect of number of children and children sex composition on women happiness without control variables. Model 4 is Model 3 added with the control variables.
Table 2. Odds Ratio of The Impact of Children and Control Variable on Men and Women’s Happiness

<table>
<thead>
<tr>
<th>Variable</th>
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<th></th>
<th></th>
<th>Women</th>
<th></th>
<th></th>
<th></th>
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<td></td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 3</td>
<td>Model 4</td>
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<tr>
<td></td>
<td>Happy</td>
<td>Somewhat</td>
<td>Happy</td>
<td>Somewhat</td>
<td>Happy</td>
<td>Somewhat</td>
<td>Happy</td>
<td>Somewhat</td>
<td>Happy</td>
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<tr>
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<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
<td>(9)</td>
</tr>
<tr>
<td></td>
<td>0.8910***</td>
<td>0.8993***</td>
<td>0.9207***</td>
<td>0.9190***</td>
<td>0.8446***</td>
<td>0.8842***</td>
<td>0.9214***</td>
<td>0.9388***</td>
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<td>1.4293***</td>
<td>1.4050***</td>
<td>1.3899***</td>
<td>1.2705**</td>
<td>1.1109</td>
<td>1.1678</td>
<td>1.0407</td>
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<td>Complete</td>
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<td>1.6608***</td>
<td>1.4227**</td>
<td>1.5469***</td>
<td>1.4170***</td>
<td>1.2210</td>
<td>1.3010*</td>
<td>1.1323</td>
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<td>1.7282***</td>
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<td>-</td>
<td>2.2043**</td>
<td>2.1253**</td>
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<td></td>
</tr>
<tr>
<td>Residence</td>
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<td>-</td>
<td>-</td>
<td>1.1991***</td>
<td>0.9788</td>
<td>-</td>
<td>-</td>
<td>1.1764**</td>
<td>1.1625**</td>
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<td>Rural (Ref)</td>
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<td>-</td>
<td>-</td>
<td>1.4805**</td>
<td>1.3374**</td>
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<td>-</td>
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<td>1.7950***</td>
<td>-</td>
<td>-</td>
<td>1.9786**</td>
<td>1.4186**</td>
</tr>
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<td></td>
<td>High</td>
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<tr>
<td>Health status</td>
<td>Healthy</td>
<td>-</td>
<td>-</td>
<td>2.6397***</td>
<td>1.9219***</td>
<td>-</td>
<td>-</td>
<td>2.5833**</td>
<td>1.8008**</td>
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<td></td>
<td>Unhealthy (Ref)</td>
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Source: Processed by author from IFLS2014 data, 1) This variable only use in women model
*** = p<0.01, ** = p<0.05, * = p<0.1
Table 2 shows that men’s happiness is affected by the number of children, children sex composition, age, education, residence, economic well-being and health status. Meanwhile, the women’s happiness is influenced by the number of children, children sex composition, age, marital status, working status, education, residence, economic wellbeing and health status. The odds ratio indicate that health status and economic well-being are the most influential on men happiness. While the variables that affect the women’s happiness the most are health status and education. The effect of each independent variable on happiness can be explained as follows:

1. **Number of children**

   One of the children’s values as expressed by Hoffman and Hoffman (1973) in his VoC theory is happiness. The result shows that the number of children has a negative significant effect on the men’s happiness. Having more children will decrease happiness among men. The same result is also obtained when it was added with several control variables. These results are in line with the research of Margolis and Myrskyla (2011) and Vanassche et al. (2013). Vanassche et al. (2013) stated that child has the cost to be incurred by parents. Having more children will increase the cost. Having more children will also make it increasingly difficult to meet the needs of children that meets their expectations. Unfulfilled expectations lead to a decrease in one’s happiness. Bulatao (1981) stated that having a child will diminish time with his partner. The feeling of diminished affection from partner can cause unhappiness, especially in men because women are more involved in parenting. In addition, McLanahan (1987) mentioned that currently there was a decline in the economic value of children so that having many children no longer give happiness for parents. The presence of children was closely related to the decrease in happiness because it was associated with increased stress in both men and women.

   The effect of the number of children on women’s happiness level is in line with the result for the male sample, number of children have significant negative effect on women happiness. Having more children will decrease women’s happiness. The addition of control variables does not change the significance or direction of the number of children’s effect on women happiness. The results of this study are in line with the research of Margolis and Myrskyla (2011), Vanassche et al. (2013) and Pollman (2014). Pollman (2014) mentioned that children reduce maternal happiness associated with time costs, children can affect women's lives and women's work beyond their influence on men. Vanassche et al. (2013) said that the benefits received by women due to motherhood are not worth the cost incurred. Women get benefit from having children, such as getting happiness, being able to help take care of the household and help the family economy in the future. In Javanese society, women with more children have higher social status, they will be more appreciated than those with little children (Adioetomo, 2009). However, it is not worth the cost to be incurred by women. The cost is not only child care cost, but also the cost lost due to child care (opportunity cost). Women lost much of their time off, lost opportunities to socialize and lost the opportunity to work. In the previous, it has also been mentioned that the parents happiness due to the presence of children is due to altruism in parents. Parents who are altruistic prioritize quality than the quantity of children (Ishikawa, 1975), so these parents will be happier when they have small amount of children.

2. **Children sex composition**

   Children sex composition may also affect the level of one's happiness (Conzo, 2017; Kohler, 2005). In this study, children’s sex composition has a significant effect on men’s happiness. Men who have children with incomplete sex compositions are more likely to be happy 1.3720 times than not having children. Men who have children with a complete sex composition were also more likely to be happy 1.4429 times than those who don’t have children. After added with control variables, men who have child either incomplete or complete sex composition are more likely to be happy than those without children. In other words, men who have children are more likely to be happy than those who have no children and there are no children sex preference for men. Vanassche et al. (2013) mentioned that in societies where being parents are more valuable, men would gain greater happiness when they become fathers. Moreover, having a child can carry on a family name and can be used as a social comparison in the community.

   Children sex composition has different effects on women. The number of children and children sex composition variable jointly shows that children sex composition had a significant positive effect on women’s happiness at the happy level. In other words, women who have children with either incomplete or complete sex are more likely to be happy than those who have no children. The addition of control variables gives different effects. Women who have children with a complete sex composition are more likely to be happy 1.3010 times. There is no significant effect on women happiness when women have children with incomplete sex composition. Women happiness affected by children with complete sex due to differences in the role pinned on son and daughter. Son can help the family economy, while daughter help the domestic work (Miranda, Dahlberg & Anderssn, 2018). So that parents will get long-term benefits of happiness when having children with complete sex (Margolis & Myrskyla, 2016). Fawcett et al. (1974) said that although both men and women have similar orientations toward children, there are significant differences in the sex preference of children. Expectations on
economic assistance from children are higher in women due to the high economic dependence of women and a longer life expectancy of women than men.

3. **Social Demographic Characteristics**

Other findings from this study states that the impact of age on happiness follows a non-linear function. The results of the inferential analysis shows that age and age squared have a significant effect on men happiness at happy levels and follow U-shape patterns, both in men and women. These results are in line with Cunado & de Gracia (2011) and Fritjers & Beattion (2012) who said that the effect of age and happiness follows a U-shape. The men happiness is at the lowest point at age 55 years old. The pattern of happiness by age can be explained through the life course, mental stress tends to be maximum at that age (Blanchflower & Oswald, 2008). Although the results of age and age squared regression indicate a non-linear relationship between age and women happiness, the plot of margin adjusted prediction of age and women happiness shows the relationship approaching linear. The higher age of women, the lower of women happiness. This is presumably because of the women’s health status. The older the age of woman, the worse their health level. Although women have a longer life expectancy than men but their health condition is no better. Widada (2017) conducted a study using IFLS wave 3 to 5 data and found that women experienced limited mobility functionality than men, either low, medium or high limited mobility.

The inferential model points out that there is a significant positive effect between education and happiness. The higher the level of education, the higher the happiness level, both among men and women. Those with higher education have greater chances of getting a job and a greater wage than a low educated person (Cunado & de Gracia, 2011). Residence have a positive and significant impact on either men or women happiness, although there is no significant impact for men on somewhat happy level. People living in urban areas are more likely to be happy than those who live in rural areas. This is in line with Aasve et al. (2015). A person living in urban area has easy access to education, health, entertainment and so on, rather than living in rural areas. Economic wellbeing also shows a positive and significant effect on both men and women happiness, both for happy and somewhat happy levels. Those with higher economic wellbeing have higher happiness. This result is similar with Aassve et al. (2012), Angeles (2010), and Margolis & Myrskyla (2016). Those with high economic wellbeing feels that they have meet their needs, happiness is the fulfillment of human needs (Costanza, 2007).

Health is an important factor that affect one's happiness. The data shows that those who are healthy are more likely to be happy, both among men and women. Cunado & de Gracia, 2011 and Margolis & Myrskyla, 2011. Yiengprugsawat et al. (2010) mentioned that health can affect one's happiness through the individual burden of health costs. His research in Thailand showed no significant effect of health status on happiness, it was due to good health insurance in Thailand which resulted in people not burdened health costs when ill. Even though Indonesia has already a national health insurance scheme, but not all the population has been covered. This causes the health costs to be spent on curative health services must be borne those who are sick, and sickness will lower happiness.

Marital status has a significant effect on women happiness. This study shows that women who are married are more likely to be happy than widower. Myrskylä & Margolis (2014) and Kohler et al. (2005) findings are getting married provides togetherness, away from solitude and will complement each other. Landiyanto et al. (2011) said that married people will be happier because they can share with their spouses about the ups and downs of life. The married status provides security for women in the future.

Those who have work have a negative effect on women’s happiness. Working women are less likely to be happy 0.8509 times compared to not working women. Matysiak et al. (2016), Treas, Lippe & Tai (2011) study also found that working women experience work family conflict that can reduce happiness. Sohn (2013) conducted a study in Indonesia and found similar results with this study in which working women were less likely to be happy than non-working women. This is because the purpose of Indonesian working women is forced to earn money not because of self-actualization, which resulted in less physical and mental health of working women.

5 **Conclusion**

Those with more children will have lower level of happiness, both among men and women. Nevertheless, a person who has children is more likely to be happy than those who have no children. And furthermore, men are happy whatever their children’s sex are. This doesn’t occur among women, women are happier when they have both son and daughters. But both women and men with no children are the saddest couples among couples.

This study showed that men’s happiness is also affected by age, education, residence, economic wellbeing and health status. Women's happiness is affected by age, marital status, working status, education, residence, economic wellbeing and health status. The control variables have positive effect on happiness, except age that affects happiness following U-shape in both men and women. One interesting finding in this study is
that women who are not working are more likely to be happy than working women. As other gender studies state that the traditional role of women is to maintain harmony in the household. Then it is presumed that women suffer work and household work conflicts. Children is indeed the source of happiness. Those with more children will have lower happiness level. The intuition is that parents care about their children’s quality. Having more children burdens cost in human capital investment per child.

This study has limitations related to the description of children ever born from men. Questions about the children ever born in IFLS were asked to women 15–49 years old, and not asked to men. Therefore, to get the number children ever born from men is derived from the approach of the number of children of the couple currently owned. This can lead to a bias for couples whose current marital status is not the first marriage. Because of these limitations, it is possible to have step children in the data of children owned by men. Furthermore, the limitations of the data also resulted in the impossibility of obtaining child data for men whose marital status is divorce or widowed, so that the analysis unit for men is restricted to only married men.

The influence of children on the parent happiness is not solely influenced by the number of children, but depends on the child age, child school participation, participation in the labor force and others. This study also can not see the children’s life cycle as a factor that affects the parental happiness because of data limitations. In addition, the level of one's happiness may vary at different times. This study can not see the relativity of time to see the change in happiness level. The other limitation is about the happiness question. Happiness variable is derived from one question about life satisfaction. This tend to be bias, because the question provide a positive response and this question also self assessment. So, it may not be very objective.

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Do ‘smarter’ couples being less traditional?
The Relationship between Assortative Education and Weekly Working Hours Arrangement among Married Couples in Indonesia
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Abstract
This paper aims to analyze the effect of married couples’ assortative educational attainments on the working hours allocation among themselves in the household using the Indonesian National Socioeconomic Survey (SUSENAS) 2016. After correcting for possible sample-selection bias due to selecting only the dual-worker couples sample, our multinomial logit model results show that compared to the low-educated homogamy type of couples, the high-educated homogamy couples have a higher probability of being an equal sharing couple type, where both husband and wife spend similar working hours. Meanwhile, compared to low-educated homogamy couples, the high-educated homogamy couples and educational heterogamy couples have a higher probability of being a non-traditional sharing couple type, where the wife works longer than her husband. Thus, our results indicate that the traditional values about gender roles in the household seem to change to the non-traditional values, especially for the high-educated couples in Indonesia. Moreover, the values about gender roles in the household seem to still play a significant role in married women’s employment, particularly in regard to the number of children under-five and living in a rural area.

Keywords: Assortative education, Dual-worker, Hypergamy, Homogamy, Traditional sharing

1 Introduction
Increasing women’s participation in the labor market has been one of the major agendas for policy makers, particularly in the emerging country such as Indonesia. One important factor that affects women’s participation in the labor market is their education level (Thévenon, 2013). On one hand, an increase in women’s education level has induced more women to enter the labor market, while a wider economic opportunity for women also promotes a higher education level for them. In the case of married women, their decisions to enter the labor market are not solely influenced by themselves, but the role of their husbands or partners might also have a significant impact. Becker (1991) argues that every marriage has a division of labor which affects the time allocation of work within the family. Moreover, according to the traditional views of marriage, gender still determines the division of labor in some marriages, in which men are responsible to provide for the family well-being while women are responsible to do the housework (Desai, Chugh, & Brief, 2014). Therefore, this division of labor in the family influences the career equality for men and women, when women burdened with the responsibility of domestic activities. Moreover, Moreno-Colom (2015) also states that the gendered division of labor makes women to decrease their time availability that is used for working. However, recent changes in the values of women’s role in the household towards a more egalitarian type, which may partly cause by increasing level of women’s education, have changed the traditional views of marriage in some ways.

In the context of Indonesian labor market, despite rising education level among women in Indonesia, women’s participation in the labor force still underperformed compared to their male counterparts’. Figure 1 and 2 below depict the labor market situation in Indonesia by gender and education level. These figures indicate that women’s education level in general has experienced an increase in one decade, from 2005 to 2015, yet their participation rates in the labor market are still lower than their men counterparts’. Not only differences in labor market participation, for those who are working there also exist differences in terms of working hours between men and women. Figure 3 shows that the percentage of men who work full-time, equal or above 35 hours per week, is higher than women who work full-time. On the other hand, the percentage of those who work part-time is higher for women than men. These figures indicate that women who work, tend to spend less time for working compared to men who work. Within the group of women themselves, however, the trend in one decade, from 2005 to 2015, shows that there has been an increase in percentage of women who worked full time, i.e. from only about 53 percent in 2005 increased to 59 percent in 2015.
Figure 1. Type of Economic Activity by Gender and Education in 2005. 

Figure 2. Type of Economic Activity by Gender and Education in 2015. 
The above data indicate that there still exist differences in labor market contribution between men and women, although the education level of women has risen in the past decade. One explanation for this phenomenon is that women might have to drop out from the labor force in order to concentrate on domestic chores due to marriage and childcare (Setyonaluri, 2013; Allen, 2016; Das & Schaner, 2016). This is due to the fact that the traditional norm, gender norm, and patriarchal value might still play an important role in the division of labor within a family or household (Samarakoon & Parinduri, 2015; Allen, 2016). Moreover, for the dual worker couple, where both the husband and wife are working, the role balance between men and women, both in the household and labor market, becomes an important issue. In some cases, including in the case of developed countries, working women are more likely to spend less time in the labor market compared to working men due to family commitments (Kitterød & Rønsen, 2012). In this case, a higher opportunity for women in the labor market does not automatically dismiss the presumption that women have higher responsibilities for domestic roles within the household than men (Buhlmann, Elcheroth, & Tettamanti, 2009; Van der Lippe, de Ruijter, & Raub, 2011). Thus, women would be more likely to have shorter working hours in the labor market than men, particularly for married couples.

This study tries to add to the current literature on women labor market participation issue, particularly in the case of working married women. In addition, this study analyzes the factors influencing the working hours allocation between married couple in a household, in order to see whether the traditional norm about the division of labor by gender in a household still exist in the Indonesian context. Previous studies analyzing the labor market issues for married couples are mostly done for the case of developed countries. Meanwhile, studies for the developing or emerging countries, such as Indonesia, are still limited. Moreover, the focus of this study is on the couples’ education attainment levels. In particular, this study tries to analyze how the married couples’ education attainment levels affect the working hour’s differences and allocation between the husband and wife.

2 Literature Review

Becker (1981) states that the division of labor in the family is influenced by biological difference and gender-specific investment in early life. Moreover, the comparative advantage between spouse in the labor market also influences the division of labor in the family (Eeckhaut et al., 2013). Becker (1973) explains that there are a specialization and trade-off to complement each other in marriage. This theory explains about the dominance of men in the economic activities according to the specialization in the household. Traditionally, married women were expected to devote most of their time for childbearing and to do the housework, while married men were expected to contribute in the labor market as the breadwinner in the family. Nevertheless, in modern norms, women are becoming less specialized in the household activities, and men are spending more times in the household activities.
The decision to allocate time in the labor market between spouses is taken by comparing spouse’s marginal productivity in their employment (Kitterød & Rønsen, 2012). Individual’s labor market participation is negatively affected by the partner’s labor market resources and positively affected by his or her own labor market resources. In sociological perspective, partners’ labor market resources, especially education, are seen as a social capital that positively affects their spouses’ labor market supply (Verbakel & De Graaf, 2009). In this case, partners may provide skills, network, and knowledge to assist each other in finding good jobs, so that resourceful partners would help to increase one’s labor supply. Kitterød and Rønsen (2012) also state that a high educational attainment would influence individual’s norms and values that contribute modern views on women’s role in the family.

Weiss (1995) explains that a higher education leads to higher wages, which then results in higher labor supply, hence more allocation of time at work (Borjas, 2012). The expansion of the proportion of the educated population, especially women, combined with larger employment opportunities for women and a declining fertility rate enable women to enter the labor force more easily. Numerous recent researches in the European countries and the United States show that women’s employment is higher when they possess a higher level of education (England et al., 2012). This finding indicates that more educated women would have a higher employment rate and possibly longer working hours than the less educated women. This is also related to the concept of “price-effects”, an economic concept that occurs in individuals. The term “price-effects” has been offered by the economic theory to explain the relationship between education and employment. The price effects or opportunity-cost effects would induce women with higher education to have a higher earning power; thus, their forgone earnings, should they chose to stay at home for childbearing or housework production, is greater than that for the less educated women (Borjas, 2012). When the opportunity cost is higher, especially for better-educated women, these women are expected to have higher employment than their less educated counterparts.

In the case of married couples, the educational structures result in trends of marriage behavior, where educationally homogamous couples exist. The marital homogamy refers to a concept which explains the tendency of a person to marry someone with a similar educational background and earning power. In marital homogamy theory, there are two effects that may operate in opposite direction, namely the income and price effects (Evertsson et al., 2009). More specifically, in educational assortative mating concept, when a highly educated woman married a similarly highly educated man, her own education level might induce a higher employment due to higher price or opportunity costs effects, as previously discussed; in contrast, a higher income that is earned by the highly educated husband may discourage her employment instead. Similarly, a low educated woman might have lower employment due to a lower opportunity cost, yet a lower income earned by the low educated husband would instead encourage her employment. Furthermore, in a gender equality context, the comparative advantage could be balanced or reversed between men and women (Blossfeld & Drönic, 2001). This indicates that the educational homogamy in marriage would create similarities in the labor market participation between spouses, which rises intra household equality but creating disparities among other households (Eeckhaut et al., 2013). On the contrary, the educational heterogamy in marriage would generate a relatively different labor market participation between spouses, i.e. either higher for the wives (lower for the husbands), or vice versa.

One of the studies in the developed countries by Steiber and Berghammer (2016) shows that in the European countries, highly educated couples are more likely to have an equal contribution to the labor market, but the strength of the education effects varies across family life cycle, e.g. when the couples have children under five years and when their children have reached the age above five years. Eeckhaut et al. (2013) find that the minority of Swedish couple adopts a women-earner when they have children, in the condition that partners are temporarily on parental leave, unemployed, or working part-time. This study is in line with Berghammer (2014) that shows that the educational level of parents with children influences their work arrangements, in which they would adopt the men-breadwinner model when the women are highly educated and have an infant. Kitterød and Rønsen (2012) in their study in Norway shows that the odds of a woman to work more than her partner increase when she has completed secondary school and a long university education, compared to having only primary school education. Nevertheless, unlike the prediction from the comparative advantage theory, this study shows no significant effect on partners’ relative education and the couples’ allocation of work.

Furthermore, Klesment and Van Bavel (2015) finds that highly educated mothers of school-age children whose husbands are less educated would be more likely to be the main breadwinner compared to highly educated mothers without children whose husbands are also highly educated. This is in line with Konietzka and Kreynenfeld (2010) that shows, in the context of a German couple, that women experience less economic pressure to seek employment when they live with a highly educated spouse. When the spouse has a tertiary degree, the odds that women would engage in full-time and part-time employment are reduced. Moreover, Verbakel (2010) also finds that women with the highly educated husband are more likely to reduce their working hours. In contrast, this study also shows that resourceful spouse does not restrict the other spouse labor market contribution, instead, she or he enhances it. For
example, a woman whose husband has a high occupational status is less likely to leave the labor force. On the other hand, other results from this study show that individual human capital enhances women’s labor market contribution and discourages them from lowering their working hours.

3 Methodology/Materials

The data for this study is obtained from the Indonesian National Socioeconomic Survey (Susenas) 2016. This survey is a large household survey in Indonesia which collected social, economic, and demographic data, conducted by the Indonesian Central Bureau of Statistics (BPS-Statistics Indonesia). The dataset consists of education, health, housing, socio-cultural activities, household expenditure, travel, and people’s opinion about household welfare (BPS-Statistics Indonesia, 2017). The main reason for choosing this survey data as the empirical basis for this study is that it provides a couple-level data by matching the data for husband and wife in each household, particularly the head of household and his or her spouse with their respective labor market status.

For the purpose of this study, the selected samples are the married head of household and his or her spouse, aged 15 years old or above, both are employed, and live in the same household during survey. Therefore, we exclude those couples who live with their parents/relatives, one person household, and household that consists of only one married person without her or his spouse, as well as couples where only one of them who is employed. As a result, the analysis is restricted to a sub-sample of 120,390 married couples aged 15 years old or above, who both the husband and wife are employed (working). Moreover, the analysis in this study uses the head of household and their spouse’s information regarding their main economic activities, individual and household characteristics.

As previously mentioned, the main objective of this study is to examine the effect of married couples’ educational attainment levels on their working hour’s differences. Thus, a combination of both husbands’ and wives’ working hours is used as the dependent variable (workhourdiff). The information of working hours is based on the survey question regarding hours of work in the previous week. Adapting the classification used by Kitterød and Rønsen (2012), the working hour’s difference is then distinguished into three categories, i.e. couples whose wife works longer (non-traditional sharing), couples with an equal sharing of work hour (equal sharing), and couples whose husband works longer (traditional sharing) which will also be the base category. The definition of an equal sharing of work hour will follow the definition suggested by Kitterød and Rønsen (2012). Kitterød and Rønsen (2012) argue that the difference in the working hours between spouses should be noticed and needs to be set to a certain size. In their study, the authors suggest a size of plus-minus five hours difference as an equal working hour, which is counted from the average of working hour’s difference between husbands and wives. Therefore, spouse who works more or less than the average’s difference of working hours is considered to have an unequal working hour, where one of the other works longer.

In this study, our sample has the average of working hour’s difference between husbands and wives of 4.96. Thus, the benchmark size to be used in this study to define an equal sharing of work hour is similar to that used in Kitterød and Rønsen (2012), which is plus-minus five hours difference. In sum, couples are said to have an equal sharing of work hour if the working hour’s difference between the husbands’ and wives’ working hours is equal to or less than five hours. Thus, a difference of at least six hours would imply that there are an unequal working hours, i.e. either the husband or the wife who works longer.

The main independent variable is couples’ educational attainment composition (educouple). This variable is categorized into four categories, i.e. both low educated (low educational homogamy couple), higher educated wife (educational hypogamy couple), higher educated husband (educational hypergamy couple), and both high educated (high educational homogamy couple). The base category is the high educational homogamy couple. In addition, the low educational homogamy couple is defined when both the husband and the wife have an educational level of either both are elementary graduates or junior high graduates. Whereas, the high educational homogamy couple is defined when both the husband and the wife have an educational level of senior high or higher. These categories have considered the assortative mating theory, where individuals search for the couple in a marriage market based on their preference, in which men or women prefer to have a partner with similar educational attainment (Grow & Van Bavel, 2015).

Other independent variables used in the model are the number of children under 5 years old (childunder5) owned by the couple, the number of school age children of 5-18 years old (childabove5) owned by the couple, residential area (residence), the couple’s health status (couplehealth), the couple’s work status (workstat), and the couple’s age difference (agediff). The residential area (residence) is classified into two categories, urban versus rural, while the couple’s health status (couplehealth) is classified into four categories, i.e. husband has chronic disease.
(husbandsick), wife has chronic disease (wifesick), both husband and wife are healthy (couplehealthy), and both husband and wife have chronic disease (couplesick) as the base category. The couple’s work status indicates whether the couple works in formal or informal job, and this variable is classified into four categories i.e. 1) wife informal and husband formal, 2) wife formal and husband informal, 3) both informal, and 4) both formal (the base category). Meanwhile, the couple’s age difference indicates the difference in the average age between the husband and the wife. The average of age difference between husband and wife in our sample is four years, thus this number is used as the benchmark to make classification of this variable. Specifically, couples with age difference of five years or more are said to have differences in age, while couples whose age difference is only four years or less are said to be of the same age. Therefore, this variable is then classified into three categories, i.e. wife is younger than the husband (wifeyounger), wife is older than the husband (wifeolder), and both husband and wife have similar age (same age), where the last category (same age) is set as the base category.

Since the dependent variable consists of more than two categories, the estimation will use the multivariate analysis of multinomial logistic regression model. In general, the model can be written as follows

\[ P_j = Pr [y_i = j] = F_j (a, X_i, \varepsilon) \]

where \(i = 1, \ldots, n\) represents the i-th couple in the sample and \(j = 0, \ldots, 2\) is the categories of dependent variable (workhourdiff), with \(j = 0\) if couples are the traditional sharing type (base category), \(j = 1\) for couples whose wife works longer (non-traditional sharing), and \(j = 2\) for couples with an equal sharing of work hour (equal sharing). Moreover, \(a\) and \(\varepsilon\) represent the constant and error term respectively. In general, Equation (1) suggests that the probability of the i-th couple being in a particular dependent variable’s j-th category \((P_j)\) is a function of a vector of independent variables \((X)\), the constant \((a)\) and error \((\varepsilon)\) terms. Moreover, the probability, \(P\), of the i-th couple being in category \(j\) can be expressed as

\[ P_j = Pr [y_i = j] = \frac{\exp (a_j X_i)}{\sum_{k=0}^{2} \exp (a_k X_i)} \]

with \(j = k\) is the dependent variable’s category. Finally, in order to measure the effect of a one unit change of a particular independent variable (relative to the base category) on the probability of being in a given \(j\)-th category, the marginal effects values will be presented (see Cameron and Trivedi, 2005).

3.1 Selection Treatment

The model analyses in this study may potentially suffer from a selectivity issue (selection bias), which arises due to selecting only those couples who are both working (both are employed). Heckman (1977 and 1990) explains that sample selection may arise because there is a non-random sample selection process. Mare (1992) further argues that when sample has been non-randomly selected (so called sample selection), this may cause bias in the empirical results. Thus, in an analysis with sample selection, it is required to have a special treatment to overcome bias in the empirical results.

In this study, the selection treatment is done by using the two-stage method. Specifically, before estimating the model of using only the dual-worker couples, we first estimate the probability of couples being the dual-worker type using the entire sample of couples in our data. Then, in this analysis we add the estimated probability of being the dual-worker type of couple as an additional regressor. This method has been used in previous study such as by Moenjak and Worswick (2003) when analyzing the rate of return to vocational education in Thailand. In this case, the selection treatment is done to control for non-randomness in school type selection (either general or vocational education) process which may lead to bias estimation of the relative returns results.

Therefore, the complete model to be estimated in this study can be written as follows:

\[ Y = \beta_0 + \beta_1 educouple + \beta_2 agediff + \beta_3 childrenunder5 + \beta_4 childrenabove5 + \beta_5 residence + \beta_6 couplehealth + \beta_7 workstat + \lambda + \varepsilon \]

where \(Y\) represents the couple’s working hours difference (workhourdiff), \(\beta_0\) is the constant term, \(\beta_{1-7}\) are the coefficients, \(\lambda\) is the selection treatment term, and \(\varepsilon\) represents the error term.

4 Results and Findings

After correcting for potential selection bias problem, the marginal effects results obtained from regressing the multinominal logistic model can be seen in Table 1.

---

1 Fortcoming paper of Ratu Khabiba and Qisha Quarina.
Tabel 1: Marginal Effects of the Multinomial Logistic Regression of Married Couples’ Working Hours Differences

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Married Couples’ Working Hours Differences</th>
<th>Traditional sharing</th>
<th>Equal sharing</th>
<th>Non traditional sharing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>dy/dx (std. err)</td>
<td>dy/dx (std. err)</td>
<td>dy/dx (std. err)</td>
</tr>
<tr>
<td>Couple’s educational attainment (educcouple)</td>
<td>Low educational homogamy (base category)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hypogamy</td>
<td>0.010* (0.006)</td>
<td>-0.026*** (0.005)</td>
<td>0.016*** (0.004)</td>
</tr>
<tr>
<td></td>
<td>Hypergamy</td>
<td>-0.005 (0.006)</td>
<td>-0.027*** (0.005)</td>
<td>0.032*** (0.005)</td>
</tr>
<tr>
<td></td>
<td>High educational homogamy</td>
<td>-0.097*** (0.006)</td>
<td>0.085*** (0.006)</td>
<td>0.012*** (0.004)</td>
</tr>
<tr>
<td>Couple’s age difference (agediff)</td>
<td>No age difference/similar age (base category)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wife is younger than husband</td>
<td>0.022*** (0.004)</td>
<td>-0.032*** (0.004)</td>
<td>0.010*** (0.003)</td>
</tr>
<tr>
<td></td>
<td>Wife is older than husband</td>
<td>0.034*** (0.010)</td>
<td>-0.024*** (0.009)</td>
<td>-0.010 (0.007)</td>
</tr>
<tr>
<td>Residence area (residence)</td>
<td>Urban (base category)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rural</td>
<td>-0.024** (0.011)</td>
<td>0.091*** (0.010)</td>
<td>-0.067*** (0.009)</td>
</tr>
<tr>
<td>Couple’s health status (couplehealth)</td>
<td>Both with chronic disease (base category)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Husband has chronic disease (husbandsick)</td>
<td>0.002 (0.020)</td>
<td>-0.069*** (0.018)</td>
<td>0.066*** (0.015)</td>
</tr>
<tr>
<td></td>
<td>Wife has chronic disease (wifesick)</td>
<td>0.087*** (0.020)</td>
<td>-0.098*** (0.018)</td>
<td>0.011 (0.015)</td>
</tr>
<tr>
<td></td>
<td>Both husband and wife are healthy (couplehealthy)</td>
<td>-0.013 (0.019)</td>
<td>0.013 (0.018)</td>
<td>0.001 (0.014)</td>
</tr>
<tr>
<td>Couple’s work status (workstat)</td>
<td>Both formal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wife informal, husband formal</td>
<td>0.133*** (0.005)</td>
<td>-0.276*** (0.005)</td>
<td>0.143*** (0.004)</td>
</tr>
<tr>
<td></td>
<td>Wife formal, husband informal</td>
<td>0.091*** (0.006)</td>
<td>-0.259*** (0.006)</td>
<td>0.168*** (0.005)</td>
</tr>
<tr>
<td></td>
<td>Both informal</td>
<td>0.064*** (0.004)</td>
<td>-0.079*** (0.004)</td>
<td>0.015*** (0.003)</td>
</tr>
<tr>
<td>Number of children under 5 years old (childunder5)</td>
<td></td>
<td>0.075*** (0.009)</td>
<td>-0.072*** (0.008)</td>
<td>-0.003 (0.006)</td>
</tr>
<tr>
<td>Number of school age children of 5-18 years old (childabove5)</td>
<td></td>
<td>-0.003 (0.003)</td>
<td>0.008*** (0.003)</td>
<td>-0.005** (0.002)</td>
</tr>
<tr>
<td>Selectivity correction term (λ)</td>
<td></td>
<td>0.460*** (0.087)</td>
<td>-0.477*** (0.078)</td>
<td>0.017 (0.062)</td>
</tr>
<tr>
<td>Total Observation</td>
<td></td>
<td></td>
<td></td>
<td>120,390</td>
</tr>
</tbody>
</table>
In general, most independent variables are found to have significant effects on the type of married couple based on working hour’s differences between the husband and wife. Results for the main independent variable of couple’s educational attainment show a significant impact on married couple’s working hour’s differences. This is in contrast with that found in Kittendorf and Rønsen (2012) for Norway, in which the study found no significant impact of couple’s education on their working hour’s differences. However, the results in our study are in line with that found in Pencavel (1998) which found that educational assortative mating in marriage influences the working hour’s differences between husband and wife in the labor market.

More specifically, results in Table 1 show that compared to the low educational homogamy type of couple, the educational heterogamy type of couple has a lower probability to be an equal sharing type of couple and a higher likelihood to be a non-traditional sharing type of couple. However, the chance to be a traditional sharing type of couple is also higher, especially for the educational hypogamy couple. More specifically, the educational hypergamy couple has a lower probability to be an equal sharing type of couple, whereas the chance to be a non-traditional sharing type of couple is higher. The latter finding can be explained by the argument that couple’s resources will be a social capital for each other, thus it would support the contribution of both the individual and his or her partner in the labor market. In our finding, the husband could share his resources and skills to his wife, so that the wife can have a higher contribution in the labor market. Meanwhile, the chance of the educational hypergamy couple to be a traditional sharing type of couple is lower, although the result is not statistically significant. These findings are in contrast with previous study by Pencavel (1998) which found that among the educational hypergamy couples, women tend to work fewer hours. Our findings also not in line with that argued by Konietzka and Kreyenfeld (2010) which argue that women have fewer economic pressures if they married more educated men.

Furthermore, relative to the low educational homogamy type of couple, the high educational homogamy type of couple has a higher probability to be both an equal sharing type of couple and a non-traditional sharing type of couple. On the other hand, the chance to be a traditional sharing type of couple is lower. Thus, the probability to be an equal sharing type of couple is lower for the low educational homogamy type of couple. Berghammer (2014) states that educational homogamy couples tend to behave similarly in the labor market. Our findings, however, suggest that this argument is true only for the high educational homogamy couple.

In the case of educational hypogamy couple, the wives who have higher educational attainment than the husbands tend to have a higher chance to be a non-traditional sharing type of couple. This finding indicate a higher contribution of the wives in the labor market. This finding is in line with that found by Kittendorf and Rønsen (2012), where women who completed education at university for a long time, compared to only completing basic education, have a higher chance to work longer than their husbands. The study argues that this is related to the positive relationship between individual participation in the labor market and his or her human capital, which in this case is reflected by the education level.

Kittendorf and Rønsen (2012) explains that education can be seen as an indicator for individual’s norm and value, where high educated men tend to have a more modern perception regarding the role of women in the family, compared to men with low education. Thus, for educational hypergamy couple, men would tend to support women’s contribution in the labor market. This argument can also explain the finding where the high educational homogamy couple has a higher likelihood to be an equal sharing type. Nevertheless, the traditional norm regarding the role of men and women in the family seems to still exist for couples in Indonesia. This is especially true for the low educational homogamy type of couple.

The individual’s as well as couple’s behavior in the labor market in developing countries might be different from that in the develop countries, such as the European countries. In Indonesia, the probability to be an equal sharing type of couple is lower, except for the high educational homogamy couple. This result suggests that the traditional values of gender division in the family are still exist and applied in Indonesia, particularly if the couples are from the low educated background.

We also tried to estimate the predicted probability for each of the dependent variable category. Figure 4 until Figure 6 depict the predicted probability for each type of couple, i.e. the traditional sharing, equal sharing, and non-traditional sharing type of couple respectively. Figure 4 shows that the probability to be a traditional sharing

Note: \(dy/dx\) is the marginal effects; *** = p<0.01, ** = p<0.05, * = p<0.1.

Source: BPS, Susenas 2016 (processed by author).
couple is highest for the educational hypogamy couple, followed by the low educational homogamy, educational hypergamy, and the high educational homogamy couple has the lowest probability. Figure 5 shows that the probability to be an equal sharing couple is found to be the highest for the low educational homogamy, whereas the lowest probability is found for the educational hypergamy couple. Meanwhile, the highest probability of being a non-traditional sharing type of couple is found for the educational hypogamy couple, followed by the high educational homogamy couples, while the educational hypergamy and the low educational homogamy couples have the lowest chance of being a non-traditional type.

Figure 4. Predicted Probability of the Traditional Sharing Couple.
Source: BPS, Susenas 2016 (processed by authors)

Figure 5. Predicted Probability of the Equal Sharing Couple.
Source: BPS, Susenas 2016 (processed by authors)
Figure 6. Predicted Probability of the Non-traditional Sharing Couple.  
Source:  BPS, Susenas 2016 (processed by authors)

Results in Table 1 also show other factors that significantly influence the working hour’s difference between husband and wife. The probability to be a non-traditional sharing couple is higher if the wife is younger than the husband. This finding is consistent with that found in Kitterød and Rønsen (2012), which found that wife who are five years younger than the husband tend to have a longer working hour. In the case of Indonesia, this finding may suggest that the responsibility to work longer hours might not always be by the husband. Meanwhile, couple whose wife is younger than the husband also has a higher chance to be a traditional sharing type of couple. Whereas, couple whose wife is older than the husband has no significant impact on the probability of being a non-traditional sharing type of couple.

The other interesting findings are regarding the residential area. The result of the residential area shows that couples who live in the rural area have a higher chance to be an equal sharing type, compared to those who live in the urban area. On the other hand, the probability to be a traditional sharing couple is lower in the rural area, compared to urban. These findings are in line with the study by Gündüz-Hosgör and Smits (2006) which found that if couples live in the urban area, the wives have a higher tendency to reduce their contribution in the labor market, compared to living in rural. This is because most wives in the rural area tend to work in the agricultural sector, which is not done by those who live in urban.

In regard to couple’s health status, the results indicate that couple whose husband or wife has a chronic disease would have a lower probability to be an equal sharing couple. On the other hand, the probability to be an equal sharing couple is higher for couple whose both husband and wife are healthy. Meanwhile, couple whose wife has a chronic disease, would be more likely to be a traditional sharing couple. One explanation is because health is one form of human capital, which helps individual to perform economic activity (Schultz, 1961; Ananta, 1986). Thus, if either the husband or the wife suffers from a chronic disease, then the other partner or spouse would allocate either longer or fewer hours of working. This could explain the lower tendency for couple whose one of the partner is sick to become an equal sharing type. In other words, if one of the spouse suffers from a chronic disease, then the couple would tend to have differences in their working hours.

As for the couple’s work status, the probability to be an equal sharing couple is lower for couple whose both husband and wife work in the informal sector, compared to couple whose both husband and wife work in the formal sector. Similarly, if only one of the partner or spouse work in either formal or informal sector, then the likelihood to be an equal sharing couple would also be lower. This finding is similar to that found in Kitterød and Rønsen (2012). One possible explanation is because working in the informal sector has a relatively more flexible working hours, if not no set of rules for working hours, compared to working in the formal sector, which usually has a certain fixed rule regarding the working hours for the employees.

Meanwhile, an increase in the number of children aged 0-4 years old, would decrease the chance for couples to be an equal sharing type, whereas the chance to be a traditional sharing couple is higher. This can be explained by
the fact that by having children aged 0-4 years old, the wives would tend to shorten their working hours allocation for childcare. According to Becker (1973) regarding work allocation within a household, it is stated that traditionally married women have expectations that they would spend their times for childcare. This finding is also in line with the finding found by Kittersø and Rønsen (2012), where the study found a negative impact of the existence of younger children on the working time allocation of husband and wife. In Indonesia, Asiati (2004) also found that the existence of children in the household would reduce the amount of working hours of married women.

Furthermore, an increase in the number of school-age children, aged 5-18 years old, would increase the chance of couple to be an equal sharing type. Whereas the probability to be a non-traditional sharing and traditional sharing type would be lower. These findings indicate that as the children get older, the wives have a higher tendency to increase their contribution in the labor market which is indicated by having a longer working hours.

5 Conclusion
This paper aims to analyse the effect of married couples’ assortative educational attainments on the working hours allocation among themselves in the household. This study contributes to the literature on women’s participation in employment, especially among married women, to see whether the traditional values about gender roles in the household still continue to shape the employment participation among married women in Indonesia despite of increasing women’s human capital through education. This study utilizes the Indonesian National Socioeconomic Survey (SUSENAS) 2016 and estimates the results using the multinomial logit model. After correcting for possible sample-selection bias due to selecting only the dual-worker couples sample, our results show that compared to the low-educated homogamy type of couples, the high-educated homogamy couples have a higher probability of being an equal sharing couple type, where both husband and wife spend similar working hours. Meanwhile, compared to low-educated homogamy couples, the high-educated homogamy couples and educational heterogamy couples have a higher probability of being a non-traditional sharing couple type, where the wife works longer than her husband. Thus, our results indicate that the traditional values about gender roles in the household seem to change to the non-traditional values, especially for the high-educated couples in Indonesia. Moreover, the values about gender roles in the household seem to still play a significant role in married women’s employment, particularly in regard to the number of children under-five and living in a rural area. More specifically, an increase of the number of children under-five would decrease the working hours allocation of the wives relative to their husbands, thus increasing the likelihood of couples to be a traditional sharing type. Meanwhile, living in the rural area, as compared to living in the urban area, is associated with a higher chance for couples to be an equal sharing type; whereas the probability to be a traditional sharing type of couple, where the husbands work longer than their wives, is lower in rural area compared to urban.
References


The Influence of Macro Economic Variables towards Gross Regional Domestic Product (GRDP) in Eastern Indonesia Years 2010-2016

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The Eastern of Indonesia is an area that has a variety of potential that can be developed. The extent of economic potential can attract foreign and domestic investors to invest in Eastern Indonesia. Encourage investors to come and invest in this region is one of effort doing by local government in order to increase GRDP. Therefore, this study aims to analyze the effect of macroeconomic variables proxied by Foreign Investment (PMA), Domestic Investment (PMDN), Provincial Minimum Wages (UMP) and Labor Force towards Gross Regional Domestic Product (GRDP). This study uses quantitative methods with multiple regression analysis and using Eviews program statistical tools in data processing. Data used in this study is secondary data with research sample data of 13 provinces in Eastern Indonesia period 2010-2016. The results of this study indicate that the variables of foreign investment (PMA) and provincial minimum wages have a positive effect on gross regional domestic product (GRDP). Other variables, domestic investment and labor force have no effect on GRDP. The coefficient of determination with adjusted R-square is 0.9314, which means that the variables of PMA, PMDN, UMP and Labor Force can affect the GDP variable by 93.14% while the rest is influenced by other variables. This finding shows that foreign investment in Eastern Indonesia can develop so that it can increase the wages of its labor force which will improve the welfare of the local community.

Keywords: foreign investment, domestic investment, provincial minimum wage, labor force and gross regional domestic product.

1. Introduction

Eastern Indonesia is an area consisting of provinces in eastern Indonesia including the provinces of Bali, West Nusa Tenggara, East Nusa Tenggara, South Sulawesi, West Sulawesi, Southeast Sulawesi, Central Sulawesi, Gorontalo, North Sulawesi, Maluku, North Maluku, Papua and West Papua. Economic growth data for quarter I-2018 issued by the Statistics Indonesia (BPS) revealed that Indonesia's economic structure is spatially dominated by provincial groups in Java and Sumatra. The provincial group in Java contributes to gross domestic product (GDP) of 58.67 percent, Sumatra 21.54 percent, Kalimantan 8.24 percent, Sulawesi 6.02 percent, Bali and Nusa Tenggara 3.03 percent, and provincial groups in Maluku and Papua are only 2.5 percent. Economic growth can be measured by the formation...
of a stable or even increasing GRDP in an area. Eastern Indonesia region has great economic potential but still has not improved the welfare of its people. This can be seen from the low gross regional domestic product.

![Graph showing GRDP of Bali, NTB, NTT, and Sulawesi Utara from 2010 to 2016.]

**Figure 1.** Gross Regional Domestic Product (GRDP) of Bali, Nusa Tenggara Barat, Nusa Tenggara Timur and Sulawesi Utara Province. (in million rupiah)

Source: Statistic Indonesia (2018)

In figure 1 above, it can be seen that Bali province has the highest GRDP amounting to Rp.137,286 million in 2016 greater than the provinces of West Nusa Tenggara (NTB), East Nusa Tenggara (NTT) and North Sulawesi, while NTT has the lowest GRDP amount to Rp 57,705 million in 2016.
In figure 2 above shows that the province of South Sulawesi (Sulsel) has the highest GRDP compared to the provinces of Central Sulawesi, Central Sulawesi, Gorontalo, and West Sulawesi, while Gorontalo has the lowest GRDP. South Sulawesi has Rp269,423 million and Gorontalo has Rp 23,508 million in 2016.

Figure 3. Gross Regional Domestic Product (GRDP) of Maluku, Maluku Utara, Papua Barat and Papua Province. (in million rupiah)
Source: Statistic Indonesia (2018)
In figure 3 above shows that Papua province has the highest GRDP compared to the provinces of North Maluku, Maluku and West Papua, while West Papua has the lowest GRDP. Papua worth Rp 142,221 million and West Papua worth Rp 54,711 million in 2016. When viewed from all provinces, South Sulawesi has the highest GRDP in eastern Indonesia and the lowest is in Gorontalo province.

Economic development is inseparable from the investment absorbed in the region and the provision of wide employment opportunities for workers in the region. Investments can come from Foreign Investment (PMA) and Domestic Investment (PMDN). Investments can come from Foreign Direct Investment (PMA) and Domestic Investment (PMDN). Increased investment can encourage the development of the business world and create employment opportunities that stimulate economic development in an area. Based on BPS data in 2014 the highest investment came from PMA of US $ 1,494.2 million and PMDN of Rp 4,949.6 billion owned by the province of South Sulawesi, followed by the province of West Papua with a PMA value of US $ 1,260.6 million and PMDN valued at Rp. 100 billion even though Southeast Sulawesi's domestic investment is still higher than South Sulawesi, which is Rp 1,249.9 billion. In 2015 the highest PMA was still owned by the Province of South Sulawesi, with investment value down to US $ 1,085.2 million and PMDN increasing to Rp 9,215.3 billion. Whereas in 2016 the value of FDI in South Sulawesi was still the highest and rose to US $ 1,600.3 million and PMDN valued at Rp. 3,334.6 billion.

UMP growth in Eastern Indonesia has increased from year to year. Research conducted by Azaini (2014) states that the increase in wage value can lead to improving the decent life of a worker, but if the wage increase is set too high that is not accompanied by an increase in production work will encourage companies to reduce labor use by reducing production and using capital-intensive technology. Therefore the UMP is determined through a Governor's Decree adapted to a decent life in their respective provinces.

The number of labor force will certainly be able to accelerate national development and growth. Traditionally population growth and the labor force are considered as one of the factors that have a positive influence in spurring national development and economic growth. The employment problem faced by Indonesia is the rapid increase in the number of labor force in each year. The average labor force in Eastern Indonesia reaches 67.96%. This figure must be balanced with the provision of employment in accordance with the needs of each region so that the workforce becomes the capital of economic development.

### 2. Literature Review

Basically, economic development is a series of businesses and policies that aim to improve people's lives. One important indicator to find out the economic conditions in an area in a certain period is the Gross Regional Domestic Product (GRDP) data. GRDP is the total value of goods (final) produced by all economic units in a particular area (www.bps.go.id). These economic activities include agricultural, mining, processing industries and services. GRDP is all the net value of goods and services produced by a region within a certain period of time,
Investment is the first step to do development. Investment is a way that can be done by the government to increase economic growth and for the long term can increase the standard of living of the community (Mankiw, 2006). Investments originating from abroad are called Foreign Direct Investment (PMA) and domestic-based investment, called Domestic Investment (PMDN), both of which have a significant effect on GRDP (Momongan, 2013). Law of the Republic of Indonesia Number 25 of 2007 states that foreign investment is an investment activity to do business in the territory of the Republic of Indonesia carried out by foreign investors, both those who use full foreign capital and those that are associated with domestic investors. Whereas domestic investment is an investment activity to conduct business in the territory of the Republic of Indonesia which is carried out by domestic investors using domestic capital. Investment can be interpreted as expenditure or investment or companies to buy capital goods and production equipment to increase the ability to produce goods and services available in the economy (Sukirno, 2010: 121).

Law of the Republic of Indonesia Number 13 of 2003 concerning manpower defines wages as the rights of workers / laborers who are accepted and declared in the form of money as compensation from employers or employers to workers / laborers who are determined and paid according to a work agreement, agreement, or legislation, including allowances for workers / laborers and families for a job and / service that has been or will be carried out. Indonesia sets minimum wages through local governments at the Provincial, District and City levels. The increase in UMP must be balanced with an increase in labor productivity so that companies or entrepreneurs can increase their production or increase the company's output while the labor side can live more properly. According to Sumarsono (2009: 151), wages in Indonesia are generally based on three wage functions, namely: a) guaranteeing a decent life for workers and their families; b) reflects the rewards for the work of a person; c) provide incentives to encourage worker productivity.

The work force according to Statistics Indonesia (www.bps.go.id) is a working age population (15 years and over) who works, or has a job but while not working and unemployed. The work force is part of the workforce involved or still trying to engage in productive activities that produce goods and services (Suparmoko in Maharani, 2016). The work force is those who have a job, both working and temporarily not working for a reason, such as illness. In addition, those who do not have a job but are middle looking for a job / expecting to get a job or work optimally is called unemployment. Whereas not the labor force are those who are attending school, taking care of the household without getting paid, elderly, or physically disabled who cannot work (Zenda and Suparno, 2017).
2.1 Research Framework
Based on theory and previous study, we can make research framework as follow:

![Research Framework Diagram]

2.2 Hypothesis
The hypothesis in this study is:

**Ho**<sub>1</sub>: It is expected that PMA does not have a significant effect on GRDP in Eastern Indonesia

**Ha**<sub>1</sub>: It is expected that PMA have a significant effect on GRDP in Eastern Indonesia

**Ho**<sub>2</sub>: It is expected that PMDN does not have a significant effect on GRDP in Eastern Indonesia

**Ha**<sub>2</sub>: It is expected that PMDN have a significant effect on GRDP in Eastern Indonesia

**Ho**<sub>3</sub>: it is expected that the UMP does not have a significant effect on GRDP in Eastern Indonesia.

**Ha**<sub>3</sub>: it is expected that the UMP has significant effect on GRDP in Eastern Indonesia

**Ho**<sub>4</sub>: It is expected that the workforce does not have significant effect on GRDP in Eastern Indonesia.

**Ha**<sub>4</sub>: It is expected that the workforce has significant effect on GRDP in Eastern Indonesia.

**Ho**<sub>5</sub>: It is expected that simultaneously PMA, PMDN, UMP and labor force have no effect on GRDP in Eastern Indonesia.

**Ha**<sub>5</sub>: It is expected that simultaneously PMA, PMDN, UMP and labor force have effect on GRDP in Eastern Indonesia.

3. Methodology
This study uses quantitative research methods. The type of data used in this study is secondary data which is research data obtained from a second source or secondary sources of data needed (Bungin, 2010). The analytical method used in this study is multiple regression analysis with panel data using cross section data. The sample of the study were 13 provinces.
in eastern Indonesia, province of Bali, West Nusa Tenggara, East Nusa Tenggara, South Sulawesi, West Sulawesi, Southeast Sulawesi, Central Sulawesi, Gorontalo, North Sulawesi, Maluku, North Maluku, Papua and West Papua, with data time series period 2010-2016. The following is a panel data regression analysis model used in this study.

\[ Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + e_{it} \]

Description:
Y = gross regional domestic product (GRDP)
\( \beta_0 \) = Intersep
\( X_1 \) = foreign investment
\( X_2 \) = domestic investment
\( X_3 \) = provincial minimum wages
\( X_4 \) = labor force
\( \beta_1 \) = regression coefficient foreign investment variable
\( \beta_2 \) = regression coefficient domestic investment variable
\( \beta_3 \) = regression coefficient provincial minimum wages variable
\( \beta_4 \) = regression coefficient provincial labor force variable
\( e \) = disturbance/error terms
\( i \) = cross section province
\( t \) = time series period 2010-2016

4. Results and Analysis

The selection of the panel data regression model used is done with the Chow Test. The Chow Test is used to select a model that uses a common effect or fixed effect model by looking at the probability value of F. If the calculated F value is greater than critical F, the null hypothesis (Ho) is rejected which means that the right model for panel data regression is the Fixed Effect model. Conversely, if the calculated F value is smaller than critical F, the null (Ho) hypothesis is accepted which means that the right model for panel data regression is the Common Effect model. The results of the Chow test output indicate the value of F Prob. 0,000 <0,05 so Ho is rejected which means the model used is a fixed effect model.

The Hausman test is used to select a fixed effect model or random effect model. If the Hausman statistical value is greater than the Chi-Squares critical value, the null hypothesis (Ho) is rejected which means that the right model for panel data regression is the Fixed Effect model. Conversely, if the Hausman statistical value is smaller than the Chi-Squares critical value, the null (Ho) hypothesis is accepted which means that the right model for panel data regression is the Random Effect model. The results of the Hausman test output show the value of Chi-Squares Prob. 0,000 <0,05 so Ho is rejected which means the model used is a fixed effect model.
Table 1. Result of Panel Regression Model

<table>
<thead>
<tr>
<th>Method</th>
<th>Probability chi-square</th>
<th>Decision</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chow test</td>
<td>0.000</td>
<td>Ho reject</td>
<td>Fixed effect</td>
</tr>
<tr>
<td>Hausman test</td>
<td>0.000</td>
<td>Ho reject</td>
<td>Fixed effect</td>
</tr>
</tbody>
</table>

Source: Data is processed (Eviews 7.0)

Based on the results of table 1, the panel data model used in this study is a fixed effect model. Meanwhile, the results of the fixed effect model are presented in table 2 below.

Table 2. Estimation Result Fixed Effect Model

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Coefficient</th>
<th>Tstat</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-191083.3</td>
<td>-1.782047</td>
<td>0.0788</td>
</tr>
<tr>
<td>Foreign investment</td>
<td>15.91436</td>
<td>2.132773</td>
<td>0.0363</td>
</tr>
<tr>
<td>Domestic investment</td>
<td>1.779887</td>
<td>1.073921</td>
<td>0.2863</td>
</tr>
<tr>
<td>Provincial minimum wage</td>
<td>43008.09</td>
<td>2.861803</td>
<td>0.0055</td>
</tr>
<tr>
<td>Labor force</td>
<td>-88.08235</td>
<td>-0.090525</td>
<td>0.9281</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.943655</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.931472</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td>77.45806</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob(F-statistic)</td>
<td>0.000000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Data is processed (Eviews 7.0)

From the model selection that has been done, the panel data regression model is obtained as follows:

\[ \text{GRDP} = -191083.3 + 15.91436 \text{FI} + 1.779887 \text{DI} + 43008.09 \text{PMW} - 88.08235 \text{LF} \]

The results of testing the hypothesis by using the t test to see the effect of partial PMA, PMDN, UMP, labor force against GRDP as follows:

1. Foreign investment variable with statistical values \( t \) count > \( t \) table \((2.132773>1.988)\) and a significance value less than the level of confidence \( \alpha = 5\% \) \((0.0363 <0.05)\) which means that Ho is rejected, the foreign investment variable has a significant positive effect on GRDP.

2. Domestic investment variable with statistical values \( t \) count < \( t \) table \((1.073921<1.988)\) and have a significance value greater than the level of confidence \( \alpha = 5\% \) \((0.2863 > 0.05)\) which means that Ho is accepted, the domestic investment variable has no significant effect on GRDP.
3. The provincial minimum wage variable with statistical values $t_{\text{count}} > t_{\text{table}}$ (2.861803 > 1.988) and have a significance value less than the level of confidence $\alpha = 5\%$ (0.0055 < 0.05) which means that $H_0$ is rejected, the provincial minimum wage variable has a significant positive effect on GRDP.

4. The labor force variable with statistical values $t_{\text{count}} < t_{\text{table}}$ (-0.090525 < 1.988) and have a significance value greater than the level of confidence $\alpha = 5\%$ (0.9281 > 0.05) which means that $H_0$ is accepted, the labor force variable has no significant effect on GRDP.

The results of testing hypotheses using the F test is shown from the value of $F_{\text{prob}}$ < 0.05 (0.000 < 0.05) and $F_{\text{count}} > F_{\text{table}}$ (77.45806 > 2.478) which means that $H_0$ is rejected. This means the simultaneous influence of PMA, PMDN, UMP, labor force on GRDP is a significant effect on GRDP.

The results of the analysis of the coefficient of determination ($R^2$) which is seen from the adjusted R-square of 0.9314 or 93.14% of GRDP is influenced by variables of foreign investment, domestic investment, provincial minimum wages, and labor force, while the remaining 6.86% is influenced by variables others that were not explained in this study. Simultaneous results show that foreign investment, domestic investment, provincial minimum wages, and labor force have a significant effect on GRDP.

Foreign investment has a significant positive effect on GRDP, with a coefficient of 15.91436 which means that if foreign investment increases by 1 unit, it will increase the GRDP by 15.91436 units. This is in line with Zulfiansyah (2013) research that foreign investment affects GRDP. The results of domestic investment have no significant effect on GRDP, with a coefficient of 1.779887. This means that it is not in accordance with the research hypothesis which states that domestic investment has a significant effect on GDP. This result is also not in line with research Domestic investment which has no effect is made possible due to the small domestic investment in the eastern of Indonesia. Maluku and East Nusa Tenggara are the provinces with the smallest number of domestic investments compared to other province of East Indonesia, so that development in Eastern Indonesia has not been evenly distributed.

The provincial minimum wage has a significant positive effect on GRDP, with a coefficient of 43008.09 which means that if the provincial minimum wage increases by 1 unit it will increase the GRDP by 43008.09 units. The highest UMP is in South Sulawesi and the lowest is in East Nusa Tenggara. The workforce has no significant effect on GRDP, with a coefficient of -88.08235. The work force is a working age population who has worked or who have not got a job. The non-influence of the workforce can be caused by the low employment skills of the workforce so that the need for employment providers is small. The regional government is expected to be able to encourage domestic investment so that it can meet the expected employment needs so that it can affect GRDP. The results of this study are not in line with the research conducted by Mutiara (2015) which states that the level of labor force participation has a negative effect on GRDP.
5. Conclusion

This study yields a conclusion that the PMA and UMP variables have a significant effect on GRDP. While the domestic and labor force variables do not affect the GRDP. From the results of the study found that the UMP variable has the most influence on GRDP with a coefficient of 43008.09 which means that if the provincial minimum wage increases by 1 unit, it will increase the GRDP by 43008.09 units. The adjusted $R^2$ coefficient of determination is 0.9314 or 93.14% of the independent variables, namely foreign investment, domestic investment, provincial minimum wages, and the workforce is able to influence the dependent variable, namely GRDP. Investment needs to be pushed harder so that it can drive economic progress, and create employment opportunities, thereby increasing GRDP.
References


Badan Pusat Statistik. [www.bps.go.id](http://www.bps.go.id) diakses tanggal 4 Agustus 2018.


Undang-undang No. 13 tahun 2003 tentang Ketenagakerjaan

Undang-undang No. 25 tahun 2007 tentang Penanaman Modal


THE INFLUENCE OF FOREIGN DIRECT INVESTMENT, INFLATION, BI RATE AND RUPIAH EXCHANGE RATE TOWARD THE COMPOSITE STOCK PRICE INDEX IN INDONESIAN STOCK EXCHANGE PERIOD OF YEAR 2007-2015

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Arviana Wulandari

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ABSTRAK

Capital market is now viewed as an effective median in order to accelerate the development of a country. Through capital market it is possible to create investors to mobilize the delivery of long-term funds from the community to be channeled into productive sectors. This is in line with the capital market function of increasing and linking the flow of long-term funds through market criteria efficiently which will support the real economic growth as a whole. This study aims to determine the influence of Foreign Direct Investment, Inflation, Indonesian Central Bank Rate (BI Rate) and Rupiah Exchange Rate Toward The Composite Stock Price Index. This study used time series quarterly data in the period January 2007 to December 2015. The method used in this study is multiple linear regression using of SPSS 21 program. The results of the study partially showed that the variables of Foreign Direct Investment (FDI), BI Rate and Rupiah Exchange Rate have a significant influence toward the CSPI. While the Inflation variable has no significant influence toward the CSPI. Afterward, the results of the study showed that the variables FDI, Inflation, BI Rate and Rupiah Exchange Rate simultaneously have a significant influence on the CSPI, indicated by the adjusted $R^2$ value of the model is 69.7%, while 30.3% remainings explained by other variables outside this research. Therefore, the government of Indonesian must improve infrastructures and maintain political, as well as maintain economic stability and the existence of legal certainty, so that FDI can develop rapidly into Indonesia. Indonesian Central Bank (Bank Indonesia) must also stabilize the BI Rate, due to high interest rates investors are more likely to invest their funds in banks rather than in the capital market. In addition, the government must also stabilize the Rupiah Exchange Rate, because if Rupiah strengthened against the US dollar, resulting to the Indonesian companies that have debt in the form of US dollars will be easier paying off their obligations. And finally, the companies will experiencing a smooth production activity that ultimately increases the price of their shares in the capital market.

Keywords: Foreign Direct Investment, Inflation, BI Rate, Rupiah Exchange Rate And The Composite Stock Price Index

Background

Changes or developments that occur in a country's macro economy will have an influence on the capital market. If macroeconomic indicators are bad, it will adversely affect the development of capital markets, but if good economic indicators
will have a good influence on capital market conditions, (Sunariyah, 2011).

The first variable that influenced the CSPI in this study was that FDI was the most potential source of foreign financing compared to other sources, because the source of foreign capital flows (capital inflow) was mostly in developing countries due to capital gap (Claessens et al, 2001). FDI will be able to increase economic growth, marked by an increase in the level of income of the people, so that more people will have excess funds and can be used to save in the form of savings or invest in securities traded in the capital market, this will give a signal positive to investors towards Indonesia, especially investment to the stock market will continue to increase (BI Annual Report, 2015). Research conducted by Rasyidin (2011), shows that FDI (Foreign Direct Investment) has a significant positive influence toward the stock market development. This shows that with the entry of FDI is able to develop the stock market.

The second variable that affects the CSPI in this study is inflation which shows the general price flow. Symptoms of inflation can cause people’s purchasing power to decline, followed by a demand for goods and services experiencing a decline, it will result in companies experiencing a decline in profit and profitability of the company which results in a decrease in dividends paid and the performance of the company also decreased. Investors will hesitate to invest in the company or even do not need to buy because earnings per share and dividends per share go down. Lack of investors will make the company issue a policy to reduce stock prices per sheet, it will make the CSPI fall, because the CSPI is information on the movement of all shares listed in the IDX.

The results of research conducted by Arifin (2014), explained that inflation had a negative and significant influence toward the CSPI in the IDX. High inflation causes a decrease in the profitability of a company so that it will reduce the distribution of dividends and the purchasing power of the people. But research conducted by Divianto (2013), Krisn and Wirawati (2014) explains that inflation has a significant influence toward the CSPI with a positive relationship direction, this is because in Indonesia the inflation rate is very low. Many investors want to invest their money in the capital market.

Then Kusuma and Badjra (2016), explained in his research that inflation did not have a significant influence toward the CSPI, this shows that the rise and fall of inflation did not have an impact on the CSPI movement on the IDX. This condition causes investors to choose to wait for inflation conditions to be more stable because each investor does not expect to gain greater losses.

The third variable that affects the CSPI in this study is the BI Rate. The BI Rate is an interest rate with a one-month tenor announced by Bank Indonesia periodically for a certain period of time which functions as a monetary policy signal. BI rate changes can trigger movement in the Indonesian stock market. A decrease in the BI Rate will automatically trigger a decrease in interest rates on loans and deposits. For investors, with a decrease in deposit rates, it will reduce the level of profits obtained if the funds they invest in deposits. In addition, with the reduction in lending rates, the cost of capital will be small, this can make it easier for companies to obtain additional funds at low cost to increase their productivity. Increased productivity will drive profits, this can be an attraction for investors to invest in the capital market.

Kusumaningsih (2015), Salim (2013), conducted a study that the BI Rate has a negative and significant influence toward the CSPI in the IDX, when high interest rates on individuals tend to allocate their wealth in the form of savings or deposits due to high expected returns. In
other words, when interest rates are low people will tend to add securities in their portfolio, a potential BI Rate increase encourages investors to shift their funds to savings and deposits, so that investment in the stock market falls and can further reduce the CSPI. The study was also carried out by Salim (2013), Wijayaningsih, Rahayu and Saifi (2016), having the same results, the BI Rate has a negative and significant influence toward the CSPI movement, a decrease in the Bank Indonesia benchmark rate (BI Rate) will encourage an increase in the CSPI, so the action buying shares of investors will be higher causing demand for shares to increase so that the CSPI in the IDX also moves up.

The last variable that affects the CSPI in this study is the Rupiah Exchange Rate or (exchange rate) can be defined as the price of a domestic currency that is valued in foreign currency. One of the most influential impacts of the global economic crisis that occurred in America was the depreciating Rupiah exchange rate against the US dollar and of course Indonesia's export activities were hampered due to reduced demand from the American market itself. Companies in Indonesia that have debt to finance their production activities in the form of US dollars are more severe when paying off their obligations because the Rupiah Exchange Rate weakens against the US dollar. This will result in companies experiencing losses that ultimately reduce their stock prices in the capital market. With the decline in stock prices, investors do not want to invest their capital in the capital market which causes the CSPI to decline.

Pratikno (2009), explained that the Rupiah Exchange Rate in his research had a significant influence toward the CSPI. Likewise, the research conducted by Sudjono (2002), this can be explained that the appreciation of the exchange rate of Rupiah against the dollar will have an impact on the development of Indonesian product marketing abroad, especially in terms of price competition. If this happens, it will indirectly affect the trade balance, which in turn will also affect Indonesia's balance of payments which subsequently has a negative impact on stock trading in the capital market resulting in a capital outflow. Then if there is an excessive drop in the exchange rate, it will also affect publicly traded companies that depend on the factors of production of imported goods. The amount of import expenditure from companies like this can increase production costs, as well as decrease in corporate profits. Furthermore, the company's stock price will drop. Vice versa, if the value of the rupiah increases, the amount of import expenditure from companies like this can reduce production costs, and increase company profits.

Based on previous phenomena and studies with samples and population studies found, this thesis tries to investigate “The Influence Of Foreign Direct Investment, Inflation, BI Rate And Rupiah Exchange Rate Toward The Composite Stock Price Index In Indonesian Stock Exchange Period Of Year 2007-2015”.

RESEARCH PURPOSES

Based on the formulation of the above problems, the objectives of this study are as follows:
1. To find out and analyze the influence of FDI toward the CSPI in the IDX for the 2007-2015 period.
2. To find out and analyze the influence of Inflation toward the CSPI in the IDX for the 2007-2015 Period.
3. To find out and analyze the influence of the BI Rate toward the CSPI in the IDX for the 2007-2015 period.
4. To find out and analyze the influence of the Rupiah Exchange Rate toward the CSPI in the IDX for the 2007-2015 Period.
5. To find out and analyze the influence of FDI, Inflation, BI Rate and Rupiah
Exchange Rate together toward the CSPI in the IDX for the 2007-2015 Period.

THEORY REVIEW

Definition of FDI (Foreign Direct Investment)

FDI is an investment in real assets, in the form of factories, procurement of various types of capital goods, purchase of land for production purposes, expenditure of various inventory equipment and so on accompanied by the management functions and the investors themselves while maintaining control against the funds that have been invested. While portfolio investment is an investment that involves only financial assets, such as bonds and shares, which are valued in the national currency, Salvatore (2008).

Definition of Inflation

Inflation is a tendency to increase prices in general and continuously. The increase in the price of one or two items is not referred to as inflation, except if the increase extends to (or results in an increase) most of the prices of other goods. According to classical money theory, changes in the overall price level are like changes in units of measure. Because the real economic welfare of the people depends on relative prices, not on all price levels, Mankiw (2007).

Definition of BI Rate

According to the official website of Bank Indonesia www.bi.go.id, "the BI Rate is a policy interest rate that reflects the attitude or stance of the monetary policy set by the Indonesian bank and announced to the public." The BI Rate is announced by the Board of Governors of Bank Indonesia every monthly Board of Governors Meeting and is implemented in monetary operations conducted by Bank Indonesia through liquidity management in the money market to achieve operational objectives of monetary policy.

The operational objectives of monetary policy are reflected in the development of the Overnight Interbank Money Market (PUAB O/N) interest rate. The movement in the interbank rate is expected to be followed by developments in deposit rates and in turn bank lending rates.

Definition of Rupiah Exchange Rate

The exchange rate is the amount of one currency needed to buy another unit of currency." So can be concluded that the rupiah exchange rate is a comparison of the value or price of the Rupiah with the currencies of other countries. For example the exchange rate of the rupiah against the US dollar, the exchange rate of the rupiah against the yen and so on, Brealey et al (2008).

Changes in exchange rates can be divided into two, namely depreciation and appreciation. Depreciation is a decrease in the value of the domestic currency against foreign currencies, while appreciation is an increase in the value of the domestic currency against foreign currencies. If other conditions remain (ceteris paribus), then the depreciation of a country's currency makes the price of the country's goods cheaper for foreign parties while the price of foreign goods becomes more expensive for domestic parties, on the contrary appreciation of a country's currency causes the price of the country's goods to be expensive for foreign parties while the price of foreign goods becomes cheaper for domestic parties, Krugman and Obstfeld (2005).

Definition of Shares

Shares are securities traded on the capital market issued by companies in the form of Limited Liability Companies (PT), where the share states that the owner of the share is also the owner of a portion of the company." Therefore, shares can also be said to be a sign of equity participation. In return for the capital included in the company, investors are entitled to dividends.
or others that are in proportion to the paid up capital of the company, Mishkin and Eakins (2009).

**Definition Of The Composite Stock Price Index**

CSPI is a series of historical information regarding the movement of the share price of all shares, up to a certain date. The combined purpose of all these shares is the performance of shares included in the calculation of all shares listed on the Indonesia Stock Exchange, Sunariyah (2011). According to Anoraga and Pakarti (2006: 101), "IHSG is an index that shows the general stock price movements listed on the stock exchange which is a reference for developments in capital market activities."

**LITERATURE REVIEW**

Research conducted by AL-Shubiri (2010) with the title Analysis the Determinants of Market Stock Price Movements, An Empirical Study of Jordanian Commercial Banks. This research period was in the period 2005-2008. The analytical tool uses Eviews. This study shows that inflation has a significant and negative effect toward the Jordanian stock market, while the Net Value of Personnel Assets, Percentage of Dividends, Earnings Per Share, interest rates, and GDP have a significant and positive influence toward Jordan's Stock Market Prices.

Abaenewe, Ogbulu and NNamocha (2015), their research with the title A Further Econometric Appraisal Of The Effect Of Macroeconomic Fundamentals On Stock Market Prices In Nigeria. This research period was in the period 1985-2011. The analytical tool uses Eviews. Their research shows that inflation rates, money supply, oil prices, industrial production and trade balance have a significant and positive influence toward joint stock while PMA, and the exchange rate has a significant and negative influence toward joint stock in Nigeria.

Patel (2012), his research uses an analytical tool with the title The Effect of Macroeconomic Determinants on the Performance of the Indian Stock Market with the study period 1991-2011. The results of his research show that interest rates, inflation, industrial production index, money supply, gold, silver, and oil prices are very positive and have a significant influence toward the Indian Stock Market Index (Sensex and S & P CNX Nifty).

Ray (2012), his research was conducted in 1990-2010 using the Eviews analysis tool, the title of his research was Macroeconomic Variables and Stock Price Behavior: Evidence from India Granger Causal Relationship Relations. His research results show oil prices and gold prices have a significant negative influence toward stock prices, while the trade balance, interest rates, foreign investment, foreign exchange reserves, GDP, industrial production indices and money supply positively influence Indian stock prices. On the other hand Inflation, FDI, Exchange Rate and wholesale price index have no significant influence toward stock prices in India.

Research conducted by Maziah, Anisah and Fadlina (2013) with the title Macroeconomic Variables Of Stock Prices (KLCI). This research period was in the period 2008-2011. The analytical tool uses the SPSS Program. This study shows that money supply, consumer price index and production industry have a significant relationship with KLCI (Kuala Lumpur Composite Index). The interest rate does not have a significant relationship with KLCI.

**CONCEPTUAL FRAMEWORK**

The Thinking Framework in this study is as follows:

![Conceptual Framework Diagram]

**Figure 2.1. CONCEPTUAL FRAMEWORK**
HYPOTHESIS

The hypothesis in this research are:

Hypothesis 1
Ho₁ : there is no significant influence of FDI toward the CSPI.
Ha₁ : there is significant influence of FDI toward the CSPI.

Hypothesis 2
Ho₂ : there is no significant influence of Inflation toward the CSPI.
Ha₂ : there is significant influence of Inflation toward the CSPI.

Hypothesis 3
Ho₃ : there is no significant influence of BI Rate toward the CSPI.
Ha₃ : there is significant influence of BI Rate toward the CSPI.

Hypothesis 4
Ho₄ : there is no significant influence of Rupiah Exchange Rate toward the CSPI.
Ha₄ : there is significant influence of Rupiah Exchange Rate toward the CSPI.

Hypothesis 5
Ho₅ : there is no significant influence of FDI, Inflation, BI Rate and Rupiah Exchange Rate together toward the CSPI.
Ha₅ : there is significant influence of FDI, Inflation, BI Rate and Rupiah Exchange Rate together toward the CSPI.

RESEARCH METHODS

The type of data used in this study includes secondary data, namely data obtained in finished form, processed, collected and published officially by other parties, which is usually in the form of publications. CSPI data is obtained from CSPI, FDI data is obtained from BKPM (Investment Coordinating Board), then Inflation data, BI Rate and Rupiah Exchange Rate are obtained from SEKI (Indonesian Economic and Financial Statistics) published by Bank Indonesia.

The data used is time-series data in 2007-2015. The data analysis technique used in this study is multiple linear regression. This analysis was carried out using the Statistical Package for Social Science (SPSS) 21.0 for Windows program. The sampling technique used in this study is saturated sampling technique because the number of population is equal to 36 data samples.

ANALYSIS

Classic Assumption Test

Normality Test Results

<table>
<thead>
<tr>
<th></th>
<th>FDI</th>
<th>Inflation</th>
<th>BI Rate</th>
<th>Rupiah Exchange Rate</th>
<th>CSPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>36</td>
<td>36</td>
<td>36</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Mean</td>
<td>6.654</td>
<td>6.2131</td>
<td>7.1806</td>
<td>4.0092</td>
<td>3.5211</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>.2394</td>
<td>2.27830</td>
<td>1.00997</td>
<td>.06583</td>
<td>.16775</td>
</tr>
<tr>
<td>Absolute Tolerance</td>
<td>.525</td>
<td>.452</td>
<td>.316</td>
<td>.633</td>
<td>.905</td>
</tr>
<tr>
<td>Positive</td>
<td>.152</td>
<td>.094</td>
<td>.111</td>
<td>.226</td>
<td>.170</td>
</tr>
<tr>
<td>Negative</td>
<td>-.173</td>
<td>-.066</td>
<td>-.124</td>
<td>-.226</td>
<td>-.096</td>
</tr>
<tr>
<td>Smirnov Sig (2-tailed)</td>
<td>1.039</td>
<td>.562</td>
<td>.745</td>
<td>1.354</td>
<td>1.021</td>
</tr>
<tr>
<td>Sig (2-tailed)</td>
<td>.230</td>
<td>.910</td>
<td>.636</td>
<td>.058</td>
<td>.248</td>
</tr>
</tbody>
</table>

a. Test distribution is Normal
b. Calculated from data

The results of the normality test of the overall Asymp value. Sig (2-tailed), it is known that the data is normally distributed for all variables (FDI, Inflation, BI Rate, Rupiah Exchange Rate and JCI), because of the value of Asymp. Sig (2-tailed) for all variables> 0.05.

Multicollinearity Test Results

<table>
<thead>
<tr>
<th>Model</th>
<th>Collinearity Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tolerance</td>
</tr>
<tr>
<td>FDI</td>
<td>.525</td>
</tr>
<tr>
<td>Inflation</td>
<td>.452</td>
</tr>
<tr>
<td>BI Rate</td>
<td>.316</td>
</tr>
<tr>
<td>RupiahExchangeRate</td>
<td>.633</td>
</tr>
</tbody>
</table>
a. Dependent Variable: CSPI

Source: Data processed

The result of the fourth multicollinearity test of the independent variables FDI, Inflation, BI Rate and Rupiah Exchange Rate shows the VIF value is below 10 and the tolerance value is above 0.10. Thus it can be concluded that the regression model does not have multicollinearity problems.

**Heteroscedasticity Test Results**

![Scatterplot](image)

Source: Data processed

The results of testing heteroscedasticity on the scatterplots graph shows that the points spread randomly and spread both above and below the number 0 on the Y axis. It can be concluded that there is no heteroscedasticity in the regression model, so that the appropriate regression model is used to predict the CSPI based on entering the independent variables FDI, Inflation, BI Rate and Rupiah Exchange Rate.

**Autocorleration Test Results**

<table>
<thead>
<tr>
<th>Model</th>
<th>Durbin Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.931*</td>
</tr>
</tbody>
</table>

a. Predictor: (Constant), FDI, Inflation, BI Rate dan Rupiah Exchange Rate
b. Dependent Variable: CSPI

Source: Data processed

Durbin Watson's table values at α = 5%, n = 36, k-1 = 5, are dL = 1.175 and dU = 1.799. The data processing results show the value of Durbin Watson is 1.931, the value is between dU and (4-dU) that is 1.799 <1.931 <2.201, so there is no autocorrelation problem.

### Multiple Regression Analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-1.168</td>
<td>.958</td>
<td>-1.220</td>
<td>.232</td>
</tr>
<tr>
<td>FDI</td>
<td>.373</td>
<td>.090</td>
<td>.532</td>
<td>4.142</td>
</tr>
<tr>
<td>Inflation</td>
<td>.002</td>
<td>.010</td>
<td>.034</td>
<td>2.43</td>
</tr>
<tr>
<td>BIRate</td>
<td>-.067</td>
<td>.027</td>
<td>-.401</td>
<td>-2.424</td>
</tr>
<tr>
<td>RupiahExchangerate</td>
<td>.666</td>
<td>.298</td>
<td>.261</td>
<td>2.233</td>
</tr>
</tbody>
</table>

a. Dependent Variable: CSPI

Source: Data processed

If the output results are included in the form of multiple regression equations are as follows:

\[ Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + e \]

\[ Y = -1.168 + 0.373X_1 + 0.002X_2 - 0.067X_3 + 0.666X_4 \]

**Information:**

- **Y** = The dependent variable is CSPI
- **X_1, X_2, X_3, X_4** = The Independent variable (FDI, Inflation, BI Rate dan Rupiah Exchange Rate)
- **a** = Constant value
- **b_1, b_2, b_3, b_4** = Regression coefficient
- **e** = Standar error

**Explanation of the multiple regression equation above is as follows:**

1. The FDI variable regression coefficient is 0.373, meaning that if FDI experiences a one-unit increase, the CSPI will increase by 0.373 units with the assumption that other independent variables are of fixed value.
2. Regression coefficient Inflation variable of 0.002, meaning that if inflation has experienced a one-unit increase, the CSPI will increase by 0.002 units with the assumption that other independent variables are of fixed value.
3. The BI Rate variable regression coefficient is -0.067, meaning that if the BI Rate experiences a one-unit increase, the CSPI will experience a decrease of 0.067 units with the assumption that other independent variables are of fixed value.
4. The variable regression coefficient of the Rupiah Exchange Rate is 0.666, meaning that if the Rupiah Exchange
Rate increases by one unit, the CSPI will increase by 0.66 units with the assumption that other independent variables are fixed value.

**Hypothesis Test**

**Correlation Test (R)**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>Rsquare</th>
<th>Adjusted R Square</th>
<th>Std. Error Of The Estimate</th>
<th>Durbin Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.855</td>
<td>.731</td>
<td>.697</td>
<td>.09241</td>
<td>1.931</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Rupiah Exchange Rate, Inflation, FDI, BIRate
b. Dependent Variable: CSPI

*Source: Data processed*

Based on the statistical results for the R value (correlation) is 0.855, then the results of the correlation coefficient can be said that the relationship between independent variables (FDI, Inflation, BI Rate, Rupiah Exchange Rate) with the dependent variable (CSPI) has a very strong relationship because of the value R is 85.5%, close to 100%.

**Determination Coefficient Test Results (R²)**

Based on statistical results the adjusted R2 value is equal to 0.697 or 69.7%. This means 69.7%, the CSPI variation can be explained by variations of the four independent variables, namely FDI, Inflation, BI Rate and Rupiah Exchange Rate. While the remaining 100% - 69.7% = 30.3%, explained by other reasons outside the model or other variables that have not been examined in this study.

**Partial Test Results (t-test)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>-1.168</td>
<td>.958</td>
<td></td>
<td>-1.220</td>
</tr>
<tr>
<td>FDI</td>
<td>.373</td>
<td>.090</td>
<td>.532</td>
<td>4.142</td>
</tr>
<tr>
<td>Inflation</td>
<td>.002</td>
<td>.010</td>
<td>.034</td>
<td>.243</td>
</tr>
<tr>
<td>BIRate</td>
<td>-.067</td>
<td>.027</td>
<td>-.401</td>
<td>-2.424</td>
</tr>
<tr>
<td>RupiahExchangeRate</td>
<td>.666</td>
<td>.298</td>
<td>.261</td>
<td>2.233</td>
</tr>
</tbody>
</table>

Testing the regression coefficients of independent variables namely FDI, Inflation, BI Rate and Rupiah Exchange Rate, the steps for the t test are as follows:

1. For the FDI variable, the t-count value (4.142)> t-table (2.042) and the probability value 0.00> 0.05. Thus H₀₁ is rejected and Hₐ₁ is accepted which means that FDI partially has a significant influence toward the CSPI. So it is proven theoretically, the higher FDI has a significant influence toward the increase in the CSPI and the lower FDI has a significant influence on the decline in the CSPI.

2. For Inflation variable, t-count value (0.243) < t-table (2.042) and probability value 0.809 < 0.05. Thus H₀₂ is accepted and Hₐ₂ is rejected, which means that Inflation partially has no significant influence toward the CSPI. So it is proven theoretically, the higher or lower inflation does not have a significant influence toward the CSPI.

3. For the BI Rate variable, the t-count value (-2.424)> t-table (-2.042) and the probability value 0.021> 0.05. Thus H₀₃ is rejected and Hₐ₃ is accepted which means that the BI Rate is partially significant to the CSPI. So theoretically proven, the higher the BI Rate has a significant influence toward the decline in the CSPI and the lower the BI Rate has a significant effect on the increase in the CSPI.

4. For the variable Rupiah Exchange Rate, t-count value (2.233)> t-table (2.042) and a probability value of 0.033> 0.05. Thus H₀₄ is rejected and Hₐ₄ is accepted which means that the Rupiah Exchange Rate partially has a significant influence toward the CSPI. So it is proven theoretically, the more appreciated the Rupiah Exchange Rate has a significant influence on the increase in the CSPI and the more depreciated Rupiah Exchange
Rate has a significant influence toward the decline in the CSPI.

### Simultaneous Test Results (Test-F)

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>.720</td>
<td>4</td>
<td>.180</td>
<td>21.084</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>.265</td>
<td>31</td>
<td>.009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.985</td>
<td>35</td>
<td>.009</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Rupiah Exchange Rate, Inflation, FDI, BIRate
b. Dependent Variable: CSPI

Source: Data processed

From the results of regression analysis, based on table 4.6, for FDI (Foreign Direct Investment), Inflation, BI Rate and Rupiah Exchange Rate, F-count (21,084) > F-table (2,53), and probability value 0.00 > 0.05. Thus Ho4 is rejected and Ha4 is accepted which means that FDI, Inflation, BI Rate and Rupiah Exchange Rate together have a significant influence toward the CSPI.

### DISCUSSION

The CSPI equation regression results show that FDI in the period 2007-2015 had a significant influence toward the CSPI in Indonesia in the period 2007-2015. This result is consistent with the initial hypothesis of the study, namely the higher the FDI that occurs, it will raise the CSPI in Indonesia. This result is expected because the inflow of foreign capital into the real sector will be able to increase economic growth, then the better the level of prosperity of the population is marked by an increase in the level of income of the community, then more people will have excess funds, the excess of these funds can be used to be saved in the form of savings or invested in the form of securities traded in the capital market, this will give a positive signal to investors towards Indonesia, so investment in the stock market will continue to increase.

The results of the CSPI equation regression showed that inflation in the period 2007-2015 had no significant influence toward the CSPI in Indonesia in the period 2007-2015. This result is not in accordance with the initial hypothesis of the study, namely the higher the inflation that occurs, it will reduce the CSPI in Indonesia. This result is assumed because partially it turns out that the inflation rate variable does not significantly influence the CSPI. This happened because during the study period the inflation rate in Indonesia was only in the low and medium inflation rates, so it did not affect investors too much in making decisions to trade activities.

The CSPI equation regression results show that BI Rate in the period 2007-2015 had a significant influence toward the CSPI in Indonesia in the period 2007-2015. This result is in accordance with the initial hypothesis of the study, namely the higher the BI Rate occurs, it will reduce the CSPI in Indonesia. This is presumably because the BI Rate variable has a significant influence and has a negative relationship to the CSPI. This is due to high interest rates, investors are more likely to invest their funds in banks than in the capital market. This is because the interest rate has a negative relationship with the capital market. In the case of ceteris paribus if the interest rate is high then investment in the capital market will decrease, especially for investors with conservative (risk-averse) type who prefer low-risk investments.

The CSPI equation regression results show that the Rupiah Exchange Rate in the period 2007-2015 had a significant positive influence toward the CSPI in Indonesia in the period 2007-2015. This result in accordance with the initial hypothesis of the study that the Rupiah Exchange Rate has a significant influence toward the CSPI, namely the appreciation of the value of the Rupiah Exchange Rate that occurs, it will increase the CSPI in Indonesia. This result is expected because the Rupiah exchange rate strengthened against the US dollar will result in companies that have Indonesia in financing their production activities have debt in the form of US dollars to be lighter when paying off their obligations. This will
result in companies experiencing a smooth production activity that ultimately increases the price of their shares in the capital market. With the rise in stock prices, investors are willing to invest their capital in the capital market which causes the IHSG to rise further.

CONCLUSION
Based on research on the influence of FDI (Foreign Direct Investment), Inflation, BI Rate and Rupiah Exchange Rate on the IHSG (Composite Stock Price Index) in Indonesia for the period 2007-2015, the following conclusions are obtained:

1. Based on the results of the t-test analysis, for FDI variables, the t-count value (4.142) > t-table (2.042) and the probability value 0.00 > 0.05. Thus Ho1 is rejected and Ha1 is accepted which means that FDI partially has a significant influence toward the CSPI. The results of this study are in accordance with previous research conducted by Rasyidin (2011), showing that FDI has a significant positive effect on stock market development. This show that with the entry of FDI able to develop the stock market. FDI to Indonesia is a form of global economic liberalization that is able to contribute positively to the development of the stock market, even though indirectly.

2. Based on the results of the t-test analysis, for the Inflation variable, the t-count value (0.243) < t-table (2.042) and the probability value 0.809 < 0.05. Thus Ho2 is accepted and Ha2 is rejected, which means that Inflation partially has no significant influence toward the CSPI. The results of this study are in accordance with previous research conducted by Kusumaningsih (2015), Salim (2013) also by Wijayaningsih, Rahayu and Saifi (2016) conducting research that the BI Rate has a negative and significant influence toward the CSPI in the IDX, when high interest rates individuals tend to allocate their wealth in the form of savings or deposits due to high expected returns. When the interest rate falls, people will tend to add securities in their portfolio.

3. Based on the results of the t-test analysis, for the BI Rate variable, the t-count value (-2.424) > t-table (-2.042) and the probability value 0.021 > 0.05. Thus Ho3 is rejected and Ha3 is accepted which means that the BI Rate is partially significant toward the CSPI. The results of this study are consistent with the previous research conducted by Pratikno (2009), Sudjono (2002), Appa (2014), explaining that the appreciation of the value of the exchange rate of Rupiah/US dollar had a positive and significant influence toward the CSPI. Depreciation of the Exchange Rate of Rupiah against the US dollar has caused import-oriented company shares to decline and impact on the decline of investor interest in investing in the capital market.

4. Based on the results of the t-test analysis, for the variable Rupiah Exchange Rate, t-count value (2.233) > t-table (2.042) and the probability value 0.05 > 0.033. Thus Ho4 is rejected and Ha4 is accepted which means that the Rupiah Exchange Rate partially has a significant influence toward the CSPI. The results of this study are in accordance with previous research conducted by Pratikno (2009), Sudjono (2002), Appa (2014), explaining that the appreciation of the value of the exchange rate of Rupiah/US dollar had a positive and significant influence toward the CSPI. Depreciation of the Exchange Rate of Rupiah against the US dollar has caused import-oriented company shares to decline and impact on the decline of investor interest in investing in the capital market.
5. Based on the results of the F test analysis, for FDI, Inflation, BI Rate and Rupiah Exchange Rate, F-count (21,084)> F-table (2,53), and probability value 0.00> 0.05.
6. Thus Ho4 is rejected and Ha4 is accepted which means that FDI, Inflation, BI Rate and Rupiah Exchange Rate together have a significant influence toward the CSPI. In this study obtained the number R of 0.855 or 85.5%, then this value illustrates the level of a very strong relationship between variables FDI, Inflation, BI Rate and Rupiah Exchange Rate toward the CSPI, while for the coefficient of determination seen from the numbers on Adjusted R Square of 0.697 or 69.7%, this shows that the percentage contribution of the influence of variables FDI, Inflation, BI Rate and Rupiah Exchange Rate can have an influence of 69.7% toward the CSPI in Indonesia, while the remaining 30.3% is influenced by other factors not included in this study.

SUGGESTION
Based on the conclusions obtained in this study, suggestions are proposed as a complement to the research results as follows:
1. the four independent variables used in this study, the variables that have the most influence toward the CSPI are FDI variables, the theoretical implications are to increase FDI or foreign direct investment, so that what the government does is improve infrastructure, maintain political and economic stability, legal certainty. The Indonesia Stock Exchange is an excellent alternative means for capital owners to invest. Therefore, very serious attention is needed from all levels of Indonesian society, especially the government to further promote the capital market in Indonesia.
2. For practical implications, the introduction of capital markets and capital market instruments should be more actively held. Thus, community involvement in the capital market will be increased in order to promote investment activities in Indonesia. Professionalism and transparency of the stock exchange, brokerage, and issuer managers are needed to maintain investor confidence and maintain CSPI volatility so as not too volatile due to changes in macroeconomic variables in order to sustain the performance of the Indonesia Stock Exchange.

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DESENTRALIZATION EFFECT ON FISCAL AND ECONOMIC MACRO VARIABLE TOWARDS GROSS REGIONAL DOMESTIC PRODUCT IN BANTEN PROVINCE
YEAR 2010 – 2016

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Abstract
A good economic development is one of the development successes indicators. Gross regional domestic product (GRDP) is one of the development indicators and become a measurement of economic development. Another economic development indicator is fiscal decentralization that has a purpose on increasing people welfare, public services, and regional competition. This research’s aim is to analyze the effect of locally – generated revenue, balance funds, investment, and force labor towards gross regional domestic product in Banten Province. The methodology that is using for the research is fixed effect model with data panel in Banten Province area, 8 districts/city in 2010 – 2016. Based on the research result, obtained variable result a locally – generated revenue and balanced funds have a significant effect on gross regional domestic product. On the other hand, for investment variable and labor has no significant effect on gross regional domestic product. It is expected that the government can continue to explore the economic potential to increase the value of PAD so that economic growth is better and not dependent on balancing funds from the central government.

Keywords: Gross Regional Domestic Product (GRDP), Fiscal Decentralization, Locally – Generated Revenue, Balance Funds, Investment, and Labor.

1. INTRODUCTION
The economic growth of a country is one of the indicators that is very important in carrying out an analysis of economic development, therefore economic growth can explain the extent to which economic activity will generate additional income in a given period. Basically economic activity is the process of using factors of production to produce output, which is measured by using changes in Gross Domestic Product (GDP) in an area. GDP is the value of goods and services produced by a country in a given year by using the factors of production owned by its citizens and those of residents in other countries (Sukirmo, 2013). According to Suryono (2010) economic growth is a macro benchmark in the successful implementation of development. However, even though it has been used as an indicator of development, economic growth is still general and does not reflect the ability of individuals individually.
Regional development is expected to have a positive impact on economic growth. Regional economic growth can be reflected in changes in GRDP in a region.

Regional autonomy is a form of government program created with several objectives. The objectives of regional autonomy according to Law Number 32 of 2004 concerning Regional Government, explain that the purpose of regional autonomy is to carry out the widest possible autonomy, except for government affairs which are indeed government affairs, with the aim of improving public welfare, public services and regional competitiveness. The implementation of fiscal decentralization as stipulated in Law No. 32 of 2004 concerning Regional Government and Law No. 33 of 2004 concerning Financial Balance between the Central Government and Regional Governments provides opportunities for regions to increase local potential and improve their financial performance to realize regional independence. Decentralization is a tool to achieve one of the goals of the state, especially in order to provide better public services and create a more democratic public decision-making process. Decentralization can be realized by devolving authority to the level of government to make expenditures, the authority to collect taxes (taxing power), the formation of a council elected by the people, the Regional Head chosen by the Parliament (DPRD), and the assistance in the form of transfers from the Central Government.

The positive impact of the implementation of fiscal decentralization on economic growth can be seen from the regional economic development in Java. Java Island is one of the islands in Indonesia which consists of six provinces in it with the highest population and also has a high fiscal capacity. Areas with high fiscal capacity will be able to provide better public services. The following is the percentage of the rate of economic growth in Java Island in 2011 - 2016:

Table 1. Growth Rate of GRDP at the 2010 Constant Price by Province in Java (%) 2011 - 2016

<table>
<thead>
<tr>
<th>Province</th>
<th>2011 (%)</th>
<th>2012 (%)</th>
<th>2013 (%)</th>
<th>2014 (%)</th>
<th>2015 (%)</th>
<th>2016 (%)</th>
<th>Average (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DKI Jakarta</td>
<td>6.73</td>
<td>6.53</td>
<td>6.11</td>
<td>5.91</td>
<td>5.89</td>
<td>5.85</td>
<td>6.17</td>
</tr>
<tr>
<td>Jawa Barat</td>
<td>6.50</td>
<td>6.50</td>
<td>6.34</td>
<td>5.09</td>
<td>5.04</td>
<td>5.67</td>
<td>5.85</td>
</tr>
<tr>
<td>Jawa Tengah</td>
<td>5.30</td>
<td>5.34</td>
<td>5.14</td>
<td>5.27</td>
<td>5.47</td>
<td>5.28</td>
<td>5.30</td>
</tr>
<tr>
<td>DI Yogyakarta</td>
<td>5.21</td>
<td>5.37</td>
<td>5.49</td>
<td>5.17</td>
<td>4.95</td>
<td>5.05</td>
<td>5.20</td>
</tr>
<tr>
<td>Jawa Timur</td>
<td>6.44</td>
<td>6.64</td>
<td>6.08</td>
<td>5.86</td>
<td>5.44</td>
<td>5.55</td>
<td>6.00</td>
</tr>
<tr>
<td>Banten</td>
<td>7.03</td>
<td>6.83</td>
<td>7.13</td>
<td>5.51</td>
<td>5.40</td>
<td>5.26</td>
<td>6.19</td>
</tr>
<tr>
<td>Indonesia</td>
<td>6.17</td>
<td>6.03</td>
<td>5.56</td>
<td>5.01</td>
<td>4.88</td>
<td>5.02</td>
<td>5.44</td>
</tr>
</tbody>
</table>

Source: BPS, 2018

Table 1. shows the highest average economic growth, namely Banten Province, this indicates that Banten Province has very promising economic potential. Banten is one of the provinces in Indonesia that is growing rapidly. Banten Province consists of 4 cities and 4 regencies with its capital city is Serang. Previously, Banten was part of the West Java Province, which was later expanded as a Province on October 17, 2000. 4 Regencies in Banten Province namely Lebak Regency, Pandeglang Regency, Serang Regency and Tangerang Regency, and 4 Cities in Banten Province namely Cilegon City, Serang City, Tangerang City, and South Tangerang City. Banten Province has a fluctuating economic growth in 2011-2016, as well as other provinces in Java. Banten Province is an area that has the potential to develop in various fields both in terms of infrastructure, labor, natural resources and other economic sectors. The following figure shows the development of Banten Province's Gross Regional Domestic Product (GRDP) for the period 2010 - 2016:
Figure 1. shows the GRDP of Banten Province based on constant prices during the period of 2011-2013, increasing steadily (stable) from year to year. In 2013, the GRDP of Banten Province was based on constant prices worth 331.09 trillion rupiah, an increase from 2012 which was worth IDR 310.38 trillion and in 2011 which was only worth IDR 290.54 trillion. The economic growth of Banten Province in 2016 reached 5.26%, slower than economic growth in 2015 (5.40%) and in 2014 (5.51%). Despite experiencing a decline in the economic growth rate of Banten Province is still above the rate of economic growth in Indonesia with the average economic growth of Banten Province for the 7 years period 2010-2016 of 6.19%.

According to Suandi (2016) to achieve economic growth, each region needs funds that are not only sourced from the state budget alone, but also sourced from regional revenues themselves. The ability of regions to provide funding originating from regions in the form of Regional Original Revenues (PAD) is highly dependent on the ability to realize the existing economic potential into forms of economic activities that are able to create a flow of funds for sustainable regional development. In the creation of regional independence, local governments must adapt and strive to improve the quality of public services and improvements in various sectors that have the potential to be developed into sources of Regional Original Income (PAD).

The issuance of Law No.33 of 2004 concerning Regional Government, regions are given autonomy or authority to the regions to take care of their own affairs. Regional Original Revenue (PAD) in each region varies, each region has different leading sectors in obtaining income to increase regional revenues. The existence of financial decentralization is a consequence of the existence of financial authority independently derived from PAD, Balancing Funds, Regional Loans and others from legitimate income.

The higher the PAD of an area, the lower the level of fiscal dependence of the region on the center. Furthermore, regions are more flexible in planning budget allocations according to their economic agenda. Through routine shopping, development / infrastructure shopping, or other shopping. PAD as a source of regional financing is expected to create a number of new economic activities in the community. With the increase in economic activity
in the community, there will be an increase in the number of outputs of goods and services followed by an increase in the amount of money in circulation in terms of expenditure made by the Regional Government. Furthermore, this will increase the value of GRDP and the level of community welfare.

Economic stability is very important in realizing rapid economic growth, one of the important conditions that need to be done to accelerate economic growth and development is to increase public savings. The savings can be used for investment activities. Investment as an economic activity to finance various development programs, both for the benefit of the business community and the government, is very necessary to realize sustainable development goals and have benefits for society in general. Harrod-Domar’s theory basically emphasizes the role of investment as a factor that gives rise to aggregate expenditure and basically emphasizes the role of the aspect of demand in realizing growth (Sukirno, 2010). Judging from the resources owned, Banten Province has a very large possibility for investment activities both Domestic Investment (DDI) and Foreign Investment (FDI) because of the large number of raw materials available from various sectors such as industry, agriculture, plantations and also the potential of the area that is used as a tourist attraction so that the potentials of this area are empowered, it is very beneficial in the development of various economic sectors and also supports the creation of economic activities around the area that can create jobs which of course increase the income of local people and reduce the unemployment rate.

Another indicator in supporting economic growth is labor. Populations that are increasing over time can be both drivers and inhibitors of economic growth. Increasing population will increase the number of workers and the addition allows an area to increase production. But on the other hand, the adverse effects of population increases that are not offset by employment opportunities will cause economic growth not in line with the increase in welfare. Increasing population will increase the workforce which will encourage an area to increase production. Population growth (labor force) accompanied by the availability of jobs will increase the output of the economy. The population growth will be bad if it is not balanced with existing employment opportunities or lack of availability of employment, the economic improvement that is expected is not in line with the increase in welfare.

Based on the background description above, the writer tries to find out more about the factors that can influence the GRDP in Banten Province. This is what makes the author raise the topic of economic growth to be discussed in detail with the title "The Effect of Fiscal Decentralization and Macroeconomic Variables on Gross Regional Domestic Product in Banten Province in 2010-2016".

2. LITERATURE REVIEW
2.1. Economic Development
According to Sukirno (2011), economic growth is the increase in GDP or real GNI while economic development is economic growth followed by changes in other aspects of the economy such as the development of education, the development of labor skills, technological improvements and an increase in the level of prosperity. Economic growth explains or measures the achievements of economic development. In actual economic activities economic growth means the fiscal development of the production of goods and services in effect in a country, such as the increase and the amount of industrial goods production, infrastructure development, the increase in the number of schools, the increase in production of the service sector and the increase in production of capital goods.

According to Arsyad (2010) economic growth is referred to as an increase in Gross Domestic Product (GDP) / Gross National Income (GNI) regardless of whether the increase is greater or less than the level of population growth or whether changes in economic
structure occur or not. Economic growth is one of the important indicators to analyze the economic development that occurs in a country. "Growth" is not identical with "development".

2.2. Gross Regional Domestic Product (GRDP)
According to Suparmoko and Sofilda (2014) GRDP is the amount of gross added value arising from all economic sectors in a region or province. Gross value added is the difference between the production value based on the price received by the producer, minus the value of the use of raw and auxiliary materials on the basis of the purchase price. Its components include income (wages, salaries, interest, land rent and profits), depreciation and net indirect taxes. So by calculating the gross added value of each sector and then adding up will result in GRDP.

Sukirno (2013) explained that in macroeconomic analysis, the overall shopping on the production of the corporate sector is called aggregate shopping, namely the amount of shopping carried out by various categories of buyers for goods and services produced by an economy. According to BPS (2016) GDP at the national level as well as the GRDP at the regional level (Province and Regency) illustrates the ability of an area to create added value at a certain time. GRDP is presented in two assessment versions, on the basis of "current prices" and on the basis of "constant prices". GRDP at current prices uses current year prices, while GRDP on the basis of constant prices uses certain year price data.

2.3. Regional Generated Income (PAD)
In Law No.33 of 2004 explained that the PAD is the regional income derived from the results of local taxes, the results of regional retribution, the results of the management of regional assets are separated, and other legitimate local revenue, which aims to provide freedom to the regions in seeking funding in the implementation of regional autonomy as a realization of the principle of decentralization. Based on Law No.33 of 2004 concerning Financial Balance between the Central Government and Regional Governments, the sources of local revenue as follows: (i). Regional Taxes; (ii). Regional Retribution; (iii). The results of the management of other regional assets are separated; and (iv). Other legitimate local revenue.

2.4. Balancing Fund (DP)
According to Law No.33 of 2004 concerning Financial Balance between the Central Government and Regional Governments: "Balancing Funds are funds sourced from APBN revenues allocated to Regions to fund Regional needs in the context of implementing Decentralization". The DP aims to reduce the fiscal gap between the Central Government and Regional Governments, and between Regional Governments.
1. Revenue Sharing Fund (DBH)
   Revenue Sharing Funds are funds derived from APBN revenues allocated to regions based on percentage figures to fund regional needs in the context of implementing decentralization, such as tax sharing funds (DBHP) and non-tax revenue sharing funds (DBHBP).
2. General Allocation Fund ((DAU)
   General Allocation Funds (DAU) are funds sourced from APBN revenues allocated with the aim of equal distribution of financial capacity between regions to fund regional needs in the context of implementing decentralization.
3. Special Allocation Funds (DAK)
   Special Allocation Funds (DAK) are funds sourced from APBN revenues allocated to certain regions with the aim of helping fund special activities which are regional affairs and in accordance with national priorities.
2.5. Investment (I)
According to Suparmoko and Sofilda (2014) investment is an expenditure that aims to increase or maintain capital. As additional capital which includes: construction of factories, purchase of new machinery and construction of new houses for companies that are in the process of production. Investments are classified into three types, namely: (1) seats for machines, durable equipment and bedding, (2) residential houses, and (3) additional preparations (inventory). The main factors that determine the level of investment are: (i). The predicted level of profitability will be obtained; (ii). Interest rates; (iii). Predictions about future economic conditions; (iv). Progress in Technology; (v). National income level and changes; and (vi). Benefits obtained by companies.

2.6. Labor (TK)
According to BPS (2016) residents are all people who live in the geographical area of the Republic of Indonesia for 6 months or more and or those who live less than 6 months but aim to settle. Residents over the age of 15 years are working-age residents, namely the population of Indonesia who use an economically active population of 15 years and without limits. The working age population is divided into 2 large groups, that is: (i). Labor Force, that is a working-age people who work, or have jobs while temporarily not working, and unemployed; and (ii). Not a Labor Force, that is a working-age population that does not include the workforce, including residents who attend school, take care of the household or carry out other activities. In the employment literature, several indicators are used that describe the employment situation of a country or region, that is: (i). Labor Force Participation Rate (TPAK); (ii). Employment Rate; and (iii). Open Unemployment Rate (TPT)

2.7. Research Framework

Figure 2. Research Framework

Source: Authors
3. RESEARCH METHODOLOGY

3.1. Types and Data Sources
The data used in this study is secondary data, namely data obtained based on information that has been compiled and published by certain agencies. The data to be used includes data on Gross Regional Domestic Product (GRDP), local revenue, balance funds, investment and labor. The type of data used for this research is data panel (pooling data). Panel data is a combination of time series and cross section. The number of observations in this study amounted to 56 obtained from 7 combined time series data in the form of 2010-2016, and cross section data in the form of 8 Regencies / Cities in Banten Province.

3.2. Data Method Analysis
Given the panel data is a combination of cross section data and time series data, the model used in panel data analysis is as follows:

\[ Y_{it} = \alpha_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + e_{it} \]

Furthermore, the formulation is transformed in a semi-algorithmic form with the following equation:

\[ \text{GRDP}_{it} = \alpha + \beta_1 \text{PAD}_{it} + \beta_2 \text{DP}_{it} + \beta_3 \text{I}_{it} + \beta_4 \text{TK}_{it} + e_{it} \]

Where:
- \( \text{GRDP}_{it} \): Gross Regional Domestic Product
- \( \alpha \): Constanta
- \( \beta_1, \beta_2, \beta_3, \beta_4 \): Coefficient
- \( \text{PAD}_{it} \): Regional Generated Income
- \( \text{DP}_{it} \): Balancing Fund
- \( \text{I}_{it} \): Investment
- \( \text{TK}_{it} \): Labor
- \( i = 1, 2, 3, ..., 8 \) (data cross-section)
- \( t = 1, 2, 3, ..., 7 \) (data time-series, year 2010-2016)
- \( e \): Error

According to Ariefianto (2012) regression analysis with panel data can be done with three estimation methods, namely Common Effect, Fixed Effect, and Random Effect estimates. The following are various panel regression models: (i) Common Effect / Pool Least Square Method. Common effect estimation is an estimation of panel data that only combines time series and cross-section data using the Ordinary Least Square (OLS) method. This approach does not pay attention to individual dimensions or time. In this model there is an assumption that the intercept and regression coefficient are fixed for each research object and time. (ii) Fixed Effect Method. This estimation method assumes that each object has a different intercept but has the same coefficient. To distinguish between one object and another, a dummy variable or a quasi variable is used so that this method is also called Least Square Dummy Variables (LSDV). (iii) Random Effect Method. This method does not use dummy variables like those used in the fixed effect method. This method uses residuals that are thought to have intertemporal relationships and between objects. The random effect model assumes that each variable has different intercepts but the intercept is random or stochastic.

a. Chow Test
The Chow test is to see which model is more appropriate to be used between the Common Effect model and the Individual Effect (Fixes Effect or Random Effect) model, assuming that
the probability of Chi-square is > 0.05, then Ho is accepted by the model used by Common Effect. But if the probability is <0.05, the model used is the individual effect.

b. Hausman Test
The Hausman test is used to determine the best model between the Fixed Effect or Random Effect model, assuming that the probability of Chi-square is > 0.05, then Ho is accepted by the model used by the Random Effect. But if the probability is <0.05, the model used is Fixed Effect

c. Partial Test (t Test)
T test is used to measure how far the influence of an independent variable individually in explaining the dependent variable. If t count > t table then we accept an alternative hypothesis which states that an independent variable individually affects the dependent variable (Ghozali, 2012). In estimating using E-views software, measurement can be seen by looking at the calculation of the output model estimation in each independent variable then compared with the t table based on df adjusted for the probability used. Decision making is when t count > t table, it can be seen that the independent variable is an explanatory variable that is significant to the dependent variable in the model.

d. Simultan Test (F Test)
The F test shows whether all independent variables have a joint effect on the dependent variable. If Fcount > Ftable, H0 is rejected and accepts Ha (Ghozali, 2012). In the estimation using E-Views software, F statistic testing can be done by looking at the Fcount value then compared with the F-table value using table F with the F value as the denominator. If Fcount > Ftable, it can be seen that all independent variables have a joint effect on the dependent variable.

4. RESEARCH RESULT AND DISCUSSION
4.1. Data Description
a. Gross Regional Domestic Product in Banten Province
In the figure below, it can be seen that in general the GRDP in 8 Regencies / Cities in Banten Province has increased every year. Tangerang City has the largest GRDP value among other districts / cities. The following is a picture of ADHK GRDP development from Regency / City in Banten Province:
b. Regional Original Income (PAD) in Banten Province
The value development of the Regional Original Income (PAD) used is the PAD value of 8 Regencies / Cities in Banten Province in 2010 to 2016. In the figure below shows that in general the PAD value in 8 Regencies / Cities in Banten Province fluctuates annually. The largest Regional Original Revenue (PAD) is in Tangerang Regency with the average regional income from 2010-2016 amounting to 1.21 trillion rupiah and the smallest average Regional Original Revenue (PAD) in Serang City at 66.64 billion rupiah during 2010 to 2016. The following is a picture of the development of PAD from Regency / City in Banten Province:

Figure 3.
GDP at constant 2010 prices (percent)
Regency / City in Banten Province in 2010-2016

Source: BPS, 2018

Figure 4.
Development of Regional Original Revenue (Million)
Regency / City in Banten Province in 2010-2016

Source: BPS, 2018

c. Balancing Fund in Banten Province
The development of the Balancing Fund value (DP) used is the value of the Balancing Fund (DP) of 8 Regencies / Cities in Banten Province from 2010 to 2016. In the figure below shows that in general the DP value in 8 Regencies / Cities in Banten Province is still very high, this indicates that the Regional Government still relies on transfer funds from the Central Government. The largest Balancing Fund (DP) is in Tangerang Regency with the
average funds received from 2010 to 2016 reaching IDR 1.36 trillion and the smallest Primaries Fund (DP) in Cilegon City with an average Balancing Fund receipt from 2010 to 2016 amounted to 568.19 billion rupiah. The following is a picture of DP development from Regency / City in Banten Province:

**Figure 5.**
Development of Balance Funds (Million)
Regency / City in Banten Province in 2010-2016

![Graph showing development of balance funds in Banten Province](image)

*Source: BPS, 2018*

d. **Investment in Banten Province**

Value development Investment used is the investment value of 8 Regencies / Cities in Banten Province in 2010 to 2016. In the figure below shows that investment in 8 Regencies / Cities in Banten Province is relatively low every year. Cilegon City is the city with the largest investment value from 2010 to 2016, which is 22.14 trillion rupiah. Then followed by Tangerang Regency in the amount of 6.21 trillion rupiah and Serang Regency in the amount of 4.81 trillion rupiah. This is because the 3 Regencies / Cities rely on the industrial and processing sector which is certainly attractive for investors to invest, both domestic and foreign investors. The smallest average investment value in 2010 to 2016 was in Pandeglang Regency, which was 275.37 billion rupiahs, one of the causes was the lack of adequate infrastructure to support economic activities and lack of attention from the government to stimulate investors to invest. The following is a picture of investment progress from Regency / City in Banten Province:
e. Labor in Banten Province

In the picture below shows that in general the grades of kindergarten in 8 Regencies / Cities in Banten Province are variable every year. The largest labor force (TK) is in Tangerang Regency with an average workforce from 2010 to 2016 totaling 1,448,270 people, this is due to the availability of adequate employment in various occupations. Whereas the smallest average Workforce (TK) is in Cilegon City which is 183,392 inhabitants, even though it is included in the industrial area the number of workers in Cilegon City is not like Tangerang Regency and Serang Regency it is due to the population and the area which is only 175.50 Km². The following is a picture of DP development from Regency / City in Banten Province:
4.2. Analysis And Discussion

a. Testing Estimation Model

To be able to obtain an estimate, it is necessary to choose the best regression model. There are two stages in selecting models, namely: first comparing pooled models with fixed effect models, the second comparing fixed effects models with random effects models. In the first testing phase the Chow test was conducted, which aims to compare the pooled model with the fixed effect model.

<table>
<thead>
<tr>
<th>Table 2. Chow Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Redundant Fixed Effects Tests</strong></td>
</tr>
<tr>
<td><strong>Equation: Untitled</strong></td>
</tr>
<tr>
<td><strong>Test cross-section fixed effects</strong></td>
</tr>
<tr>
<td>Effects Test</td>
</tr>
<tr>
<td>Cross-section F</td>
</tr>
<tr>
<td>Cross-section Chi-square</td>
</tr>
<tr>
<td>Source: Data processed (2018)</td>
</tr>
</tbody>
</table>

Based on the results of the Chow test obtained statistical value of 411.745199 with df (7), using $F_{table \alpha = 5\%}$, obtained a value of (2.20) which means rejecting pooled least squared (PLS) and accepting the fixed effect model (FEM).

The second testing phase is comparing fixed effects with random effects, for that the test uses the Hausman Test as in the table below:

<table>
<thead>
<tr>
<th>Table 4. Hausman Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Correlated Random Effects - Hausman Test</strong></td>
</tr>
<tr>
<td><strong>Equation: Untitled</strong></td>
</tr>
<tr>
<td><strong>Test cross-section random effects</strong></td>
</tr>
<tr>
<td>Test Summary</td>
</tr>
<tr>
<td>Cross-section random</td>
</tr>
<tr>
<td>Source: Data processed (2018)</td>
</tr>
</tbody>
</table>

Based on the results of the thirst test that has been carried out, obtained Chi-Square statistics of 11.014326 with a probability of 0.0264 on d.f 4, using the Chi-Square table obtained a value of 9.48773. The test results state that Chi-Square statistics are greater than Chi-Square tables, so it can be concluded that H0 is rejected and the best model that can be used for the research model is Fixed Effect Model.

b. Multiple Regression Analysis Test

Following are the results of data processing using multiple linear regression with the estimation of the fixed effect model. the equation model used in this study is $GRDP_{it} = \alpha_0 + \beta_1PAD_{it} + \beta_2DP_{it} + \beta_3I_{it} + \beta_4TK_{it} + \epsilon_{it}$. 

Table 5.
Data Results with Fixed Effect Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>36542.49</td>
<td>6699.606</td>
<td>5.454424</td>
<td>0.0000</td>
</tr>
<tr>
<td>PAD</td>
<td>15.18744</td>
<td>1.155209</td>
<td>13.14692</td>
<td>0.0000</td>
</tr>
<tr>
<td>DP</td>
<td>5.393331</td>
<td>1.718183</td>
<td>3.138974</td>
<td>0.0030</td>
</tr>
<tr>
<td>I</td>
<td>-0.030537</td>
<td>0.027130</td>
<td>-1.125600</td>
<td>0.2664</td>
</tr>
<tr>
<td>TK</td>
<td>-0.011953</td>
<td>0.009603</td>
<td>-1.244666</td>
<td>0.2198</td>
</tr>
</tbody>
</table>

R-squared | 0.995414 | Mean dependent var | 41273.02 |
Adjusted R-squared | 0.994267 | S.D. dependent var | 25040.16 |
S.E. of regression | 1895.899 | Akaike info criterion | 18.12018 |
Sum squared resid | 1.58E+08 | Schwarz criterion | 18.55419 |
Log likelihood | -495.3651 | Hannan-Quinn criter. | 18.28845 |
F-statistic | 868.1957 | Durbin-Watson stat | 1.123538 |
Prob(F-statistic) | 0.000000 |

Source: Data processed (2018)

The multiple linear regression equation for table 4.2 above is GRDPit = 36542.49 + 15.18744
PADit + 5.393331DPit – 0.030537Iit – 0.011953TKit.

c. Determination Coefficient Analysis
Calculations made to measure proportions or percentages of the total variation of the
dependent variable that can be explained by the regression model R² in a regression of
0.994267. This shows that the regression model of the variation of the GDP variable is able to
be explained by the variables PAD, DP, Investment and Labor by 99.4267 % of the problems
examined in this study. While the remaining 0.5733 % is influenced by variables outside this
model.

d. T Test
Statistical test t is done to find out whether individual independent variables affect the
dependent variable. The method of determining the significance of the influence of each
independent variable on the dependent variable is that if the t-table <t-count means this shows
the independent variable has a significant effect on the dependent variable, but if the t-table>
t-counts the independent variable does not affect the dependent variable.

Table 6.
T-static test results

<table>
<thead>
<tr>
<th>Variable</th>
<th>coefficient</th>
<th>t-count</th>
<th>t-table</th>
<th>Prob.</th>
<th>influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAD</td>
<td>15.18744</td>
<td>13.14692</td>
<td>1.67528</td>
<td>0.0000</td>
<td>Signifikan</td>
</tr>
<tr>
<td>DP</td>
<td>5.393331</td>
<td>3.138974</td>
<td>1.67528</td>
<td>0.0030</td>
<td>Signifikan</td>
</tr>
<tr>
<td>I</td>
<td>-0.030537</td>
<td>-1.1256</td>
<td>1.67528</td>
<td>0.2664</td>
<td>Tidak Signifikan</td>
</tr>
<tr>
<td>TK</td>
<td>-0.011953</td>
<td>-1.244666</td>
<td>1.67528</td>
<td>0.2198</td>
<td>Tidak Signifikan</td>
</tr>
</tbody>
</table>

Source: Data processed (2018)

1. Effect of Regional Original Income (PAD) on GRDP
In the independent variable that is the original regional income the calculation results
obtained are t-count X1 = 13.14692 while t-table = 1.67528 (df = nk (56-5), α = 0.05), so
that it can be concluded t-count> t-table, and the results obtained are (13.14692> 1.67528).
The comparison shows if t-count > t-table, so it can be concluded that the variable X1 has a significant effect on Gross Regional Domestic Product (GRDP).

2. Effect of Balance Funds (DP) on GRDP
   In the independent variable, the balancing fund the calculation results obtained are t-count \( X_2 = 3.138974 \) while \( t-table = 1.67528 \) (df = nk (56-5), \( \alpha = 0.05 \)), so it can be concluded t-count > t-table, and the results obtained are 3.138974 > 1.67528. The comparison shows if t-count > t-table, so it can be concluded that the \( X_2 \) variable has a significant effect on Gross Regional Domestic Product (GRDP).

3. Influence of Investment on GDP
   In the independent variable, the calculation results obtained are t-count \( X_3 = -1.125600 \) while \( t-table = 1.67528 \) (df = nk (56-5), \( \alpha = 0.05 \)), so it can be concluded t-count < t-table, and the results obtained are -1.125600 < 1.67528. The comparison shows if t count < t-table, so it can be concluded that the \( X_3 \) variable has no significant effect on Gross Regional Domestic Product (GRDP).

4. Effect of Labor on GRDP
   In the independent variable, the calculation labor obtained is t-count \( X_4 = -1.244666 \) while \( t-table = 1.67528 \) (df = nk (56-5), \( \alpha = 0.05 \)), so it can be concluded t-count < t-table, and the results obtained are -1.244666 < 1.67528. The comparison shows if t count < t-table, so it can be concluded that the \( X_4 \) variable does not significantly influence the Gross Regional Domestic Product (GRDP).

e. F Test
   This test is carried out aims to see whether there is a significant influence between the independent variables on the variable on the dependent variable simultaneously / together. By comparing between F-counts and F-tables.
   \[ F-table = (\alpha: k-1, n-k), \alpha = 0.05 \ (5-1 = 4; 56-5 = 51) \].
   The calculation results obtained are F-count = 868.1957 while F-table = 2.55 (\( \alpha = 0.05 \; 4; 51 \)), from the results of the comparison shows the value of F-count > F-table then the variables PAD, DP, Investment and Labor together - same effect on the GDP variable at 95 % confidence level.
   In addition, the Prob value. F-statistic is 0.000000. this value is smaller than the error rate (\( \alpha = 5 \% \) or 0.05). this means that the independent variables (PAD, DP, Investment and Labor) together have a significant effect on the dependent variable.

5. CONCLUSION AND SUGGESTION
5.1. Conclusion
   Based on the analysis, the authors obtain several conclusions, as follows:
   1. Regional Original Income (PAD) has a positive and significant effect on Gross Regional Domestic Product (GRDP) in Banten Province in 2010 to 2016. With the increase in Regional Original Income (PAD) the GRDP will increase.
   2. The Balancing Fund (DP) has a positive and significant effect on the Gross Regional Domestic Product (GRDP) in Banten Province in 2010 to 2016. With the increase in the Balance Fund (DP), the GRDP will increase.
   3. Investment from the results of data processing does not affect the Gross Regional Domestic Product (GRDP) in Banten Province in 2010 to 2016. This shows the high or low investment does not affect the GRDP.
   4. Workers from the results of data processing did not affect the Gross Regional Domestic Product (GRDP) in Banten Province in 2010 to 2016. This indicates that the high or low labor force does not affect the GRDP.
5. Regional Original Income (PAD), Balancing Fund (DP), Investment and Manpower jointly have a significant effect on GRDP. This shows that the variable is able to explain the variation of the GDP variable.

5.2 Suggestion
Following are some suggestions from the author based on the conclusions and implications stated above:

1. The government is expected to pay more attention to regions that are still rich in economic potential, such as Lebak Regency and Pandeglang Regency with tourism sectors that can be explored and will certainly increase PAD.
2. The exploration of economic potential must be maximized in order to reduce the dependence of transfer funds from the Central Government.
3. The role of the government in investment equity is very important, it is hoped that investors will not only focus on regions with the manufacturing industry sector.
4. The government is focused on efforts to improve the quality of human resources, especially for workers with programs to increase soft skills and hard skills.

References
Undang-Undang Nomor 33 Tahun 2004 tentang *Perimbangan Keuangan Antara Pemerintah Pusat dan Daerah*. 
A study on youth political engagement in Ayer Keroh, Melaka.

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Abstract

Political engagement can be defined as a process that address people towards the issues of common importance, solving public problem and bringing positive social changes (Bonnemann, 2012). Public may be engaged in politics through political participation in some ways such as voting turnout, contribute money to the political party or candidate, be a volunteer for a political campaign, attend political campaign event or contact an elected official. In this research, the political engagement can be observed by the involvement of youth in voting process. Generally this study is conducted to determine the factors that influence youth political engagement in Ayer Keroh, Melaka and specifically to examine the relationship between celebrity endorsement, family and friends and mass media towards political engagement among Youth in Ayer Keroh. The main analysis involved frequency, Pearson correlation and Multiple regression analysis. A total of 322 sets of questionnaires has been distributed among youth aged between 18-25 years old at Ayer Keroh to identify the relationship between youth political engagement, celebrity endorsement and family and friends’ influence and to find out the most influential factor that engaged youth into politics. The finding shows that there is a positive relationship between celebrity endorsement and family and friends’ influence with youth political engagement in Ayer Keroh. Even though youths nowadays lived in media convergence era, surprisingly, family and friends’ influence is the main factor that leads youth to engage in politics.

Keywords: Political engagement, youth, and mass media.

Introduction

Youth political engagement or to be specific, voting among youth in this country becoming the issue in 13th Malaysian General Election. Malaysia is a country that practices the non-compulsory voting system. It is a system that encourages the citizens to vote for their leaders but no sanction will be given if they refuse to vote. Malaysia is a democratic country which means that the citizens have exercise directly to elect their representative to form a governing body. It was governed by the supreme law which is Federal Constitution of Malaysia. According to Dato’ Armand Azha Hj Abu Hanifah, a member of Malaysia’s Youth Parliament claims that the act of government to make voting compulsory is breach the freedom of expression as stated in Federal Constitution (www.malaysiandigest.com).

The voice of youth is important to bring continuous changes to the country. Every person has their own philosophy, autonomy and cultural freedom especially in determining their paths (Samsi, Rahman, Hasnita, and Samsu, 2013). Therefore, the low involvement of youth in politics is not a surprise (Samsi et al., 2013). It is also not to forget that youth perceives politics only suited for the elders and those who have vested interest (Samsi et al., 2013). According to Cammaerts, Bruter, Banaji, Harrison and Anstead (2013), the voter’s turnout and involvement in any membership of political parties is some sort of political participation which has a significant decline in numbers over the past 40 years in Europe and beyond. Moreover, the increase in numbers of millennial in 2016 has matched the baby boomers’ population when it comes to electorate (Fry, 2016). According to Pew Research Centre analysis of United State Bureau (2016) data, there is an estimated of 69.2 million millennials from the age of 18-35 years old which in the voting age of United States citizens compared to 69.7 million Baby Boomers from the age of 52-70 years old. In November 2016, about 58% of eligible millennial voters said that they have voted. But, there is only 31% of actual voters’ turnout.

According to Samsi, Rahman, Hasnita, and Samsu (2013), Department of Statistic Malaysia, in the year 2013 reported that there is a total of 12,015.7 million young people in Malaysia; based on year 2000 consensus
and many of them are not interested on politics. This statement was supported by a research done by the Confederation of Peninsular Malay Students (Gabungan Pelajar Melayu Semenanjung) which found that 70 percent of youth are not interested in politics, with only 10 percent of them being pro government and the other 20 percent claimed they are in natural side (Samsi et al., 2013). Among all of them, there is a tendency and they are more likely to focus on their education and build a better life with a great job. However, the growth and development of politics in Malaysia since reformation era in September 1998 has opened the eyes of the political parties to get closer with the youngsters. It makes them realized that young voices are important for their parties’ continuity.

In Malaysia, the numbers of voters who turn out for the polls in 13th General Election are the highest in the Malaysia’s general election history which about 84.8% which equal to 11.3 million people (www.malaysiandigest.com). However, a statistic from Election Commission (EC) indicates that 4.2 million out of 17.7 million of eligible voters are still not registered during 13th General Election. It will affect the 14th General Election if the eligible youth are still not registered (www.malaysiandigest.com). The former Minister of Youth and Sport, Khairy Jamaluddin, has encourage the youth to get involved in political system as a voter so that the youth are able to get benefits on government policies.

In order to motivate the involvement of youth, #UntungDaftar through Invoke, the PKR (Parti Keadilan Rakyat)-linked organization has started to campaign on registration as voters for 14th General Election. The new registered voters may have a chance to win weekly cash prizes up to RM1, 000. This motivation is more effective to persuade youth to register as a voter. As the question on making the voting compulsory, Dato’ Armand Azha Hj Abu Hanifah, a member of Malaysia’s Youth Parliament claims that the act of government to make voting compulsory is breach the freedom of expression as stated in Federal Constitution (www.malaysiandigest.com). Through all this issue, this study was conducted to observe the factors that influence youth political engagement in Ayer Keroh area.

1. To examine the relationship between celebrity endorsement, family and friends and political engagement of youth.
2. To examine the relationship between electronic media and the youth political engagement.
3. To determine the most influential factor on youth political engagement.

Significance of the proposed study

This research will be addressed the current issue regarding the general election in Malaysia. The issue arose during the 13th Malaysian General Election in year 2013. There are quite huge number of voters who do not turnout to register for the election even though the number of the voters who turnout for the Election Day was the highest in the Malaysian General Election history. This survey can contribute to the analysing of factors that can affect the 14th General Election (already held in 9 May 2018).

This issue comes into concern of many people including policymakers. The low-involvement of the youth especially for youth will affect the election result trend. According to Department of Statistic Malaysia; as analysed in the third quarter of the year 2017, about 129.5 thousand of live births as compared to only 40.7 thousand deaths. It also stated that there will be a high amount of youth and it will increase day by day. Moreover, the youth will be the future leaders. If they did not aware on politics of the country, there will be no one who is able to replace current leaders. It is a need for the younger generation especially the youth to equip themselves with the political knowledge to choose a better leader to represent them.

This study is important to be referred by the policy makers. This is because the policy maker will decide for the public. Every policy must benefit the public. Therefore, the policy makers need to have valid and reliable information. Since this policy caters on youth political engagement, the data can be used by the policy maker to enhance the political engagement of youth in Malaysia. For an instance, the policy maker may improve the policy on the age of youth engagement in politics.

Other than that, this study might give benefits to the politicians themselves. This is because the study is going to find out the most influence electronic media for political engagement. Therefore, the politicians can design their own strategies to influence the youth to engage in Malaysian political system. For example, if the social media is the most influence media among youth, the politicians need to make a move by keeping close with the youth through the social media. As we can see, in 2017, YB Khairy Jamaludin has taken this step by using the social media site such as Facebook, Twitter and Instagram.

Lastly, this study is also important for the parents. The study will examine the relationship between family and friends’ influences and political engagement. The parents can design and adopt the best style to encourage the political engagement of youth. The influence of the family and friend might affect the youth political engagement. Therefore, the effective action and decision can be made by referring to this research.
2. Literature review

2.1 The Political Engagement of Youth

There are several factors that can influence the political engagement of the youth. Political engagement took several acts of participation such as voting during the Election Day, donating money to the political groups or candidates, participating in the campaign events or even contacting the elected official. In measuring the political engagement, there is a strong relationship between political participation of youth and the ideology and partisan antipathy (Pew Research Centre, 2014). It means that if the person is consistently show his support towards certain political party and hold negative view of the other party, they are more likely to participate in the political process than the others (Fry, 2016).

When talking about participation, many people might have different perspective as to what participation means and involves. In 1970s, Pateman (1970) refers the elusiveness of participation when she wrote “the widespread use of the term . . . has tended to mean that any precise, meaningful content has almost disappeared; ‘participation’ is used to refer to a wide variety of different situations by different people”. According to Cammaerts, Bruter, Banaji, Harrison and Anstead (2013) the quote explains the reason of participation tends to be differentiated into various degrees of participation in the political theory literature. In political theory, meaningful participation is defined as sharing power. In other words, participation can be defined as space of authority. This situation may result on the “U-shape” pattern which the higher levels of engagement are on the left and right; while the lower level of engagement in the middle. The higher levels of engagement are from the person who are getting involved in political process; based on their political ideology such as conservative and liberal. While the lower in the middle usually consist of the person who viewed mix liberal and conservative values and declared themselves as regular voters. According to Pew Research Centre (2014) about 78% of American who consistently conservative said that they are voting compared to the consistent liberal at the 58% of American when it comes to voting.

The youth can be described as people who are young adult. The range age of youth is depending on the constitution of the country. In United States of America for example, the young voter is a person in early adulthood aged between 18 to 24 years old. While in Malaysia, according to 1997 National Youth Development Policy, youth can be defined as person includes in the range between the ages of 15 – 40 years old. However, the policy also specifies that youth development programs and activities shall be focused on youth aged 18 – 25 years old.

Cammaerts, Bruter, Banaji, Harrison and Anstead (2013) in the Myth of Youth Apathy: Young Europeans’ Critical Attitudes toward Democratic Life stated that many policy makers suggesting that majority of the youth today are apolitical, indifferent, or totally apathetic toward politics. They also do not disregard the fact that there might be several youths who express their apathy when it comes to democracy and participation. However, the reasons for these negative attitudes are complex and not merely reducible to apathy (Cammaerts, Bruter, Banaji, Harrison and Anstead, 2013). Younes (2010) as cited in Cammaerts, Bruter, Banaji, Harrison and Anstead (2013) stated that there is a variety of participatory practices youth who engaged in politics but it is not necessarily involves with the old party-political structures; which young people used to engage in democratic life in the past and that expand the conception of political participation beyond the elections.

2.2 The Celebrity Endorsement

The first factor that might influence the young voter’s political engagement is celebrity endorsement. In United States of America during the 2004 and 2008 presidential election, the influence of the celebrity in a political decision was a concern between the candidates (Brubaker, 2011). This is because the influence of celebrities is powerful. During the presidential election, many Hollywood celebrities are loudly and proudly voiced out their support to their chosen candidate (Brubaker, 2011). In America, the election of the president, Barrack Obama in November 2008 proved the celebrity influence in political election. He was a president who do the presidential campaign in a hip-hop heat under the auspices of William of the Black-Eyed Peas (Street, 2012). When Bill Clinton had played saxophone and Tony Blair had posed with the guitar, Barrack Obama performed a cool dance with Allen DeGeneres on her chat shows. The endorsement of the Hollywood Celebrity and Grammy-winning rock star that accompanied Obama on the stump was brought to the centre stage for the Inauguration concert.

There is one research by Garthwaite and Moore in 2008 which found strong evidence that Oprah’s endorsement of Obama in 2008 Democratic primary had an impact on both Obama’s success and the overall voter’s turnout. The researchers estimated that the endorsement was responsible for 1,015,559 votes for Obama. In this election, Obama beaten Hillary Clinton by 278,966 votes. Similarly, Garthwaite and Moore estimated that Oprah’s endorsement was responsible for increasing voter turnout by 2,196,476 which is a substantial amount in an election where 33,386,184 votes were cast. According to Nisbett and DeWalt, celebrity influence increasingly
being a central point in many contemporary political and social platforms. Although the combination of politics and celebrity is not a new phenomenon, the politicians nowadays fully utilize the celebrities to get closer with the young generation. Some of the campaign involves big celebrities who always receive coverage from media and a lot of internet traffic weather in Twitter retweets or Facebook likes. This is because most of the youth seek information of politics from nontraditional sources such as celebrities and late-night talk show (Kwak, 2011).

In Malaysia context, the former Prime Minister has come out with the Transformasi Nasional 2050 (TN50) policy. ‘Transformasi Nasional 2050’ or TN50 is an initiative plan of Malaysia in the period of 2020 to 2050. It was initiated from Vision 2020 that promised of becoming a developed nation and be among the top countries in the world in economic development, citizen well-being and innovation. The former government was trying to utilize the influence of celebrity for a better policy. Therefore, this policy involved 23 ambassadors from various background and fields of works to arrive more holistic reach to the people (TN50 Select 10, 2017). Noor Neelofa Mohd Nor or also known as Neelofa, the young actress, TV presenter and entrepreneur has been selected as the TN50 ambassadors. Neelofa has been listed in the Forbes Asia 30 under 30 of influential people throughout the Asia (The 30 Under, n.d.). She confident that her fan base is eager as she is to contribute towards a better Malaysia in the future as she already has about 4.8 million fans following her on Instagram (TN50 Youth Ambassador, n.d.)

In contrast, it was found that young adults are less likely to put trust on political endorsement and information from celebrities which defined as an actors, singers, talk-show hosts, and athletes only (O’Regan, 2014). They are more trusted on the information from other sources such as family and friends and political or interest groups. This is because most young adults believe that endorsed celebrities are less informed about politics. Brubaker (2011) found that young voters put a distance on themselves from celebrity endorsements of out-group candidates. However, celebrity endorsements also had no influence on voters’ decisions as voters already have their own favour candidates. Therefore, this study investigates the relationship between celebrity endorsement and youth political engagement.

2.3 The Electronic Media

The second factor that might influence the political engagement of youth is electronic media. According to statista.com, as in January 2017, there are 1,871 million active users on Facebook, 1,000 million of active users on Whatsapp and 317 million active users on Twitter. This statistic shows that there are a huge number of active users on various Social Medias. According to Jones and Fox (2009), as cited in Shiratuddin et al. (2016), the Y Generation is more likely to sign up in social networking site than the older generations. Lenhart (2010) as cited in Shiratuddin et al. (2016) also agreed with Jones and Fox (2010) as he has concluded that there are 70% of Generation Y who used social networking sites and 63% of them go online daily for sending message to their friends and receiving news. This fact shows that there is high engagement of the youths and social media.

In this modern era, there are many challenges in the development of youth. In one side, youth can be determined as an asset for the country as they will be the future leaders. Meanwhile, the other side blamed the youth especially by the immature use of media which they constantly challenge the social norms and avoid their responsibility for the society (Shiratuddin et al., 2016). The youths are portrayed as a negative and problematic generation as they always getting involved in any negative act and they are not given an equal portrayal to generalized youth development potential (Shiratuddin et al., 2016).

Social medias are increasingly used especially in political context recently due to the tremendous growth of social media such as Twitter and Facebook. It is both used by citizens and political institutions such as politicians, political parties and political foundations. It is important to actively participate in the political communication based on the use of social media, especially during election campaigns as we look through the perspective of political institutions. Social media thereby represented as tool and information base to measure public engagement on policies and political positions (Stiegitz and Dang-Xuan, 2012). The involvement of the politics in the media platform especially in social media will give a huge impact towards the youth political engagement as youth are more exposed to this cheap and up-to-date platform which is social media.

Other than social media, Baekgaard, Jensen, Mortensen and Serritzlew (2014) stressed that other important societal developments of the twentieth century includes the emergence of national television and other electronic mass media. From the early stage, fatigue from political advertising, the format is less suitable for reminding the public to vote, or the elections become less exiting since television often presents early predictions of the winners were believed to negatively affected voters turnout (Glaser 1965, Ranney 1983 as cited in Baekgaard, Jensen, Mortensen and Serritzlew, 2014).

However, Oberholzer-Gee and Waldfogel (2009) found a strong positive effect of local news media. Using data from United States metropolitan areas, the researchers show that the local news that offered in Spanish have significantly impact higher turnout among Hispanics. The article can be interpreted that the local
news in Spanish language increases the level of relevant political information among the Hispanic voters. In contrast, where only national news in English language is available, the political information delivered has low understanding, which in turn leads to a low voters’ turnout. Therefore, it can be concluded that the medium provided must be inline and can be understand by the audience.

In contrast, Zaheer (n.d.) in her study found that the traditional political participation referred to offline participation such as hold political party office, been a candidate for office, worked for a political party or candidates or become an active member in a political party is more forceful and having a strong influence on people’s political opinion. Other than that, Salman and Saad (2015); based on their study concluded that the youth are more inclined to used new media such as social media for entertainment and social networking instead of discussing on the political development in the country.

In Malaysia context, Salman and Saad (2015) stressed that the youth in Malaysia are exposed to political participation online as referred to precisely social media such as Facebook and Twitter. This can be proven by the 2014 gathering called TURUN which is a movement to express they are against increases in price and cost of living which mostly involved the youth in Malaysia. By referring to the past research, electronic media is a powerful tool in influencing the youths to engage in politics.

### 2.4 The Family and Friends’ Influence

The third factor that might influence the political engagement of youth is the family and friends. Henn and Ford (2011) in their study, compared their findings in 2002 and 2011 and they found that young generation in Britain at the age of 18 are more interested to involve in politics with 64% in 2011 compared to 48% in 2002 (Henn and Foard, 2011). It is a positive shift for the political environment and thus will prove that the youth does not dismissive of political matters. This is because the participation of the youth in politics is important as they are about to manipulate the numbers of voters. However, the failure to control the youth might have a long-term effect to political participation (Bhatti and Hansen, 2012).

A research conducted on May 2011 shows that 54% of the respondent considered that they would discuss politics with their family and friends (Henn and Foard, 2011). Bougher (2017) in his study raised the possibility of the influences of the parent will affect their children’s political development in non-deliberative way such as having a daily conversation.

A study by Cammaerts, Bruter, Banaji, Harrison and Anstead, (2013) found that the external influences on vote is limited but it is more related to the family and friends. They also stated that money is not the young’s motivation. The most important motivation in youngsters from all social background is a sense of duty, excitement to vote and support for a party or candidate. They also stressed out that low voter’s turnout is not caused by the laziness or selfishness of youth, but the youth want to be treated as an intelligent people.

Furthermore, the children who received a predisposition on politics at their early age tend to be more stable on the political opinion than the people who are not (Jennings, Stoker, and Bowers, 2009). The early predisposition on politics can be adopted from their families especially the parents. They will carry forward their parental legacy, without losing the initial correspondence even though there will be some forces along the way (Jennings et al., 2009). In contrast, those people who less socialized will be instable during the adulthood (Jennings et al., 2009).

Other than that, the discussion on politics among the family members itself is not enough. The parents’ background qualities play an important role in developing the children’s political view. As found by McIntosh, Hart, and Youniss (2007), the parents’ background on politics give impacts on their children development. They tend be influenced by their parents’ way of thinking regarding political matters. The political discussion among family members will helps youth in gaining new political knowledge (McIntosh et al., 2007) but the parents’ background matters on determining the discussion leads to. Moreover, the political discussion among family members and friends allow them (family members and friends) to serve as early political sources in determining the youth’s political knowledge based (McIntosh et al., 2007). Therefore, this study will examine the relationship between family and friends towards the youth political engagement.

### 2.5 Conceptual Definition

#### 2.5.1 Political Engagement

Public engagement or also known as political engagement can be defined as a process that address people towards the issues of common importance, solving public problem and bringing positive social changes
Public engagement includes vote, contribute money to the political parties or candidates, be a volunteer or work for a campaign, attend a campaign event or contact an elected official. In this research, the political engagement can be observed by the involvement of youth in voting process.

2.5.2 Celebrity Endorsement

This research focuses on the involvement of the celebrities as the political endorsers includes the actors, entrepreneur, musician and even senior lecturer. In Malaysia context, the government has come out with the Transformasi Nasional 2050 (TN50) policy; an initiative plan for Malaysia between the year 2020 to 2050. Therefore, this policy involved 23 ambassadors from various background and fields of works to achieve more holistic reach to the people (TN50 Select 10, 2017). Noor Neelofa Mohd Nor or also known as Neelofa, the young actress, TV presenter and entrepreneur has been selected as the TN50 ambassadors. Neelofa has been listed in the Forbes Asia 30 under 30 of influential people throughout the Asia (The 30 Under, n.d.). She confident that her fan base is eager as she is to contribute towards a better Malaysia in the future as she already has about 4.8 million fans following her on Instagram (TN50 Youth Ambassador, n.d.).

Electronic Media

Electronic media can be defined as a broadcast or media storage that taking advantage on electronic technology (David, 2016). It includes television, radio, Internet, fax, CD-ROMs, DVD, and any other medium that requires electricity or digital encoding of information. The term ‘electronic media’ is often used in contrast with print media. In this research context, the media that will be studied are television, radio, internet and social media networking sites.

2.5.3 Family and Friends

A structural definitions of the family can be defined by a family members who characterised with similarity such as those who share a place of residence, or who are related through blood ties or legal contracts (www.purdue.edu, n.d.). While friend is a person that involve in a friendship. Friendship can be defined as interpersonal relationship in which people voluntarily interact to each other (Jones, n.d.).

3. Methodology/Materials

In this research, the researcher used a purposive sampling. Purposive sampling can be defined as a technique that uses a convenience sampling procedure. However, this technique has a reason to deliberately selecting the unit in terms of criteria to be fulfilled. This study involved a population of youth in Ayer Keroh from the age of 18 to 25 years old. Therefore, the sample in the study must fulfil the criteria to be selected.

The researcher will measure the independent variables such as celebrity endorsement, electronic media and family and friends’ influence towards the political engagement of youth in Ayer Keroh. This is a quantitative research as the data will be collected through the questionnaire. The questionnaire consists of three (3) sections which are section A, B and C. Section A covers on the background and demography of the respondent. In this section, the types of measurement scales are nominal and ordinal. Section B consists of Part 1: Celebrity Influence; Part 2: Electronic Media; Part 3: Family and Friends’ Influence. While for the last section which is Section C, covers on political engagement of youth.

4. Result and Findings

4.1 Celebrity endorsement and youth political engagement.

The research found that there is a positive relationship between electronic media and youth political engagement. However, there is only positive weak significant relationship between celebrity endorsement and youth political engagement where ($r=0.380$, $p<0.01$) according to the rule of thumb. It is supported by a research done by O’Regan (2014). He found that young adults are less likely to put trust on political endorsements and information from celebrities which he defined as an actors, singers, talk-show hosts, and athletes only. They are more trusted on the information from other sources such as family and friends and political or interest groups. This is because most young adults believe celebrities are less informed about politics. In another study, Brubaker (2011) found that young voters put a distance on themselves from celebrity endorsements of out-group candidates. However, celebrity endorsements might have no influence on voters’ decisions as voters already has their own favour candidates. By referring to the hypothesis for the first research question which is Celebrity endorsement had weak influence in youth political engagement, as shown by the finding that there is weak positive relationship between celebrity endorsement and youth political engagement.
4.2 Family and friends’ influence and youth political engagement

Research found that is a positive strong significant relationship between family and friends’ influence and youth political engagement where (r=0.604, p<0.01), this result is supported by the previous research by Jennings, Stoker, and Bowers (2009) where the children who received a predisposition on politics at their early age tend to be more stable on the political opinion than the people who are not. The early predisposition on politics can be adopted from their families especially the parents. They will carry forward their parental legacy, without losing the initial correspondence even though there will be some forces along the way (Jennings et al., 2009). In addition, the discussion on politics among the family members itself is not enough. The parents’ background qualities play an important role in developing the children’s political view. As found by McIntosh, Hart, and Youniss (2007), the parents’ background on politics give impacts on their children development. They tend be influenced by their parents’ way of thinking regarding political matters. The political discussion among family members will helps youth in gaining new political knowledge (McIntosh et al., 2007) but the parents’ background matters on determining the discussion leads to. Moreover, the political discussion among family members and friends allow them (family members and friends) to serve as early political sources in determining the youth’s political knowledge based (McIntosh et al., 2007). Therefore, the hypothesis for second research question which is **Family and friends has a positive strong relationship to youth political engagement** is accepted.

4.3 Most on political engagement of youth

Two out of three independent variables have significant relationship with dependent variable. The beta value for electronic media is 0.278 while the beta value for family and friends’ influence is 0.385. These two variables explain 44 per cent of the variance (R Square) in youth political engagement and indicated by the F-value of 82.451. However, after conducted stepwise regression analysis, finding shows that only family and friends’ influence variable has been entered into the regression equation, and this variable explains 44 per cent of the variability in youth political engagement, F (1,319) = 179.450, p < 0.05. The second independent variable which is electronic media failed to meet the selection criteria, as indicated by the non-significant t-value (p=0.05). Therefor, **Electronic media has a positive very strong relationship to youth political engagement** is rejected.

This shows that these two independent variables are capable in influencing the youth political engagement. But, family and friends’ influence the most on the youth political engagement. It is proven through a research conducted on May 2011 which shows that 54% of the respondent considered that they would discuss politics with their family and friends (Henn and Foard, 2011). This result shows that the youths are more open to share their political opinion with their family and friends. Other than that, a study by Cammaerts, Bruter, Banaji, Harrison and Anstead, (2013) proves that the external influences on vote is limited but it is more related to the family and friends.

5. Conclusion

In conclusion, this research was conducted to study the political engagement of youths. This study was conducted in Ayer Keroh, Melaka with 322 respondents. The respondents consist of 136 male respondents and 186 female respondents, aged between 18-25 years old and analysing the family engagement in politics, 63.4 per cent said that their families are not engage in politics and other 36.6 per cent involved in politics. The researcher has pointed out three hypotheses which are celebrity endorsement has weak influence in youth political engagement, electronic media has a positive very strong relationship to youth political engagement and family and friends has a positive strong relationship to youth political engagement. It can be concluded that celebrity endorsement on political campaign in Ayer Keroh does not influence the youth to engage in politics. Next, electronic media does not have a very strong relationship with the youth political engagement in Ayer Keroh. This is supported by a research from Salman and Saad (2015); based on their study concluded that the youth are more inclined to use new media such as social media for entertainment and social networking instead of discussing on the political development in the country. Lastly, this study found that family and friends’ influence has a strong relationship to youth political engagement and it turn to be the most influential factor towards youth political engagement.

References


Poverty is one of the problems faced by every country in the world, especially for developing countries such as Indonesia. Decreasing poverty is an important indicator of the success of national development. This study aims to determine the effect of inflation, UMP, PDBR, PMA and Unemployment on the level of poverty in Java and Bali in 2010-2016. The data used in this study is panel data from 2010 to 2016 with a sample of 7 provinces in Java and Bali. The method used in this study is panel data regression analysis and program tools Eviews 8 with the REM (Random Effect Model) approach. The results of this study indicated that by using a significant level of 5%, partially UMP and PMA have a negative effect on the level of poverty while inflation, GRDP and unemployment do not affect the level of poverty in Java and Bali. Simultaneously, all independent variables affect the level of poverty. Improving regulations on foreign investment in Indonesia by giving stimulus for investors to invest, is a way that the Government of Indonesia should do in overcoming poverty level. The government must also improve the regulations on minimum wages setting up by each province, as the UMP can be used as a benchmark to perceive the welfare level of the region, because the higher the UMP in an area, the more prosperous the community.

Keywords: Inflation, Minimum Province Wages (UMP), Gross Regional Domestic Product (PDRB), Foreign Direct Investment (FDI), Rate of Unemployment, Poverty Rate, Fixed Effect Model

1. INTRODUCTION
Economic growth is one of the indicators that is very important in assessing the performance of an economy, especially for analyzing the results of economic development that has been carried out by a country or region. The development process requires high national income and rapid economic growth. Indonesia is one of the developing countries that has a high level of economic growth. Indonesia is one of developing country which is attract and manage investors to enter through Emerging markets (capital markets in developing countries), and diversify internationally. Economic growth in developing countries has characteristics that are different from markets in developed countries therefore it will be more profitable in shaping investment in developing countries (Tandelilin, 2010).

Economic growth requires the provision of production resources to be aimed at the production process of capital goods that are not used for direct consumption but will be used for further production processes, to produce goods and services. Thus, it is essential to provide capital and financing for economic growth. One of the source coming of foreign capital resources which can be in
the form of Foreign Investment (PMA). Foreign Investment (PMA) is an investment made by foreign capital owners inside the country to get profit from the business done.

In terms of individuals, unemployment causes various economic and social problems to those who experience it. The absence of income causes the unemployed to reduce their consumption expenditure. In addition, it can interfere with the level of family health. In long term unemployment has a bad effect on the welfare of the community and it has evident that continuous efforts must be made to overcome un employment rate (Sukirno, 2015).

Therefore, efforts to alleviate poverty must be carried out comprehensively that covers various aspects of people's lives, and is implemented in an integrated manner. Poverty occurs because the inequality capability in raising income of the community. This cause that there are people cannot participate in the development process. Based on the background explained above, we interested to conduct research with the title "The Influence of Inflation, UMP, Economic Growth, PMA and Unemployment on Poverty Levels in 7 Provinces in Java Island and Bali Island 2010-2016”.

Therefore the formulation of the problem of this study is as follows: 1) What is the effect of inflation on poverty levels in 7 provinces in Java and Bali Island in 2010-2016 ?; 2) What is the influence of UMP (Provincial Minimum Wage) on poverty levels in 7 provinces in Java and Bali Island in 2010-2016?; 3) What is the influence of economic growth on poverty levels in 7 provinces in Java and Bali in 2010-2016 ?; 4) How is the influence of PMA (Foreign Investment) on poverty levels in 7 provinces in Java and Bali Island in 2010-2016 ?; 5) How is the effect of unemployment on poverty levels in 7 provinces in Java and Bali in 2010-2016 ?; 6) What is the influence of inflation, UMP (Provincial Minimum Wage), economic growth, PMA (Foreign Investment) and unemployment on poverty levels in 7 provinces in Java and Bali Island in 2010-2016?

2. LITERATURE REVIEW
2.1. Definition of Inflation
According to Halim (2012), "In economics, inflation is a process of increasing prices in general and continuously (long term) in the long run". In general, the effect of inflation is decreasing in purchasing power of the people because the real level of income also decreases (Idris, 2016). For example inflation in year A has increased by 5%, while income is fixed, it means that income has decreased in real terms by 5% and relatively will cause a decrease in purchasing power by 5% as well. According to Idris (2016), inflation that occurs can be grouped by nature, cause of occurrence, 1) Inflation Based on its Nature, inflation is divided into four main categories, namely: a). Low Inflation (Creeping Inflation), is the inflation which is if calculated by the time per 1 year, is less than 10%. This type of inflation can encourage producers to increase production of goods and services. b). Medium Inflation (Galloping Inflation), is a kind of inflation which is, if calculated by the time per 1 year, is between 10% and 30%. And it has a characteristic that is characterized by increasing prices quickly and relatively large. Inflation with this condition is usually referred as double-digit inflation, for example: 15%, 20% and 30%. c). Weight Inflation (High Inflation), Heavy inflation (high inflation), is an inflation with value between 30-100% per year, for example inflation that occurred in the mid 1960s reached 60%. In this condition prices generally rise. d). Very High Inflation (Hyperinflation), is a kind of inflation that occurs with specific characteristics, which is drastically rising prices even reaching 4 digits (above 100%). In these conditions, people prefer to exchange their money with goods, because the value has dropped so sharply that people are unwilling to save money.

2). Inflation Based on the Cause generally can be divided into two, namely as follows: a. Demand Pull Inflation, is the kind of inflation that occurs because on ones side inflation arises high demand overall, while production conditions on the other hand have reached full employment opportunities. In the law of demand, if the demand is high, while the offer is fixed, this will cause the price to rise. If this happens continuously, it will cause extended inflation. Therefore, what can be done to overcome this situation is to open new production capacity by adding new workers. b. Cost
Push Inflation is caused by a decrease in production due to rising production costs (rising production costs can occur due to inefficient companies, falling in currency exchange rates of the country, rising prices of industrial raw materials, demands for wage increases from strong trade unions and so on). From the high production costs, there are two things that can be done by the producer, the first is with the same amount of offering, producers can directly increase the price of the product. The second is the price of the product rises (because of the pull of demand and supply) due to the decreasing in the amount of production. 3) Inflation Based on Its Origin. It is divided into two, namely as follows: a. Domestic Inflation. This kind of inflation arises because of the deficit in financing and state expenditure seen in the state budget. To overcome this, the government usually makes a policy of printing new money. Besides that, prices due to a bad season (crop failure), lengthened natural disasters and so on. b. Inflation Originating from Abroad (Imported Inflation) This inflation arises because countries that are trading partners experience high inflation. Price increases abroad or in major trading partner countries (partly due to the weakening of the exchange rate) which will directly or indirectly cause an increase in domestic production costs.

2.1.2 Causes of Inflation
According to Halim (2012), inflation can be caused by several types, namely the demand pull (demand pull inflation) and the pressure of production costs (cost push inflation). Demand pull inflation occurs due to excessive total demand resulting in a change in the price level. Increasing demand for goods and services results in increased demand for production factors. Increasing demand for these factors of production then causes the factor prices of production to increase. So, this inflation occurs because of an increase in total demand when the economy is concerned in a situation of full employment. Cost push inflation occurs as a result of increased production costs (inputs), such as rising prices of raw materials and electricity tariffs, resulting in rising prices of products (outputs).

2.2 Definition of Minimum Wages
Santoso and Masman (2016) suggested that the minimum wage is a minimal standard used by industry or entrepreneurs to pay wages to workers in their work or business environment. Because the fulfillment of decent needs in each province varies, it is called the Provincial Minimum Wage. According to Government Regulation of Indonesia No. 1 of 1999 Article 1 paragraph 1, "The minimum wage is the lowest monthly wage consisting of basic wages including fixed allowances. This wage is valid for those who are single and have a work experience of 0-1 years, functioning as a safety net, determined through a Governor's Decree based on recommendations from the Wage Board and valid for 1 year." According to Malik (2016) the minimum wage is composed of basic wages and fixed allowances. However, in government regulations that are clearly regulated are only basic wages and do not include allowances, so they often cause controversy for employers and workers. The fixed allowance is a permanent allowance without considering the level of attendance of workers or output, such as permanent family allowances and benefits based on seniority.

2.3 Definition of Economic Growth and Gross Regional Domestic Product
In macroeconomic analysis the level of economic growth that a country wants to achieve is measured by the development of real national income achieved in a given year. Gross Domestic Product (GDP) is total income and total national expenditure on the output of goods and services in a certain period. This GDP can reflect economic performance, so that the higher the GDP of a country, the better the economic performance in the country can be said. Because of the importance of the role of GDP in an economy, it is necessary to analyze what factors can affect GDP. Actually there are many factors both directly and indirectly. According to the Keynesian theory, GDP is formed from four factors that positively influence it, these four factors are consumption (C), investment (I), government expenditure (G), and net exports (NX). These four factors are again influenced by various factors, among others, influenced by factors such as income levels, price levels, interest rates, inflation rates, money supply, exchange rates. Some economists argue that the upward trend for capita output is not enough, but the increase in output must come from the internal process of the economy. In
other words, the process of economic growth must be self-generating, which means to generate power for the emergence of long-term growth growth (subsequent periods).

Gross Regional Domestic Product (GRDP) is the amount of added value of goods and services resulting from all economic activities in an area. GRDP calculation uses two kinds of prices, namely current prices and constant prices. https://andre239.wordpress.com/2012/03/09/pdrb-produk-domestik-regional-bruto/

2.4 Concepts and Understanding of Investment

According to Noor (2015), conceptually, investment is an activity to allocate or invest resources at this time, in the hope of getting benefits in the future. To facilitate understanding and calculation, these resources are usually converted into monetary units or money. Thus, conceptually, investment can be defined as investing money at present to get benefits (remuneration or profits) in the future. The definition of investment means that the money that should now be consumed is diverted to be used for future profits. Thus, the notion of investment can be formulated as sacrificing current consumption opportunities and hopes for future benefits. Thus, investment can also be seen from the following aspects (Noor, 2015): 1) Aspects of money (which are invested and expected). So as to assess feasibility investment in the future, the concept of money is also used. In addition, money is used as a measure of wealth invested and that is expected because of that to assess feasibility investment is also used the concept of money (money and value concept). 2) Aspects of time (present and future). So to assess feasibility investment, the time concept is commonly used. This concept assesses that the receipt and expenditure of the same amount of money at different times have different values. With the concept of time value of money, two values are known, namely the future (future value, FV) and the present value (PV). Thus, investment valuation involves assessing the FV with the current perspective or PV. 3) Another important aspect of investment is the aspect of investment benefits, so that the investment feasibility assessment must also look at the benefits and costs resulting from using the benefit principle or cost benefit ratio. Thus, the concept of investment coverage is extensive. In other words, it can be said that investment is every activity of allocating current resources with the aim of getting benefit in the future. At a macro level, investment can come up from domestic investment (PMDN) or foreign investment (PMA). This investment is an important factor that can affect Indonesia's economic growth.

Foreign investment in Indonesia is regulated by the Law No. 25 of 2007 concerning Investment (the Investment Law) which is a substitute for the old Investment Law No. 1 of 1967 concerning Foreign Investment (UUPMA) and also the Law No. 6 of 1968 concerning Domestic Investment (PMDN Law). In contrast, to the Capital Market Law and the Domestic Capital Investment Law which make the distinction between foreign investment and domestic investment, the current Investment Law, the problem of foreign and domestic investment is regulated in one unit. Differentiation of foreign investment and domestic investment is still carried out in the context of identifying the origin of the capital, whether originating from domestic sources or foreign sources, or based on the party that carries out the capital, whether local / domestic investors or foreign investors. The definition of "investment" refer to article 1 number (1) of the Investment Law is defined as all forms of foreign investment activities to conduct business in the territory of the Republic of Indonesia, while "foreign investment" in article 1 number (3) of the Investment Law is defined as capital investment activities to conduct business in the territory of the Republic of Indonesia carried out by foreign investors, for both those use fully and joint venture foreign capital with domestic investors. The importance of the role of foreign investment in Indonesia's economic development is reflected in the objectives set out in Law No. 25 of 2007 concerning Investment (the Investment Law) as a positive legal basis for investment activities in Indonesia. In the
Investment Law, the purpose of investment management are (Kairupan, 2013): 1) Increasing national economic growth. 2) Creating employment. 3) Enhancing sustainable economic development. 4) Increasing competitiveness of the national business world. 5) Increase national technology capacity and capability. 6) Encouraging the development of populist economy. 7) Potential economic processing becomes real economic power by using funds originating from both domestic and overseas.

2.5 Unemployment Theory
Understanding unemployment according to Pujoalwanto (2014), unemployment or joblessness is a term for people who do not work at all, are looking for work, working less than two days a week, or someone who is trying to get a decent job”. Meanwhile, according to Kaufman and Hotchkiss in Pujoalwanto (2014), "Unemployment is a measure that is done if someone does not have a job but they are actively doing business in the last four weeks to find work”.

Unemployment basically cannot be completely eliminated, because after all the good and great ability of a nation in handling its economy, there is still unemployment. However, the classical school with one of its famous theories as the law "Say" from Jean Baptiste Say who said that "supply creates its own demand" or the offer to create its own demand explained that if this happens, then unemployment will not exist, and if any will not last long, because it will recover. The way it works is simple, that if the producer produces a certain amount of goods, the public will consume it immediately. At the same time, for example, there are job seekers, because producers will be better able to produce large quantities of goods to increase profits without fear of risk of failure in sales, then all job seekers will be absorbed to fill new vacancies provided by producers / companies, and this continues. But in reality no country in the world can apply this theory, the reason one of the assumptions is that the perfect competitive market will not be able and will never happen, because the conditions that are impossible can be fulfilled.

Unemployment is always a problem, not only because unemployment means waste of funds. However, it also provides a social impact that is not good for community. For example, it will increase criminal acts and moral violations. However, on the other hand unemployment or unemployment is generally done voluntarily, either because of choosing a job, waiting for the right job, leaving the old job to find a new job because of reasons for being bored, bored or not suitable for work and company, and various reasons others.

2.4 Poverty Level Theory
According to Bhinadi (2017), "Poverty describes the condition of lack of ownership and low income, or in more detail describes a condition of inability to fulfill basic human needs, namely food, shelter and clothing. Some definitions describe the condition of absence. One of them is the definition of poverty that is used by BPS (the Central Statistics Agency), which explains the basic basic needs for decent living.

According to Pattinama in Bhinadi (2017), "The concept of poverty is multi-dimension". Harniati in Bhinadi (2017) suggests that the dimensions of poverty are also complex, therefore experts classify them into three types of poverty, namely: 1) Natural poverty, which is poverty caused by the quality of natural resources and low human resources. Low natural conditions and resources make production opportunities also low. Especially for the agricultural sector, the poverty that occurs is more due to the quality of land and climate that does not support agricultural activities. From all parts of Indonesia, fertile land is actually found in Java. Whereas outside Java, fertile natural resources are limited in number, this makes farmers only able to plant land when there is rain, this condition causes production to be obtained only once a year; 2) Cultural poverty, poverty is
closely related to the attitude of a person or group in society who do not want to try to improve their level of life, even though there is an attempt to improve from the other party who helped them.

This poverty can also be caused by the fact that some systems in the community tradition contribute to causing poverty in the community. An example is the inheritance system which results in the division of land, so that land ownership per family becomes increasingly narrow; 3) Structural poverty, poverty which is directly or indirectly caused by the institutional structure or social structure here can be interpreted as the organizational order and the rules of the game applied. Policies set by the government often cause some groups in society to experience poverty. Poverty that occurs is more due to the limited or even lack of access of the poor to existing development resources. Poverty caused by the prevailing social structure has led to the confinement of certain groups of people in an atmosphere of poverty, which has even taken place for generations. Structural poverty can only be overcome if there is a process of fundamental structural change in society.

The three dimensions illustrate that the causes of poverty are not single factors. It can arises from natural conditions that do not provide economic benefits, as shown by natural poverty. However, poverty can also be caused by human factors, such as those described in cultural poverty, or even because conditions are shaped by humans through structures and institutions in society, as shown by the dimensions of structural poverty. According to Soedjatmiko in Bhinadi (2017), "Poverty experienced by farmers in rural areas in addition to the low quality of human resources is also due to the structure and policies of the agricultural sector that are less developed in the agricultural sector. Structural poverty in rural areas is generally experienced by farmers who do not possess land or farm laborers where the agricultural produce is insufficient to feed their own families and families.

2.6. RESEARCH’S CONCEPTUAL FRAMEWORK
Based on the formulation and purpose of the study, it can be described the framework of the influence of the level of poverty in 7 provinces in Java and Bali, as shown below.

Figure 2.3
Research’s Conceptual Framework

Source: Data processed by Author (2018).
2.7 HYPOTHESES

According to Sugiyono (2010: 99) "Hypothesis is a temporary answer to the formulation of research problems, where the formulation of the research problem has been explained in the form of a question sentence". Based on the mindset above, the hypothesis are as follows:

Hypothesis 1
Ho1: Presumably there is no significant influence, inflation on poverty levels in 7 provinces in Java and Bali Island in 2010-2016.
Ha1: Allegedly there is a significant influence, inflation on poverty levels in 7 provinces in Java and Bali Island in 2010-2016.

Hypothesis 2
Ho2: Allegedly there is no significant influence, the Provincial Minimum Wage (UMP) on poverty levels in 7 provinces in Java and Bali Island in 2010-2016.
Ha2: Allegedly there is a significant influence, Provincial Minimum Wage (UMP) on poverty levels in 7 provinces in Java and Bali Island in 2010-2016.

Hypothesis 3
Ho3: Allegedly there is no significant influence, economic growth on poverty levels in 7 provinces in Java and Bali Island in 2010-2016.
Ha3: Allegedly there is a significant influence, economic growth on poverty levels in 7 provinces in Java and Bali Island in 2010-2016.

Hypothesis 4
Ho4: Allegedly there is no significant influence, Foreign Investment (PMA) on poverty levels in 7 provinces in Java and Bali Island in 2010-2016.
Ha4: Allegedly there is a significant influence, Foreign Investment (PMA) on poverty levels in 7 provinces in Java and Bali Island in 2010-2016.

Hypothesis 5
Ho5: Allegedly there is no significant influence, unemployment on poverty levels in 7 provinces in Java and Bali Island in 2010-2016.
Ha5: Allegedly there is a significant influence, unemployment on the poverty level in 7 provinces in Java and Bali Island in 2010-2016.

3. RESEARCH METHODOLOGY

3.1. RESEARCH METHODS

According to Sugiyono (2016), "The research method is a scientific way to get data with a specific purpose and usefulness." Sugiyono (2016) argued that, in general, the research objectives have three types, those are discovery, proof and development. Discovery means that the data, actions and products obtained from the research are completely new that have never existed before. Proof means that the data obtained is used to prove the existence of doubt about certain information or knowledge. Then development means deepening and expanding knowledge, actions and products that already exist. Sedarmayanti and Hidayat (2011) stated that, "The research methodology is the discussion of the theoretical concepts of various methods, their strengths and weaknesses, which in the scientific work proceed with the selection of the methods used". The data source of this research is secondary data, obtained from the second source or secondary source. In this case, the data get from external parties which is catagorizes as census data or register data. This research is a type of quantitative research as it refers to the calculation of research data in the form of numbers.

3.2. DATA ANALYSIS TECHNIQUE

Data analysis techniques are carried out by analyzing and understanding the existing data. Analysis is also performed by using software E-Views 8 as a computer program in running data process.
a. **Multiple Regression Analysis of Data Panel Models,**

"Multiple linear regression is a regression that has one dependent variable and more than one independent variable" (Sujarweni, 2015). The position of the independent variable in the formula is not considered whether it is a confounding variable or the main independent variable. Likewise for independent variable data values, there are no problems with non-continuous data. The general form of multiple regression can be written as follows:

\[ y_{it} = a + \beta_{1i}x_{1it} + \beta_{2i}x_{2it} + \beta_{3i}x_{3it} + \beta_{4i}x_{4it} + \beta_{5i}x_{5it} + e \]

Whereas:  
- \( y \) = Level of Poverty  
- \( a \) = Constant  
- \( \beta_1 - \beta_5 \) = Coefficient  
- \( x_1 \) = Inflation  
- \( x_2 \) = UMP  
- \( x_3 \) = Economic Growth  
- \( x_4 \) = PMA  
- \( x_5 \) = Unemployment  
- \( e \) = Error Term

According to Handika (2015), "Data panels or also called longitudinal data, are data consisting of cross section and time series components". A panel data with the number of units \( N \) (individual) and the number of \( T \) time periods can be compiled into several types of panel data format types. According to Kennedy (in Handika, 2015) explained that there are 3 (three) types of panel data format types, namely: 1) "long and narrow" type, when the number of \( T \) is relatively far more than the number of \( N \). For examples are a data with 60 time periods and 5 institutions. 2) "Short and wide" type (short and narrow), when the number of \( N \) is relatively far more than the number of \( T \). For example is a data with 4 time periods and 45 institutions. 3) "Long and wide" type (short and narrow), when the number of \( T \) and \( N \) is relatively large. For example data with 96 time periods and 100 institutions.

According to Hsiao (in Ghozali and Ratmono, 2013), "The use of panel data has several main advantages over cross section and time series data types, including: 1) Panel data can provide researchers with a large number of observations, increase degree of freedom, data has a large variability and reduces the collinearity between independent variables, so that it can produce efficient econometric estimation. 2) Panel data can provide more information that cannot only be provided by cross section or time series data. 3) Panel data can provide better resolution in dynamic change inference than cross section data.

There are three methods that can be used to work with panel data, as follows: a) Pooled Least Square or Common. This technique is not done by pooling all time series and cross section data. b) Fixed effect method approach takes into account the possibility that the researcher faces an omitted-variables problem, which might bring about a change in the intercept time series or cross section. Models with fixed effects add dummy variables to want to change this intercept. c) Random Method (random effect) Random effect approach improves the efficiency of the least square process by taking into account error from the cross section and time series. Random effect model is a variation of the estimation of generalized least square (GLS). From the three panel data method approaches, the two approaches that are often used to estimate regression models with panel data are the fixed effect (FE) and Random Effect (RE) approaches. The F test is used to determine the method between the PLS and FE approaches, while the Hausman test is used to determine between the RE and FE approaches. To choose the right model, there are several tests that need to be done. First, by using the F test significant effect test or chow-test. Secondly, with the Hausman test.

1. The Chow test
The Chow test can be used to select techniques with PLS and FE approach models. If the results of the $F_{count} > F_{table}$ at a certain level of confidence ($\alpha$), then $H_0$ is rejected, means that the PLS technique is choosen. In other words, accepting the $H_1$ hypothesis which states are required to use a fixed effect model for estimation techniques in the study.

2. Hausman Test

The Hausman test is used to choose between the FE approach method or the RE method (Ajija et al., 2010). If $\chi^2_{count} > \chi^2_{table}$ and the significant value, then $H_0$ is rejected and FE model is more appropriate to use.

b. Statistical Test

T test (Partial), t test is used to determine each contribution of independent variables partially to the dependent variable, using the test of each regression coefficient of independent variables whether it has a significant influence or not on the dependent variable. Conclusion of the decision: a) If $t_{count} < t_{table}$, then $\beta < 0$ is accepted which means there is no significant influence of each variable Inflation ($X_1$), UMP ($X_2$), Economic Growth ($X_3$), PMA ($X_4$) and Unemployment ($X_5$) against Poverty Level ($Y$). b) If $t_{count} > t_{table}$, then $H_0$ is rejected which means that there is a significant influence between each variable of inflation ($X_1$), UMP ($X_2$), economic growth ($X_3$), PMA ($X_4$) and unemployment ($X_5$) on the poverty level ($Y$).

Test F (simultaneous test), according to Ghozali and Ratmono (2013), $F$ statistical test basically shows whether the independent variables are inflation ($X_1$), UMP ($X_2$), economic growth ($X_3$), PMA ($X_4$) and unemployment ($X_5$) entered into the model has a joint or simultaneous effect on the dependent variable, namely the level of poverty ($Y$). Conclusion: a) If $F_{count} < F_{table}$ then $H_0$ is accepted and $H_a$ is rejected, it means there is no significant influence between inflation, UMP, economic growth, FDI and unemployment together on the level of poverty. b) If $F_{count} > F_{table}$ then $H_0$ and $H_a$ are accepted, meaning that there is a significant influence between inflation, UMP, economic growth, FDI and unemployment together on the level of poverty.

c. Coefficient of Determination

According to Ghozali and Ratmono (2013), "The coefficient of determination basically measures how far the ability of the model in explaining the variation of the dependent variable. The coefficient of determination is between zero and one. A small $R^2$ value means the ability of independent variables to provide almost all the information needed to predict the variation of the dependent variable. In general, the coefficient of determination for cross section is relatively low because of the large variation between each observation, while for time series data usually has a high determination coefficient. In empirical reality, regression is usually found with a high $R^2$ value, but there is no significant regression coefficient or has a coefficient sign that is the opposite of what is expected theoretically. So the researcher should look more at the theoretical logic or explanation of the influence of the explanatory variable on the dependent variable. If the process of getting a high $R^2$ value means good. But if the low $R^2$ value does not mean the regression model is bad.

4. DISCUSSION AND ANALYSIS

4.1 Level of Poverty

Poverty in this study was observed from 7 provinces in Java and Bali islands from 2010-2016. In general, the percentage of poverty in Indonesia has always experienced a decline from 2010-2014 and has increased in 2015. The decline in poverty in Indonesia is partly due to the increase in minimum wages every year and stable economic growth.
From Figure 4.1 the regions with the highest poverty rates from 2010-2016 were Yogyakarta Special Region (DIY) with a poverty rate of 14.78%. Some factors that caused DIY to have high poverty rates were the high number of inclusion errors and exclusion errors. The inclusion error is that the people included in the category of middle-up society, they are registered to get assistance from the government. While exclusion error is the opposite, that is the people categorized of underprivileged citizens actually, do not receive assistance from the government. The second order was occupied by Central Java province 14.54%, followed by East Java 12.99%.

4.2 Inflation
Inflation is the tendency of prices to increase in general and continuously over time. The price increase of one or two items is not called inflation unless the increase extends or results in an increase in other goods (Indonesian Statistical Bureau/BPS).

From the picture above, it can be explained that some provinces in Java and Bali which have the highest inflation rate are West Java province 7.18%, then in the second place is East Java province 6.99% and the third highest is Banten province which is 6.56%. The lowest is the province of DKI Jakarta 5.22%.
4.3 Provincial Minimum Wages (UMP)
According to Law No. 13/004, wages can be defined as workers' workers' rights which are stated in the form of money as compensation from employers or employers to workers / laborers that are determined and paid according to a work agreement, agreement or legislation including allowances to workers job and or service that has been or will be carried out.

Based on Article 88 paragraph (4) it means that in determining the minimum wage the government must not ignore the problem of ability and the level of productivity and the level of economic growth. So the government sets a minimum wage based on the needs of a decent life and by paying attention to productivity and economic growth.

**Figure 4.3**
Average provincial minimum wages in 7 provinces in Java and Bali in 2010-2016

<table>
<thead>
<tr>
<th>Province</th>
<th>Average Minimum Wage (IDR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DKI Jakarta</td>
<td>2,054,023</td>
</tr>
<tr>
<td>Banten</td>
<td>1,268,043</td>
</tr>
<tr>
<td>Bali</td>
<td>1,262,741</td>
</tr>
<tr>
<td>Central Java</td>
<td>859,286</td>
</tr>
<tr>
<td>Jakarta</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Jateng</td>
<td>600,000</td>
</tr>
<tr>
<td>Yogyakarta</td>
<td>500,000</td>
</tr>
</tbody>
</table>

*Source: Indonesia Statistics Bureau (BPS), 2017*

Based on figure 4.3, it can be seen that the average provincial minimum wages in Java and Bali Island from 2010-2016, which has the highest average minimum wage is DKI Jakarta province, which is Rp. 2,054,023 in the second position of Banten province with Rp. 1,268,043 while in third place is the province of Bali worth Rp1,262,741. Whereas those with the lowest average minimum wage are the provinces of Central Java with Rp. 859,286.

4.4. Economic Growth
Economic growth is an increase in spending over the long term which is measured by observing the growth of Gross Domestic Product (GRDP) from year to year. Economic growth is used by a country as an indicator to see the welfare of the population, the higher the economic growth, the real sector within the country also increases. Good economic growth is economic growth that is able to reduce the amount of poverty, inflation, unemployment and increase the welfare of society.
Based on figure 4.4, it can be seen that the provinces in Java and Bali which have the highest economic growth from 2010-2016 are Bali provinces at 6.46%. The average of the second and third highest economic growth is DKI Jakarta Province at 6.21%, followed by East Java at 6.14%. For regions that have low economic growth, the DIY province is 5.24%.

4.5. Foreign Investment (PMA)

Foreign Investment (PMA) conducted in Java and Bali is expected to improve the welfare of the community in various fields. At present the government is trying to attract more foreign investors to invest in Indonesia.

Based on figure 4.5, it can be seen that some provinces in Java and Bali which have the highest foreign investment (PMA) level are West Java province, with the value of USD 4,948.37 million, then in the second position is province of DKI Jakarta with USD 4,211.30 million and the third highest position reached by the province Banten, with the value of USD 2,520.14 million, while the lowest one is Bali province, with the value of USD 42.21 million.

4.6. Unemployment

The unemployment rate is part of the workforce who are not working or are looking for work (both for those who have never worked or who have never worked), or are preparing a business, those who are not looking for work because they feel it is impossible to get a job and they those who already have a job and those who already have a job but have not started work.
Figure 4.6
Average unemployment rate in 7 provinces in Java and Bali in 2010-2016

Source: Indonesia Statistics Bureau (BPS), 2017

From the picture above, some provinces in Java and Bali which have the highest unemployment rate are Banten province, with 9.71%, then in the second place is West Java province with 9.21% and the third highest is DKI Jakarta province at 8.88%. And the lowest is the province of Bali, which is 2.15%.

4.7 DATA ANALYSIS
4.7.1 Estimation Model Test

The best regression models was performed in order to obtain an estimation. There are two stages in selecting a model, namely: first comparing pooled models with fixed effect models, the second comparing fixed effects models with random effects models. In the first testing phase the Chow test was conducted, which aims to compare the pooled model with the fixed effect model.

Table 4.1
Estimation Results of Model Selection (Common Effect vs. Individual Effect)

<table>
<thead>
<tr>
<th>Method</th>
<th>Prob Chi-Square</th>
<th>Decision</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chow-Test</td>
<td>0.0000</td>
<td>Ho is rejected</td>
<td>Fixed Effect</td>
</tr>
</tbody>
</table>

Source: Data Processed (E-Views).

The test using the Chow test results were obtained from the chi-square probability value of 0.0000 <0.05, so the above model is better to use estimates with fixed effects.

The second testing phase is comparing fixed effects with random effects. The test uses the Hausman Test as shown in the table below:

Table 4.2
Estimation Results of Fixed Effect vs. Random Effect Model Selection

<table>
<thead>
<tr>
<th>Metode</th>
<th>Prob Chi-Square</th>
<th>Decision</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hausman-Test</td>
<td>0.0000</td>
<td>Ho rejected</td>
<td>Fixed Effect</td>
</tr>
</tbody>
</table>

Source: Data processed (Eviews)

By testing using the Hausman Test where the null hypothesis (H0) is the Random effect model, the probability value of Chi square is 0.0000 <0.05. Thus the null hypothesis (H0) is rejected, so the model that is better to use is an estimate with a fixed effect.
4.7.2 Hypothesis Test
The table below shows the results of the regression equation, where the dependent variable is the level of poverty with the independent variables namely: inflation, UMP, GRDP, PMA and unemployment.

<table>
<thead>
<tr>
<th>Table 4.3 Estimation Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Independent Variables</strong></td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>Inflation?</td>
</tr>
<tr>
<td>Provincial Minimum Wages (UMP)?</td>
</tr>
<tr>
<td>Economic Growth (GRDP)?</td>
</tr>
<tr>
<td>Foreign Investment (PMA)?</td>
</tr>
<tr>
<td>Unemployment?</td>
</tr>
<tr>
<td>R-squared</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
</tr>
<tr>
<td>F-stat</td>
</tr>
<tr>
<td>Prob F-stat</td>
</tr>
</tbody>
</table>

*Source: Data processed (Eviews)*

4.7.3 Analysis of the Determination Coefficient
From the results of table 4.2 above it can be seen that with fixed effect method, it is obtained the adjusted R-square value of 0.979361 or 97.94%, this shows the ability of all independent variables namely inflation, UMP, GRDP, PMA and unemployment explain the variation of the dependent variable, namely the poverty rate of 97.94% while the remaining 2.06% is explained by other independent variables that are not included in the model.

From the results of table 4.2 above it can be seen that with fixed effect method, the adjusted R-square value obtained is 0.979361 or 97.94%, this shows the ability of all independent variables namely inflation, UMP, GRDP, PMA and unemployment explain the variation of the dependent variable, namely the poverty rate of 97.94% while the remaining 2.06% is explained by other independent variables that are not included in the model.

4.7.4 F Test
The F test results from table 4.2 above shows that the significant value for the F test is 0.00000 <0.05 (alpha 5%). Thus it can be stated statistically that the independent variables of inflation, UMP, PDRB, PMA and unemployment influence simultaneously to the dependent variable poverty level.

4.7.5 T test
Partial testing or t-statistics and probabilities are used to test whether the regression coefficients differ individually and affect the dependent variable, based on estimation results using the fixed effect method. Alpha value 5% is used in determining the decision to refuse or fail to reject Ho. 1) Inflation Variables, Statistical test results show the value of the inflation probability of 0.8091> 0.05 (α = 5%), then concluded a null hypothesis is accepted. Thus it can be stated, statistically at 95 percent confidence level there is no influence of inflation on the level of poverty. The inflation coefficient is -0.006981, explaining that if inflation rises by 1 percent, then the poverty level in 7 provinces in Java and Bali will decrease by 0.006 percent. 2) Variable UMP (Provincial Minimum Wage), the results of statistical tests show the value of UMP probability (Province Minimum Wage) of 0.0191 <0.05 (α = 5%), then concluded null hypothesis is rejected. Thus it can be stated, statistically
at a 95 percent confidence level there is an influence of the UMP (Provincial Minimum Wage) on the level of poverty. The UMP Coefficient (Provincial Minimum Wage) is -2.802464, explaining that if the UMP (Provincial Minimum Wage) increases by 1 percent, then the poverty rate in 7 provinces in Java and Bali Island will decrease by 2.80 percent. 3) Variable Economic Growth (GRDP)

Statistical test results show the probability of economic growth (PDRB) value of 0.8826 > 0.05 (α = 5%), it is concluded that the null hypothesis is accepted. Thus it can be stated, statistically at 95 percent confidence level there is no PDRB effect on poverty level. The GRDP coefficient is -0.034566, explaining that if GRDP increases by 1 percent, then the poverty rate in 7 provinces in Java and Bali will decrease by 0.03 percent. 4) PMA Variable (Foreign Investment), the results of statistical tests show the value of the probability of PMA (Foreign Investment) of 0.0006 <0.05 (α = 5%), it is concluded that the null hypothesis is rejected. Thus it can be stated, statistically at a 95 percent confidence level there is an influence of PMA (Foreign Investment) on the level of poverty. The coefficient of PMA (Foreign Investment) is -1.304966 explains if PMA (Foreign Investment) increases by 1 percent, then the poverty level in 7 provinces in Java Island and Bali Island will decrease by 1.305 percent. 5) Unemployment Variables, Statistical test results show the value of unemployment probability is 0.3917 > 0.05 (α = 5%), then it is concluded that the null hypothesis is accepted. Thus it can be stated, statistically at 95 percent confidence level there is no effect of unemployment on the level of poverty. The unemployment coefficient is 0.060047, explaining that if unemployment increases by 1 percent, the poverty rate in 7 provinces in Java and Bali will increase by 0.060 percent.

5.1. CONCLUSION

Based on the results of the research and discussion described in the previous chapter, it can be concluded as follows: 1) Inflation in 7 provinces in Java and Bali in 2010-2016 has a negative and insignificant effect on poverty. This shows that the high or low inflation does not affect the level of poverty in 7 provinces in Java and Bali in 2010-2016. 2) Provincial Minimum Wages in 7 provinces in Java and Bali Island in 2010-2016 have a negative and significant impact on poverty levels. This shows that the level of poverty that occurs in 7 provinces in Java and Bali will decrease if the minimum wage for each province increases. Because the higher the minimum wage, the better the life of the community each month so that poverty will also decrease. 3) Economic growth in 7 provinces in Java and Bali in 2010-2016 has a negative and insignificant effect on poverty. This shows that the high or low economic growth does not affect the level of poverty in 7 provinces in Java and Bali in 2010-2016. 4) Foreign Investment in 7 provinces in Java and Bali in 2010-2016 has a negative and significant impact on poverty. This indicates that if foreign investment increases, the poverty rate in 7 provinces in Java and Bali will decrease due to foreign funding that can improve economic conditions. 5) Unemployment in 7 provinces in Java and Bali in 2010-2016 has a positive and not significant effect on poverty. This shows that the high or low unemployment rate does not affect the level of poverty in 7 provinces in Java and Bali in 2010-2016. 6) Based on the F test results the independent variables together have a significant effect on the dependent variable. And the amount of Adjusted R-square (R2) is 0.979361, this shows the ability of independent variables (inflation, UMP, GRDP, FDI and unemployment) in explaining the variation of the dependent variable (poverty level) of 97.94% and the remaining 2.06% explained by other variables outside this model.

5.2. SUGGESTION

Based on the results of the research that has been carried out and described above, the researchers provide several suggestions, including the following: 1) For further research it is suggested to develop further discussion and research by analyzing other variables that affect poverty levels such as education level, capital expenditure, the workforce, human growth
index, health and so on to perfect existing research. 2) The government is expected to pay attention to policies regarding poverty alleviation efforts, especially in 7 provinces in Java and Bali and generally in all provinces in Indonesia in order to increase economic growth, stabilize the inflation rate and reduce the unemployment rate by attracting foreign investors through more just and creative efforts as well as a more effective and efficient bureaucracy.

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www.bps.go.id (June 15, 2018)
Do Smarter Spouse Make You Healthier?

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Abstract

Socioeconomic conditions are important factors that determine the level of health achieved by an individual. Education as one dimension in socioeconomic status is known to be closely related to health both directly (raising awareness of health) and indirectly (access to safer jobs and higher incomes). In addition, education will provide knowledge to an individual to understand the health risks to be faced and how to overcome them. But the level of one’s health is not only affected by the individual's own behavior but also influenced by the environment and social context where individual lived, one of them is marriage partner. Using data from Indonesia Social and Economic Survey (SUSENAS) 2017, this study aim to examine the influence of couple’s education attainment on partner’s health status in the household. Applying ordered logit model, the result show that spouse’s education affects health status of both husband and wife in the household. Married to a highly educated partner will increase a person’s chances of having a better health status than marrying a lower-educated partner. Furthermore, the best health conditions will be achieved by husband and wife when both are highly educated, while educational homogamy in lower education will reduce couple’s self-rated health. Overall, the results indicate the importance of educational spillover in affecting partner’s health status in the household.

Keywords: Education; Spouse’s education; Marriage; Self-rated health

1. Introduction

Education is one of the dimension in socioeconomic status that affects health, because education is known to be closely related to health through direct (raising awareness of health) and indirect mechanism (access to safer jobs and higher income) (Fuhrer et al., 2002). People with low education tend to be less healthy and have a poor lifestyle than highly educated people (Cavelaars, et al., 2000). According to Torssander & Erikson (2009), education will provide knowledge to a person to understand the health risks to be faced and how to overcome them.

A theoretical framework proposed by Grossman (1972b) shows that the level of education will affect one's health behavior. With higher level of education then the quality of health owned by an individual would even better. But the level of one's health is not only influenced by the individual's own behavior but also affected by the environment and social context in which the individual lives (House, 2002; Rice, Carr-Hill, Dixon & Sutton, 2000). Previous research has found that social relationships, particularly personal relationships such as marriage, have a significant effect on health (Umberson & Montez, 2010). Individuals who have a partner, tend to be healthier and live longer than single ones (Craddock, 2015; Wood, Goesling, & Avellar, 2007).

Becker (1973) stated that health is one of the commodities to be generated through marriage and plays a role in enhancing partner utility, where the quality of the commodities produced by the household is partly formed by the level of education. Therefore, the level of health in the household will depend heavily on the level of education and significantly influenced by the level of partner’s education (Egeland, Tverdal, Meyer, & Selmer, 2002). Education in the context of marriage, is known to affect own and partner’s health, because education is not only a resource that can be utilized for oneself but can be allocated to others (Monden, Van Lenthe, De Graaf, & Kraaykamp, 2003). Couples in the household will influence each other's lifestyle especially in relation to health (Umberson, Crosnoe, & Recez, 2010), particularly wife that can influence her partner's lifestyle to be healthier (de Montigny et al., 2016).
Being in the world rankings of 120th related to life expectancy, Indonesia is well below Singapore and Malaysia. Where in 2015, life expectancy of men were 67 years old while women were 71.2 years old. Pointing at the cause of death, noncommunicable disease is the leading cause of death in Indonesia. Lifestyle as the cause of this disease, contributing deaths in Indonesia by 72.7 percent in 2015 (WHO, 2016). The increasing magnitude of death due to noncommunicable disease is expected to be reduced by improving the health of men and women by considering the influence of their partners. Lillard and Waite (1995) found that men have a tendency to adapt to a healthier lifestyle when married, while women will have better financial access. Therefore, marriage can reduce the risk of morbidity and mortality for both of them.

Research on education and health has actually been done numerous, but study about the influence of partners on one's health has not been widely practiced, especially in Asia. Previous research has been conducted in China (Li et al., 2011) and Bangladesh (Hurt, Ronsmans, & Saha, 2004) with different result. This study attempts to analyze the effect of education on health in the context of married couples in Indonesia, by analyzing educational spillover effect between couples either directly to health status of husband/wife or through intermediate variables. In addition, estimation were made to determine the effect of educational assortative mating as a variable that reflecting a combination of partner education, with the health status of spouses in the household. Because marriage is a perfect place to witness how educational spillover effect between couples in the household will affect health of one another (Brown, Hummer, & Hayward, 2014; Jacobson, 2000).

2. Literature Review

Grossman (1972a) has developed a theory-related health behavior framework. Health is an important commodity because health levels can affect worker productivity and contribute to the economic matters. Health is considered to be a durable item that acts as a part of human capital. Health also a consumable item that affects individual utility and an investment because it can determine how much time is available for doing activities. In the model proposed by Grossman (1972a), health will be determined by the level of education of an individual. Education is a strong determinant of health because education determines the opportunities individuals will gain throughout their lives, underpinning ways of thinking and determining how individuals interact with their environment.

But the level of one's health is not only determined by the quality of their own resources, but also determined by allocation of resources in social relations between individuals. Grossman (1976) found that husband’s health status will be better along with the increasing of wife’s educational level. Marriage is a social relationship experienced by the majority of adults and households can be utilized as an approach in observing the inherent social context of the individual (Bartley, Martikainen, Shipley, & Marmot, 2004; Hughes & Waite, 2002). Household approach is important, because married couples will interact oftenly and the exchange of resources will likely to occur when the interaction between two individuals is frequently happen. In addition, there is a tendency for couples to pool and exchange both material and non-material resources owned by each partner through the level of education they achieve to improve the well-being of each other (Brown et al. 2014; Jacobson, 2000; Monden et al., 2003). Therefore, the presence of educational spillovers between partners is allow to affect health conditions of both husband and wife in the household (Brown et al., 2014).

Becker (1981) also argued that marriage would potentially increase economic and social benefits. Through marriage, household income will accumulate, especially with economies of scale to be gained, marriage will improve welfare. Increased economic prosperity, will improve health with ease of access to better health facilities and reduced stress levels (Chang & Lauderdale, 2009; Glied & Lleras-Muney, 2008; Wood et al., 2007). In addition, the role of spouse is also important to support a healthy lifestyle in the household (de Montigny et al., 2016). Thus along with better education and knowledge, the tendency of women to adopt a healthy lifestyle for themselves and their partners will also increase (Umberson, 1992).

The influence of education on partner's health status in the household is indicated by a study conducted in Sweden (Egeland, Tverdal, Meyer, & Selmer, 2002). This study showed that the tendency of husbands to have poor health status and death due to coronary health disease (CHD) reduced when having a wife who is highly educated, after being controlled by age and education of husband. In a study with respondents of cancer patients in Norway, it was found that the relative ability of patients to survive in highly-educated couples was greater when compared to patients with low-educated partners (Sysea & Lyngstad, 2017). Meanwhile, a research conducted by Hurt, Ronsmans & Saha (2004) in Bangladesh refered that the level of education and occupation of husband, did not affect woman's survival. While the effect of women's education are particularly significant, as husbands with educated wives encounter lower mortality rates. Other findings also suggest that the wife's educational level shows a great influence in reducing the risk of partner mortality compared with the husband's education level (Jaffe, Eisenbach, Neumark, & Manor, 2005, 2006; Torssander & Erikson, 2009; Skalická & Kunst, 2008).

In contrast, Wilson (2002) found that husband education positively affects the health status of partners, on the contrary, the higher level of wife education actually worsen the health status of her partner. Li, et al. (2011) also found that more educated husband will benefit wife self-rated health status, whereas no association
were found between husband’s health status and their partner education level after controlling for presence of chronic condition, lifestyle factors (smoking, physical activity and weight) and social support. Research conducted by Brown et al. (2014) in the United States shows a link between partner education and health status as measured by self-rated health. The result of marrying a highly educated partner will reduce a person’s tendency to report poor health status by being controlled by the individual’s own education level and other factors such as race, citizenship, age, and income. In addition, this study also found that husbands education is more influential on SRH wives.

In addition, Monden (2007) through his research in the Netherlands mentions that educational homogamy will lead to the accumulation of health problems on couples with low educational attainment than those who are highly educated. While research conducted by Brown et al. (2014) in the United States shows that couples with hypergamy education status, will increase the individual self-rated health. In addition, the study also showed that the chance to produce maximum health conditions will be achieved when both couples were highly educated. Where the existence of educational spillovers effect between couples is very possible affect the health condition between couples.

3. Method

Data

In order to answer the research question, this study using data from Indonesia Social and Economic Survey (SUSENAS) 2017. Susenas is a cross-sectional survey containing information on the socio-economic status both individual and household. The questionnaire was divided into two parts i.e Susenas Kor and Susenas Module. Information on health, employment status and educational status was obtain for each household member from Susenas Kor, while data on consumption were collected for household which was listed on Susenas Module.

Husband and wife is the unit analysis of this study. Household selection is performed in the households that consist of only a pair of couple, namely head of household and their spouse (wife/husband). Selection of households consisting of only one pair of couple is chosen because in the next analysis, it takes a household with husband and wife who can be paired with each other. Furthermore couples who become the unit of analysis are those who have no /never attended school or no longer in school. The lower limit is chosen to make sure almost everyone has finished his or her educational attainment (Cutler & Lleras-Muney, 2006; Monden, et al., 2003). In total, there were 228,749 household meeting the aforementioned criteria were identified.

Measures

Health status is the dependent variable in this study. Measured through self-rated health, this variable is formed from 3 questions in Susenas Kor, i.e.:

a. Do you have any health complaints in the past month?
b. Does it result in disruption of work, school or daily activities?
c. Is the health disorder suffered seriously?

Adapted from previous research by Farida (2014), this study categorizes health status in 3 levels, namely healthy, minor illness and severe illness. Self-rated health was applied in this study to portray health status, because self-rated health proved to be a valid and reliable measure in describing an individual’s health status and has been applied to previous studies (Ahnquist, Wamala, & Lindstrom, 2012; Brown et al., 2014; Burström & Fredlund, 2001; Huijts, Monden, & Kraaykamp, 2009; Huijts, 2011; Idler & Benyamini, 1997; Li et al., 2011; Wilson, 2002).

The main independent variable in this study is the highest level of education attained by couples in the household. This variable is obtained through the question of the highest diploma completed by the respondent. Level of education is divided into 5 categories, namely (1) no education, (2) elementary school, (3) junior high school, (4) senior high school, (5) college and above. This study include other variables as control variables in the model. To evaluate the possible association between assortative mating and husband’s health status as recommend by several studies (Willemsen, Vink, & Boomsma, 2002; Li, et al., 2011), this research applied educational attainment as the measure of assortative mating. The educational assortative mating divide into 5 categories (Osiewalska, 2017), i.e.:

1. Both partner’s educational attainment is primary school (no school and elementary school)
2. Both partner’s educational attainment is secondary school (junior and senior high school)
3. Both partner’s educational attainment is tertiary school (college and above)
4. Husband with higher educational attainment than wife (hypergamy)
5. Wife with higher educational attainment than husband (hypogamy)

Other variables that are included in this study are age, employment status, health insurance ownership, smoking behavior, economic status (proxy expenditure), and residence.
Data Analysis

This study uses ordered logit model to estimate the relationship between education level of spouse and partner’s health status. The estimation was tend to examine the relationship between education attainment of wife and husband’s health status, and vice versa. Ordered logit was chosen because the dependent variables define as ordinal scale. Thus marginal effect \( P(y = j | x) \) will be applied for the interpretation of the ordered logit estimation.

Though there is a feasibility of causal relationship between education and health (Grossman, 1976), but this study only concerns on the effect of education on health. Previous studies have suggested that a causal relationship between health and education focuses on the importance of past health conditions to determine the length of school that can be achieved (Spasojević, 2010), while this study focuses on health conditions when data collection is done. Besides, Amin et al. (2015) stated that most of the theory argued that the positive effect of education on health dominating the research findings. Furthermore, the possibilities of endogeneity problem on smoking behavior, ownership of health insurance which are thought to be influenced by the variables of educational level and economic status, was not studied in this research.

Further analysis will be done with several approaches. The first approach is to find out the direct interaction between own educational attainment, controlled with own characteristic of husband and wife with the health status. Involving partner’s education controlled with partner’s characteristic is the next estimation to analyze wife and husband health status. Next estimation is to engage not only the level of couple’s education but also the individual’s own education attainment as well as the control variables such as individual and spouse characteristics (age, employment status, health insurance ownership), individual and spouse health behavior (smoking behavior), residence, and household economic status. Estimating the relationship between educational assortative mating and individual health status (husband/wife) together with all control variables in this study was the last analysis process. The overall analysis in this study will be conducted with STATA 13.

4. Result and Findings

Descriptive Statistic

The crosstabulation results between husband’s health status with their own level of education indicate that the percentage of husband with healthy status will increase along with the higher education attained by husband. These result indicate that the educational attainment of an individual will affect the health status attached to him, where education as one of health determinant, will provide knowledge to understand health risk encountered and how to overcome them (Torssander & Erikson, 2010). Moreover, spouse level of education tell that the percentage of husband having healthy status will be higher along with the elevation of her education attainment.

Table 1. Descriptive Analysis of Husband’s Health Status

<table>
<thead>
<tr>
<th>Educational attainment</th>
<th>Health Status</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Healthy</td>
<td>Minor Illness</td>
</tr>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td><strong>Husband's educational attainment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No school</td>
<td>60.83</td>
<td>32.62</td>
</tr>
<tr>
<td>Elementary school</td>
<td>67.84</td>
<td>27.52</td>
</tr>
<tr>
<td>Junior high school</td>
<td>70.90</td>
<td>25.28</td>
</tr>
<tr>
<td>Senior high school</td>
<td>73.16</td>
<td>23.67</td>
</tr>
<tr>
<td>College and above</td>
<td>73.70</td>
<td>23.32</td>
</tr>
<tr>
<td><strong>Wife’s educational attainment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No school</td>
<td>61.08</td>
<td>32.20</td>
</tr>
<tr>
<td>Elementary school</td>
<td>67.43</td>
<td>27.95</td>
</tr>
<tr>
<td>Junior high school</td>
<td>71.76</td>
<td>24.71</td>
</tr>
<tr>
<td>Senior high school</td>
<td>73.80</td>
<td>23.16</td>
</tr>
<tr>
<td>College and above</td>
<td>75.19</td>
<td>22.35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Susenas 2017

Table 2 indicate that spouse’s educational attainment also has an impact on wife’s health status where the percentage of being healthier will be greater when husband is well educated. The result show that wife’s chance to experience severe illness is 4.51 percent when her spouse never attended or graduate from school, whereas wife’s opportunity to experience severe illness only 2.64 percent when spouse’s college graduate.
Table 2. Descriptive Analysis of Wife’s Health Status

<table>
<thead>
<tr>
<th>Educational attainment</th>
<th>Healthy</th>
<th>Minor illness</th>
<th>Severe illness</th>
<th>%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>Wife’s educational attainment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No school</td>
<td>62.89</td>
<td>32.25</td>
<td>4.86</td>
<td>100</td>
<td>48,964</td>
</tr>
<tr>
<td>Elementary school</td>
<td>68.69</td>
<td>27.79</td>
<td>3.52</td>
<td>100</td>
<td>73,511</td>
</tr>
<tr>
<td>Junior high school</td>
<td>72.10</td>
<td>25.09</td>
<td>2.80</td>
<td>100</td>
<td>40,622</td>
</tr>
<tr>
<td>Senior high school</td>
<td>73.99</td>
<td>23.56</td>
<td>2.45</td>
<td>100</td>
<td>47,045</td>
</tr>
<tr>
<td>College and above</td>
<td>74.74</td>
<td>23.01</td>
<td>2.26</td>
<td>100</td>
<td>18,607</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>228,749</td>
</tr>
</tbody>
</table>

Source: Susenas 2017

Ordered Logit Model

The estimation results in model 1a presented in Table 3 shows that when controlled by its own characteristics, the chances of husband to be healthy will be reduced about 10.82 percentage point when husband was never attended school, decreased by 7.7 percentage point when husband graduated from elementary school, then the opportunities for healthy status was reduced by 6.6 percentage point when he graduated from junior high school, lastly when graduated from senior high school the chances of men to be healthy will only be reduced by 3.4 percentage point. The results in model 2a also show that the effect of the spouse’s educational attainment on husband’s health status will increase in line with the increasing education of wives.

Furthermore, controlled by all independent variables in the analysis, the level of partner education continued to show a significant effect on the husband’s health status (model 3a). In Table 3 it is shown that the marginal effect between the spouse’s education level and the husband’s own education level shows the corresponding value where the higher the spouse’s education level and the husband’s own education level, the husband’s probability of reporting good self-rated health will be greater. Parallel with husband’s health status estimation, the result in model 3b (Table 4) shows that wife’s chance to have good health status will be greater in line with the increased level of husband educational attainment. The probability of wife to be healthy will reduced by 5.98 percentage point when marrying no school partner, lessen by 4.64 percentage point when husband’s educational attainment only elementary school graduate, later the chance of being healthy will only reduced about 2.26 percentage point when spouse’s high school graduate. Meanwhile, when controlled by own characteristic (model 1b) or when controlled by the characteristic of her spouse (model 2b), the influence of wife’s education and spouse’s education on wife’s health status shows an almost equal marginal effect.

Estimation result showed that when both husband and wife marry an educated partner, the opportunity to report poor self-rated health (minor illness and severe illness) tend to reduced, while marriage to a low-educated partner will increase the chances of reporting poor self-rated health, once controlled by the level of individual education and other independent variables. Education is known to affect health by increasing health knowledge and health behavior. This condition occurred because formal education improves cognitive abilities in general such as the ability to acquire memory, process information, make decisions and think critically especially about things related to health problems (Baker et al., 2011).

In terms of women as wives (Table 4), the health benefits gained from a highly educated husband may occur because of the tendency of well-educated men have a better ability to provide social support and health-related decisions (Kilpi et al., 2018). In addition, the resources available to improve the welfare are greater when having a highly educated partner. The advantages of more resources are not limited to income maximization, but also affect living environment, job market that possible to be achieved (Monden, 2003). While staying with lower educated partner may have an effect on an unhealthy lifestyle compared with staying with a higher education partner, because lower educated partner is more associated with a poor lifestyle (Cavelaars et al., 2000).
Table 3. Result of Ordered Logit Model with dy/dx (Healthy) for Husband

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Husband’s health status</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1a</td>
<td>Model 2a</td>
<td>Model 3a</td>
</tr>
<tr>
<td></td>
<td>Healthy</td>
<td>Healthy</td>
<td>Healthy</td>
</tr>
<tr>
<td></td>
<td>dy/dx(1)</td>
<td>dy/dx(1)</td>
<td>dy/dx(1)</td>
</tr>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td><strong>Husband’s educational attainment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No school</td>
<td>-0.1082***</td>
<td>-0.0773***</td>
<td></td>
</tr>
<tr>
<td>Elementary school</td>
<td>-0.0770***</td>
<td>-0.0519***</td>
<td></td>
</tr>
<tr>
<td>Junior high school</td>
<td>-0.0663***</td>
<td>-0.0468***</td>
<td></td>
</tr>
<tr>
<td>Senior high school</td>
<td>-0.0340***</td>
<td>-0.0232***</td>
<td></td>
</tr>
<tr>
<td>College and above (reference)</td>
<td>-0.0047***</td>
<td>-0.0045***</td>
<td></td>
</tr>
<tr>
<td><strong>Husband’s age</strong></td>
<td>-0.0047***</td>
<td>-0.0045***</td>
<td></td>
</tr>
<tr>
<td><strong>Husband’s employment status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not working</td>
<td>-0.2021***</td>
<td>-0.2047***</td>
<td></td>
</tr>
<tr>
<td>Working on informal sector</td>
<td>-0.0031</td>
<td>0.0011</td>
<td></td>
</tr>
<tr>
<td>Working on formal sector (reference)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Health insurance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>0.0142***</td>
<td>0.0145***</td>
<td></td>
</tr>
<tr>
<td>Yes (reference)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Husband’s smoking behavior</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current smoker</td>
<td>0.0155***</td>
<td>0.0166***</td>
<td></td>
</tr>
<tr>
<td>Former smoker</td>
<td>-0.0948***</td>
<td>-0.0931***</td>
<td></td>
</tr>
<tr>
<td>Never smoking (reference)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Wife's age</strong></td>
<td>-0.0062***</td>
<td>-0.00001</td>
<td></td>
</tr>
<tr>
<td><strong>Wife's educational attainment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No school</td>
<td>-0.1046***</td>
<td>-0.0612***</td>
<td></td>
</tr>
<tr>
<td>Elementary school</td>
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***=p<0.01, **=p<0.05, *=p<0.1

Source: Susenas 2017
Table 4. Result of Ordered Logit Model with dy/dx (Healthy) for Wife

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<td>Model 3</td>
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<td>-0.0062**</td>
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<td>0.0062*</td>
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</table>

***=p<0.01, **=p<0.05, *=p<0.1

Source: Susenas 2017

This study also indicate that wife’s educational attainment, showing the same effect on husband’s health status when compared with the educational level of his own. The possible mechanism is that traditionally, wife has greater responsibilities in the household chores rather than husband, especially when it comes to family’s health behavior (Cornelius et al., 2016; Torssander & Erikson, 2009; Umberson, 1992). The impact of educational attainment of husband and wife on partner’s health might be related to household equality in Indonesia. A study conducted by Rammohan and Johar (2009) indicate that women’s autonomy in Indonesia generally higher than most of South East Asian Countries. Both wife and husband education attainment show positive effect on the autonomy of married women in Indonesia. The findings also show that the influence of husbands’ education on women’s autonomy in households is greater than the effect of women's education itself.
This condition shows the ability of Indonesian women to make decisions about themselves or close family members in the household were determined by their educational outcomes.

Meanwhile, research conducted by Utomo (2012) shows that although educated, working and contributing in the household economy, women in Indonesia still carry out the role of a housewife. While the norm of neo-traditional in Indonesia still put men as breadwinner in the household. Therefore, the tendency of women to adopt a healthy lifestyle for themselves and their partners in line with the increasing of education and knowledge (Umberson, 1992), affect the role of women in improving the health status of husbands in Indonesia.

It is interesting to see how spouse’s employment status affect husband’s health. As can be seen on Table 3, not working wife will elevate husband’s health status by 2.3 percentage point. Bartley et al. (2004) stated that working women, especially with high occupation, has a lesser time to do house working load and give a social support to her spouse. Tangle with the allocation of time theory (Becker, 1965), our result indicate the possibility of women’s time importance on household production especially in producing health output. A Study conducted by Lubna (2017) in Indonesia showed that full-time working mother tend to reduce their allocation of time for taking care of household, especially by consuming food-away from home.

Involving educational assortative mating when estimating health status indicate that the lowest possibilities of being healthy happen when both couple were low educated. In concordance with previous results that proved the best self-rated health possible when both husband and wife highly educated (Brown et al., 2014; Kilpi et al., 2018). Rammohan and Johar (2009) found than the influence of husband’s education on women’s autonomy in the household bigger than the influence of her own educational attainment, when highly educated women married with highly educated man, than women will have a greater control in making household decision. Thus educational homogamy on low educated couple will accumulate the health problem of both husband and wife in the household (Monden, 2007). Still we have to keep in mind that an individual with low educated partner tend to report poor self-rated health compare with someone with high educated partner. Monden (2003) explained that the accumulation of social support and health behavior that affect by high educated partner made this possible.

The outcome refered that there’s no difference between hypergamy and hypogamy couple related to their possibilities in elevating husband’s self-rated health. A sociological theory about class analysis stated that a highly educated person has a better ability to influence their partner through the information and opinion that they have (Monden, 2007). So that, both couples with hypergamy or hypogamy status will contribute to a better partner's health status compared when both are poorly educated. Furthermore, the effect of educational heterogamy (negative matching) on husband’s health status potentially refered to subtitutes effect, namely a theory expressed by Becker (1973) where husband and wife with different educational attainment will compensate each other’s characteristic.

<table>
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<td>dy/dx(1) (SE)</td>
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*** = p<0.01, ** = p<0.05, *=p<0.1
Estimation included all control variables as mentioned in 3rd model
Source: Susenas 2017

Meanwhile, wife’s self-rated health will be a slightly preferable when educational heterogamy in a household classified as hypogamy. This outcome showed that the higher wife’s educational attainment in the household will benefited womens more. Previous study conducted in Nepal indicate that the increasing level of wife’s educational attainment positively connected to women’s capability in making health related decisions (Acharya et al., 2010). In addition, the lower educational gap between husband and wife, related to gender equality in decision making in the household. Utomo (2014) in her research in Indonesia also concluded that the
tendency of decreasing "marrying up" reduces the range of age and education level between husband and wife, so that Indonesian women empowered more and increased the gender equality in the household.

5. Conclusion

Based on the results of the study it can be concluded that married with a highly educated partner will increase the chances of someone to have a better self-rated health than married with a lowly educated partner. Then the analysis by involving educational assortative mating variable indicate that the best health conditions will be achieved by husband and wife when both are highly educated, while educational homogamy in low educated partner will reduce self-rated health of both husband and wife. When couples have different level of education (educational heterogamy), wife will benefited more if her educational level higher than her husband (hypogamy). These findings indicate that the presence of educational spillover between couples can maximize the health status of both husband and wife in Indonesia.

Furthermore, health is not only determined by own’s educational level, but also influenced by spouse’s educational attainment. These results show that it is important to consider how social relationships, especially marriages, can expand the potential resources to improve individual health. Therefore, it is substantial to improve the health of an individuals by seeing the influence of their partners as a tread to improve public health in Indonesia.

Acknowledgement: We gratefully acknowledge financial support from Hibah Pitta 2018, University of Indonesia

References


Worldbank.org/data
Abstract

The problem of abandoned construction projects has a strong economic impact on the industry which needs to be more serious attention on this issue to prevent the growth of abandoned project rate. Negative impact causes of abandoned project bring direct adverse towards developers, contractors, consultants and client. The impact on these parties refers to unpleasant relationships, unreliability, legal proceedings, mediation, cash flow issues, and feelings of mutual concern. From extensive research literature review by considering publication from the past 10 years. Therefore, it is important to determine the real cause of project abandoned to prevent deterrence. As well as to identify the critical success factors in minimising abandoned project. The expecting finding may contribute on enhancement of existing knowledge.

Keywords: abandoned project, construction project, causes, critical success factors

I Introduction

According to Johnson (2000) the term “abandoned building” refers to the image of an uninhabited building serious ruins, sorted by garbage. Although buildings may have these characteristics, they generate fear and reduce precipitation. In society, it is difficult to legally define “abandoned buildings” because there is no universality. Therefore, it is best to use a wide range of explanations that cover a variety of content.

Unfinished project structure have been temporarily or permanently stopped constructing for a long time on construction sites are definitely called abandoned project. This issue is causing negative economic impact to the buyer, a structure that is completely abandoned, which are not protected, expose to weather can cause deteriorate of concrete materials from time to time, sometimes causing the project to fail to recover and have to abandon definitively. This is especially happening in Malaysia, and in other major cities, housing or industrial buildings. (Dharmasegaran,2014)

Delays in construction projects are also unusual, or in the worst case, but abandoned for various reasons. Abandonment can occur at any stage of the project life cycle and cause significant losses.
Abandoned building projects are one type of project that fails or does not work, it considers some of these factors. These factor affecting the success of the project may also be a major cause of abandoned construction projects. Given the exact reasons for abandoned construction projects, existing literature is limited and a comprehensive review of all the factors affecting the success of the project must be undertaken with the objective of identifying the list of possible causes of abandoned construction projects. According to his research Yap (2013), several types of negative factors have been identified leading to project neglect, as shown below, factor affecting success of construction project by referring Table 1 below.

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</table>
2. 1 Project Characteristic Related Factor

Material and equipment
Material and equipment availability play important roles in construction stage. Changes to equipment or finishes that were initially specified, but no longer manufactured can cause cost overrun and resulting in project abandoned. (Joshua et. al 2001). According to Momani (2000) lack of materials and equipment can be caused by three reasons, such as transportation problems shortage of material supply or material procurement problem. For example, such as imported materials or inefficient contractors. (Frimpong et. al 2003) Absence of equipment, it may also be due to frequent equipment failures, which will result in more maintenance work for the contractor.

2. 2 Procurement Related Factor

Inappropriate mode of financing project
Financial difficulties faced by contractors, financial problems of client which cause delays in interim payments are interconnected. (Sweis et al. 2008) Financial difficulties faced by contractors may be caused by delayed payments by their owners, such as domino effect, which may result in delays in payments by contractors to subcontractors. Late interim payments may also be due to an improper payment method. When the contractor is abandoned due to late payment, additional time and costs may be incurred and the project may be abandoned (Dissanayaka et al. 1999)

2.3 Project Management Factor

Inappropriate project planning
Variation constantly occurs along the construction phase. Abandoned of the project are due to poor project design, the contractor has done a lot of change work and extra work, variation eventually led to the omission of the project. (Hicks et al. 2008) Variation order causes a new area of work which doesn't include the tender document. This variation can be from the owner itself, architect, design consultant or unforeseen condition. (Lambeck et. al 2009) This variation can cause cost overruns. According to Elinwa et. al 2001, variation in construction technique and quantity or work are due to inexperience client, consultant and contractor. Therefore, the problem, according to variation obviously cause a project to be abandoned.

2.4 Project participant related factor
In experienced client / owner
Client of construction projects may include private and public clients, who are usually initial the project and finance support of construction projects. Client are usually responsible for the initial design. Factors identified in relation to providing initial design requirements include the customer experience, emphasis on high quality construction, rapid construction focus, and the ability to provide interpretation and decision making capabilities. Due to the competitiveness of subcontractors, focusing on low-cost construction can resulting in contractors and subcontractors to provide unrealistic prices, and provide bribes to make up for losses, client can influence the success of the project and may result in project abandoned. (Chiang, 2008, Chan et al. 2004)

2.5 External factor
Unexpected location difficulties
Unpredictable location difficulties include unwanted land conditions due to the underground facility. For example, the limestone region is characterized by some of the most difficult soil conditions in Malaysia, weak soil covering limestone stones, with karstic characteristics causing difficulties in design and construction of the base (Chen & Hong 1986). Unpleasant weather or God's act bad weather and uncertain soil conditions are among the factors that contribute to scheduling the suspension (Zhi 1995).

2.6 Unfavorable government policy
According to Toor, 2008 factors include lack of cooperation between local authorities and unprofitable government policies, such as problems with obtaining work permits. The lack of cooperation and government policy which is not profitable by local authorities may be related to the political environment. The most stressful political risk is the inconsistency of war, revolution, civil dispute and inconsistency government policy. (Zhi, 1995).

3 Methodology/Materials
3.1 During the implementation of conducting the research, materials and references are collected and used for a better understanding the related topic of the study and to enhance a greater depth of the research. A total of forty-two (42) references from many sources such as journals, articles, and internet as to increase the reliability of the research. The scope of the references collection is within ten (10) years which is between the year 2008 and 2018. Table 3.1 shows that the journals referred for the research and total journal referred on the year of the published journal between 2008 and 2018. Based on Table 3.1, eleven (11) references are used from the journals which were published on the year 2017 as there were many references relating to the topic.

<table>
<thead>
<tr>
<th>Year of Published Journal</th>
<th>Total Referred</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>1</td>
</tr>
<tr>
<td>2017</td>
<td>11</td>
</tr>
<tr>
<td>2016</td>
<td>4</td>
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<td>2015</td>
<td>1</td>
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<td>2014</td>
<td>7</td>
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<td>7</td>
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<td>2010</td>
<td>3</td>
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<tr>
<td>2009</td>
<td>3</td>
</tr>
<tr>
<td>2008</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Journal Referred</strong></td>
<td><strong>42</strong></td>
</tr>
</tbody>
</table>
Conclusion
The reasons for the abandoned construction projects identified from the existing literature focus on issues related to poor management, unfavorable economic conditions and financial problem. It has been found that the relevant literature is especially a less reliable article that focuses on abandoned project. When the project is abandoned, it has a huge negative impact. Regardless of the cause of the project, it will affect the construction industry and economic growth of a country. Detailed study of abandoned construction projects in Malaysia is needed. However, it is important to know that abandoned projects for the construction industry are negative, and have a devastating impact on the country's economy, losing the ultimate end user. Public and private sectors can work together to put an end to the problem of this abandoned project, it will be a huge improvement of society, industry and the country. Therefore, it is necessary to conduct a more detailed study on abandoned housing and non-residential projects in Malaysia.

References (APA)


Sunitha V. “A review on abandoned construction project : causes & effects”, Universiti Tun Hussein Onn Malaysia, 2015.

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Khalid, M.S., Abandoned Housing Development: The Malaysian Experience 2010

Ibrahim, F. Faktor-faktor kritikal bagi pemulihan projek perumahan terbengkalai. Universiti Teknologi Malaysia. 2006

Belassi, W. & Tukel, O.I. A new framework for determining critical success/failure factors in projects 1996


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Abstract ID is used for convenience of Authors. Every author has unique Abstract ID. Id is mentioned on the top of the Article on the right corner. Remove irrelevant information and write your abstract ID carefully.

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Remove irrelevant information

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GENERAL GUIDELINES

Your entire submission (including references) is a single-spaced in font size 10 with margin of 2.5cm.
Your submission contains few and only necessary footnotes or endnotes.
Any hypotheses are explicitly identified as such.
Constructs and variables are identified in words, not abbreviations.

CONTENT AND LENGTH OF MANUSCRIPTS

Constructs and variables are identified in words, not abbreviations.

Scope of Journal: The Editor welcomes original articles which fall within the aims and scope of the Journal, and which are as concise as the subject matter and research method permit.

Number of Words: The manuscripts language should be English and where possible the text should be restricted to around 5000 to 10,000 words.

Title of the Paper: The first page of the text should begin with the title, author’s name, and their affiliations, and an abstract of no more than 200 words. This abstract should summarize the whole paper and not the conclusions alone.

Keywords: A list of at least 3 words and at most five key words, suitable for indexing and abstracting services separated for commas.

Spacing: Manuscripts should be typed single-spaced.

Preparation of manuscripts

A title page should give the title of the manuscript, the author’s name, position and institutional affiliation, together with an address for correspondence; in the case of co-authors, names and affiliations and addresses should be clearly indicated. Correspondence will be sent to the first-named author unless otherwise specified. In order to enable the publisher to do everything to ensure prompt publication, the full postal and email addresses should be given for the author who will check the proofs, along with the telephone, telex and telefax numbers where possible. Any acknowledgements desired should also be placed on the cover page.

Figures, tables and footnotes: should be placed with in the text where it is in the document should be reasonably interpretable without reference to the text. Footnotes should be avoided if possible; where they are used they should be numbered consecutively with superscript Arabic numerals.

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Hypotheses should normally be presented in the positive rather than the null form, so that each hypothesis states the result that is expected if the prior theoretical development is supported by the empirical evidence. However, where a null result provides support for a theoretical position or where no prior expectation exists, the null form is appropriate. Care should be taken to state clearly how standard statistical tests were applied (e.g. one- or two-tailed). Where possible, statistical significance should be stated to the nearest percentage point (e.g. p < 0.05) rather than at conventional levels of significance.

Literature citations should be made in a uniform style in text and footnotes, and follow the APA style with use of ENDNOTE software (Manual referencing is not allowed; your paper will be send to revision in case of references are inserted manually).

Article in journal:

Book:

Chapter in book:
Works by the same author should be listed in order of publication. Where reference is made to more than one work published by the same author in a single year, a suffix, a, b, etc., should follow the date, thus: (Smith, 1989b). If an author’s name is mentioned in the text, it need not be repeated in the citation, thus ‘Hopwood (1989) claims that…’

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2. The submission has not been previously published, nor is it before another journal for consideration (or an explanation has been provided in Comments to the Editor).
3. The submission file is in OpenOffice, Microsoft Word, RTF, or WordPerfect document file format.
4. Where available, URLs for the references have been provided.
5. The text is single-spaced; uses a 12-point font; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.
6. The text adheres to the stylistic and bibliographic requirements outlined in the Author Guidelines.
Abstract
The urban centers growing population and the urbanization contributions to global environmental change have been make it increased the attention to the sustainability of cities and led to the emergence of the “Forest City” concept. Forest City also known as Green City is using the same meaning with “Sustainable city” or “Eco-city” which also count in sustainable development category. Forest City represented as a role model for future cities because it has a lot of benefit, which have been extensively studied in recent years especially in environmental sustainability, and its application of green technology. From the extensive study of literature review from the past 10 years until updating year of publication. This study its to identify the forest city concept of criteria and also the benefit this concept may offer. The expecting finding its to contribute in enhancing the existing knowledge.

Key words: forest city, sustainable development, green city, urbanization

1 Introduction
In the world population, more than a half are currently lives in cities and it will increases the share to 75 % by 2050. Today, the most urbanized regions are Northern America (82 %), Latin America and the Caribbean (80 %), and Europe (73 %) (FAO, 2015). The urban centres growing population and the urbanization contributions to global environmental change have been make it increased the attention to the sustainability of cities and led to the emergence of the “Forest City” concept. In this research, Forest City also known as Green City is using the same meaning with “Sustainable city” or “Resilience city” (Pace, 2016; Chaturvedi, A, 2013).

Forest City, Johor in Malaysia is a smart-city project which a benchmark project for Country Garden and the first city in the world where the horticulture covers the facade of the buildings that creates a forest-like environment and it is known also as a sustainable development (Garden, 2016). According to Hosam.K, 2015, the phrase of sustainable development has been defined and merged by the World Commission on Environment and Development in 1987 which is they did set forth that “sustainable development is improving people’s life-enabling habits meeting the needs of the present without compromising the ability of future generations to meet their own needs”.

Forest City represented as a role model for future cities because it has a lot of benefit which have been extensively studied in recent years especially in environmental sustainability and its application of green technology. It plays an important role in solving a lot of environmental problems, such as water pollution, loss of biodiversity, rising temperatures associated with city heat-island and soil erosion (Lee and Maheswaran, 2011; Lovell and Taylor, 2013; Adinolfi et al., 2014; Rahman, S, 2017). Other than that, it also can creates social, economic and ecological benefits for the city and its residents will strongly contributing to the development and maintenance of quality of life in the city. (Kingsley & Townsend, 2006; Lang, 2014; Lossau & Winter, 2011; Pothukuchi & Kaufman, 1999; Turner, 2011).

Forest City, Johor is a city which is being built on reclaimed land of 1,386 hectares on four islands at the tip of the Malay Peninsula that opposite Singapore as shown in figure1. Forest City is constructed and designed by one of the largest property development companies in China, Country Garden Holdings and this company is ranked 273rd on the Forbes list of 500 of the world’s biggest public companies (Sarah Moser, 2017).

Figure 1 shows location of Forest city in Johor Bahru.
2  Literature Review

2.1  Definition of Forest city

Most cities in the world started from small communities and it is slowly grew by attracting people to live there. These inhabitant demands for cities to be sustainable and the ways to get it is so called ‘triple-bottom line’ which the precepts of sustainability (environment, society and economy). The United Nations in 2015 established the Sustainable Development Goals (SDGs) with an aim to protect the planet, to end the poverty and to make sure that people in this world enjoy peace and prosperity (Invest KL, 2013).

By referring to Table 1, few authors stated that there has a lot of stakeholders contributed to environmental activities in cities but most of them are having different angles, for example by adopting a broader approach of green, smart, sustainability city where social, economic and financial sustainability are parameter’s primary on equal footing as environmental indicators or by working on specific urban sectors. As a result, there is a lack of consensus and clarity on what could be defined as a forest city.

Environment related issues are by far is the most often that presented in forest city definitions, methods and concepts so therefore, this research proposes a definition of forest city which is emphasising the environmental performance in Table 2.1. However, economic and social performance are not the primary target, they also contributing the important characteristic of green city and will be useful to consider in priority monitoring, setting and evaluation of green city services and activities (EBRD, 2016; Ogenis Brilhante, 2018).

<table>
<thead>
<tr>
<th>Definition</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest city is model of the future and aiming the world’s most liveable</td>
<td>ELCA, 2011; Forest city country garden, 2016</td>
</tr>
<tr>
<td>city that is right next to nature with beautiful scenery and a convergence</td>
<td></td>
</tr>
<tr>
<td>of diverse cultures.</td>
<td></td>
</tr>
<tr>
<td>Forest city is the only multi-layered city in the whole world where multi-</td>
<td>The green city, 2016; Forest city country garden, 2016</td>
</tr>
<tr>
<td>layered transportation which is covered with lush green surrounding with</td>
<td></td>
</tr>
<tr>
<td>no vehicles traveling on the surface because vehicles will be parked</td>
<td></td>
</tr>
<tr>
<td>in a transportation hub or in lower levels of the island and it creates a</td>
<td></td>
</tr>
<tr>
<td>brand-new space where man and nature co-exist in harmony.</td>
<td></td>
</tr>
<tr>
<td>Forest city has a network water system within it and more than dozens</td>
<td>Ogenis Brilhante, 2018; Forest city country garden, 2016</td>
</tr>
<tr>
<td>kilometres coastline outside of it and has natural resources such as</td>
<td></td>
</tr>
<tr>
<td>significant wetland, mangrove swamps, clean air and water that make</td>
<td></td>
</tr>
<tr>
<td>this the world's desired living paradise.</td>
<td></td>
</tr>
<tr>
<td>Forest city is a sustainable development that led to the emergence of</td>
<td>Lewis, 2015</td>
</tr>
<tr>
<td>green city concept with building facades embraced with plants and</td>
<td></td>
</tr>
<tr>
<td>greenery and seeks to intergrate environmental, economic and social</td>
<td></td>
</tr>
<tr>
<td>within city’s development process.</td>
<td></td>
</tr>
<tr>
<td>Forest City defined as environmentally friendly and attain long-term</td>
<td>Xiaoling, 2011; UNEP,2011</td>
</tr>
<tr>
<td>profitability and gain sustained competitive advantage by helping</td>
<td></td>
</tr>
<tr>
<td>developers achieve environmental friendly, lower operational cost,</td>
<td></td>
</tr>
<tr>
<td>ecological responsiveness, preserve the health of building resident and</td>
<td></td>
</tr>
<tr>
<td>energy saving contribution.</td>
<td></td>
</tr>
<tr>
<td>Forest City is highlighting the importance of preserving natural</td>
<td>qi zhang, 2017, Aleksander, 2016</td>
</tr>
<tr>
<td>resources and balancing the effects of overall development in terms of</td>
<td></td>
</tr>
<tr>
<td>three dimensions: environment, economic and social issues.</td>
<td></td>
</tr>
<tr>
<td>Forest City encourages green behaviour, resilient or multidisciplinary in</td>
<td>Chelleri &amp; Olazabal, 2012</td>
</tr>
<tr>
<td>the face of natural disasters and low risk of major infectious disease</td>
<td></td>
</tr>
<tr>
<td>outbreaks in city.</td>
<td></td>
</tr>
</tbody>
</table>

2.2  Criteria of Forest City

The criteria of forest city can be categorized into environment, economic and social which will be discussed in detail in Table 2 below.-
Table 2 Criteria of Forest City

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment</td>
<td></td>
</tr>
<tr>
<td>Air Quality</td>
<td>√</td>
</tr>
<tr>
<td>Water Quality</td>
<td>√</td>
</tr>
<tr>
<td>Land/Soil Quality</td>
<td>√</td>
</tr>
<tr>
<td>Biodiversity and ecosystem</td>
<td>√</td>
</tr>
<tr>
<td>Water resources availability</td>
<td>√</td>
</tr>
<tr>
<td>Green space availability</td>
<td>√</td>
</tr>
<tr>
<td>Climate change mitigation</td>
<td>√</td>
</tr>
<tr>
<td>Climate change adaptation</td>
<td>√</td>
</tr>
<tr>
<td>Economic</td>
<td></td>
</tr>
<tr>
<td>Economic growth and employment</td>
<td>√</td>
</tr>
<tr>
<td>Economic resilience</td>
<td>√</td>
</tr>
<tr>
<td>Revenue and expenditure</td>
<td>√</td>
</tr>
<tr>
<td>Social</td>
<td></td>
</tr>
<tr>
<td>Public health</td>
<td>√</td>
</tr>
<tr>
<td>Access to urban services</td>
<td>√</td>
</tr>
<tr>
<td>Behaviour and awareness</td>
<td>√</td>
</tr>
<tr>
<td>Citizen engagement</td>
<td>√</td>
</tr>
<tr>
<td>Social resilience</td>
<td>√</td>
</tr>
<tr>
<td>Gender equality</td>
<td>√</td>
</tr>
</tbody>
</table>

Table 2 shows the criteria of green city from different author. There are 17 criteria that cover environment, social and economic has been listed and cited as well as analysed based on 7 authors by considering the paper published within the year 2010 to 2018. By referring Table 2.2 above, the highest time referred for criteria is air quality and access to urban services with 7 times referred then it followed by public health with 6 times referred. Then, water quality and climate change mitigation referred by 5 times and economic growth and employment and behaviour and awareness are referred by 4 times. Next factor that has shared the same reading of times referred which are 3 follows by biodiversity and ecosystem green space availability, climate change adaptation and citizen engagement. Water resources availability, land or soil quality and gender equality are referred by 2 times. Last but not least, economic resilience, revenue and expenditure and social resilience are refereed only 1 time.

By referring to Table 3 below, targeted environmental has been listed based on three general environmental.

Table 3 Green city environmental

<table>
<thead>
<tr>
<th>General environmental</th>
<th>Targeted environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of environmental assets</td>
<td>Air quality</td>
</tr>
<tr>
<td>Efficient use of resources</td>
<td>Water quality</td>
</tr>
<tr>
<td></td>
<td>Land/Soil quality</td>
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<tr>
<td></td>
<td>Water resources availability</td>
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<td></td>
<td>Green space availability</td>
</tr>
<tr>
<td></td>
<td>Biodiversity and ecosystems</td>
</tr>
<tr>
<td>Climate change risks</td>
<td>Mitigation (greenhouse gas emissions)</td>
</tr>
<tr>
<td></td>
<td>Adaptation (resilience to climate change risks)</td>
</tr>
</tbody>
</table>

Forest City have clean water and air and pleasant streets and parks. Forest city constitute an inherent element of human existence and the land space and provides many ecosystem functions. Ecosystem function in general are a subset of the interactions between its structure and the processes that underpin the capacity of an ecosystem which is provide goods and services (Joint Research Center, 2005 ; M.Ciesielski, 2018).

Green environment has a positive impact on children’s physical movement skills and outdoor activities. It also increases knowledge and awareness of environmental issues on green space availability. Moreover, spending time in open green spaces is not only recreation but also a learning experience, and that enhances the quality of development and self-growth (Olsson, 2012; Greencities, 2015).

Cities consume 67% of global energy and it is over 70% of Green House Gas (GHG) which has become the main contributor to climate change. The lighting and heating of residential & commercial buildings alone contribute to 25% of GHG while transport emits to 13.5% causing irreversible climate change. Forest city is a multi-layered transportation which is covered with lush
Forest city has adopted best practices to minimizing the negative impacts of construction activities on the environment. Dust control, noise reduction, clean and neat site, supply on demand, solid waste reduction, sewage reduction and make full use of resources. Forest city definition also includes social and economic that linked to the environmental which should be taken into account to fully grasp the ins and outs of a forest city. By referring to Table 4, the main economic and social and objectives relevant to a forest city have been listed. To enhance a city’s environmental performance, they should find to maximise social and economic co-benefits. These links between environmental, economic, social objectives will add some motives for city leaders to undertake the green city actions (EBRD,2016).

<table>
<thead>
<tr>
<th>Economic and Social</th>
<th>Targeted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>Economic growth and employment</td>
</tr>
<tr>
<td></td>
<td>Economic resilience</td>
</tr>
<tr>
<td></td>
<td>Revenue and expenditure</td>
</tr>
<tr>
<td>Social</td>
<td>Public health</td>
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<tr>
<td></td>
<td>Access to urban services (indirectly: poverty, equality)</td>
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<tr>
<td></td>
<td>Behaviour and awareness</td>
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<td></td>
<td>Citizen engagement</td>
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<td></td>
<td>Social resilience</td>
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<td></td>
<td>Gender equality</td>
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</tbody>
</table>

There are some examples of green city actions contribute in economic and social to improving. For economic growth and employment, economic development of green city sectors will contributes to GDP output and employment. There will be lots of job in each sector that have issues or problem. Next example is innovation in green city sectors contributes to GDP output. Then for economic resilience, resilience to the impacts of climate change will improves the economic resilience. For revenue and expenditure, financial incentives, green infrastructure and services provision, taxes and charges to promote green cities that can generate revenue and expenditures for a municipality (EBRD,2016).

For social which is public health, improvements in water and air quality will reduce public health issues. Next, there has a lot of example in access to urban, firstly, enhancement of the efficiency and water supply coverage of infrastructure or network, enhancement of the efficiency and coverage of low-emission in terms of air pollutants and GHG electricity and heat supply network, enhancement of the efficiency and coverage of sustainable modes of transport which is low-emission private and public transport, walking and cycling, enhancement of the efficiency and coverage solid waste collection system, enhancement of the efficiency and coverage of safe and energy-efficient housing, affordable basic services for all the urban population and last example is and all of this is services for the urban population and may participate in poverty and inequality reduction efforts. Last example for urban services is enhancement of the quantity of green spaces increases access of such services for all the urban population and generate well-being. What is the example of behaviour and awareness? Green behaviours increase the use of existing sustainable urban utility systems which is transport, solid waste recycling systems, high public awareness on natural disaster risk enhances the civil society’s preparedness to such events, citizen with green behaviours are more likely to preserve habitats and ecosystems, green behaviours result in lower consumption of water and energy resources. For citizen engagement, the example is involving citizens in green city planning processes helps to achieve public participation objectives and buy-in of the population and community involvement in green city actions, for instance, nature conservation and solid waste can be an effective implementation means and provide social benefits. Social resilience is tackling the vulnerability of poor communities to natural disaster risk can have high benefits on a city’s resilience and avoid further urban inequalities. Lastly for gender equality is enhancement of the safety and accessibility of public transport participates in promoting gender equality (EBRD,2016). These all the fact may conclude that forest city also inline with the sustainable development based on three main principles discussed which are environmental, social and economic.

### Methodology/Materials

Table 3 shows that the journals referred for the research and total journal referred on the year of published journal between 1996 to 2018. Based on table 3, eight (8) references are used from the journal were published on 2016 as there were many information which related to Forest City.

<table>
<thead>
<tr>
<th>Year of Published Journal</th>
<th>Total Referred</th>
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<tbody>
<tr>
<td>2018</td>
<td>2</td>
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<td>2017</td>
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<td>2016</td>
<td>8</td>
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<td>2015</td>
<td>3</td>
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<td>2011</td>
<td>5</td>
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<tr>
<td>2010</td>
<td>4</td>
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<tr>
<td>2006</td>
<td>2</td>
</tr>
<tr>
<td>2005</td>
<td>1</td>
</tr>
</tbody>
</table>
4 Conclusion

There are four island which is Island 1 is tourism and mice center with 1km² of Global Technology and Innovation Hub, Island 2 is healthcare, education and culture center, Island 3 is nearshore financial center and Island 4 is green and eco-residential area. Forest city is a model of future cities that positioned itself as a smart, sustainable, resilient and green city with industry integration. Many studies have attempted to define forest city concept and studies shows that there are actually having a same meaning. Unfortunately, there is no universally that accepted the definition or observed practical approach to Forest City. Therefore explaining more that, “Cities are the future’s growth engine which is offering their populations in greater opportunities for employment, education, and prosperity but there still have the negative effects of their growth can also result in environmental pollution, traffic congestion, exploitation of resources, urban sprawl, informal settlements and a significant contribution to climate change in future research truly appreciated as all these may contribute to sustainable development in other hand also to sustain what ever has been develop in the pieces of land so called Forest City.

References (APA)


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Abstract ID: AIC2017- AMOS -001 (Example)

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Your entire submission (including references) is a single-spaced in font size 10 with margin of 2.5cm.

Your submission contains few and only necessary footnotes or endnotes.

Any hypotheses are explicitly identified as such.

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Spacing: Manuscripts should be typed single-spaced.

Preparation of manuscripts

A title page should give the title of the manuscript, the author’s name, position and institutional affiliation, together with an address for correspondence; in the case of co-authors, names and affiliations and addresses should be clearly indicated. Correspondence will be sent to the first-named author unless otherwise specified. In order to enable the publisher to do everything to ensure prompt publication, the full postal and email addresses should be given for the author who will check the proofs, along with the telephone, telex and telefax numbers where possible. Any acknowledgements desired should also be placed on the cover page.

Figures, tables and footnotes: should be placed with in the text where it is in the document should be reasonably interpretable without reference to the text. Footnotes should be avoided if possible; where they are used they should be numbered consecutively with superscript Arabic numerals.

With regard to manuscripts which refer to questionnaires or other research instruments which are not fully reproduced in the text, the author may also submit a copy of the complete research instrument. Where research instruments are not fully reproduced, a note must be inserted on the cover page indicating the address from which the complete instrument is available.

Hypotheses should normally be presented in the positive rather than the null form, so that each hypothesis states the result that is expected if the prior theoretical development is supported by the empirical evidence. However, where a null result provides support for a theoretical position or where no prior expectation exists, the null form is appropriate. Care should be taken to state clearly how standard statistical tests were applied (e.g. one- or two-tailed). Where possible, statistical significance should be stated to the nearest percentage point (e.g. p < 0.05) rather than at conventional levels of significance.

Literature citations should be made in a uniform style in text and footnotes, and follow the APA style with use of Endnote software (Manual referencing is not allowed; your paper will be send to revision in case of references are inserted manually).

Article in journal:


Book:


Chapter in book:

Works by the same author should be listed in order of publication. Where reference is made to more than one work published by the same author in a single year, a suffix, a, b, etc. should follow the date, thus: (Smith, 1989b). If an author’s name is mentioned in the text, it need not be repeated in the citation, thus ‘Hopwood (1989) claims that…’

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As part of the submission process, authors are required to check off their submission's compliance with all of the following items, and submissions may be returned to authors that do not adhere to these guidelines.

1. Rename your word file with abstract ID
2. The submission has not been previously published, nor is it before another journal for consideration (or an explanation has been provided in Comments to the Editor).
3. The submission file is in OpenOffice, Microsoft Word, RTF, or WordPerfect document file format.
4. Where available, URLs for the references have been provided.
5. The text is single-spaced; uses a 12-point font; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.
6. The text adheres to the stylistic and bibliographic requirements outlined in the Author Guidelines.
**Affordable Sustainable Housing Project: A Literature Review**

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*Corresponding author Email: * vywen0228@gmail.com

**Abstract**

Affordable housing is a program that introduced by the government to improve housing affordability which ensure every income earner group could afford houses, especially for low-income households. Affordable sustainable housing project has no clear definition so far but the concept of needs, which seeks to ensure that the essential needs of the poor are adequately met; and the need for addressing every limitation arising from the use of technology and activities of social elements affecting the environment’s ability to meet the present and future needs, may to consider to define as general idea. This paper its to study the emergence criteria of affordable housing and sustainable housing concept to be inline by answering the term of affordable sustainable housing project. By using the latest 10 years of publication for extensive literature review methodology perhaps may contribute in enhancing the existing knowledge.

**Keywords:** sustainable housing, affordable housing, emergence criteria.

**1 Introduction**

There are different types of housing offered in the market but not all of them are affordable by everyone. Researchers had defined affordability in general as the relationship between household expenditure and income earned. However, there are argument saying that affordability is not only influenced by that, but also by the levels and distribution of house process, structure of financing cost, housing availability, employment, maintenance of the existing affordable housing stock and patterns of new construction (Nor Hanizan Sahib, 2015; Wilcox, 2003; Ludwig et al, 2002; Bramley, 1994).

Affordable housing is a program that introduced by the government to improve housing affordability which ensure every income earner group could afford houses, especially for low-income households (Xiaolong Gan et al, 2017; M.S. Suhaida et al, 2011; Azevedo et al, 2010). According to Nor Hanizan Sahib (2015), houses which having housing loans exceeding 30percent of monthly gross household income will not be counted as affordable housing as it will affect other basic needs of the owner. Other than the financial affordability, the location, quality and build-up of a house should be sufficient in order to entitled affordable housing (Cheah Su Ling et al, 2017).

Malaysia government had implemented several affordable housing programme such as Program Bantuan Rumah (PBR) and Perumahan Rakyat 1Malaysia (PR1MA) for low- and middle- income households to cope with the problem of mismatch between supply and demand of housing due to socioeconomic change, urbanization and evolving population structures (Nor Baizura Jamaluddin et al, 2016). However according to Cheah Su Ling (2017) Malaysia still facing shortage of affordable homes for the masses. Hence, it is important to have more affordable housing constructed in Malaysia.

**2 Literature Review**

A house is a home, building or structure that functions as a habitat for humans or other creatures. The term house includes many kinds of dwellings ranging from rudimentary huts of nomadic tribes to complex structures composed of many systems. Apart from affordable, the aspect of comfortable in is also important. According to Hamidah Ramlan et al. (2016), the definition on affordable housing is generally involved in the ability of a household to get the housing services, while specifically it involves the correlation between household income and the price or payment. Largely, the Malaysia’s accommodation procedure has a principal of aim of realizing all nations, mainly the low-income group (LIG), are definite admission satisfactory and unrestricted admission to a reasonable accommodation requirement. According to Hamidah Ramlan et al. (2016), it is hoped that they seek out the country for a feasible and sustainable being settlement can be achieved throughout a suitable and well deliberate accommodation condition.

The Brundtland report defines SD as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations, 1987). The two key common concepts contain in the above two SD definitions are: the concept of needs, which seeks to ensure that the essential needs of the poor are adequately met; and the need for addressing every limitation arising from the use of technology and activities of social elements affecting the environment’s ability to meet the present and future needs.

Based on the aforementioned two concepts, which are affordable and sustainable housing, it should adequately meet housing needs of the vulnerable households on a continuous basis, and at the same time consider the environmental limitations while meeting...
such needs both in the present and future in relation to the affordable techniques and sustainable components (Akanbi Olusayo Oyebanji et al., 2017). However, sustainability issues are bound to arise where appropriate measures are not adequately and properly linked together in affordable housing delivery. Therefore, clearance on defining affordable sustainable housing project truly much appreciated to make these two concept well deliver to the public as well as to the construction players the parties who deliver these concepts.

2.1 Definition for Affordable Housing

By referring to Table 2.1, few authors state that houses will be considered affordable only when the financing of home ownership which included utilities fee, maintenance fee, taxes and insurance is less than 30% of the monthly gross household income. When the amount of house cost more than 30%, the house will not be considered as affordable housing as it will affect the other 70% of income which initially being allocate for the use of basic needs such as food, clothing, vehicles, medical financing, education, cultural needs, and even leisure time and entertainment (Nor Hanizan Sahib, 2015; B Bakhtyar et al, 2013; Barclay, E. and Betker, D, 2004; Anderson, M.L., et al, 2003).

However, some author mentions that affordable housing is the relationship between housing and people. According to Wallbaum H, et al (2011), a range between 15 to 30 years will be given for client to obtain affordable houses. The affordability is depends on the ability and desire of client to own or buy houses. For certain client, all house is consider affordable for them; however for certain client, no housing is affordable unless it is free (Adel El Menshawy et al, 2016; A.M.J. Esruq-Labin, 2014; Abed, 2012; Yang, Z, and Shen, Y, 2008; Stoned, 2006, p.153).

According to Cheah Su Ling (2017), other than financial affordability, affordable housing is houses that sufficient in quality and location. Affordable housing is also a concept, which use to explain socioeconomic and development environments. It was aim to make sure that every income-earner cluster could afford the houses provided (A.M.J.Esruq-Labin, 2014).

<table>
<thead>
<tr>
<th>No.</th>
<th>Definition</th>
<th>Author, Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Affordable housing is defined as housing which is sufficient in quality and location, and is not so costly that it prevents its occupants from satisfying other basic living needs.</td>
<td>Cheah Su Ling, 2017</td>
</tr>
<tr>
<td>2</td>
<td>Affordable housing can be defined as “it is a relationship between housing and people. For some people, all housing is affordable, no matter how expensive it is; for others, no housing is affordable unless it is free”</td>
<td>Adel El Menshawy et al, 2016; Abed, 2012; Stoned, 2006, P.153</td>
</tr>
<tr>
<td>3</td>
<td>Affordable housing also meant as the financing of home ownership does not exceed 30 percent of monthly gross household income.</td>
<td>Nor Hanizan Sahid, 2015</td>
</tr>
<tr>
<td>4</td>
<td>Affordable housing is a concept which is used to explain socioeconomic and development environments, which aims to confirm if housing provided for families can be afforded by each income-earner cluster, that is, low, middle, or high income-earner cluster.</td>
<td>A.M.J.Esruq-Labin, 2014</td>
</tr>
<tr>
<td>5</td>
<td>Affordable housing is a feature of housing facilities which is related to customer ability and the desire to own or buy houses</td>
<td>A.M.J.Esruq-Labin, 2014; Yang, Z, and Shen, Y, 2008</td>
</tr>
<tr>
<td>6</td>
<td>The housing costs that consume less than 30% of a household’s budget is an affordable house</td>
<td>B Bakhtyar, 2013; HUD, U.S. Department of Housing and Urban Development, 2008</td>
</tr>
<tr>
<td>7</td>
<td>Affordable housing can be defined as a house that a family group can acquire within a given period, which generally ranges from 15 to 30 years</td>
<td>Wallbaum H, Ostermeyer Y. Salzer C and Escamilla E Z, 2011.</td>
</tr>
</tbody>
</table>

2.2 Definition for Sustainable Housing

By referring to table 2.2, different author have different meaning on sustainable housing. According to Salem Ang (2016) and Chau Sim Yee (2015), sustainable housing concept can be rooted to sustainable development which explained that current resource utilization will affect the resources for future generation. The structure and using process which is environmentally responsible and resource-efficient apply throughout the sustainable building’s life-cycle from design, construction, operation,
maintenance, renovation and demolition with the aim to preserve environmental resources for future generation (Chau Sim Yee, 2015; Ibeh and Azuh, 2011; Pollen et al, 2011; Karuppannam and Sivam, 2009).

Sustainable development had been divided into three interacting cluster which is economic, environmental, and social (Wallbaum H et al, 2011 ; Keiner, 2005). By taking into account the three sector, sustainable housing had been defined as an approach for the building industry to move toward sustainable development (Nor Kalsum Mohd Isa et al, 2014; Akadiri et al, 2012). Sustainable housing presents multiple prospects of promoting economic growth, ecological stewardship, standard of living, and social parity while alleviating the unwarrantable convergences of issues pertaining to urbanization, population growth, poverty, slums economic volatility, climate change, and inadequate access to sustainable energy (Somayeh Roshanfekr et al, 2016; UN-Habitat, 2012).

**Table 2.2: Definition of sustainable housing**

<table>
<thead>
<tr>
<th>No.</th>
<th>Definition</th>
<th>Author, year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sustainable housing concept can be rooted to sustainable development, which is defined as the “development that meets the needs of the present without compromising the ability of future generations to meet their needs in the future”</td>
<td>Salem Ang, 2016; World Commission on Environment and Development,1987</td>
</tr>
<tr>
<td>2</td>
<td>Sustainable housing presents multiple prospects of promoting economic growth, ecological stewardship, standard of living, and social parity while alleviating the unwarrantable convergences of issues pertaining to urbanization, population growth, poverty, slums economic volatility, climate change, and inadequate access to sustainable energy</td>
<td>Somayeh Roshanfekr et al, 2016; UN-Habitat, 2012</td>
</tr>
<tr>
<td>3</td>
<td>When it comes to sustainable housing refers to a structure and using process that is environmentally responsible and resource-efficient throughout a building's life cycle from design, construction, operation, maintenance, renovation and demolition</td>
<td>Chau Sim Yee, 2015; Ibeh and Azuh, 2011; Pollen et al, 2011; Karuppannam and Sivam, 2009</td>
</tr>
<tr>
<td>4</td>
<td>Sustainable building is considered as an approach for the building industry to move towards sustainable development by taking into account environment, social and economic issues</td>
<td>Nor Kalsum Mohd Isa, et al, 2014; Akadiri et al, 2012</td>
</tr>
</tbody>
</table>

2.3 Criteria of Affordable Sustainable Housing

There are no specific criteria for affordable sustainable housing yet, hence this research cover the criteria of sustainable housing and the criteria affordable housing. Table 2.3 shows the criteria of sustainable and affordable housing from different author. There are twenty (20) criteria cover the sector of social, economic and environment.

Based on table 2.3, resource efficient and energy efficiency are criteria that discuss by most of the researcher which six (6) authors mention it when they talk about criteria of affordable housing and sustainable housing. Follow by water efficiency which discus by five (5) authors. Other than that, four (4) authors mention about the criteria of safe, secure and healthy, and facilities and services. Affordability, sustainable site planning and management, and material efficiency had been discuss by three (3) authors. Besides, two (2) authors had mention accessible and flexible, architecturally proper, indoor air quality, and quality management when they discuss about the criteria of affordable housing and sustainable housing. Socially and ecologically sustainable, long-lasting, generate renewable energy, innovation, loans and accommodation, grow home, appropriate technology and effective policy and legal frameworks are the criteria that discuss by either one of the authors.

**Table 2.3: Criteria of Affordable Sustainable Housing**

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<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Affordability</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Socially and Ecologically Suitable</td>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Accessible and Flexible</td>
<td>O</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>
### Resource Efficient
- Safe, Secure and Healthy
- Long-Lasting
- Architecturally Proper
- Sustainable Site Planning and Management
- Energy Efficiency
- Water Efficiency
- Indoor Air Quality
- Material Efficiency
- Generate Renewable Energy
- Innovation
- Loans and Accommodations
- Architectural Proper
- Sustainable Site Planning and Management
- Energy Efficiency
- Water Efficiency
- Indoor Air Quality
- Material Efficiency
- Generate Renewable Energy
- Innovation
- Loans and Accommodations
- Facilities And Services
- Quality Management
- Grow Home
- Appropriate Technology
- Effective Policy and Legal Frameworks

### Methodology/Materials
Table 2.4 show the different year of source referred. 28 journals had been used as references while producing this paper.

<table>
<thead>
<tr>
<th>Year of published journal</th>
<th>Total referred</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>2</td>
</tr>
<tr>
<td>2016</td>
<td>5</td>
</tr>
<tr>
<td>2015</td>
<td>3</td>
</tr>
<tr>
<td>2014</td>
<td>2</td>
</tr>
<tr>
<td>2013</td>
<td>4</td>
</tr>
<tr>
<td>2012</td>
<td>3</td>
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<tr>
<td>2011</td>
<td>1</td>
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<tr>
<td>2010</td>
<td>0</td>
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<tr>
<td>2009</td>
<td>0</td>
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<tr>
<td>2008</td>
<td>2</td>
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<tr>
<td>2007</td>
<td>0</td>
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<td>2006</td>
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<td>2005</td>
<td>1</td>
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<tr>
<td>2004</td>
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<td>2003</td>
<td>2</td>
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<td>1997</td>
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<tr>
<td>1996</td>
<td>1</td>
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<tr>
<td>1995</td>
<td>0</td>
</tr>
<tr>
<td>1994</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>
4 Results and Findings

In order to answering the aim and objectives of this study, an analyzing on definition from two concepts, which are affordable and sustainable, has been clearly define. This follow by an analyzing on the total times referred for the criteria of affordable sustainable housing concept to get a significant criteria which using as main benchmark to deliver affordable sustainable housing concept in a project.

4.1 Emerging Affordable Concept and Sustainable Concept

By referring to Table 2.1 and Table 2.2 which defining about affordable housing and sustainable housing, affordable sustainable housing is refer to houses which could be afforded by every income earner cluster and consists of sustainability in the aspect of economic, environmental, and social. Figure 2.1 below express in ease way to defining Affordable Sustainable Housing.

![Figure 2.1 New Definition of Affordable Sustainable Housing](image)

To define thoroughly on Affordable Sustainable Housing, which the housing must able to meeting an ability of the owner which in other hand afford to pay its under housing loan, where the house still within the radius of strategic location and using the quality material to build as normal conventional housing. Furthermore, all those range of criteria must able to match with the sustainability concept. The development of affordable sustainable housing its reachable, accessible and mixed development in terms of the type of housing itself to cater with the social cluster under sustainable concept. When it comes to economic cluster, its all about the cost and price of the house which the owner able to pay for the said housing price. On the environment cluster the best fact to explain its on the material use to build the house its from low chemical content of material yet quality which may minimize the negative implication to the environment.

4.2 Criteria of Affordable Sustainable Housing

By referring to Table 2.3 describing on the criteria of Affordable Sustainable Housing. From 20 criteria has been highlighted, the highest total referred goes to Resources Efficient and Energy Efficient. By looking at these 2 criteria it’s significantly reflect to the main criteria in achieving sustainable with 6 times referred from 7 numbers of citations. Second highest total referred Water Efficiency where this also an important main criteria for sustainable. The total number referred follows by Facilities and Services and also Safe, Secure and Healthy criteria. All the criteria highlighted are combination and also the emergence criteria between two concepts have been discussed from earlier: Affordable and Sustainable Housing concept.

5 Conclusion

Affordable Sustainable Housing can be achieving to implement among all construction players if the challenges factors to implement the concept can be overcome. This can be start with clear defining the concept of Affordable Sustainable Housing concept itself. When the construction players have a clear concept about the affordable sustainable housing, they will only consider to work on the concept as they already know about the risk of the concept. Furthermore, the clear identification on the criteria of affordable housing and sustainable housing as well as the emergence of these two concepts will navigate to a clear direction on implementing the concept of Affordable Sustainable Housing itself.
References (APA)


The Effect of Satisfaction, Trust, and Commitment to Muzakkis’ Loyalty in BAZNAZ Mojokerto

Nurul Rahmawati¹, Ririn Tri Ratnasari², Dina Fitrisia Septiariini³
Department of Islamic Economics, Faculty of Economics and Business, Airlangga University, Surabaya, Indonesia

Abstract

This research aims to determine the effect of satisfaction, trust and commitment on loyalty of Muzakki in BAZNAZ Mojokerto. This research uses quantitative approach and Partial Least Square (PLS) analysis technique. The sampling method is purposive and accidental sampling. This research used questionnaire data from 100 Muzakki of BAZNAZ Mojokerto. This study result showed that Muzakkis’ satisfaction has significant and positive effect on Muzakkis’ trust, commitment, and loyalty. Also trust significantly positive affect Muzakki’s commitment and loyalty. While commitment has significant and positive effect on Muzakki’s loyalty. Based on the findings, it expected that zakat institution always be transparent in distribution of zakat, and always explained about the collection, distribution, and utilization of zakat in accordance with the provisions.

Keywords: Trust; Satisfaction; Commitment; Loyalty; Muzakki

1 Introduction

Allah Almighty bestows gifts on humans is extraordinary. Sometimes, without realizing it, there are gifts that cover all aspects of human life, such as physical, non-physical, objects, property or wealth, or things that cannot be seen even like health, reason, to faith. In the case of property or wealth, Allah SWT encourages people not only to accept but also actively in giving and distributing these assets to people who have not been able to. This is where there is a suggestion from Allah SWT on humans to be pious, good, and tithe.

The Maliki school defines zakat as issuing a special portion of the special wealth (muzakki) which has reached the nishab (the quantity limit that requires zakat) to those who have the right to receive it (mustahiq). With a note, ownership is full and reaches hauil (a year), not mining and non-agricultural goods. According to Imam Shafi’i, zakat can only be distributed to those who are entitled, such as: poor people, poor, amil, converts, riqaq (slaves), gharim, traveler, sabillullah, ibn sabil. Explained in the word of Allah SWT in the letter At-Taubah verse 60:

"الذي أصابته لللفقراء والمسيكين والعاملين على أبيض الله على الموظفة في أرض الله وعليه السلام.

I’nmna’ as šadaqa`tu iličqara`i wa ’al masa`kiwna wa ’al `a miliwna `adayha wa ’al mi`lalaffati qulubwuhum wa fiw `ar riqa`bi wa `al ghai`rimivna wa fiw sabiwi All`a `h`i wa `abi`ni wa sabiwi faridyata mina All`a`h`i wa All`a`hu `awliwma` ḥakimmu

It means: "Indeed the zakat is only for the poor, the needy, the zakat managers, the mu’allaf who persuaded him to liberate the slave, the debtor, for the way of Allah and for those on the journey, as a decree required by Allah, and Allah is Knowing, Wise. "(Qs. At-Taubah (9): 60).

<table>
<thead>
<tr>
<th>Tahun</th>
<th>Jumlah Penduduk</th>
<th>Persentase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>228.608.665</td>
<td>70%</td>
</tr>
</tbody>
</table>

Source: Statistics Indonesia (www.bps.go.id) data processed by the author.

Based on table 1.1 above, the number of Muslim population census is around 70%, namely 228,608,665 Muslim residents in Indonesia in 2017. This is a huge potential Muslim population in tithing. This can cause many muzakki to issue zakat. Because tithing is an obligation that must be carried out.

<table>
<thead>
<tr>
<th>Tahun</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1.220</td>
<td>36.888</td>
<td>30.176</td>
<td>59.903</td>
<td>126.900</td>
<td>150.200</td>
</tr>
</tbody>
</table>

Source: National Zakat Agency (www.pusat.baznas.go.id) data processed by the author.

Law No. 23 of 2011 concerning the management of Zakat, an organization authorized by the state other than BAZNAS, is the Amil Zakat Institution (LAZ) and the Zakat Collection Unit (UPZ). There are various organizations collecting and distributing zakat, Muzakki also has many choices and can make it easier to do Zakat collection can be organized well, distribution is transparent and the performance of professional institutions.

The potential of individual and private zakat of BUMN and private sector in Indonesia currently reaches IDR 217 trillion and this amount can increase. While zakat in East Java is estimated to be quite large, which is around IDR 15 trillion. This is in accordance with the explanation of the Deputy Governor of East Java Saifullah Yusuf (tribunjatim, 2017). In this study, the area used for the research location was Mojokerto because in the city of Mojokerto there was a relatively large potential for zakat. With a population of 136 thousand people, Muslims were 117 thousand people.

Based on the above research, on this occasion, researchers adopted the title to be studied and studied more deeply whether satisfaction, trust and commitment influence muzakki loyalty. This study will then be realized in the form of a thesis research in the title "Effect of Satisfaction, Trust, and Commitment to Muzakki Loyalty in BAZNAS Mojokerto".
2 Literature Review

2.1 Muzakki Satisfaction

Understanding satisfaction according to Edwardsdalam Tjiptono (2014: 353) satisfaction or satisfaction comes from the Latin "satis" (meaning good enough, adequate) and "facio" (doing or making). In simple terms satisfaction can be interpreted as an 'effort to fulfill something' or 'make something adequate'.

In Islam, satisfaction can be known as mashlahah which means that everything is fulfilled both physically and spiritually, Islam attaches great importance to physical and spiritual needs that are balanced with Islamic values. As explained above, satisfaction is an attitude shown by Muzakki on a product performance or zakat service that has been given to Muzakki, giving rise to its own satisfaction with the zakat service.

2.2 Muzakki Trust

Trust is defined by Wilson in Wong and Sohal (2002) as a basic model and most models in rebuilding a relationship.

Trust has many definitions in marketing management. Schurr, Ozanne in Wong and Sohal (2002) Trust is the belief of an institution that can be relied upon in accordance with the agreement and the party that has fulfilled its objectivity in a relationship.

If linked, each zakat institution is very eager to be trusted muzakki, so that the institution becomes a growing and big thing. It is encouraging to always compete in terms of improving, maintaining, and increasing muzakki trust. One effort that can be done is with a transparent or honesty carried out by the zakat institution against muzakki. This is in accordance with the Qur'anic letter AN-Nahl (16) verse 116:

wa la taqwulw lima taṣīfu alsinatukumu ’al kaḍība ha’da’ bala’la wa haqa’ ‘hara’mā litafaruw ‘alay Alla’hi ’al kaḍība ŏnna ’al liqiwna yaftarw na’alā ’Alla’hi ’al kaḍība la’ yufihwuna

Meaning: "and do not say what is said by your tongue Falsey" This is lawful and this is forbidden "to invent lies against Allah. "Those who create lies against Allah are not lucky." An-Nahl (16): 116

As stated in the letter above, an institution may not lie, meaning that an alms institution must say honestly and not lie on the product offered to Muzakki. Every institution must explain the management in the matter of collecting, distributing and utilizing zakat must be appropriate. So, by itself muzakki will trust the institution.

2.3 Muzakki Commitment

Commitment is defined by Moorman, Zalthman, and Despande in Setiawan and Ukudi (2007) the relationship between attitudes toward physical evidence, processes and employees with the quality of interconnectedness, as well as its role in generating trust. According to Zuhdi (2011: 115, in Nugroho, 2016) Istiqomah comes from the word qawama which means an attitude shown by Muzakki against muzakki. In simple terms satisfaction can be interpreted as an 'effort to fulfill something' or 'make something adequate'.

In Islam, namely Istiqomah. According to Zuhdi (2011: 115, in Nugroho, 2016) Istiqomah comes from the word qawama which means standing upright.

The word istiqomah is always understood as a steadfast attitude in the establishment, consequently, not leaning or deviating to the left or right and still walking on a straight line that is believed to be true. The following is the word of Allah SWT:

"wa la taqwulw lima taṣīfu alsinatukumu ’al kaḍība ha’da’ bala’la wa haqa’ ‘hara’mā litafaruw ‘alay Alla’hi ’al kaḍība ŏnna ’al liqiwna yaftarw na’alā ’Alla’hi ’al kaḍība la’ yufihwuna"

2.4 Muzakki Loyalty

Zulfa (2010) Loyalty in Islam occurs when muamalah activities can provide benefits that are mutually beneficial for both parties due to the fulfillment of their respective obligations and rights in the application of Islamic values. This satisfaction-giving service is then responded by the customer with an istiqomah attitude. In other words, the attitude of loyalty can be interpreted in Islam, namely Istiqomah. According to Zuhdi (2011: 115, in Nugroho, 2016) Istiqomah comes from the word qawama which means standing upright. The word istiqomah is always understood as a steadfast attitude in the establishment, consequently, not leaning or deviating to the left or right and still walking on a straight line that is believed to be true. The following is the word of Allah SWT about divinity:

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Zakat institutions must report on the implementation of collecting, distributing and utilizing zakat regularly to maintain the muzakki trust (center.baznas.go.id). If the confidence of the muzakki is high, it will also increase high satisfaction. Trust has been stated in the Qur'an in the letter An-Nahl verse 116:

Meaning: "Verily those who say: 'Our Lord is Allah' then confirm their position. Then the Angel will come down to them by saying: 'Do not be afraid and do not feel sad; and rejoice in them with the jannah which God has promised you’"

2.5 Correlation of satisfaction on trust

Zakat institutions must report on the implementation of collecting, distributing and utilizing zakat regularly to maintain the muzakki trust (center.baznas.go.id). If the confidence of the muzakki is high, it will also increase high satisfaction. Trust has been stated in the Qur'an in the letter An-Nahl verse 116:

Meaning: "And do not say what is said by your tongue falsely" This is lawful and this is forbidden, "to invent lies against Allah. Indeed, those who invent lies against Allah will not be lucky."

It has been explained in the above verse that the zakat institution should say an honesty and forbid lying and uphold the provisions of zakat that are in accordance with the Qur'an. For example, the zakat institution must transparency the zakat report so that muzakki can trust the zakat institution, that the zakat institution must maintain the trust of muzakki.

2.6 Correlation of satisfaction on Muzakkis’ Loyalty

Bloemer and Odekerken-Schroder (2002, in Ratnasari and Gunawan, 2005) explain the complexity of the effect of customer satisfaction on customer loyalty by stating that customer satisfaction influences customer loyalty, however, trust and commitment are two constructs that play a role as mediators where the relationship is satisfied with that loyalty. However, according to Boulding (1993) in Aryan and Rosinta (2010) found that high customer satisfaction will lead to high loyalty.

Muzakki satisfaction is very important for every amil zakat institution to create a muzakki loyalty itself (Wantara, 2015). A high level customer satisfaction will lead to high loyalty. However, according to Schroder (2002, in Ratnasari and Gunawan, 2005) explain the complexity of the effect of customer satisfaction on customer loyalty by stating that customer satisfaction influences customer loyalty, however, trust and commitment are two constructs that play a role as mediators where the relationship is satisfied with that loyalty.

In the research Dagger and O’Brien (2010) examined how to build a relationship of satisfaction and trust and commitment. The benefit of trust is that the muzakki drive feels satisfied or trust increases. When Muzakki starts to receive the benefit of trust, while submitting (to Allah) (55)

Meaning: "O you who believe! Whoever is an apostate (out) of his religion, then God will bring a people, He loves them and who believe in the day of Resurrection. Then confirm their position. Then the Angel will come down to them by saying: ‘Your helper is only Allah, His Messenger, and those who believe, who perform prayers and pay zakat, and do not transgress. Really, He is Seeing what you do.

2.7 Correlation of satisfaction on commitment

In the research Daggar and O’Brien (2010) examined how to build a relationship of satisfaction and trust and commitment. The benefit of trust is that the muzakki drive feels satisfied or trust increases. When Muzakki starts to receive the benefit of trust from a service relationship that they feel is better and more comfortable in predicting future service outcomes can result in a higher satisfaction and ultimately a commitment to their own.

Muslim man who is always committed to the truth values of Islam in all aspects of his life will feel a positive impact throughout his life as stated in the Qur'an Huud verse 112:

Meaning: "Then you (Muhammad) (on the right path), as you have been commanded and (also) those who repent with you, and do not transgress. Really, He is Seeing what you do."

2.8 Correlation of trust on commitment

There are types of Financial Reports Institution of Zakat Management according to PSAK No. 109 contains reports that provide information related to assets, liabilities, fund balances, amount of changes in funds, influence of transactions, and cash...
receipts or disbursements in a specified period in accordance with Islamic principles. This is a form of accountability of the charity to the muzakki. As a result, a muzakki trust arises because of the transparency of the zakat report and several information sources of the zakat institution. So as to achieve the goal that there is a commitment or mutual relationship between the two, so that neither party is harmed.

Trust arises on the basis of confidence in a service provider that performs its functions properly to the muzakki. While commitment plays an important role in efforts to maintain and maintain a long-term relationship between the two parties (Silva, 2015).

Muzakki trust has a significant effect on muzakki commitment. If there is a positive relationship between trust and commitment, then both parties will generate trust from the interaction of both and are ready to maintain commitment (Morgan and Hunt (1994), in the loyalists and ukudi (2007).

2.9 Correlation of trust on loyalty

In an organization, loyalty is a very important thing in its existence in an institution or company. An institution or company can develop or not depend on the large and small amount of a muzakki or customer. Especially muzakki whose loyalty is high. Muzakki who is very loyal needs to be maintained in this institution (Setiawan and Ukudi, 2007).

Trust has a positive effect on loyalty. Trust grows as the zakat institution performs its function as the distribution of zakat to the rightful as stated in QS. At Taubah verse 60:

\[
\text{Innana` as `adaqatu `ilfugara' `i wa `al masa`kiwni wa `al `a`milwana `alayha wa `al mvullafa` qulubuhum wa fiw `ar riqa` bi wa `al gha`riminwa wa fiw sabiwli All`a`h iwa `ubni `as sabiwli farivdatu` mina All`a`h iwa All`a`h u`alwmu `akkivmu Meaning: "Indeed zakat is only for the poor, the needy, amil zakat, who are softened (convert), for (liberate) slaves, to (free) those who owe, for the way of Allah and for those who are in travel, as an obligation from God. Allah is Knower, Wise. This supports the research of Ganesan, (1994) Trust as a belief that the institution of amil zakat will provide as promised (trust credibility) and the belief that the institution of amil zakat acts in the interest of muzakki. To create muzakki loyalty through trust can be built through optimal service and distribution of zakat based on existing provisions.}
\]

2.10 Correlation of commitment on loyalty

Commitment exemplifies a higher level of loyalty or obligation to service institutions such as repurchase intention or loyalty in becoming a customer.

A commitment is influenced by the quality of service provided by the Amil Zakat institution to Muzakki, if the quality of service is poor, then the level of loyalty of Muzakki will decrease and vice versa, if a quality of service is obtained by Muzakki at the Amil Zakat institution, loyalty and loyalty will be high. In this case it is proven to be directly influenced by the quality of service which subsequently has a significant positive influence on customer loyalty (Setiawan and Ukudi, 2007).

Islamic religion encourages its people to be loyal or loyal for a truth in their lives both religion, society, nation or state. If Muzakki has committed to a decision, then Muzakki will uphold its position by being loyal and loyal.

3 Research Method

The approach in this research is done by quantitative approach that is by conducting hypothesis testing, data measurement, and making conclusions. Internal marketing consists of three dimensions: corporate vision, human resource development, and rewards. Muzakki’s loyalty and commitment variables each consists of 3 indicators used as the question items. While Muzakki’s trust variable consists of 4 indicators which are also used as question item. Scale of measurement in this research is by using the modified Likert scale model and it uses four answers: (SA) Strongly agree score 4, (A) Agree score 3, (D) Disagree score 2, (SD) Strongly disagree score 1.

The data collection for this research is done through preliminary survey, literature study, and field research which then produce primary and secondary data. Primary data in this research is the result of the respondents’ answer on the questionnaire that are the questionnaire answered by Muzakki in Mojokerto area that paid zakat. Secondary data in this research are journal, photograph documentation of field, internet, and literature related to the problem studied. The number of samples used in this study is 100 respondents. Sample criteria determined are Muzakki that paid zakat in some area in Mojokerto, characteristic data of this research consist of name, sex, age, and questionnaire’s answer.

The data obtained then going through a testing using validity test, reliability test, and then analyzed by using Path Analysis technique. Path Analysis is a statistical analysis tool to test the existence of intervention variables on the relationship between variables X to variable Y.
Results and Findings

4.1 Validity test

Based on the results of the validity test shows that the entire indicator can be said to meet the criteria of discriminant validity. Indicator of satisfaction has a value of 0.734 greater than 0.334, 0.471 and 0.423. Commitment indicator is 0.753 greater than 0.471, 0.307 and 0.720. And the loyalty indicator of 0.763 is greater than 0.423, 0.384 and 0.720. Based on this description it can be concluded that the overall construct has met the criteria for discriminant validity.

4.2 Path Coefficient and P-values

Table 3: Panel A PLS Result (Path Coefficient dan P-values)

<table>
<thead>
<tr>
<th>Correlation of Variables</th>
<th>β</th>
<th>P-Value</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction -&gt; Trust</td>
<td>0.338</td>
<td>&lt;0.001</td>
<td>Significant</td>
</tr>
<tr>
<td>Satisfaction -&gt; Loyalty</td>
<td>0.016</td>
<td>0.436</td>
<td>Insignificant</td>
</tr>
<tr>
<td>Satisfaction -&gt; Commitment</td>
<td>0.431</td>
<td>&lt;0.001</td>
<td>Significant</td>
</tr>
<tr>
<td>Trust -&gt; Commitment</td>
<td>0.204</td>
<td>0.017</td>
<td>Significant</td>
</tr>
<tr>
<td>Trust -&gt; Loyalty</td>
<td>0.183</td>
<td>0.029</td>
<td>Significant</td>
</tr>
<tr>
<td>Commitment -&gt; Loyalty</td>
<td>0.695</td>
<td>&lt;0.001</td>
<td>Significant</td>
</tr>
</tbody>
</table>

Source: Data processed, 2018

4.3 Discussion

1. Test results using partial least square (PLS) indicate that there is a positive and significant influence between satisfaction with the muzakki trust. Thus, the hypothesis that states satisfaction affects trust can be accepted. The results of this study are supported by Yap, Ramayah and Shahidan (2012) in the journal of satisfaction and trust on customer loyalty, a person's satisfaction is divided into 2, namely specific satisfaction and overall satisfaction. Most case studies always refer to overall satisfaction. Muzakki's satisfaction is driven by trust in zakat institutions, where zakat institutions have provided a routine report to muzakki about the management and collection, good distribution and how the utilization of zakat is carried out in accordance with existing provisions. This proves that trust has been regulated in the Qur'an letter An Nahl verse 116.

2. The test results using partial least square (PLS) show that there is no significant influence between satisfaction with muzakki loyalty. Thus, the hypothesis which states satisfaction affects loyalty is not acceptable. The results of this study are not supported by Yuliafitri and Asma (2016) that satisfaction has a positive and significant influence on loyalty which there are several factors that influence muzakki satisfaction are the quality of services, good servants, and the ease provided by the charity.
The results of this study prove that according to Sumaedi et al., Zakat institution institutions should not only depend on satisfaction to ensure that muzakki is committed. Muzakki who is satisfied is not always loyal, but those who are dissatisfied are very likely to be disloyal. Indeed, the literature asserts that in industries with competitive competition, service providers not only have to strive for customer satisfaction, but also must make other efforts and strategies to bind customers such as through customer trust and commitment. This study shows that there is no effect of satisfaction on loyalty. Some respondents want to move because they are influenced by better services from other zakat institutions. Muzakki was satisfied with his zakat institution but could not use the services of zakat institutions continuously. As explained in Al Quran Surat Al Baqarah verse 216 Which means:

"It is obligatory for you to fight, even though it is not pleasant for you. But you may not like something, but it is good for you, and you may like something, even though it is not good for you. God knows, while you don't know ".

As explained in the verse of Al Quran, muzakki has the right to determine something that according to him is the truth that has been ordered by Allah SWT and does not do things that are forbidden by Allah SWT.

3. Test results using partial least square (PLS) indicate that there is a positive and significant influence between satisfaction with muzakki commitment. Thus, the hypothesis that states satisfaction affects the commitment can be accepted. This result is supported by Miguel Silva (2015) that the satisfaction or disappointment reaction of muzakki comes from a perception and expectation of the results obtained from the service of a zakat institution. Satisfaction is one of the most widely studied constructions because it is important for a success in an institution. Satisfaction makes the muzakki become loyal muzakki. Satisfied Muzakki tends to be involved and participate in a product in the service of the next zakat institution. Muslim man who is always committed to the true values of Islam in all aspects of his life will feel a positive impact throughout his life as stated in the Qur’an, Huud’s letter verse 112.

f’ståqim kam’á ‘umirta wa man ta’ba ma’aka wa la’ tatgaw, i’nñahu bima’ ta’malwina baštiw

Meaning: "Then you (Muhammad) (on the right path), as you have been commanded and (also) those who repent with you, and do not transgress. Really, He is Seeing what you do.

So, a Muslim is always demanded in committing or consistently following the path of truth, so a muzakki will commit to what the zakat institution does on the road to truth. So by committing it will reduce the intention of Muzakki to leave a zakat institution that he has believed so far (Khairunnisa, 2015).

4. Test results using partial least square (PLS) indicate that there is a positive and significant influence between trust in muzakki commitment. Thus, the hypothesis which states that trust influences commitment can be accepted. The results of this study are supported by Miguel Silva (2015), that trust can be described as a muzakki expectation on the charity that can be relied upon. This makes the muzakki can determine their commitment to the zakat institution. Trust and commitment are important to ensure the continuation of the relationship between the two. Transparency of the zakat report is a form of trust in increasing commitment. Transparency of zakat can be called a form of trust and piety. Trustworthy because the zakat institution can be trusted by Muzakki. Shiddiq means "right", true in terms of the actions and words of the zakat institution in its verses. In the rule of usul fiqih it is affirmed that “obligations cannot be carried out except with something that something is obligatory”. As a result in Islam, upholding the transparency of zakat is a noble obligation that must be done by the zakat institution against muzakki, it lead people to various virtues and to the promised paradise. Worldly, it can prosper the population through the utilization of zakat. so, trust influences commitment.

5. Test results using partial least square (PLS) indicate that there is a positive and significant influence between trust in muzakki loyalty. Thus, the hypothesis which states that trust influences loyalty can be accepted. According to the theory of Grayson and Ambler (1999) in Ratnasari and Gunawan (2005) that loyalty is the result of trust. Trust will provide benefits for Muzakki who own the zakat institution. Ambler (1999) in Ratnasari and Gunawan (2005) that loyalty is the result of trust. Trust will provide benefits for Muzakki who trust the zakat institution. Trust will provide benefits for Muzakki who trust the zakat institution. Trust will provide benefits for Muzakki who trust the zakat institution. Trust will provide benefits for Muzakki who trust the zakat institution.

6. Test results using partial least square (PLS) indicate that there is a positive and significant influence between commitment to muzakki loyalty. Thus, the hypothesis which states the commitment to influence loyalty can be accepted. According to Miguel Silva (2015) Commitment is defined as the belief of one party that establishing relationships with other people is very important so it needs to be maintained. Likewise with the muzakki commitment, he believes that becoming a relationship with a zakat institution is very important and needs to be maintained. Miguel Silva (2015) explained that in carrying out commitments namely, establishing and developing a stable relationship with zakat institutions. Muzakki must also wish to always maintain trust in fostering good relations with the zakat institution. Islamic religion encourages its people to be loyal or loyal for a truth in their
lives both religion, society, nation or state. If Muzakki has committed to a decision, then Muzakki will uphold its position by being loyal and loyal. Muzakki's attitude that is committed to the zakat institution will buy products of zakat institutions or services that are liked successively and consistently in the future and will not be interested in competing products in other zakat institutions.

5 Conclusion

After the process and the results of the analysis, it can be obtained that Muzakkis' satisfaction has positive and significant effect on Muzakkis' trust, loyalty and commitment in Mojokerto, while the other results show that Muzakki’s trust has positive and significant effect on Muzakki’s commitment and loyalty, also Muzakkis’ commitment significantly positive affect Muzakki’s loyalty in Mojokerto.

Based on the results of this study, zakat institutions or National Zakat Board are expected to transparent in relation to the distribution of zakat, and always explained about the collection, distribution, and utilization of zakat in accordance with the provisions. So, Muzakki will come to understand and want to explore the importance of doing zakat. And moved to pay zakat so that his wealth is more blessed. Because zakat is not a necessity, it is a demand that must be done.

References

Huda, Nurul, Novarini, Yosi Mardoni dan Citra Prenadamedia Group


Abstract

As a business model, franchising is as one of the industry that contributes to country’s economy growth and creates and employment opportunities. Franchisee failure in business will increase some cost and giving a negative impact on franchisor’s performance. This paper reviews the past study and discussing the three economies theory within the franchising context which are: (i) Resource Scarcity Theory; (ii) Agency Theory and (iii) Plural Organization Theory. In addition, the researchers offer a new proposition that was driven from the insight and perspective of franchisee which are: (i) franchisor-franchisee relationship; (ii) franchise business contract: upfront franchise fee and royalty fee; (iii) proportion of franchised outlets versus company-owned outlets and (iv) financial performance. This paper presents the substantial literature that was used to frame the propositions grounded in the related theories to understand issues associated with the franchisee business failure and thus, these can widely be applied to all categories of franchise business.

Keywords: Franchising, failure, franchise relationship, ownership, franchise contract, Theory of franchising.

1. Introduction

In the twenty first century, franchising business model is extensively used by many entrepreneurs for achieve the growth through geographic expansion (James G Combs & Ketchen, 2003; Fernández, González-Busto, & Castaño, 2013; W. Gillis & Castrogiovanni, 2012). In addition, Dant & Grünhagen (2014) highlighted the importance of franchising as business format in distributing the good and services and it is also a form for marketing channel. Thus, franchising remains expand all over the world. Furthermore, franchising is recognized as a successful business format because the system created by the franchisor drive by their capability to develop and enforce the standard business operations through their retail chains. Even though the franchise systems are characterized as a community of entrepreneurs, it still aspired by innovativeness and autonomy. As a result, the franchise business system become as a major challenge for the franchisors concern with their ability in developing the standard agreement for their franchisee without discomforting the franchisee goals (Davies, Lassar, Manolis, Prince, & Winsor, 2011).

According to Buchan et al. (2015), franchisees are the key investors in the franchise business system where franchisors have the responsibility to protect themselves from the risk such as misleading or deceptive conduct by notice their potential franchisee that the success or failure of the individual business will depend to them. Nevertheless, franchisees believe that they invest in the proven success of business format. On the other hand, most of past study on franchise system has focused on analyzing the organization performance (eg: Bordonaba- Juste, Lucia- Palacios, & Polo-Redondo, 2011a; Madanoglu & Castrogiovanni, 2016; Michael & Combs, 2008; Rodríguez-Rad, Rondán-Cataluña, & Macías-Molina, 2017). Empirical study by Bordonaba- Juste et al. (2011b) found that there are two types of market exit which are franchise discontinuance or organizational failure but little investigation in differentiate the two.
Furthermore, a business model called ‘franchising’ has been prevalent in worldwide. Franchising plays an important role in supported economic development by creating an employment opportunity, developing the growth of entrepreneurship and enhancing the standards of living (Shumba, Zindiyey, & Donga, 2017). The term ‘franchising’ refers to “licensing agreement between the franchiser and the franchisee, whereby the former grants the permission for the use of his trademarks, ideas, patent or goodwill in return of royalty or some other consideration by the franchisee” as highlighted by (Vaishnav & Altinay, 2009). Besides that, franchising is a business format that offers many advantages comparing to chain-ownership (Baena & Cervino, 2012).

Moreover, Grewal et al. (2011) supported that franchising is one of rapid development forms of business in the global and valuable for studies in entrepreneurship area. Meanwhile, Franchising has experienced growth in global since early 1980’s and the founder(franchisor) sees an opportunity to develop the existing business by bringing partners (franchisee) who will own the business format, in consequence accessing the human capital and financial capital. As reported by IFA (2017), the average of employment growth in the United States (U.S) franchise system was 2.6% in the year 2016. For the over last five years, the franchising sector created nearly 1 million jobs to the U.S economy and the number of franchise outlets in year 2016 was 13,359. Moreover, franchise sector also contributed for gross domestic product (GDP) $552 billion to the U.S economy.

2. Summary on Franchising Proportion and Network Failure Study

A recent study on franchise failure shows that a limit number of studies on franchisee failure (eg: Amy, Mohd, Hoe, Hani, & Noor, 2011; Bordonaba- Juste, Lucia- Palacios, & Polo- Redondo, 2011c) while most of the past study are focusing on the failure of franchisors perspective (Uli, Martin, & Cataluna, 2017). In addition, most of the study on failure is conducted from the western perspective (eg: (Madanoglu & Castrogiovanni, 2016; Rodríguez-Rad et al., 2017). Basically, in determining the factors for franchise failure, most of the scholars will adopted the Agency Theory in describing the problem facing between the franchisor and franchisee in managing their relationship. Besides that, they also adopted the Resource Scarcity Theory to describe the issues on resources lacking facing by both franchisor and franchisee in surviving their franchise business.

Past study by Bordonaba-juste et al. (2011) used the data on franchise systems in Spain from year 1986 to 2004 from the sectors of fashion and catering is analyzed and applies to Cox survival model in order to test the hypotheses. The result found that system size and system growth rates only influence franchise discontinuance where both oldest and youngest firms show the lowest risk of not continue franchise. Furthermore, Rodríguez-Rad et al. (2017) in their past study is analyzed the data from Spanish franchisor’s websites and franchising yearbooks to create the census of Spanish franchisors. This study driven with a census gather from franchises operating from year 2001 until 2011 in Spain and Latent class regression analysis was used to run the result for this study. In addition, the result found the four of franchise related with their failure pattern. The relationship within the variables define the franchise contract and Z scores of Altman’s models have been take out. In addition, the dependent variable has been the Altman’s model and independent variables are the factor that explain the franchise contract.

On the other hand, study by Holmberg & Morgan, (2007) are used the longitudinal data gathered from the 780 franchise systems and 292000 franchise units from United States. In addition, data also gathered from 700 franchise systems and 31000 franchisee units who are failed from United Kingdom and approximations of current business format franchise market size in Europe together with Central and Eastern European countries. The findings explain the strategic franchisee failure perception that highlighted the franchisee failure as a multi stage process rather than an event. Additionally, Madanoglu & Castrogiovanni (2016) adopted the resources scarcity theory and agency, it shows that franchising firms that over franchise and not do not structure their network properly aligning with these both theories have lower survival prospects. This study done with extensive data from approximately 5000 franchise firms recorded in Entrepreneur magazine. The findings found the U shape relationship between the franchising proportion and network failure. In addition, the analysis shows that geographic scope and firm size moderate the relationship between the formed term of franchising proportion and network failure. This result highlighted the importance of sustaining a proper mix of firm owned outlets and franchised within a network.
Watson, Dada, Grünhagen, & Wollan (2016) in their study adopted organizational identity theory to describing the franchisor desires to select the right franchisee which have the potential for entrepreneurial behavior. In addition, this study used a mail questionnaire survey in collecting the data from a sample of franchisors in the United Kingdom. The result discovers that the systems that select the entrepreneurial franchisees are those that have an entrepreneurial value as part from their organizational identity as imitated in the institutionalized support given by the franchisor for supporting the entrepreneurial activities. In addition, this study also found that the franchise system’s performance is positively affected where franchisors search for franchisees with entrepreneurial values that consistent with those system.

Lastly, through an exploratory study, this paper reports about the failure Malaysian franchisee in their franchise business. Study done by using a stratified purposive sampling on all the five filed franchisees who registered with the Registrar of Franchise and the in-depth telephone interviews were carried out. The questionnaire was setting as semi structured open-ended questions which has been formulated based on literature review on factors have been identified as causal to franchisee failure. This study found two categories of factors influence franchisee failure which are financial and non-financial. In addition, the non-financial factors consist rapid expansion, greed of franchisee, poor service, franchisee attitude, poor management, legal imperfection, conflict with franchisor, external factor and location. For the financial factors, it consists of capitalization of the franchisee, mismanagement of cash flow, high overhead expenses and bad payers’ franchisee. Thus, this study proves that the 13 factors are linked with the failure of franchisee in Malaysia (Amy Azhar Mohd Harif, Hee Hoe, & Hani Mahad Noor, 2011)

3. Economic Theories Within the Franchising Context

3.1 Resources Scarcity Theory

In Resource Scarcity Theory, Rubin (1978) highlighted that franchisor contribute more optimal financial resources compared with franchisee. Other study by Lafontaine & Kaufmann (1994) claimed that franchisee also contribute both management and financial capital where franchising gain an advantage over selling company shares. By selling company shares to other, it leads to losing the strategic control and investors (franchisee) will be the partner of the business thus have right to influence the company decisions. Furthermore, this theory explains that the franchisor is using the franchise system due to no access on financial resources. By using the franchising system, franchisor had easy access to these resources and expected to growth. In addition, Oxenfeld & Kelly (1969) proposed the concept of ownership where they mention that franchisor will retreat from franchise system once company has full access to the necessary resources (financial and management) in order for growth and finally will re-buy the stores from their franchisees.

Furthermore, the ownership explains that most of franchising network will full commit to company-owned network by leaving only a few outlets (franchisee) once resources is fully access and these will lead to franchisor performance’s decision either want to remain in the system or retreat. Dant (1995) argue that even though franchising is mainly a multi-unit phenomenon, the standard model of franchising adopts a single unit operation. In addition, a comprehensive model of franchising requires the reason and understanding on why firm begin with franchise and he also stated that capital constraints influences the early decision to franchise as claimed by Resources Scarcity Theory. Hoover (2009) stated that the main reason for adopting franchise system is to access capital and establish effective distribution network quickly.

3.2 Agency Theory

Even though franchisors value the benefits of the mix of ownership forms and do sustain that mover time, there is support of a greater tendency to eternally convert existing franchised outlets to company-owned outlets in gaining greater access of resources as claimed by (Dant, Grünhagen, & Windsperger, 2011). On the other hand, Rubin (1978)
criticized that there is other important element in franchising to survive which is human capital thus he proposed Agency Theory. In addition, Agency theory highlighted that franchisor (principal) is depending to the franchisee (agent) in performing some action behalf on franchisor. In contrast with the Resource Scarcity Theory, Brickley et al. (1991) proposed the argument that franchising system is the effective business model in controlling the principal-agent problem.

In addition, this theory highlighted that there is difference interest between both parties (franchisor-franchisee) where company-owned outlets will pursue their goals thus create a conflict of interest. Moreover, the issues is whether the agent (franchisees) is contribute the effort in aligning with principal (franchisor) goals and either behaving in the interest of principal or in own interest. Logically. Agency Theory emphasize that franchise system is a powerful motivator where franchisor will convert their company-owned properties to franchise in order to gaining competitive advantage by reducing the agency cost. Franchising is a prominent platform for company to organize their distribution sector. Scholars develop a model to show that partial monitoring where franchisor only monitors only a subset of its company/outlet (Cliquet & Pénard, 2012). In addition, Ishak et al. (2016) claimed that franchising enables for rapid expansion using franchisee resources such as financial capital and managerial talent as key in forming and supporting the standing market knowledge.

3.3 Plural Organization Theory

Looking on Resource Scarcity Theory and Agency Theory, both are more complement each other than contradictory in explaining the whole phenomenon of franchising. Resource Scarcity Theory highlighting about the fully company-owned chains while Agency Theory projecting the evolution to fully franchised chains. In reality, most of franchise firm maintain a mix of company-owned and franchising organizations and thus Bradach (1997) bring into Plural Organization Theory where it explains about the mix of company owned and franchise properties that located under the same brand name known as plural form. In addition, Bradach (1997) identified that most of franchise firm chains have a mix of company owned establishments and the reason behind this is that some of formation are more matched to one form of ownership than others. Other than that, the presence of one kind of outlets may bring either positive or negative impacts on each outlet. Furthermore, this theory also explained the reason on why firm franchise their business where to gain quick access on the most important advantage of company owned structure thus achieve uniformity and adaptation. Besides that, the uniformity and adaptation is the two main goals for firm franchising where uniformity highlighted on design and service experience in any outlet using the same brand name while adaptation explained about the adaptation of chain toward markets changing in order to take advantage on new threats and opportunities. Even though uniformity and adaptation is contradicted, a mix of franchise and company allows the firm to achieve the goals together. On the other hand, franchising contributes for entrepreneurial spirit for the chain and maintain the standard of uniformity of the company owned properties. Bradach (1997) also argue that by taking both company and franchise engagements together, a chain can control the strengths and overcome a weakness of the business. Besides that, Ishak et al. (2016) stated that the higher the franchise firm tend to recognize themselves to be higher in trust where this indicate that franchisees really aware to all valuable benefits receive from the franchisor.

Based on the above literature, it can be concluded that franchising contribute for firm rapid growth by quick access to resources but it also causes for loss of control over the business and creates agency problem between the principal and the agent, thus plural form gives a competitive advantage to a firm over the system with different type of ownership. Converting the franchisee-own outlets to company-owned outlets will results for greater access and reduce the monitoring cost but conflict of interest (Hoover et.al 2003) will happen due to contradictory goals. Ownership redirection predicts that by combining a mix of company owned outlets and franchised owned outlets, it allows the firm to achieve both goal (uniformity and adaptation) simultaneously.

4. Discussion on Franchisee Business Failure

4.1 Franchisor-Franchisee Relationship
In franchising business, contract is the mechanism that leads the direction and relationship between franchisor and franchisee by required clauses that given an impact on the success of both parties. In addition, the franchise business model is categorized by good communication and close relationship with the investors groups which are franchisees. The success franchisors will replicate their business concept by opening the other franchised outlets Moreover, franchise business contract with clauses agreed by both parties (franchisor and franchisee) governed their relationship (Calderon-Monge, Pastor-Sanz, & Huerta-Zavala, 2017). Fernández et al. (2013) highlighted that franchisors can be opportunistic by not modifying the franchise business system in order to protect franchisee who invest specific amount of investment. Thus, franchisor cannot abandon their relationship with franchisee without costs.

The agency problem include the aspects of the relationship between franchisor-franchisee organization (Caves & Murphy, 1976; W. Gillis & Castrogiovanni, 2012). Past study by (Gonzalez-Diaz & Solis-Rodriguez, 2011) found that franchisees are such an investment tools as based on principal-agent model because of the return are more effectively. These scholars relate the agency with financial justifications for franchising where they found that if the agency problem is controlled, the higher cost of alternative funds for franchisor. Other past study done by Nijmeijer, Fabbricotti, & Huijsman (2015) on healthcare franchising using the explorative mixed methods where they suggest that franchisors have to communicate openly, give cooperation and committed with the relationship in which unit managers and franchisees feel trust. Thus, franchisees have chances to issues their ideas and express their needs to the franchisor.

Furthermore, other empirical study by Ekelund (2014) using an interaction method which contains several exchanges or actor ties between the franchisor and franchisee. This scholar is using web survey on 191 franchisees from wide range of industries in Sweden and the result reported a significant correlation on the effect which adaptations have on commitment in both parties’ relationship. Other than that, information exchange also positively related in boosted the outlet’s performance. Lewandowska (2014) emphasises that franchising is the economic relationship between franchisor and franchisee where this business model stimulate the entrepreneurship and innovativeness, minimizing the risks and resist economic crises. (Khairol Anuar, Chin Wei, & Abd Rahim, 2016) highlighted the value of relationship is important in conforming franchisees to receive all benefits. Since franchisee made an investment in the franchise system, they required support and assistance unfilled by the franchisors in confirming the success of franchise business in long term. These scholars also mentioned that the transaction costs (monitoring cost) can be reduced by the existence of trust in franchisor-franchisee relationship. The experiential interaction and communication between both parties created the trust in their relationship. The discussions pertaining lead to the following proposition:

**P1: Franchisee chains with bad relationship are highly to fail than franchise that have a good relationship with franchisor.**

### 4.2 Franchise business contract: Upfront franchise fee and royalty rate

Calderon-Monge et al. (2017) described that franchisee’s needs are usually related to the economic clauses that are stated in the contract agreement such as the franchise fee and royalties rate. In addition, franchisor is carefully drafted the contract and consider the property structure and age of the network chain, thus they can meet the franchisee’s needs without exposing the franchise chain. Furthermore, Buchan et al. (2015) claimed that franchises allows franchisors quick access to gain the case from the sale in the form of franchise fees and in some circumstances , payment for opportunities to open other future outlets. Moreover, Fernández et al. (2013) supported that franchisees need to pay an upfront franchise fee when starting the franchising relationship and indicated the percentage from their sales revenue as an ongoing royalty and advertising fee. Either gain the main sources of the revenue from the sales of their own establishments, franchisor gain the revenue also from royalties’ fee.

Past study done by Maruyama & Yamashita (2011) is the first econometric study in Japan that explores the requirement and determinants of royalty rates for the sales based royalties and franchise fee amounts. These scholars found that royalties enhancing franchisor performance incentives as align with standard of principal and agent view in franchise contract. In addition, sample taken on 278 franchisors in Japan and they found that franchise contracts are more likely to contain royalties as bring into line with valuable performance of franchisor. Thus, the same conditions relate to the higher franchise fee amounts and higher sales based royalty. On the other hand, Vázquez (2005) supported that as stated in the conventional franchise contract, franchisee recompenses the franchisor for the right to use franchisor’s trademark in a certain place for a specific time. The contract agreement generally consists of three parts.
which are: (i) initial franchise fee pay by the franchisee; (ii) pay ongoing royalty by franchisee (commonly in percentage of sales) and (iii) purchase input from the franchisor with charge price greater than marginal costs.

According to Kacker, Dant, Emerson, & Coughlan (2016), the franchisee network is smoothed expand when franchisor quality is signed through the higher royalty rate. In addition, the ongoing fee leads to franchisor’s commitment in providing advertising support and ongoing services for their franchisees. These scholars counter the conventional understanding among industry player that franchisor can quickly grow by reducing entry and continuing costs for potential franchisees through setup the minimal requirement of hiring franchisees and low advertising fees and ongoing royalty. Other scholars claims that royalty charged based on sales positively created a conflict between franchisor and franchisee where a young and new franchisor with little franchisee have a tendency of having dissatisfied franchisees because of the royalty collection is in adequate to meet the standard of services offer by franchisor (Heong, 2014; Stanworth, Purdy, English, & Willems, 2010). Moreover, Heong (2014) highlighted that Franchise Act 1998 required all franchisors to submit their financial report to prove their performance standing. This indicates that franchisor cannot simply depend on their royalty collection in providing the necessary services for their franchisees since royalty should only create a portion of the overall financing. The discussions pertaining lead to the following propositions:

P2: Franchisee chains that charge high royalties rate are more likely to fail than franchise that charge lower royalties rate.

P3: Franchisee chains that charge high franchise fees are more likely to fail than franchise chains that charge lower franchise fees.

4.3 Proportion of franchised outlets versus company-owned outlets

The efficiency of the franchising chain is influenced by the presence of the best proportion of franchised outlets (El Akremi, Perrigot, & Piot-Lepetit, 2015; Hsu & Jang, 2009). Based on the plural form relationship, the interdependent advantage is come from franchisor’s ability in managing the complementarities within the company owned units and franchised units. Thus, use both forms to balance the weakness of the others (Combs, Ketchen & Short, 2011; Perryman & Combs, 2012). Sorenson & Sørensen (2001) highlighted that companies need to decide about the proportion either company owned or franchised units where this decision plays an important role in execute the strategy since the franchise proportion may affect the franchisor’s performance. In addition, most of the franchises chains are concurrently use franchised outlets and company owned outlets where both of these proportions differ significantly within the chains. Thus, decision to franchise have been as an important matter of considerable empirical research (Combs & Ketchen, 2003; Combs, Michael, & Castrogiovanni, 2004).

Past study by Barthélemy (2011) emphasises that operates their chains by hiring the employees and in franchised outlets, the chain operator deals the contract with the franchisees whose invest their money in franchise outlet. Since the profit generates from their investments is based on their performance, franchisees have a high motivation to perform. In addition, this scholar found that institutional pressure moderates the relationship between the agency variables and decision to franchise. Definitely, the negative relationship between the franchisee opportunism and a franchise chain is less noticeable when it competitors have a high proportion of franchised outlets. According to Gillis, Combs, & Ketchen (2014), franchise is one of organizing tool that allows franchisors to leverage their strategic assets. In addition, these scholars highlighted the resource-based explanation on proportion franchised where agency theory and resource theory suggest more understanding on how managers use the franchising to minimize the cost of opportunism such as moral hazard, free riding and adverse selection.

Other study by Madanoglu & Castrogiovanni (2016) adopted the agency theory and resource scarcity in investigating the relationship between franchise proportion and network failure where both theories indicate that firms that do not arrange their network and over franchise have lower survival chances. Moreover, test done with extensive data on 5000 franchising firms listed in Entrepreneur magazine highlighting the importance of retaining an appropriate mix of firm owned outlets and franchised outlets within the franchise network. On the other hand, empirical study done on 46 franchise companies with different industries were examined to investigating the problem of finding the best decision for optimal balance within the company owned outlet and franchised outlets. This study found that the
proportion of franchised outlets is positively with the number of company operates and negatively with the company size. Thus, the increase of proportion of franchised outlets above the certain limit is not suitable for a firm and it cause two major risks which area: (i) risk of facing loss in business and (ii) the risk of brand disturbance. The discussions pertaining lead to the following proposition:

P4: The likelihood of failure is greater for franchisee chains with lower ratios of franchised outlets than company owned outlets.

4.4 Financial Performance

Calderon-Monge et al. (2017) claims that franchise contract is the tool that runs the relationship between both parties which are franchisor and franchisee through specifying the clauses that distress on the financial success for them. In addition, franchise chains that focus more on sales than margins lead franchisees to concentrate on size. According to Dolman, Grove Osler, Lip, Sterns, & Freen (2012), basically franchisees are easy to lose in franchise agreements compared to the franchisors because the franchisee loss is devastating and affecting the loss on family’s source of income (Goldman, 2003), not only the investment made.

Furthermore, Buchan, Frazer, Zhen Qu, & Nicholls (2015b) explained that the goal of financial return is occasionally forced by the need to survive in place of inconstant return of investment in order to make a future return. For that reason, firstly a commercial enterprise need to survive and secondly need to deliver a return on input resources of the capital and encounters the financier’s and shareholder’s expectations. Lawrence & Kaufmann (2011) stated that in helping the franchisee who involving the conflict with the franchisor. The association may help finance but once the threat has been removed and thus, it can beneficially through channeling association resources headed for resolve the conflict. These scholars also claim that the financial encouragements and personal traits have been considered as the guidance for the franchisee do not do justice to the complication of social forces in performance.

According to Bellin (2016), franchisors also want to know either they recruit the right potential franchisees that understand the meaning and responsibilities of being as the own bosses. In addition, the franchisor also wants to know their potential franchisees is understand that franchising offers the chances for incentive compensation and growth increases based on their ability, effort and work hard. Thus, mislead potential franchisees believe that financial success is guaranteed as the franchise agreement is contracted with less effort required. Besides that, franchise performance encompasses financial performance and strategic performance where strategic performances relays with the development of market based assets which can be connected over a longer period in order to achieve the greater financial performance (Grewal, Iyer, Javalgi, & Radulovich, 2011b).

On the other hand, study by Minguela-Rata, Lopez-Sanchez, & Rodriguez-Benavides (2010) highlighted that franchisees are more satisfied and improved their performance if they are offered with financial support and assistance. Moreover, the financial performance of franchise system refers to the measurement of on sales, return on asset and profit that are used to measuring the performance of franchise system. In addition, past study by (Asare, Kang, & Brashier Alejandro, 2010) found that older franchises be likely to perform better their financial comparing to younger franchises because since the franchise being mature, they tend to move beside the learning curve and being more efficient in running their string financial result while younger franchises are having lack of experience and skill. The discussions pertaining lead to the following proposition:

P5: Franchisee chains that base on their performance on profitability are more likely to fail than franchise chains that base on their performance on sales income.

5. Conclusion
As a conclusion, many perspectives need to be considered to reduce the statistics of franchise business failure particularly in competitive market. The franchisee should not view the franchise business format as a quick platform without considering many important factors that can be lead to the failure where this harming the job creation and economy. Next, franchisee should not be focusing solely on sales in order to pay the royalties but should focus more on making a profit. Then, the positive performance of financial and good relationship between both parties (franchisor and franchisee) also helping in maintain the franchisee outlet performance and reduce the risk of failure. Lastly, the contracts clause need to be clear and agreed by both parties to avoid the misunderstanding and to guarantee the economic survival of their franchise chains. Thus, franchisee must be effectively and efficiently in making their profitability in order to stay longer in the chains.

Acknowledgement

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References


Insurance Companies’ Share Prices and Exchange Rate: A Case of Pakistan Stock Exchange (PSX)

Ali Burhan Khan*, Associate Professor Dr. Zaemah bt. Zainuddinb, Dr. Diara Md. Jadic

Abstract

The area of financial economics, which related to the relationship between exchange rate and stock prices, has received special attention due to the effect of volatility of exchange rate on the value of a firm. Therefore, this study analyzes the relationship between insurance companies’ share prices in Pakistan and exchange rate. For analysis purpose, this study applied the co-integration technique, granger causality, impulse response function and variance decomposition analysis. The results concluded that there is no relationship between insurance companies’ share prices and exchange rate. Therefore, the movement of insurance companies share prices and exchange rate is independent of each other.

Keywords: Insurance; Exchange Rate; Share Price; Pakistan Stock Exchange

1 Introduction

Stock exchange is one of the most important market place in the modern economy. Moreover, it facilitates the entrepreneurial progress. As the development and progress occur in the economy, the size of industries also grew. The growth of these industries was a major cause for the creation of stock market. This is due to the need of the large organizations for capital to grow their businesses (Pethe & Karnik, 2015). The presence of stock market in overall economic system is justified by some basic functions which include channelizing saving into investment, converting investment into cash, and evaluation and management of securities (Nori Mousa, Al safi, Hasoneh, & Abo-orabi, 2012).

The basic role of a stock exchange is to provide a platform where different securities for example stocks can be freely traded. In a stock market, the ownership of stocks can be bought or sold. The stock or share certificate is just a piece of paper without any intrinsic value. In a free market, the forces of demand and supply determine the price of share certificate. Alternatively, the price of a company’s stock is determined by how much others are willing to pay for that stock certificate? (Feldblum, 1992). Investors normally pay for a stock by analyzing the overall economic activity of a country (Surrey, 1956). Their investment decision will depend on many aspect including, exchange rate which plays an important role in production level, resource allocation, prices, profits and market share of organizations that is translated into the stock prices (Bartram, 2004; Kyereboah-Coleman & Agyire-Tettey, 2008).

1.1 Overview of the Pakistan Stock Exchange (PSX)

Pakistan Stock Exchange (PSX) was incorporated on March 10, 1949. Initially, there were only five listed securities in the PSX which consists of paid up capital of PKR. 37 million. Before January 11, 2016, Pakistan Stock Exchange was known as the Karachi Stock Exchange (KSE). On January 11, 2016, KSE was renamed as Pakistan Stock Exchange (Pakistan Stock Exchange Limited, 2018).

PSX is the single largest stock market of Pakistan with market capitalization of PKR. 7973.47 billion. PSX was dubbed as the "world’s top-performing stock market" on April 09, 2003 (Bloomberg, 2003). Currently, the PSX is the best performing stock market in Asia. PSX has a total number of 582 listed companies which are further divided into 36

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sectors. In term of the insurance sector, there are 32 companies listed at PSX. These 32 companies are further classified into 28 general and 4 life insurance companies (Pakistan Stock Exchange Limited, 2018)

2 Literature Review

Exchange rate is considered as financial price for foreign currency. It affects the production level, resource allocation, prices, profits and market share of organizations which ultimately translates in stock prices (Bartram, 2004; Kyereboah-Coleman & Agyire-Tettey, 2008). As indicated by Hussin, Muhammad, Abu and Awang (2012), changes in exchange rate give a high impact on stock prices. The fluctuation in exchange rate can affect stock price of a company especially when the company’s home currency depreciated.

At first, depreciation of home currency against US dollar can also leads to the phenomenon of dollarization (investing in dollar). This activity can divert the resources from stock exchange to non-functioning assets like investment in dollar (Kyereboah-Coleman & Agyire-Tettey, 2008). As a result, the demand for stocks in stock market, as well as stock prices, has reduced. Second, the variation in exchange rate creates transaction risk in a country and the decrease or increase may occur in the future payable or receivables (Pal & Mittal, 2011). Moreover, Exchange rate fluctuation expose firms to financial risk (Patra & Poshakwale, 2006).

Third, the depreciation of home currency can also cause a capital flight as a country can lose its investable resources. Furthermore, the foreign investors can also move their capital (due to currency depreciation) to another country’s stock market for a better return on their investment (Kyereboah-Coleman & Agyire-Tettey, 2008). Under these scenarios, the trading volume in stock market, as well as, the demand of stock will decrease which will also reduce the stock prices. Fourth, the variation of exchange rate can also impact the profits of domestic companies by changing the term of competition with foreign companies (Bartram, 2004; Bodnar & Gentry, 1993). Fifth, exchange rate effects the value of portfolios of domestic and multinational firms. It is because companies normally hold foreign assets in the form of bonds and equities. Therefore, changes in exchange rate can impact their profitability and stock prices (Abdalla & Murinde, 1997).

The impact of exchange rate on stock prices can differ from industry to industry. For example, the company which has assets denominated in foreign currencies may be more vulnerable to the changes in exchange rate. Moreover, exchange rate fluctuation can affect companies which used international price inputs and also import-based operation (Bodnar & Gentry, 1993).

Thus, it can be stated that the exchange rate and stock’s prices have significant relationship in the economy. A study done by Jasra and Azam (2012) in the market of Pakistan examined the relationship between exchange rate and insurance companies’ stock prices. The authors collected the data from year 2004 to 2010 and using the regression technique, it is concluded that significant negative relationship exists between exchange rate and insurance companies’ stock prices. The results of Jasra and Azam (2012) study were also supported by Patra and Poshakwale (2006) study which stated that the movement of exchange rate exposes firms towards financial risk.

In Germany, Bartram (2004) study found that exchange rate can bring its negative, as well as, positive impact on the stock prices of insurance companies in different periods. However, to the best of author’s knowledge, in the market of Pakistan, there is no other study which addresses the cointegrating relationship between exchange rate and the share prices of insurance companies.

3 Data and Methodology

In this study, the quarterly data of selected variables is collected from year 2009 to 2016. Furthermore, Pak Rupee against US dollar exchange rate is taken as a proxy of exchange rate and the insurance companies’ share price is proxy by its share prices listed in Pakistan Stock Exchange (PSX).
Table 1: Selected Variables, Proxies and Symbols

<table>
<thead>
<tr>
<th>Variables</th>
<th>Proxy</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance Companies’ Share Prices</td>
<td>Share Price</td>
<td>SP</td>
</tr>
<tr>
<td>Exchange Rate</td>
<td>Pak Rupee against US dollar</td>
<td>EXC</td>
</tr>
</tbody>
</table>

Source: Author’s Own Compilation

Table 1 provides an overview of selected variables, their proxies and symbol.

For analysis purpose, co-integration technique, granger causality test, impulse response function and variance decomposition analysis are applied to the variables in this study. The detail of techniques used and their results are described below:

3.1 Correlation Technique

The following table provides the correlation results between exchange rate and share prices.

Table 2: Correlation results between insurance companies’ share prices and exchange rate

<table>
<thead>
<tr>
<th></th>
<th>EXC</th>
<th>SP</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXC</td>
<td>1</td>
<td>0.05131</td>
</tr>
<tr>
<td>SP</td>
<td>0.05131</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Author’s Own Compilation

According to correlation results, both insurance companies’ share prices and exchange rate are positively correlated, however, the strength of relationship is weak. It may be due to the fact that impact of exchange rate differs from one industry to another (Bodnar & Gentry, 1993). That is why, the relationship between exchange rate and insurance companies’ stock prices is weak.

3.2 Unit Root Test

The purpose of unit root test is to determine that either a time series data is stationery or not. If the data is not stationary and seasonal trends are found in it, then with the help of unit root test, the data is made stationery. In this study, the most common type of unit root test, named; Augmented Dicky Fuller (ADF) test is applied. The equation of unit root test is explained as below:

\[ \Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^{m} \alpha_i \Delta Y_{t-i} + \epsilon_t \]  
Eq. (1)

According to the equation, \( \epsilon_t \) stands for pure white noise error term. \( \Delta Y_{t-1} \) \( (Y_{t-1} - Y_{t-2}) \) and \( \Delta Y_{t-2} \) \( (Y_{t-2} - Y_{t-3}) \). It is tested in ADF test that whether \( \delta = 0 \). Furthermore, the same asymptotic distribution is followed by ADF test which the Dickey–Fuller statistic follows. That is why, the same critical values can be taken as reference (Gujarati, 2004).

Table 3: Unit Root Test Results of Insurance Companies’ Share Prices and Exchange Rate

<table>
<thead>
<tr>
<th>Series</th>
<th>ADF Level</th>
<th>ADF First Diff.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>-0.187556</td>
<td>-3.759955</td>
</tr>
<tr>
<td>EXC</td>
<td>-1.38389</td>
<td>-4.820862</td>
</tr>
<tr>
<td>Critical Values</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 % level</td>
<td>-3.67017</td>
<td>-3.500669</td>
</tr>
<tr>
<td>5% level</td>
<td>-2.963972</td>
<td>-2.8922</td>
</tr>
<tr>
<td>10% level</td>
<td>-2.621007</td>
<td>-2.583192</td>
</tr>
</tbody>
</table>
To fulfill the two assumptions of co-integration test, first, the data should be stationary and second, it should be stationary at same level; ADF test is applied. According to ADF test results, both series are stationary at first difference.

### 3.3 Co-Integration Technique

Co-integration technique tells about the co-movement among two series. To apply the co-integration technique, it is compulsory that time series data of variables should be stationary and stationary at same level.

\[
SP_t = \beta_1 + \beta_2 EXC_t + u_t \quad \text{Eq. (2)}
\]

By rewriting the above equation:

\[
u_t = SP_t - \beta_1 - \beta_2 EXC_t \quad \text{Eq. (3)}
\]

In the above equation, \(u_t\) is known as error term. \(\beta_1\) is constant and \(\beta_2\) is the coefficient. In the above equation, SP and EXC will said to be co-integrated if both have long term relationship.

To apply the co-integration test, lag selection is pre-requisite. So, to select appropriate lag order, unrestricted VAR is estimated. The results of Akaike Information Criterion (AIC), as well as, Schwarz Criterion (SC) indicate that lag order 1 to be selected.

<table>
<thead>
<tr>
<th>Lag</th>
<th>AIC</th>
<th>SC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-2.624082</td>
<td>-2.528924</td>
</tr>
<tr>
<td>1</td>
<td>-7.669355*</td>
<td>-7.383883*</td>
</tr>
</tbody>
</table>

Source: Author’s Own Compilation

The following table explains the co-integration technique results:

#### Table 5: Co-Integration Results of Insurance Companies’ Share Prices and Exchange Rate

<table>
<thead>
<tr>
<th>Series: Share Prices and Exchange Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestricted Co-integration Rank Test (Trace)</td>
</tr>
<tr>
<td>Hypothesized No. of CE(s)</td>
</tr>
<tr>
<td>None *</td>
</tr>
<tr>
<td>At most 1 *</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unrestricted Co-integration Rank Test (Maximum Eigenvalue)</th>
<th>0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesized No. of CE(s)</td>
<td>Eigenvalue</td>
</tr>
<tr>
<td>None *</td>
<td>0.146887</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>0.041426</td>
</tr>
</tbody>
</table>

Source: Author’s Own Compilation

In case of co-integration technique results, no co-integrating relationship is found between insurance companies’ share prices and exchange rate.
3.4 Granger Causality Test

The equation of Granger Causality test is explained as below:

\[ SP_t = \alpha_0 + \alpha_1 SP_{t-1} + \ldots + \alpha_l SP_{t-l} + \beta_1 EXC_{t-1} + \ldots + \beta_l EXC_{t-l} + \epsilon_t \]  
\[ EXC_t = \alpha_0 + \alpha_1 EXC_{t-1} + \ldots + \alpha_l EXC_{t-l} + \beta_1 SP_{t-1} + \ldots + \beta_l SP_{t-l} + \mu_t \]

Eq. (4)  
Eq. (5)

In the above equations, \( \alpha_0 \) is the constant. \( \alpha_i \) is the co-efficient and \( \epsilon_t \) and \( \mu_t \) are error terms respectively.

The following table explains the granger causality test results:

<table>
<thead>
<tr>
<th>Null Hypothesis:</th>
<th>Obs.</th>
<th>F-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP does not granger cause EXC</td>
<td></td>
<td>0.44502</td>
<td>0.5102</td>
</tr>
<tr>
<td>EXC does not Granger Cause SP</td>
<td>31</td>
<td>0.11001</td>
<td>0.7426</td>
</tr>
</tbody>
</table>

Source: Author’s Own Compilation

In case of granger causality test results, both insurance companies share prices and exchange rate do not predict each other.

3.5 Impulse Response Function

Impulse response function is used to find out the response of dependent variable according to the shocks of independent variable.

As shown in figure 1, there were no any visible shocks observed from insurance companies’ share prices movement to exchange rate movement or from exchange rate movement to insurance companies’ share prices movement. It indicates that there are factors other than exchange rate which are responsible for change in exchange rate value.
3.6 Variance Decomposition Test

The complexity of a model can be better addressed by variance decomposition test. With the help of this test this thing can be clear that how much change in a dependent variable is occurring due to its own innovation and independent variable.

Table 7: Variance decomposition test for Insurance Companies’ Share Prices and Exchange Rate

<table>
<thead>
<tr>
<th>Period</th>
<th>S.E.</th>
<th>EXC</th>
<th>SP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.103346</td>
<td>1.955273</td>
<td>98.04473</td>
</tr>
<tr>
<td>2</td>
<td>0.103813</td>
<td>2.332607</td>
<td>97.66739</td>
</tr>
<tr>
<td>3</td>
<td>0.105701</td>
<td>3.123506</td>
<td>96.87649</td>
</tr>
<tr>
<td>4</td>
<td>0.106125</td>
<td>3.849362</td>
<td>96.15064</td>
</tr>
<tr>
<td>5</td>
<td>0.10626</td>
<td>3.948329</td>
<td>96.05167</td>
</tr>
<tr>
<td>6</td>
<td>0.106413</td>
<td>4.21595</td>
<td>95.78405</td>
</tr>
<tr>
<td>7</td>
<td>0.10642</td>
<td>4.215447</td>
<td>95.78455</td>
</tr>
<tr>
<td>8</td>
<td>0.106451</td>
<td>4.267928</td>
<td>95.73207</td>
</tr>
<tr>
<td>9</td>
<td>0.106453</td>
<td>4.272123</td>
<td>95.72788</td>
</tr>
<tr>
<td>10</td>
<td>0.106457</td>
<td>4.278348</td>
<td>95.72165</td>
</tr>
</tbody>
</table>

Source: Author’s Own Compilation

According to the variance decomposition test results, 4.27 percent change in insurance companies’ share price is occurring due to the exchange rate. It also indicates that insurance companies in Pakistan are well prepared against exchange rate risk.

4 Conclusion

Previous studies suggested that exchange rate significantly impact the share prices of insurance companies. However, these studies do not focus in the context of insurance sector of Pakistan. In terms of insurance sector of Pakistan, there are many reasons which are causing insignificant relationship between exchange rate and insurance companies’ share prices. For example, at first, insurance companies in Pakistan are well prepared against exchange rate risk. Therefore, any unexpected exchange rate movement will not impact the share prices of insurance companies. The second reason is that companies which are affected from exchange rate risk are companies which have assets denominated in foreign currency (Bodnar & Gentry, 1993). In case of insurance companies in Pakistan, most of their assets are denominated in local currency. That is why, any movement of exchange rate does not impact the share prices of insurance companies. The third reason is that there are other macro-economic variables for example inflation rate and interest

\[d\] It is very difficult to estimate the exact amount of assets of insurance companies denominated in foreign currency. It is because insurance companies do not report separately the local and foreign assets. However, State Bank of Pakistan (2018) published the percentage of foreign assets of insurance companies in terms of total assets until year 2008. According to the report, the percentage of foreign assets of insurance companies in term of total assets remained below 2.5 percent from year 2001 to 2008. Furthermore, seventy percent of total assets of insurance companies are in shape of securities and properties. As argued by Afza and Asghar (2012) that due to the downfall of Pakistan Stock Exchange (PSX) in 2008, insurance companies suffered a heavy loss. So, based on the conclusion of Afza and Asghar (2012), it is expected that much of the investment/assets of insurance companies are in shape of securities of PSX.
rate which may give more impact to the share prices of insurance companies instead of exchange rate which has little impact.

This study also indicates that at current level, exchange rate risk is not a threat for insurance companies and insurers should focus on other macro-economic and firm specific variables while analyzing the performance of insurance companies.

Furthermore, Bodnar and Gentry (1993) argued that exchange rate impact can differ from one industry to another. Therefore, in case of insurance industry, exchange rate does not impact the insurance industry, however, it can impact other industries. That is why, this study recommends that the impact of exchange rate on other industries should also be analyzed.

References


Review on the strength characteristic of industrial waste ashes based geopolymer

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Abstract
Rapid industrialization is inevitable in order to cater the fast-growing world population. However, generation of waste or by-products such as fly ash, bottom ash, rice husk ash and palm oil fuel ash from the industries is increasing quickly too, where more lands are required for waste disposal. Fortunately, most of these industrial by-products are rich in aluminosilicate. The technology of geopolymerization utilizes materials which are rich in aluminosilicates and activator solution to form geopolymer concrete which perform better than ordinary concrete. Besides, production of OPC for concrete emits carbon dioxide, which is also the main component for greenhouse gas. Therefore, to solve the issue of industrial waste disposal and to reduce usage of OPC, reutilizing the waste in construction materials seems to be a more environment friendly alternative. In most of the researches, alkali medium prepared from sodium hydroxide and sodium silicate is used as activator solution to produce concrete with the process of geopolymerization. Curing the geopolymer samples at room temperature to 70°C is generally accepted as geopolymer does not required high heat to achieve desirable strength. Unfortunately, materials of the same type tend to have different chemical composition due to locations, sources and waste management. More work is needed to study a standard mix procedure for geopolymer.

Keywords: Geopolymer; Industrial waste ashes; Compressive strength

1 Introduction
Concrete is the most widely used construction material, the exploitation of natural resources such as sand and coarse aggregate pressured construction industry to look for alternatives for these materials; thus, the use of alternative construction materials is on the rise and many research works are being carried out through the globe. Cement manufacturers rely on limestone as it is the major source in ordinary Portland cement. For the conversion of limestone to calcium oxide, the cement kiln heats all the raw materials at high temperature. Fuel used in heating may be coal, natural gas, sawdust and methane gas or a combination of these fuels. Both the chemical conversion and firing process release carbon dioxide (CO₂), which is the main component in greenhouse gas. Based on a report by Department of Statistic Malaysia, roughly 20 Mega tonnes of cement were produced in 2016 (Department of Statistic, 2016). It has been reported that the production of cement, besides consuming the natural resources, it also destroys the natural habitat of flora and fauna (Vermuelen, 1999). Since the beginning of 1990s, the term sustainability has gained significance among all engineering community and more focused works are being systematically carried out throughout the globe in diverse areas of engineering process and products. Thus, more researches have been carried out in the area of building materials, especially on cement-based products by using diverse cement replacement materials which fulfill both the sustainability criterion to conserve the natural resources and preserve the environment.

2 Geopolymerization
In 1978, the term ‘geopolymer’ is introduced by Davidovits (1991) by producing inorganic polymeric materials (Davidovits, 1991). Geopolymers are made up of aluminosilicate materials with three-dimensional amorphous microstructure. Alkaline medium (Na+, K+, Li+, Ca+, etc.) or acidic medium such as phosphoric acid or humic acid can be used to synthesize geopolymer. In alkaline medium, geopolymerization process takes place when the oxides of silicon and aluminium minerals or aluminosilicates react with alkaline solution to form a polymeric Si-O-Al bonds. The structures are of Poly(sialate) type (−Si-O-Al-O−), Poly(sialate-siloxo) type (−Si-O-Al-O-Si-O−) and Poly(sialate-disiloxo) type (−Si-O-Al-O-Si-O-Si-O−) (Davidovits, 1991). Sialate is an abbreviation used to represent silicon-oxo-aluminate. A network of sialate composed of silicate (SiO₂) and aluminate (AlO₂) which is connected tetrahedrally by sharing the oxygen atom. Positives ions is required in the framework cavities in order to equate the negative charge of aluminium ion in IV-fold coordination. The empirical formula of Poly(sialates) is as follow:

\[ Mn[−(SiO_2)z − AlO_2]n, wH_2O \]

Where,
M is a cation (Na⁺, K⁺, Ca²⁺)
n is the degree of polycondensation
z is 1, 2, 3
3 Properties of Industries’ Waste Ashes

3.1 Fly Ash (FA)
Fly ash is the fine waste ash generated from the coal-fired power plant. As coals are burnt to heat the boiler, the coarser ash particles known as bottom ash will fall to the bottom of combustion chamber while the lighter fine ash particles known as fly ash will be trapped by the electrostatic precipitator or baghouse. The physical properties of the FA are mostly spherical in shape and their size ranging from millimeters to micrometers. FA is also known as pozzolanic material due to high content of silica oxide (SiO$_2$) and aluminium oxide (Al$_2$O$_3$). As illustrated in Error! Reference source not found., majority of the fly ash samples are classified as class F pozzolan as categorized in ASTM C618.

Table 1: Oxide composition for various FA samples

<table>
<thead>
<tr>
<th>Author</th>
<th>Composition</th>
<th>SiO$_2$</th>
<th>Al$_2$O$_3$</th>
<th>Fe$_2$O$_3$</th>
<th>$\Sigma$ P$^1$</th>
<th>CaO</th>
<th>P$_2$O$_5$</th>
<th>Na$_2$O</th>
<th>K$_2$O</th>
<th>MnO</th>
<th>MgO</th>
<th>SO$_3$</th>
<th>TiO$_2$</th>
<th>LOI$^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Pavithra et al., 2016)</td>
<td></td>
<td>61.89</td>
<td>28.05</td>
<td>4.11</td>
<td>94.05</td>
<td>0.87</td>
<td>-</td>
<td>0.40</td>
<td>0.82</td>
<td>-</td>
<td>0.38</td>
<td>1.32</td>
<td>-</td>
<td>0.49</td>
</tr>
<tr>
<td>(Okoye, Durgaprasad, &amp; Singh, 2016)</td>
<td></td>
<td>50.70</td>
<td>28.80</td>
<td>8.80</td>
<td>88.30</td>
<td>2.38</td>
<td>-</td>
<td>0.84</td>
<td>2.40</td>
<td>-</td>
<td>1.39</td>
<td>0.30</td>
<td>-</td>
<td>3.79</td>
</tr>
<tr>
<td>(Xie &amp; Ozbakkaloglu, 2015)</td>
<td></td>
<td>49.00</td>
<td>31.00</td>
<td>3.00</td>
<td>83.00</td>
<td>5.00</td>
<td>1.00</td>
<td>4.00</td>
<td>1.00</td>
<td>-</td>
<td>3.00</td>
<td>0.00</td>
<td>2.00</td>
<td>0.00</td>
</tr>
<tr>
<td>(Assi, Ghahari, Deaver, Leaphart, &amp; Ziehl, 2016)</td>
<td></td>
<td>53.50</td>
<td>28.80</td>
<td>7.47</td>
<td>89.77</td>
<td>1.55</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.81</td>
<td>0.14</td>
<td>-</td>
<td>3.11</td>
</tr>
<tr>
<td>(Embong, Kusbiantoro, Shafiq, &amp; Nuruddin, 2016)</td>
<td></td>
<td>17.57</td>
<td>36.37</td>
<td>12.43</td>
<td>66.37</td>
<td>10.58</td>
<td>-</td>
<td>-</td>
<td>1.77</td>
<td>-</td>
<td>3.05</td>
<td>1.39</td>
<td>0.88</td>
<td>1.19</td>
</tr>
<tr>
<td>(Adak, Sarkar, &amp; Mandal, 2017)</td>
<td></td>
<td>64.97</td>
<td>26.64</td>
<td>5.69</td>
<td>97.30</td>
<td>0.33</td>
<td>-</td>
<td>0.49</td>
<td>0.25</td>
<td>-</td>
<td>0.85</td>
<td>0.33</td>
<td>-</td>
<td>0.45</td>
</tr>
<tr>
<td>(Duan, Yan, Luo, &amp; Zhou, 2016)</td>
<td></td>
<td>27.35</td>
<td>50.85</td>
<td>2.01</td>
<td>80.21</td>
<td>5.41</td>
<td>-</td>
<td>0.04</td>
<td>0.33</td>
<td>0.02</td>
<td>0.28</td>
<td>-</td>
<td>2.12</td>
<td>7.74</td>
</tr>
<tr>
<td>(Park, Abolmaali, Kim, &amp;</td>
<td></td>
<td>50.67</td>
<td>18.96</td>
<td>6.35</td>
<td>75.98</td>
<td>14.14</td>
<td>-</td>
<td>0.69</td>
<td>-</td>
<td>-</td>
<td>3.12</td>
<td>0.74</td>
<td>-</td>
<td>0.17</td>
</tr>
</tbody>
</table>

$^1 \Sigma$ P = Sum of pozzolanic oxide (SiO$_2$, Al$_2$O$_3$ and Fe$_2$O$_3$)

$^2$ LOI = Loss on ignition
Palm oil fuel ash (POFA) is obtained as the residues from the combustion of palm oil waste from the palm oil industry. Palm oil waste such as palm oil fronds, trunks, fibers and shells are burnt to generate electricity in order to run the palm oil mills. POFA often observed with thin and irregular size due to the grinding process. Based on the chemical composition of POFA shown in Table 2, POFA is rich in silica and most of them are categorized as class F pozzolan. However, POFA particles have very low $\text{Al}_2\text{O}_3$ content compared to FA particles.

### Table 2: Oxide composition for various POFA samples

<table>
<thead>
<tr>
<th>Author</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\text{SiO}_2$</td>
</tr>
<tr>
<td>(Ranjbar, Mehrali, Behnia, Alengaram, &amp; Jumaat, 2014)</td>
<td>64.17</td>
</tr>
<tr>
<td>(Liu, Alengaram, Santhanam, Jumaat, &amp; Mo, 2016)</td>
<td>63.40</td>
</tr>
<tr>
<td>(Kabir et al., 2017)</td>
<td>63.41</td>
</tr>
<tr>
<td>(Das et al., 2015)</td>
<td>54.48</td>
</tr>
<tr>
<td>(Tho-In, Sata, Boonserm, &amp; Chindaprasirt, 2018)</td>
<td>35.86</td>
</tr>
<tr>
<td>(Das et al., 2018)</td>
<td>58.40</td>
</tr>
<tr>
<td>(Pilehvar et al., 2018)</td>
<td>50.83</td>
</tr>
</tbody>
</table>
3.3 Ground granulated blast furnace slag (GGBS)
Ground granulated blast furnace slag (GGBS) is the by-product from the steel industry. The blast furnaces normally operate at 1500°C where iron ore, coke and limestone were added. While the mixture of raw materials was processed to form iron, leftover materials that form and float on top of the iron is known slag or GGBS. Unlike POFA and FA, GGBS has very high CaO and MgO content than SiO₂.

As displayed in Table 3, GGBS is chemically similar with OPC with high CaO content. However, concrete made with GGBS cement sets more slowly than concrete made with OPC, depending on the amount of GGBS in the cement mix, but also continues to gain strength over a longer period leading to improved overall durability and life expectancy.

Table 3: Oxide composition for various GGBS samples

<table>
<thead>
<tr>
<th>Author</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SiO₂</td>
</tr>
<tr>
<td>Kabir et al., 2017</td>
<td>32.52</td>
</tr>
<tr>
<td>Khan et al., 2016</td>
<td>31.52</td>
</tr>
<tr>
<td>Ye, Zhang, &amp; Shi, 2017</td>
<td>33.54</td>
</tr>
<tr>
<td>Pilehvar et al., 2018</td>
<td>34.51</td>
</tr>
</tbody>
</table>

4 Mechanical engineering properties of geopolymer products
4.1 Fly ash based geopolymer
As displayed in Error! Reference source not found., most of the FA based geopolymer were cured around 70°C or less for a day are able to achieve compressive strength of 40MPa and above. Xie and Ozbakkaloglu (2015) has revealed that curing FA based geopolymer concrete in room temperature has resulted in lower compressive strength while Zeng and Wang (2016) has recorded the highest compressive strength with curing the specimens at 80°C. It is important to note that no extra water was added in the study performed by Zeng and Wang (2016). It is understood that as the ratio of L/B increases, the strength of geopolymer concrete decreases due to the increasing amount of water present in the geopolymer mix. This phenomenon is comparable with OPC concretes with higher water/cement ratio. The contact area for the reaction was blocked by the water molecules and this in turn affected geopolymerization process between the binder and the activator; this resulted in low compressive strength of geopolymer concrete (He, Jia, Wang, & Zhou, 2011).

Table 4: Compressive strength for FA based geopolymer

<table>
<thead>
<tr>
<th>Author</th>
<th>Type</th>
<th>Material</th>
<th>Density (kg/m³)</th>
<th>Molarity (M)</th>
<th>Comp. strength (MPa)</th>
<th>L/B ratio</th>
<th>Curing time &amp; temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdulkareem, 2015</td>
<td>Paste</td>
<td>FA</td>
<td>N/A</td>
<td>12</td>
<td>65.0</td>
<td>0.60</td>
<td>60°C for 1 day</td>
</tr>
<tr>
<td>Ranjbar, Mehrali, Mehrali, Alengaram, &amp; Jumaat, 2016</td>
<td>Mortar</td>
<td>FA</td>
<td>1770</td>
<td>16</td>
<td>56.0</td>
<td>0.50</td>
<td>65°C for 1 day</td>
</tr>
<tr>
<td>Zeng &amp; Wang, 2016</td>
<td>Mortar</td>
<td>FA</td>
<td>N/A</td>
<td>14</td>
<td>80.0</td>
<td>-</td>
<td>75°C for 22 hours</td>
</tr>
<tr>
<td>Noushini et al., 2016</td>
<td>Concrete</td>
<td>FA</td>
<td>N/A</td>
<td>12</td>
<td>62.30</td>
<td>0.28</td>
<td>75°C for 1 day</td>
</tr>
<tr>
<td>Gunasekara et al., 2016</td>
<td>Concrete</td>
<td>FA</td>
<td>2185</td>
<td>15</td>
<td>48.70</td>
<td>0.37</td>
<td>80°C for 1 day</td>
</tr>
<tr>
<td>Pavithra et al., 2016</td>
<td>Concrete</td>
<td>FA</td>
<td>N/A</td>
<td>16</td>
<td>53.56</td>
<td>0.21</td>
<td>60°C for 1 day</td>
</tr>
</tbody>
</table>
4.2 Palm oil fuel ash based geopolymer

Recent studies listed in Table 5 have shown that utilizing POFA and oil palm shell (OPS) in geopolymer has been able to produce lightweight concrete which density around 1800 kg/m$^3$. OPS is reported to have compacted density of 652 kg/m$^3$ [23]. Liu et al. (2016) has studied that with 14M of alkaline activator solution used, a geopolymer concrete of 30 MPa can be produced with FA, POFA and oil palm shell (OPS). Similar with Liu et al. (2016), Bashar et al. (2016) has cured the POFA-based geopolymer concrete at 65°C for 2 days. However, additional of steel fibers added only enhance the performance of POFA-based geopolymer concrete by very small percent.

Table 5: Compressive strength for POFA based geopolymer

<table>
<thead>
<tr>
<th>Author</th>
<th>Type</th>
<th>Material</th>
<th>Density (kg/m$^3$)</th>
<th>Molarity (M)</th>
<th>Comp. strength (MPa)</th>
<th>L/B ratio</th>
<th>Curing time &amp; temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liu et al., 2016</td>
<td>Paste</td>
<td>FA and POFA</td>
<td>1840</td>
<td>14</td>
<td>72.7</td>
<td>0.55</td>
<td>65°C for 2 days</td>
</tr>
<tr>
<td>Liu et al., 2016</td>
<td>Concrete</td>
<td>FA, POFA and OPS</td>
<td>1721</td>
<td>14</td>
<td>30.1</td>
<td>0.55</td>
<td>65°C for 2 days</td>
</tr>
<tr>
<td>Bashar et al., 2016</td>
<td>Concrete</td>
<td>POFA, MK, OPS and steel fiber</td>
<td>1815</td>
<td>14</td>
<td>31.9</td>
<td>0.50</td>
<td>65°C for 2 days</td>
</tr>
</tbody>
</table>

4.3 Ground granulated blast furnace slag

Huiskes et al. (2016) has studied the performance of low molarity in lightweight aggregate (LWA), FA and GGBS based geopolymer. The study has revealed that curing specimens at ambient temperature for a day has resulted in 9MPa. However, the specimen is the lightest compared to other similar studies. Khan et al. (2016) has produced high density geopolymer concrete with the usage of FA and GGBS. Notwithstanding with Huiskes et al. (2016), this study used GGBS as the coarse aggregate and lower L/B ratio of 0.28. As discussed earlier, high water ratio will contribute to lower compressive strength due to formation of pores.

Table 5: Compressive strength for GGBS based geopolymer

<table>
<thead>
<tr>
<th>Author</th>
<th>Type</th>
<th>Material</th>
<th>Density (kg/m$^3$)</th>
<th>Molarity (M)</th>
<th>Comp. strength (MPa)</th>
<th>L/B ratio</th>
<th>Curing time &amp; temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharmin et al., 2017</td>
<td>Mortar</td>
<td>GGBS, MK and RHA</td>
<td>2070</td>
<td>14</td>
<td>47.9</td>
<td>0.50</td>
<td>65°C for 1 day</td>
</tr>
<tr>
<td>Khan et al., 2016</td>
<td>Concrete</td>
<td>FA and GGBS</td>
<td>2610</td>
<td>12</td>
<td>53.2</td>
<td>0.28</td>
<td>75°C for 18 hours</td>
</tr>
<tr>
<td>Huiskes et al., 2016</td>
<td>Concrete</td>
<td>FA, GGBS and LWA</td>
<td>710</td>
<td>3</td>
<td>9.00</td>
<td>0.30</td>
<td>20°C for 1 day</td>
</tr>
<tr>
<td>Kabir et al., 2017</td>
<td>Concrete</td>
<td>POFA, GGBS and MK</td>
<td>2100</td>
<td>14</td>
<td>41.5</td>
<td>0.25</td>
<td>65°C for 1 day</td>
</tr>
</tbody>
</table>

5 Conclusion

This paper aims to summarize the previous studies conducted on industrial waste ashes based geopolymer products. Based on the observation of the literatures reviewed, the following conclusions could be drawn:

- Materials such as FA and GGBS has higher alumina or silica contents is beneficial for the geopolymerization process to form Si-O-Al-O bond. Additional of supplementary binders or nanoparticles can be used to enhance the compressive strength of geopolymer concrete.
- Even though materials used in different studies were of the same type, but raw materials from different locations resulted in different chemical composition of the materials. Thus, microstructural investigation such as XRF enabled to identify the mechanism behind the geopolymerization.
- Different molarity of sodium hydroxide, liquid-to-binder ratio, curing temperature and duration also yielded geopolymers of different properties. However, it can be generalized that 12M of sodium hydroxide solution, low liquid-to-binder ratio of about 0.4 and curing temperature at approximately 70°C for at least 24 hours produced high strength geopolymers.

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References.


Abstract ID: 222637/683-1

The Economic Value of Selected Urban Green Spaces in Kuala Lumpur City

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Abstract

The economic value of 15 urban green spaces (UGSs) in Kuala Lumpur (KL) city is estimated in this study. It involves 1269 house units from 8 sub-districts in KL city. A global model and a local model are formulated based on the hedonic price method. The global and local models were analyzed with an Ordinary Least Squares (OLS) regression and a Geographically Weighted Regression (GWR) respectively. Both of these models were applied to compare which model offered a better result. Residential housing and UGS data are used to relate the sales price of a property to structural characteristics, neighbourhood attributes and environmental characteristics. Measures of interest are environmental characteristics including distance to UGSs and size of UGSs. The results of the OLS regression illustrated that Taman Rimba Kiara and Taman Tasik Titiwangsa offer the highest economic value. On average, reducing the distance of the residence to the Taman Rimba Kiara by 10 meters increased the house price by RM1, 700. Similarly, increasing the size of the Taman Tasik Titiwangsa by 1,000 m² increased the house price by RM60, 000. The results of GWR determined that the economic value of UGSs can be analyzed by the specific location. The GWR result revealed that the economic value of Taman Rimba Bukit Kiara and Taman Tasik Titiwangsa not significant for the whole of the residential areas in KL city. Taman Rimba Bukit Kiara was negatively significant at all sub-districts except Setapak and certain residential area at sub-district of KL. While, Taman Tasik Titiwangsa was positively significant at all sub-districts except certain location at sub-district of Batu, KL, Setapak and KL city centre. Overall, results indicate that UGSs influence the value of residential property and that UGSs influence property values differently. As a conclusion, even though both of these UGSs generate a highest economic value based on the distance to and the size, there were only significant at a particular residential area as proved by local model. Regarding the model application, the local model performed better than the global model.

Keywords: Economic Valuation; Geographically Weighted Regression Model; Hedonic pricing Method; Urban Green Space.

1 Introduction

Urban green space can be generally defined as any vegetation exists in the connection between urban and nature. It includes open spaces, parks, residential gardens, street trees and any other vegetation located around the urban environment (Nur, et al., 2018; Pietsch, 2012). Mohd Yusof (2013) opined that the types of green space could be further categorized into three main categories namely public green space, private green space and natural or semi-natural green space. In this paper, the main focus is only on public green space. Mohd Yusof (2013) stated that the first public green space in KL and as well as in Malaysia was proposed by Alfred Venning, a planter from Ceylon in 1988 with 70 hectares of land situated at the west of the centre city. Currently, this green space is known as Perdana Lake.

The total area of UGS in KL city in 1984 is 586 hectares. However, due to several efforts and concern by the government, the total area of UGS was increased up to 1580 hectares. Even though the statistics revealed an increment in size but it actually steady declines in public UGS largely because of conversion to other uses which could reduce the amenity value of UGS (Mohd Yusof, 2013). Teh (1994) mentioned there were several examples of UGS being replaced for residential, industrial and other commercial developments such as Bukit Nanas Forest Reserves. About 4.4 hectares at the top of the hill were lost to build up the KL Tower.

A similar issue was also arising by Mohd Yusof (2012) and Mohd Yusof and Rakshshandehroo (2016). Mohd Yusof (2012) stated that almost 50% of public green space was lost within the year 1958 until 2012. It was proved by remote sensing and aerial photography with high spatial resolution. Mohd Yusof and Mehdi (2016) reported that Kuala Lumpur had experienced a great loss of green space in recent decades, both on its periphery from urban expansion and around the city centre from the drive (fueled by economic growth) to use central land more intensively.

This issue was arising some general concern among local authorities. They have taken various efforts in order to protect and maintain the existing of UGS. However, it is noticed that existing statutes and policies over a recent decade were not sufficiently strong as regards the protection they afforded to green space in KL. In addition, some people claimed that it is not easy to come to a clear conclusion about
the effectiveness of the existing arrangement for protecting UGS without much more information especially in term of monetary value.

It seems that a balanced assessment would need to take account not only of DBKL’s responsibilities. The consequence of the environmental issue especially urban green space in KL city, many scholars have contributed their knowledge and findings through their studies. However, most of them were heavily relates the UGS with environmental, social and health concern. A limited study has focused on economic analysis.

In the case of Malaysia, Mohd Noor et al. (2015) are one of the earliest ones that have a concern about this issue. They have conducted a study about the economic valuation of UGS in Subang Jaya, Selangor by using the hedonic pricing method. However, KL city which is the highest percentage of the green area diminished is not included in their study. Then, their study was further by Nur et al. (2018). They have proved that UGS have high economic value. However, they claimed that the study needs to be further improved as they only include one neighbourhood variable (distance to town) instead of include some others attributes of neighbourhood variable such as information about school, hospital, crime rate, airport and place of worship are included. For the number of data, hedonic pricing analysis will be more accurate with a large number of sample sizes (more than 1000 samples).

It will be much more interesting if the analysis of economic valuation of UGS is conducted in KL city. At least it will offer valuable information especially in term of monetary value of urban green space to the real estate developers. Other than that, it will help the government authorities to improve their future policy specifically about the land use and development part by developing a comprehensive improvement of monitoring the provision, extent, and condition of green space more thoroughly based on the monetary information.

Therefore, the economic value of the UGS specifically in KL city was estimated in this study. By using the hedonic pricing method (HPM), the economic value obtained in this study will prove the value of UGS in term of monetary value. The HPM based on the ordinary least square (OLS) regression and geographically weighted regression (GWR) together with geographic information systems (GIS) is employed. This study will reveal the specific location (sub-district) in KL city which can generate an economic value of UGSs. At the same time, this study will help the local authorities to develop a comprehensive improvement of monitoring the provision, extent, and condition of green space more thoroughly based on the monetary information. Lastly, this study will contribute to the literature review since there are limited studies have been conducted in Malaysia regarding the economic valuation of UGSs using HPM with GWR.

2 Literature Review

2.1 Empirical studies of the economic valuation by using the hedonic pricing method.

HPM is widely used to measure the economic value of UGS (Zhuo and Parves Rana, 2012). Its value can be predicted from the prices of related actual market house transaction (Kong et al., 2007). House prices are regressed against sets of control variables. It includes structural attributes of a house, neighbourhood variables, and environmental attributes.

Chin and Chau (2003) believed that the property prices are associated with their structural attributes. It includes the size of building lot, number of rooms and building age (Saphore and Li, 2012; Kong et al., 2007; Morancho, 2003). Forrest, Glen, and Ward (1996) stated that lot size also has a significant effect towards house price. All of them concluded that any functional spaced considered as a significant relationship with the house price.

Other than structural attributes of house, Goodman (1989) pointed out that neighbourhood’s attributes could be implicitly valued through HPM by assessing the houses price with different neighbourhoods attributes. The existence and quality of public schools were found to have a positive impact on house prices. Clark and Herrin (2000) and Anderson and West (2006) found that the public school is important to local residents especially those have children. Based on Ketkar (1992), the existence of school can be measured based on the number of schools. While, the quality of schools has been measured based on school input variables, such as student achievement levels or Standardised Aptitude Test (SAT) scores and expenditures per student or average cost per student. Huh and Kwak (1997) indicated that the presence of health centres like hospitals in the residential area in Seoul have negative significant relationship with house price. They were assumed that the proximity to hospitals is not desirable because it may arise the nuisance value of ambulance sirens and increased the general congestion. Usually, the high rate crime often happens in the urban area and congested area. Li and Brown (1980) found that people did not interested to buy houses at high rates of crime or vandalism. Clark and Herrin (2000) revealed that house price in California is 7.28% lower in areas with each additional murder
per 10,000 people. Haurin and Brasington (1996) measured the crime rate based on several variables such as robbery, rape, and motor vehicle theft per 1,000 residents. Based on the previous literature, it can be summarized that public school, hospital, and crime rate are part of neighbourhood variables which may influence the house or property price.

Other than that, most of the previous studies proved that environmental attribute works well towards the house price. They have believed that there was an inverse relationship between distance and property price (Tajima, 2003; Morancho, 2003; Boyer and Polasky, 2004; Cho et al., 2006; Cho et al., 2008; and Gibbon et al., 2013). Most of them also proved that there was the positive relationship between a size of UGS and property price (Morancho, 2003; Boyer and Polasky, 2004; and Cho et al., 2008). It shows that UGS has economic value.

Various studies showed that assessed property values of homes that are near to parks, open spaces and urban green spaces are typically about 8 percent to 20 percent more than comparable properties elsewhere. As reported in the previous study by Mahan, Polasky, and Adams (2000), the reduction of distance to the nearest wetland by 1000 feet will increase a home’s sale price by $436. Crompton (2001) conclude that many people are willing to pay a larger amount for a property located near to green spaces and open space areas compare to the property that does not offer this amenity.

Based on the previous studies, all of the reviewed variables seems to have the significant effect on the house price. Previous studies outside Malaysia has proved that the urban green space attributes including the size of urban green space and its distance to the residential area are important factors for house price. Therefore, all of those variables will be used to estimate the economic value of UGS in KL city by using the hedonic pricing method.

2.2 Hedonic Pricing Method (Ordinary Least Square Regression versus Graphically Weighted Regression)

Basically, the linear function of the hedonic model specification is assessed by ordinary least squares (OLS) regression. A linear equation assumes that the implicit market value of housing attributes can be directly denoted by their coefficients. The estimation of the linear hedonic price model is based on the theory of a unitary housing market functioning in instantaneous equilibrium (Macleod and Tu, 1996; Orford, 2000). This theory holds a stationary assumption relationship between house prices and attributes involved.

Specifically, Orford (2000) highlighted that a stationary specification ignores the operational processes and structures that can lead to disequilibrium in the supply and demand for housing. This will make the biased or misleading parameter estimates of the hedonic model. In order to avoid this issue, Orford (2000) was suggesting the further study should assume the non-stationarity relationship between house prices and its attributes.

Furthermore, many empirical studies claim that local housing markets can be characterized by functional disequilibrium and segmentation (Case and Mayer, 1996; Goodman and Thibodeau, 1998), as the supply of the housing bundle is typically inelastic. Schnare and Struyk (1976) claimed that housing market segmentation happens when households’ demand for a particular structural or neighbourhood characteristic is shared by a relatively large number of households. A direct consequence of market segmentation is a non-stationary housing market. Different housing attributes might have different implicit house prices over a geographic location, whereas structural differentiation might be largely ignored within the similar geographical location. They believed that by assuming the spatial non-stationarity in the study related to the house price, the result could be more accurate and consistent.

Anderson and West (2006), Cho, Bowker and Park (2006) and Jaimes et al. (2010) were considered the spatial non-stationarity in their studies. They also believed that the value of the green space varies according to the specific location of the green space and demographic factor. Cho, Poudyal and Roberts (2008) applied both of these models to study the economic value of quantity and quality of UGS. The quantity of the urban green space was measured by its proximity and size. Whereas the spatial configuration and species composition are used in order to study the quality of UGS. The empirical evidence displayed that the local model obtains a higher adjusted $R^2$ and lower residual sum of squares, which suggests that the local model offered a better model than the global model. This statement was also proved in the study about the economic valuation of UGS in KL city conducted by Nur, et al., (2018) and also another study was done by Jaimes et al. (2010). Jaimes et al. (2010) believed that the local analysis is performed better and more precise than global analysis because the local analysis\(^1\) yields an estimated coefficient for each location, not an average coefficient, as offered by global analysis\(^2\).

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\(^1\) Local analysis is statements about process which are assumed to be non-stationary and location dependent.

\(^2\) Global analysis is statements about process which are assumed to be stationary and location independent.
Generally, both models are applicable for HPM in valuing the economic value of UGS. The main idea is the global model did not consider a geographic coordinate of each observed location, but a geographic coordinate of each observed location is taking into account in the local model. Due to this specification, the global model would offer an average value parameter estimate, but a local model would offer an estimate for each parameter. Hence, the local model estimated by GWR can provide a specific location that offers the highest house price which is reflected in the economic value of the urban green space.

3 Methodology

3.1 Data Collection

The house prices in the year 2016 for 1269 housing units represent a dependent variable. The data for independent variables were divided into three parts: housing structures, neighbourhood attributes and environmental (urban green space) attributes. All property data, along with associated structural, neighbourhood, and environmental attributes gathered from a variety of sources. The data about housing structures and house price was collected from the Valuation and Property Service Department. The data about neighbourhood attributes were collected from “Bahagian Siasatan Jenayah, Ibu Pejabat Polis Bukit Aman, Jabatan Pendidikan Wilayah Kuala Lumpur, Kementerian Kesihatan Malaysia and GIS software. While, the data about UGS attributes are gathered from DBKL and GIS software. The data about the number of rooms, size of the building lot (m²), size of the lot (m²), and age of house (year) are categorized as housing structures. The distance between residential area and hospital, number of public schools and crime rate at each sub-district, are categorized as neighbourhood factor. Whereas, the distance between the residential area and the UGS (km) and the size of the UGS per houses (m²) are categorized as the UGS attributes. The coordinates of the centre of each UGS are captured. It is used to measure the distance between UGS and residential areas. The distances between them are measured individually. For the size of UGS per house, it is measured based on calculation as follows:

\[
\text{Size of UGS per house} = \frac{\text{size of urban green spaces}}{\text{size of each house lot}} \quad (1)
\]

3.2 Hedonic Pricing Model Formulation: Global Model

Hedonic Pricing method will be used to estimate an implicit price for urban green space attributes. The implicit price obtain represent the economic value of UGS. It is approximated by regressing price on measures of attributes and the estimated coefficients represent the marginal willingness to pay for the associated attribute. The implicit price (IP) is calculated by

\[
\text{IP}(X_i) = \frac{\frac{\partial P_h}{\partial X_i}}{X_i} = \frac{\beta_i}{X_i} \quad (2)
\]

It will be regressed by using global model and local model. By adopting and modified the model from Kong, et al. (2007), the appropriate global hedonic pricing equation for this study can be formulated as:

\[
\ln P_i = \alpha + a_1 \ln NR_i + a_2 \ln SBL_i + a_3 \ln AGE_i + a_4 \ln SL_i + b_1 \ln DHOSP_i + b_2 \ln SCHOOL_i
\]

\[+b_3 \ln CRIME_i + c_1 \ln DTBP_i + c_2 \ln DTRK_i + c_3 \ln DTTT_i + c_4 \ln DTMK_i
\]

\[+c_5 \ln DTMK_i + c_6 \ln DTMB_i + c_7 \ln DTDK_i + c_8 \ln DTPR_i + c_9 \ln DTPU_i
\]

\[+ c_{10} \ln DTPU_i + c_{11} \ln DTAH_i + c_{12} \ln DTAD_i + c_{13} \ln DHBN_i + c_{14} \ln DHBS_i
\]

\[+ c_{15} \ln DHBS_i + d_1 \ln STBP_i + d_2 \ln STRK_i + d_3 \ln STTM_i
\]

\[+ d_{10} \ln STTM_i + d_{11} \ln STMB_i + d_{12} \ln STDK_i + d_{13} \ln STTP_i + d_{14} \ln STBJ_i
\]

\[+ d_{15} \ln STPU_i + d_{16} \ln STAH_i + d_{17} \ln STAD_i + d_{18} \ln SHBN_i + d_{19} \ln SHBS_i
\]

\[+ d_{15} \ln SHBS_i + e_i\]

\[ \quad (3)
\]

Where i is number of homes, \( P_i \) is house price at the ith home, \( NR_i \) is number of rooms at the ith home, \( AGE_i \) is age of house (years) at the ith home, \( SBL_i \) is size of building lot (m²) at the ith home, \( SL_i \) is size of lot (m²) at the ith home, \( DHOSP_i \) is nearest distance between hospital and residential area (km) at the ith home, \( SCHOOL_i \) is number of public school per sub-district at the ith home, \( CRIME_i \) is crime rate per 1000 population, \( DTBP_i \) is nearest distance between Taman Botani Perdana and residential area (km) at the ith home, \( DTRK_i \) is nearest distance between Taman Rimba Kiara and residential area (km)
at the ith home, $DTTT_i$ is nearest distance between Taman Tasik Titwangsa and residential area (km) at the ith home, $DTMK_i$ is nearest distance between Taman Metropolitan Kepong and residential area (km) at the ith home, $DTMB_i$ is nearest distance between Taman Metropolitan Batu and residential area (km) at the ith home, $DTDK_i$ is nearest distance between Taman Datuk Keramat and residential area (km) at the ith home, $DTPP_i$ is nearest distance between Taman Pudu Ulu and residential area (km) at the ith home, $DTAH_i$ is nearest distance between Taman Ampang Hilir and residential area (km) at the ith home, $DTHA_i$ is nearest distance between Taman Alam Damai and residential area (km) at the ith home, $DHBN_i$ is nearest distance between Hutan Simpan Bukit Nanas and residential area (km) at the ith home, $DHBSB_i$ is nearest distance between Hutan Simpan Bukit Sg.Besi and residential area (km) at the ith home, $STBP_i$ is size of Taman Botani Perdana per house ($m^2$) at the ith home, $STRK_i$ is size of Taman Rimba Kiara per house ($m^2$) at the ith home, $STTT_i = size$ of Taman Tasik Titwangsa per house ($m^2$) at the ith home, $STTM_i$ is size of Taman Tasik Menjalara per house ($m^2$) at the ith home, $STMK_i$ is size of Taman Metropolitan Kepong per house ($m^2$) at the ith home, $STMB_i$ is size of Taman Metropolitan Batu per house ($m^2$) at the ith home, $STDK_i$ is size of Tasik Datuk Keramat ($m^2$) per house at the ith home, $STTP_i$ is size of Taman Tasik Permaisuri per house ($m^2$) at the ith home, $STBJ_i$ is size of Taman Bukit Jalil per house ($m^2$) at the ith home, $STPU_i$ is size of Taman Pudu Ulu per house ($m^2$) at the ith home, $STA_i$ is size of Taman Ampang Hilir ($m^2$) per house at the ith home, $STAH_i$ is size of Taman Alam Damai ($m^2$) per house at the ith home, $SHBN_i$ is size of Hutan Simpan Bukit Nanas per house ($m^2$) at the ith home, $SHBSB_i$ is size of Hutan Simpan Bukit Sg.Besi per house ($m^2$) at the ith home.

3.3 Hedonic Pricing Model Formulation: Local Model

The local models were analysed by using GWR. The GWR technique is a statistical methodology used in exploring and describing spatial data, especially when spatial non-stationary relationships prevail (Brunsdon, Fotheringham and Charlton 1998; Yu 2007; Jaimes et al. 2010). This regression is conducted using localized points within the geographic space. Thus, it is assumed that the relationship may present variations that are dependent on the location, which is well-defined by a pair of prototype coordinates $(u, v)$ (Fotheringham, Brunsdon & Charlton 2003).

As adopted and modified by Jaimes et al. (2010), the appropriate local hedonic pricing equation for this study can be formulated as:

$$
\ln P_i = \alpha(u, v) + a_1(u, v) \ln NR_i + a_2(u, v) \ln SBL_i + a_3(u, v) \ln AGE_i + a_4(u, v) \ln SL_i + b_1(u, v) \ln DHOSP_i + b_2(u, v) \ln SCHOOL_i + b_3(u, v) \ln CRIME_i + c_1(u, v) \ln DTHA_i + c_2(u, v) \ln DTMK_i + c_3(u, v) \ln DTDK_i + c_4(u, v) \ln DTMK_i + c_5(u, v) \ln DTPP_i + c_6(u, v) \ln STBP_i + c_7(u, v) \ln STDK_i + c_8(u, v) \ln STBM_i + c_9(u, v) \ln STMB_i + c_{10}(u, v) \ln STAH_i + c_{11}(u, v) \ln SHBN_i + c_{12}(u, v) \ln SHBSB_i + c_{13}(u, v) \ln SSTT_i + c_{14}(u, v) \ln SDKB_i + c_{15}(u, v) \ln STRK_i + c_{16}(u, v) \ln DSTT_i + c_{17}(u, v) \ln DTDK_i + c_{18}(u, v) \ln DTMB_i + c_{19}(u, v) \ln DTTP_i + d_1(u, v) \ln DTHA_i + d_2(u, v) \ln DTMK_i + d_3(u, v) \ln DTDK_i + d_4(u, v) \ln DTMK_i + d_5(u, v) \ln DTPP_i + d_6(u, v) \ln STBP_i + d_7(u, v) \ln STDK_i + d_8(u, v) \ln STBM_i + d_9(u, v) \ln STMB_i + d_{10}(u, v) \ln STAH_i + d_{11}(u, v) \ln SHBN_i + d_{12}(u, v) \ln SHBSB_i + d_{13}(u, v) \ln SSTT_i + d_{14}(u, v) \ln SDKB_i + d_{15}(u, v) \ln STRK_i + d_{16}(u, v) \ln DSTT_i + d_{17}(u, v) \ln DTDK_i + d_{18}(u, v) \ln DTMB_i + d_{19}(u, v) \ln DTTP_i + e_i
$$

(4)

where $(u_i, v_i)$ is the x-y coordinate of each house. Note that the difference between global model and local model is on the presence of house coordinate.

In this paper, 37 variables were chosen in the construction of hedonic price indices. The variables with detailed descriptions can be found in Table 1.
Table 1: Variable descriptions and their expected effects on house transaction prices

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition of the variables</th>
<th>Expected Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building lot</td>
<td>Size of house building itself</td>
<td>+</td>
</tr>
<tr>
<td>Number of rooms</td>
<td>Number of rooms per house</td>
<td>+</td>
</tr>
<tr>
<td>Age of house</td>
<td>Age of house counting from completed build until year 2016</td>
<td>-</td>
</tr>
<tr>
<td>Lot Size</td>
<td>Size of total land for each housing area</td>
<td>+</td>
</tr>
<tr>
<td>Distance between the hospital and residential area</td>
<td>The distance between Hospital Kuala Lumpur and residential area</td>
<td>-</td>
</tr>
<tr>
<td>Number of public schools</td>
<td>Number of public school per sub-district</td>
<td>+</td>
</tr>
<tr>
<td>Crime Rate</td>
<td>Index crime per 1000 population. It include 2 categories of crimes: violent crimes (murder, attempted murder, rape, incest, armed / unarmed summons, armed guards / guns, armed guards / no weapons, severe injuries) and property crimes (broken houses and stolen day/night, steal motorcycles, stolen vehicles, snatches, others stolen).</td>
<td>-</td>
</tr>
<tr>
<td>The distance between UGS and residential areas</td>
<td>The distance between central of UGS and each of house location at all residential areas in KL city</td>
<td>-</td>
</tr>
<tr>
<td>Size of UGS per house</td>
<td>Size of UGS for each 1269 houses</td>
<td>+</td>
</tr>
</tbody>
</table>

Results and Findings

4.1 Global Model
The adjusted $R^2$ and t-statistics values for the global model were examined. Table 2 presents the summary of the variables statistics.

Table 2: Model Variables and Basic Statistic

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing Price (RM)</td>
<td>1453109.74</td>
<td>1775967.14</td>
<td>100000</td>
<td>27000000</td>
</tr>
<tr>
<td>Housing Attribute Variables</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Size of building lot</td>
<td>183.11</td>
<td>145.95</td>
<td>45.98</td>
<td>1978.97</td>
</tr>
<tr>
<td>Size of lot</td>
<td>356.06</td>
<td>4020.29</td>
<td>170</td>
<td>143066</td>
</tr>
<tr>
<td>Age of house</td>
<td>22.24</td>
<td>12.57</td>
<td>1</td>
<td>55</td>
</tr>
<tr>
<td>Number of room</td>
<td>3.65</td>
<td>0.95</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Neighbourhood Attribute Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance to Hospital</td>
<td>12.21</td>
<td>4.31</td>
<td>2.8</td>
<td>26.6</td>
</tr>
<tr>
<td>Crime Rate</td>
<td>11.57</td>
<td>8.18</td>
<td>6</td>
<td>55</td>
</tr>
<tr>
<td>Number of school at particular sub-district</td>
<td>49.31</td>
<td>10.95</td>
<td>5</td>
<td>66</td>
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<tr>
<td>Environmental Attribute Variables</td>
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<td></td>
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</tr>
<tr>
<td>Distance between residential areas and UGSs (km)</td>
<td>11.75</td>
<td>3.35</td>
<td>3.3</td>
<td>27.5</td>
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<td></td>
<td>14.22</td>
<td>5.23</td>
<td>0.4</td>
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<td>12.25</td>
<td>4.89</td>
<td>0.4</td>
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<td>13.87</td>
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<td>4.21</td>
<td>22.2</td>
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<td></td>
<td>14.53</td>
<td>6.24</td>
<td>0.75</td>
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<td>19.05</td>
<td>8.53</td>
<td>41.9</td>
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<td></td>
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<td>5.79</td>
<td>0.29</td>
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<td></td>
<td>15.26</td>
<td>5.03</td>
<td>33.1</td>
<td>2.2</td>
</tr>
</tbody>
</table>
The results of the global model are illustrated in Table 3. Based on the global model, all of the house structures were found to be statistically significant with an expected sign except the size of lot. The results show that the housing price grows by 81%, 0.3% and 0.3% for every unit increase in the size of building lot, number of room and decrease in the age of house respectively. For neighborhood attribute, only the number of school was found to be statistically significant with the expected sign. The housing price grows by 0.9% for every unit increase in the number of schools.

For the environmental attribute that is the distance between residential areas and UGSs, only five of UGSs were statistically significant with a negative sign. They were Taman Botani Perdana, Taman Rimba Bukit Kiara, Taman Datuk Keramat, Taman Ampang Hilir, and Hutan Simpan Bukit Nanas. In general, the results reveal that the distance between residential areas and UGSs mentioned above negatively influences housing price. Based on Table 2, Taman Botani Perdana, Taman Rimba Bukit Kiara and Taman Datuk Keramat were significant at 1% while Taman Ampang Hilir and Hutan Simpan Bukit Nanas were significant at 10%. The results show that a reduction of 1 km of distance from the residential area to the nearest UGS (Taman Botani Perdana) will increase the price of the house by RM30,000. The reduction of 1 km of distance from the residential area to the nearest UGS (Taman Rimba Kiara) will increase the price of the house by RM170,000. The reduction of 1 km of distance from the residential area to the nearest UGS (Taman Datuk Keramat) will increase the price of the house by RM40,000. The reduction of 1 km of distance from the residential area to the nearest UGS (Taman Ampang Hilir) will increase the price of the house by RM16,000. The reduction of 1 km of distance from the residential area to the nearest UGS (Hutan Simpan Bukit Nanas) will increase the price of the house by RM90,000. The distance between the residential area and other UGSs including Taman Tasik Titiwangsa, Taman Metropolitan Kepong, Taman Metropolitan Batu, Taman Tasik Permaisuri, Taman Tasik Bukit Jalil, Hutan Simpan Bukit Sg. Besi and Hutan Simpan Bukit Sg. Puteh were also statistically significant, but with a positive sign. Donovon and Butry (2011) state this may occur if the location is near a park.

For the environmental attribute that is the size of UGSs, only Taman Tasik Titiwangsa was statistically significant with a positive sign. The results show that an increase in the size of the Taman Tasik Titiwangsa by 1000 m² led to increasing RM60,000 in the house price. This expected result was supported by Ishikawa and Fukushige (2012). The size of UGSs (Taman Tasik Permaisuri and Hutan Simpan Bukit Sg. Besi) were also statistically significant but with a negative sign. The size of UGSs

<table>
<thead>
<tr>
<th>Rank</th>
<th>UGS Name</th>
<th>Size of UGSs per house (m²)</th>
<th>Reduction in price of house (RM)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Taman Botani Perdana</td>
<td>728.42</td>
<td>59482.35</td>
<td>Notes: These statistics are for 1269 observations of housing units in the city of KL</td>
</tr>
<tr>
<td>2</td>
<td>Taman Rimba Bukit Kiara</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Taman Tasik Titiwangsa</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Taman Tasik Menjalara</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Taman Metropolitan Kepong</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Taman Metropolitan Batu</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Taman Datuk Keramat</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Taman Tasik Permaisuri</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Taman Bukit Jalil</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Taman Pudu Ulu</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Tasik Ampang Hilir</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Taman Alam Damai</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Hutan Simpan Bukit Nanas</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Hutan Simpan Bukit Sg.Besi</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Hutan Simpan Bukit Sg. Puteh</td>
<td>728.42</td>
<td>59482.35</td>
<td></td>
</tr>
</tbody>
</table>

Notes: These statistics are for 1269 observations of housing units in the city of KL.
(Taman Rimba Kiara, Tasik Menjalara, Taman Metropolitan Kepong, Taman Pudu Ulu, Taman Tasik Ampang Hilir and Hutan Simpan Bukit Sg Puteh) would increase the house price, but these variables/UGSs were statistically insignificant.

The marginal implicit prices for each of the environmental attributes variable that is significant are presented in Table 4. Overall, the performance of all the global models was satisfactory, as reflected by adjusted $R^2$ and AIC in the analysis.

**Table 3: Global OLS Regression Result**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>t-value(Est/SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>61.9209</td>
<td>67.5773</td>
<td>0.9163</td>
</tr>
<tr>
<td>Housing Structure Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of house</td>
<td>-0.0033</td>
<td>0.00088</td>
<td>-3.7932***</td>
</tr>
<tr>
<td>Num of room</td>
<td>0.003</td>
<td>0.0142</td>
<td>0.2089</td>
</tr>
<tr>
<td>Ln Size of lot area</td>
<td>-6.3783</td>
<td>4.6817</td>
<td>-1.3624*</td>
</tr>
<tr>
<td>Ln Size of building lot area</td>
<td>0.8080</td>
<td>0.0310</td>
<td>26.0145***</td>
</tr>
<tr>
<td>Neighbourhood Attribute Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln Dist. To Hospital</td>
<td>-0.1405</td>
<td>0.0763</td>
<td>-1.8408**</td>
</tr>
<tr>
<td>Crime Rate</td>
<td>0.004</td>
<td>0.0016</td>
<td>2.4586***</td>
</tr>
<tr>
<td>Num of school</td>
<td>0.0086</td>
<td>0.0014</td>
<td>6.355***</td>
</tr>
<tr>
<td>Environmental Attribute Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance between residential areas and UGSs (km)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln TBP</td>
<td>-0.1716</td>
<td>0.0669</td>
<td>-2.5637***</td>
</tr>
<tr>
<td>Ln TRBK</td>
<td>-0.1299</td>
<td>0.0277</td>
<td>-4.6928***</td>
</tr>
<tr>
<td>Ln TTT</td>
<td>0.1713</td>
<td>0.052</td>
<td>3.2949***</td>
</tr>
<tr>
<td>Ln TTM</td>
<td>0.0057</td>
<td>0.0211</td>
<td>0.2684</td>
</tr>
<tr>
<td>Ln TMK</td>
<td>0.2735</td>
<td>0.0674</td>
<td>4.0591***</td>
</tr>
<tr>
<td>Ln TMB</td>
<td>0.1497</td>
<td>0.0310</td>
<td>4.8232***</td>
</tr>
<tr>
<td>Ln TTDK</td>
<td>-0.06</td>
<td>0.0182</td>
<td>-3.2921***</td>
</tr>
<tr>
<td>Ln TTP</td>
<td>0.111</td>
<td>0.0486</td>
<td>2.2832**</td>
</tr>
<tr>
<td>Ln TBJ</td>
<td>0.081</td>
<td>0.0315</td>
<td>2.5747***</td>
</tr>
<tr>
<td>Ln TPU</td>
<td>0.0419</td>
<td>0.0485</td>
<td>0.8645</td>
</tr>
<tr>
<td>Ln TAH</td>
<td>-0.125</td>
<td>0.0942</td>
<td>-1.323*</td>
</tr>
<tr>
<td>Ln TAD</td>
<td>-0.0591</td>
<td>0.0567</td>
<td>-1.0429</td>
</tr>
<tr>
<td>Ln BN</td>
<td>-0.0826</td>
<td>0.0607</td>
<td>-1.3605*</td>
</tr>
<tr>
<td>Ln BSB</td>
<td>0.0921</td>
<td>0.0687</td>
<td>1.3403*</td>
</tr>
<tr>
<td>Ln BSP</td>
<td>0.1394</td>
<td>0.0885</td>
<td>1.575*</td>
</tr>
<tr>
<td>Size of UGSs per house (m^2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln TBP</td>
<td>-0.2192</td>
<td>5.8293</td>
<td>-0.0376</td>
</tr>
<tr>
<td>Ln TRK</td>
<td>8.9429</td>
<td>7.5253</td>
<td>1.1884</td>
</tr>
<tr>
<td>Ln TTT</td>
<td>20.9934</td>
<td>5.8587</td>
<td>3.5833***</td>
</tr>
<tr>
<td>Ln TTM</td>
<td>11.1798</td>
<td>15.6702</td>
<td>0.7134</td>
</tr>
<tr>
<td>Ln TMK</td>
<td>2.6268</td>
<td>10.6804</td>
<td>0.2459</td>
</tr>
<tr>
<td>Ln TMB</td>
<td>-10.12</td>
<td>15.6759</td>
<td>-0.6456</td>
</tr>
<tr>
<td>Ln TDK</td>
<td>-0.0088</td>
<td>0.099</td>
<td>-0.089</td>
</tr>
<tr>
<td>Ln TTP</td>
<td>-10.149</td>
<td>5.3342</td>
<td>-1.9027**</td>
</tr>
<tr>
<td>Ln TBJ</td>
<td>-0.7</td>
<td>7.5492</td>
<td>-0.0928</td>
</tr>
<tr>
<td>Ln TPU</td>
<td>2.9389</td>
<td>11.7018</td>
<td>0.2511</td>
</tr>
<tr>
<td>Ln TAH</td>
<td>4.1035</td>
<td>10.646</td>
<td>0.3854</td>
</tr>
<tr>
<td>Ln TAD</td>
<td>-11.3090</td>
<td>11.2421</td>
<td>-1.0060</td>
</tr>
<tr>
<td>Ln BN</td>
<td>-7.7164</td>
<td>6.2299</td>
<td>-1.2386</td>
</tr>
<tr>
<td>Ln BSB</td>
<td>-18.6822</td>
<td>8.8885</td>
<td>-2.1018**</td>
</tr>
<tr>
<td>Ln BSP</td>
<td>1.3232</td>
<td>7.5442</td>
<td>0.1754</td>
</tr>
<tr>
<td>Adjusted R2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIC</td>
<td>916.92</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: ***, ** and * denote significance at the 1%, 5% and 10% significance levels, respectively. The value in parentheses ( ) contain the t-values. A critical value for t-test is assigned on 1269 degrees of freedom =1.282 (10%), = 1.645 (5%), and = 2.326(1%)
Table 4: Marginal implicit price for each UGSs for two environmental attributes (distance between residential areas and UGSs and size of UGSs per house)

<table>
<thead>
<tr>
<th>Environmental attributes variables</th>
<th>Marginal Implicit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance between residential areas and UGSs (1m)</td>
<td></td>
</tr>
<tr>
<td>1. Taman Botani Perdana</td>
<td>RM30</td>
</tr>
<tr>
<td>2. Taman Rimba Bukit Kiara</td>
<td>RM170</td>
</tr>
<tr>
<td>3. Taman Tasik Titiwangsa</td>
<td>-RM1070</td>
</tr>
<tr>
<td>4. Taman Tasik Menjalara</td>
<td>*</td>
</tr>
<tr>
<td>5. Taman Metropolitan Kepong</td>
<td>-RM410</td>
</tr>
<tr>
<td>6. Taman Metropolitan Batu</td>
<td>-RM520</td>
</tr>
<tr>
<td>7. Taman Datuk Keramat</td>
<td>RM40</td>
</tr>
<tr>
<td>8. Taman Tasik Permaisuri</td>
<td>-RM125</td>
</tr>
<tr>
<td>9. Taman Bukit Jalil</td>
<td>-RM50</td>
</tr>
<tr>
<td>10. Taman Pudu Ulu</td>
<td>*</td>
</tr>
<tr>
<td>11. Tasik Ampang Hilir</td>
<td>RM160</td>
</tr>
<tr>
<td>12. Taman Alam Damai</td>
<td>*</td>
</tr>
<tr>
<td>13. Hutan Simpan Bukit Nanas</td>
<td>RM90</td>
</tr>
<tr>
<td>14. Hutan Simpan Bukit Sg.Besi</td>
<td>-RM150</td>
</tr>
<tr>
<td>15. Hutan Simpan Bukit Sg. Puteh</td>
<td>*</td>
</tr>
<tr>
<td>Size of UGSs per house (m$^2$)</td>
<td></td>
</tr>
<tr>
<td>1. Taman Botani Perdana</td>
<td>*</td>
</tr>
<tr>
<td>2. Taman Rimba Bukit Kiara</td>
<td>*</td>
</tr>
<tr>
<td>3. Taman Tasik Titiwangsa</td>
<td>RM60</td>
</tr>
<tr>
<td>4. Taman Tasik Menjalara</td>
<td>*</td>
</tr>
<tr>
<td>5. Taman Metropolitan Kepong</td>
<td>*</td>
</tr>
<tr>
<td>6. Taman Metropolitan Batu</td>
<td>*</td>
</tr>
<tr>
<td>7. Taman Datuk Keramat</td>
<td>*</td>
</tr>
<tr>
<td>8. Taman Tasik Permaisuri</td>
<td>-RM30</td>
</tr>
<tr>
<td>9. Taman Bukit Jalil</td>
<td>*</td>
</tr>
<tr>
<td>10. Taman Pudu Ulu</td>
<td>*</td>
</tr>
<tr>
<td>11. Tasik Ampang Hilir</td>
<td>*</td>
</tr>
<tr>
<td>12. Taman Alam Damai</td>
<td>*</td>
</tr>
<tr>
<td>13. Hutan Simpan Bukit Nanas</td>
<td>*</td>
</tr>
<tr>
<td>14. Hutan Simpan Bukit Sg.Besi</td>
<td>-RM20</td>
</tr>
<tr>
<td>15. Hutan Simpan Bukit Sg. Puteh</td>
<td>*</td>
</tr>
</tbody>
</table>

Notes: *Statistically insignificant coefficient and therefore no MIP estimated

4.2 GWR Result

The results of the global models exposed a significant relationship between some of the housing attributes, neighbourhood attributes and UGS attributes and house prices. However, the relationship was constructed upon the theory of a stationary housing price, which is likely untenable. Hence, a GWR model was conducted to examine and explore such non-stationarity.

The ANOVA Test of the local model against the global model and the results of the GWR model are presented in Tables 4 and 5, respectively.

The AIC and adjusted $R^2$ values in Table 4 illustrated that the local models exhibited a significant improvement over the global model. The AIC for local models was smaller than the global models. This finding suggests that the local model performed better than the global model, even after the complexity of the GWR is taken into account. These findings are consistent with the empirical work by Yu (2007). In addition, the increase in the adjusted $R^2$ confirms that the local model explains the variance considerably better than the global model. The level of the variance explanation increased considerably, obtaining an adjusted value of 86% which was 3% more than the global model.

Table 5 exhibits the results of the local model. The local parameter estimates vary at each of the 1269 observation points. They are described by their median, minimum (min) and maximum (max)
values, as well as their lower and upper quartile. Table 5 illustrated that all of the variables are significant and have geographical/spatial variability except the size of Hutan Simpan Bukit Sg. Puteh. They are significant at 1% except for the distance between residential areas and Taman Rimba Kiara which is at 10%. The spatial variability of the variables is determined based on the value of DIFF of Criterion. The negative value of DIFF of Criterion suggests there exist spatial variability. However, it is still considered as there exist spatial variability if the positive value is less than or equal to two (Nakaya, 2014).

Table 4: ANOVA Test of GWR against Global Model

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Residuals</td>
<td>143.10</td>
<td>129.00</td>
<td>0.258</td>
<td></td>
</tr>
<tr>
<td>GWR Improvement</td>
<td>42.707</td>
<td>165.518</td>
<td>0.094</td>
<td>2.7321</td>
</tr>
<tr>
<td>GWR Residuals</td>
<td>100.434</td>
<td>1063.482</td>
<td>0.094</td>
<td></td>
</tr>
</tbody>
</table>

GWR Akaike Information Criterion (AIC) = 768.367746 (OLS = 916.92); GWR adjusted $R^2$ = 0.86 (OLS =0.83)

SS = Sum of Squares; DF = Degree of Freddoms; MS = Residual Mean Square
Table 5: Test for Non-Stationarity and GWR result

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Lower Quantile</th>
<th>Med</th>
<th>Up Quantile</th>
<th>Max</th>
<th>DIFF Of Criterion</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-136.8576</td>
<td>-15.9875</td>
<td>81.7651</td>
<td>283.9535</td>
<td>-554.7053</td>
<td>164.0369***</td>
<td></td>
</tr>
<tr>
<td>Housing Structure Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size of building lot</td>
<td>0.6225</td>
<td>0.7377</td>
<td>0.8194</td>
<td>0.8534</td>
<td>-25.9458***</td>
<td>8.3691***</td>
<td></td>
</tr>
<tr>
<td>Age of house</td>
<td>-0.0095</td>
<td>-0.0076</td>
<td>0.0010</td>
<td>0.0021</td>
<td>-15.554***</td>
<td>6.6643***</td>
<td></td>
</tr>
<tr>
<td>Number of room</td>
<td>-0.0904</td>
<td>-0.012</td>
<td>0.0312</td>
<td>0.1026</td>
<td>-10.9667***</td>
<td>4.8771***</td>
<td></td>
</tr>
<tr>
<td>Neighbourhood Attribute Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance to Hospital</td>
<td>-0.4158</td>
<td>-0.2188</td>
<td>-0.1114</td>
<td>0.1639</td>
<td>-145.1994***</td>
<td>53.5497***</td>
<td></td>
</tr>
<tr>
<td>Crime Rate</td>
<td>-0.0241</td>
<td>0.0020</td>
<td>0.0103</td>
<td>0.0405</td>
<td>-15.345***</td>
<td>6.5797***</td>
<td></td>
</tr>
<tr>
<td>Number of school at particular sub-district</td>
<td>-0.0005</td>
<td>0.0036</td>
<td>0.0125</td>
<td>0.0230</td>
<td>-11.6605***</td>
<td>5.1673***</td>
<td></td>
</tr>
<tr>
<td>Environmental Attribute Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance between residential areas and UGSs (km)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Taman Botani Perdana</td>
<td>-0.5624</td>
<td>-0.206</td>
<td>-0.0256</td>
<td>0.3770</td>
<td>-106.4175***</td>
<td>49.9552***</td>
<td></td>
</tr>
<tr>
<td>2. Rimba Bukit Kiara</td>
<td>-0.6307</td>
<td>-0.3364</td>
<td>-0.1904</td>
<td>0.1208</td>
<td>0.404*</td>
<td>2.1843*</td>
<td></td>
</tr>
<tr>
<td>3. Taman Tasik Titiwangsa</td>
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<td>0.0064</td>
<td>0.0456</td>
<td>0.2886</td>
<td>-30.2018***</td>
<td>12.4211***</td>
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<td>4. Taman Tasik Menjalara</td>
<td>-0.3646</td>
<td>-0.0331</td>
<td>0.0219</td>
<td>0.4638</td>
<td>-30.8389***</td>
<td>13.1676***</td>
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<td>5. Taman Metropolitan Kepong</td>
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<td>0.0381</td>
<td>0.2224</td>
<td>0.7620</td>
<td>-42.6574***</td>
<td>16.0019***</td>
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<td>6. Taman Metropolitan Batu</td>
<td>-0.1693</td>
<td>0.0457</td>
<td>0.1116</td>
<td>0.8971</td>
<td>-20.3849***</td>
<td>10.9359***</td>
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<td>7. Taman Datuk Keramat</td>
<td>-0.1445</td>
<td>-0.0854</td>
<td>-0.0204</td>
<td>0.1899</td>
<td>-5.5171***</td>
<td>4.6935***</td>
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<td>8. Taman Tasik Permaiuri</td>
<td>-0.1286</td>
<td>0.0522</td>
<td>0.0918</td>
<td>0.4880</td>
<td>-14.0039***</td>
<td>8.0252***</td>
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<td>-0.3008</td>
<td>-0.0977</td>
<td>0.1652</td>
<td>-11.8639***</td>
<td>6.1856***</td>
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<td>10. Taman Pudu Ulu</td>
<td>-0.6713</td>
<td>-0.4447</td>
<td>-0.0482</td>
<td>0.3227</td>
<td>-23.3972***</td>
<td>9.2639***</td>
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<td>11. Tasik Ampang Hilir</td>
<td>-1.1137</td>
<td>-0.0806</td>
<td>0.1860</td>
<td>1.0733</td>
<td>-5.7798***</td>
<td>4.1613***</td>
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<td>12. Taman Alam Damai</td>
<td>-0.6046</td>
<td>-0.2187</td>
<td>-0.0948</td>
<td>0.1215</td>
<td>-8.1556***</td>
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<td>13. Hutan Simpan Bukit Nanas</td>
<td>-0.4948</td>
<td>-0.2579</td>
<td>-0.0373</td>
<td>0.2899</td>
<td>-50.0172***</td>
<td>18.8970***</td>
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<td>14. Hutan Simpan Bukit Sg.Besi</td>
<td>-0.3031</td>
<td>-0.0115</td>
<td>0.1777</td>
<td>0.7163</td>
<td>-8.2209***</td>
<td>4.2836***</td>
<td></td>
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<td>15. Hutan Simpan Bukit Sg. Puteh</td>
<td>-0.2593</td>
<td>-0.0885</td>
<td>0.0891</td>
<td>1.1526</td>
<td>-66.5605***</td>
<td>24.2511***</td>
<td></td>
</tr>
<tr>
<td>Size of UGSs per house (m²)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Taman Botani Perdana</td>
<td>-26.3584</td>
<td>-11.3184</td>
<td>1.6074</td>
<td>5.1885</td>
<td>31.5007</td>
<td>-3890.9175***</td>
<td>5297.8988***</td>
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<tr>
<td>2. Rimba Bukit Kiara</td>
<td>-19.2707</td>
<td>0.5136</td>
<td>14.8073</td>
<td>24.0277</td>
<td>35.7548</td>
<td>-6338.1852***</td>
<td>61460.4166***</td>
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</table>
This indicates strong evidence that house prices are not constant and can be varied over space within KL city. Table 5 also showed that the min, max, lower quartile and upper quartile value of the local GWR estimates were counterintuitive in some of the cases. They were the size of lot, number of room, distance to hospital, crime rate, number of schools, the distance between residential areas and all of the UGSs and the size of urban green spaces. It is estimated that the size of lot, number of room, distance to hospital, crime rate and number of school range from -25.53 to 6.08, -0.09 to 0.1, -0.42 to 0.16, -0.02 to 0.04 and -0.0005 to 0.02 respectively. The negative values for the size of lot, number of room and number of school depict that the reduction in the size of lot, number of rooms and number of school will increase the house price at certain locations. While the positive values for the distance to hospital and crime rate depict that the increase in the distance to the hospital and crime rate will increase the house price at certain locations. The positive values for the distance between residential area and urban green spaces depict that the raising of the distance between them will increase the house price at certain locations. While the negative values for the size of urban green spaces show that the reduction in the size of UGS will increase the price of house at certain location.

Statistical tests revealed that significant spatial non-stationarity exists between house values and all the selected house attributes, neighbourhood attributes and environmental attributes except the size of Hutan Simpan Bukit Sg. Puteh. One advantage of the GWR is that the spatial distribution is inherent in the parameter estimates and can easily be visualized in map form using a GIS. Means that the factors influencing the house value for each residential unit can be shown at the specific sub-district. Figure A1 until Figure A37 as showed in Appendix A illustrates the parameter estimates surfaces of each attribute’s coefficient that were significant. It is determined based on the F-value. The maps show in Appendix A reveals that the relationship between the house attributes, neighbourhood attributes and environmental attributes and the house prices are not necessarily significant with the expected sign at each of the sub-district of Federal Territory of KL.

For house attributes (Figure A1 – Figure A4), the age of house and size of building lot were statistically significant with an expected sign at all of the sub-district of Federal Territory of KL. The number of the room was statistically significant with an expected sign at all of the sub-district of Federal Territory of KL except sub-district of KL and KL city centre. The size of lot was statistically significant with an expected sign at most of the residential area located at sub-district of Ampang, Cheras and certain location at sub-district of KL.

For the neighbourhood attributes (Figure A5 – Figure A7), the number of schools has positive significant relationship at all of the sub-district in KL except certain location at sub-district of Batu. The distance between the hospital and residential area was positively significance at most of the residential area at the sub-

| 5. Taman Metropolitan Kepong | -34.4545 | -20.2141 | 2.7345 | 16.9846 | 36.0789 | -830.6363*** | 518.9410*** |

Note: positive value of diff-Criterion (AICc, AIC, BIC/MDL or CV) suggests no spatial variability in terms of model selection criteria.
Figure A1: Spatial distribution of age of house

Figure A2: Spatial distribution of buildi
Figure A3: Spatial distribution of building lot

Figure A4: Spatial distribution of number of room
Figure A5: Spatial distribution of crime rate

Figure A6: Spatial distribution of distance to hospital
Figure A7: Spatial distribution of number of school

Figure A8: Spatial distribution of distance between residential area
Taman Botani Perdana
Figure A9: Spatial distribution of distance between residential area and Taman Rimba Bukit Kiara

Figure A10: Spatial distribution of distance between residential area and Taman Tasik Titiwangsa
Figure A11: Spatial distribution of distance between residential area and Taman Tasik Menjalara

Figure A12: Spatial distribution of distance between residential area and Taman Metropolitan Kepong
Figure A13: Spatial distribution of distance between residential area and Taman Metropolitan Batu

Figure A14: Spatial distribution of distance between residential area and Taman Datuk Keramat
Figure A15: Spatial distribution of distance between residential area and Taman Tasik Permaisuri

Figure A16: Spatial distribution of distance between residential area and Taman Bukit Jalil
Figure A17: Spatial distribution of distance between residential area and Taman Pudu Ulu

Figure A18: Spatial distribution of distance between residential area and Taman Ampang Hilir
Figure A19: Spatial distribution of distance between residential area and Taman Alam Damai

Figure A20: Spatial distribution of distance between residential area and Hutan Simpan Bukit Nanas
Figure A21: Spatial distribution of distance between residential area and Hutan Simpan Bukit Sg.Besi

Figure A22: Spatial distribution of distance between residential area and Hutan Simpan Bukit Sg Putih
Figure A23: Spatial distribution of the size of Taman Botani Perdana

Figure A24: Spatial distribution of the size Taman Rimba Bukit Kiara
Figure A25: Spatial distribution of the size of Taman Tasik Titiwangsa

Figure A26: Spatial distribution of the size of Taman Tasik Menjalara
Figure A27: Spatial distribution of the size of Taman Metropolitan Kepong

Figure A28: Spatial distribution of the size of Taman Metropolitan Batu
Figure A29: Spatial distribution of the size of Taman Datuk Keramat

Figure A30: Spatial distribution of the size of Taman Tasik Permaisuri
Figure A31: Spatial distribution of the size of Taman Bukit Jalil

Figure A32: Spatial distribution of the size of Taman Pudu Ulu
Figure A33: Spatial distribution of the size of Taman Tasik Ampang Hilir

Figure A34: Spatial distribution of the size of Taman Tasik Alam Damai
Figure A35: Spatial distribution of the size of Hutan Simpan Bukit Nenas

Figure A36: Spatial distribution of the size of Hutan Simpan Bukit Sg. Besi
district of Hulu Kelang and Ampang and certain residential area at sub-district of Setapak and Petaling. The crime rate was negatively significant at most of the residential area at the sub-district of Batu and certain location at sub-district of Setapak and KL.

For environmental attributes, the distance between 15 UGSs and residential area (Figure A8 – Figure A22) were negatively significant with house price but at different sub-district. Taman Tasik Botani Perdana was negatively significant at sub-district of Batu, Setapak, Hulu Kelang, Ampang and the certain residential area located at sub-district of KL and KL city centre. Taman Tasik Mengalara was negatively significant at a certain residential area located at sub-district of Kuala Lumpur, Batu and KL city centre. Taman Tasik Titiwangsa was negatively significant at most of the residential area located at sub-district of Petaling and certain residential area at sub-district of KL and Batu. Taman Rimba Bukit Kiara was negatively significant at all sub-district except Setapak and certain residential area at sub-district of KL. Taman Metropolitan Kepong was negatively significant at a certain residential area at sub-district of Petaling, Ampang and KL. Taman Metropolitan Batu was negatively significant at half of the residential area located at sub-district of Petaling and certain residential area at sub-district of Setapak and KL city centre. Taman Datuk Keramat was negatively significant at most of the residential area located at sub-district of Batu, KL, KL city centre and certain location at sub-district of Setapak. Taman Tasik Permaisuri was negatively significant at sub-district of Cheras, Batu, Petaling and certain location at sub-district of KL. Taman Bukit Jalil was negatively significant at sub-district of Batu, Setapak, Hulu Kelang and a certain residential area located at sub-district of KL and KL city centre. Taman Pudu Ulu was negatively significant at sub-district of Batu and certain location at sub-district of Setapak, KL and KL city centre. Taman Ampang Hilir was negatively significant at all sub-district except certain location at Mukim Petaling, KL and Batu. Taman Alam Damai was negatively significant at sub-district of Cheras, Petaling and certain location at sub-district of Batu and KL. Hutan Simpan Bukit Nenas was negatively significant at all sub-district except sub-district of Batu and certain location at sub-district of KL and KL city centre. Hutan Simpan Bukit Sg. Besi was negatively significant at sub-district of Cheras, Petaling and certain location at sub-district of KL and KL city centre. Lastly, Hutan Simpan Bukit Sg. Puteh was negatively significant at all sub-district except Batu, Setapak, KL city centre and certain location at sub-district of KL.

Same goes for the size of UGS (Figure A23 – Figure A36). The significance of the expected (positive) sign of it exists at different sub-district. Size of Taman Bukit Jalil was positively significant at most of the residential area located at sub-district of Setapak, Batu and certain location at sub-district of KL and KL city centre. Size of Hutan Simpan Bukit Nenas was positively significant at sub-district of Hulu Kelang and certain location at sub-district of Setapak, Ampang and KL city centre. Size of Hutan Simpan Bukit Sg. Besi was positively significant at sub-district of Petaling, Cheras, and certain location at sub-district of KL. Size of Taman Metropolitan Batu was positively significant at sub-district of Ampang, Hulu Kelang, Setapak, Batu and certain location at sub-district of Batu and KL city centre. Size of Taman Metropolitan Kepong was positively significant at sub-district of Batu and certain location sub-district of Setapak and KL. Size of Taman Metropolitan Batu was positively significant at all sub-district except certain location at sub-district of Batu and Setapak. Size of Taman Rimba Bukit Kiara was positively significant at sub-district of Petaling, Cheras, Batu and certain location at sub-district of Setapak, KL and KL city centre. Size of Taman Alam Damai was positively significant at sub-district of Hulu Kelang, Setapak, Batu, KL city centre and certain location at sub-district of KL. Size of Taman Ampang Hilir was positively significant at all sub-district except certain location at KL city centre and sub-district of KL and Batu. Size of Taman Botani Perdana was positively significant at all sub-district except sub-district of Batu and certain location at sub-district of KL and KL city centre. Size of Taman Datuk Keramat was positively significant at sub-district of Cheras, Petaling, Ampang and certain location at sub-district of KL and KL city centre. Size of Taman Tasik Titiwangsa was positively significant at all sub-district except certain location at sub-district of Batu, KL, Setapak and KL city centre. Size of Taman Tasik Mengalara was positively significant at sub-district of KL, Petaling, Cheras and certain location at sub-district of Batu and KL city centre. Size of Taman Tasik Permaisuri was positively significant at all sub-district except sub-district of Batu and certain location at sub-district of KL and KL city centre. Based on both environmental attributes, it can be concluded that the economic valuation of UGS was varied depends on its location. The results reviewed that each environmental attributes were significant with an expected sign at some of sub-district. Not all sub-district have expected the significant relationship between environmental attributes and house price.

Specifically, two key conclusions were drawn based on this study. First, the housing value in the city of KL may contain many types of submarkets based on locations, housing structural attribute, neighbourhood attribute and environmental attribute. It is necessary for delineation and recognition of
housing values in the city of KL to take into account more than just housing structural attributes. Instead, the housing markets in the city of KL are a combined result of all these influential factors. Second, the local modelling technique employed in this study also revealed that all selected variables except the size of Hutan Simpan Bukit Sg. Putih can add to house value, whereas the global model, such a subtle effect has masked by the averaging process of the significant spatial non-stationarity. This might suggest that in studying urban housing market, local modelling techniques are more robust than global ones.

5 Conclusion
This study investigated the economic value of UGS in KL city. HPM aid by OLS regression and GWR were used to achieve this objective. The rationale behind using these two methods is as follow. The OLS regression is a global model which is assumed to be stationary and location independent. While, GWR is a local model which is assumed to be non-stationary and location dependent. The global model reveals the result in an average value, but the local model reveals the result specifically across the sub-districts. Based on the HPM, house price is used to estimate the marginal implicit price of environmental (UGSs) attribute in KL city. There are two environmental attributes (distance between residential area and UGSs and size of UGSs per house) involve in HPM. For the distance variables, the global model suggested that there are only five UGSs (Taman Botani Perdana, Taman Rimba Kiara, Taman Datuk Keramat, Taman Ampang Hilir and Hutan Simpan Bukit Nanas) were statistically significant with negative sign. The results show that the decreasing the distance to the UGSs are unambiguously associated with increasing the house price. The marginal implicit price for the distance between residential areas and Taman Botani Perdana, Taman Rimba Kiara, Taman Datuk Keramat, Taman Ampang Hilir and Hutan Simpan Bukit Nanas are RM30, RM170, RM40, RM160, and RM90 respectively. It is subjected to the decrease of 10 m distance to the UGSs. For the size of UGSs, only Taman Tasik Titiwangsa was statistically significant with positive sign. The result shows that an increase in the size of Taman Tasik Titiwangsa by 1000 m² led to a RM60 increase in the house price. Therefore the marginal implicit price for Taman Tasik Titiwangsa is RM60. Based on the local model, all of the environmental attributes variables tested are significant except the size of Hutan Simpan Bukit Sg. Putih. However, GWR was captured that the significant value with the expected sign of each environmental attributes variables is located at different sub-district. Lastly, in term of model comparison, ANOVA test reveal the local model is performed better than the global model.

The study has some policy implications. First, since HPM have proved that UGSs in KL city have hedonic value as represented by marginal implicit price, therefore the local authorities need to intensify their commitment to conserve and preserve the UGSs. They need to develop a comprehensive improvement especially in monitoring the provision and condition of UGSs more thoroughly so that the existing UGS cannot be accessed easily from any irresponsible party. Other than that, the local authorities should implement a penalty system for those who are against the rule and regulation. The nearest distance to UGSs and size of UGSs significantly increase the house price. The findings not only proved the economic value of UGSs but it will help the house/property developers to plan a better future for their firms mainly the firm’s revenue. Lastly, the findings also will help the house/property developer to find the potential project location that able to generate high revenue.

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References


“Re-socialization of homeless geriatrics beyond institution, A critical analysis of Goffman’s theory of total institution”

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Abstract

The current study was an attempt to explore the pattern of resocialization of homeless geriatrics of Multan, Pakistan. The purpose of the study was to elaborate the depersonalization and re-socialization of old aged people living without institutional boundary (contrast to Goffman’s total institution theory 1957) at open places include public parks, shrines, footpaths and markets road sides. This qualitative research was conducted by in-depth interviews of twelve homeless geriatrics. The data was analyzed by verbal protocol and thematic analysis. It was found that after being homeless, the old aged people were re-socialized by depersonalization. When the old aged people became destitute, the loose their previous identity, personalization and self to cope with surrounding environment and had successful survival at place of residence not just within the specific boundary but even in the absence of any institution or boundary, randomly in the society depends upon the circumstances of residence. The study recommended initiating the rehabilitation to retain their original identity by living at home. There is also the need to realize the youth to look after and take care of senior citizens of family for giving them sense of respect in family as well as in society.

Key words: resocialization, homeless geriatrics, total institution
Introduction

In Pakistan, the current population is consisted of 200 million people in whom 3 million are added yearly. By population, Pakistan is at 6th number across the world (Khan, 2016). Due to the rapid increase in of urbanization in Pakistan, people are migrating from rural areas to urban areas to earn livelihood which affect the city life. The problems of lack of housing facilities and overcrowding are the outcomes of urbanization during last four decades. So, the labor class is not able to afford housing due to high fares and lack of affordable houses in cities (Siddiqui, 2010). The estimated number of homeless persons in Pakistan is 20 million (UN, 2015). The country needs almost 1 million new houses to reduce the homelessness (Khan, 2016). The Senior Citizens Bill 2014 was passed by Government of Sindh in Pakistan and it becomes Senior Citizens Welfare Act 2014. The council for senior citizens welfare was established by minister of Social Welfare. The purpose of the policy was to improve the wellbeing of senior citizens and provide them with citizen card (Azadi Card) through which all senior citizens will get 25% concession in medical treatment, transport, purchasing goods and commodities for elderly people. It was also promised to build houses for senior citizens. The old aged people also got the free service on funeral and burial in case of death. Furthermore, the Act was also tried to pass by Government of Punjab in 2017 for special care of pension holders and destitute geriatrics all over the country (Dawn, 2016). Prior to it, Pakistan Times (2004) mentioned that Pakistan Government also did effort to address the issue for senior citizens. But no law could be passed for the implementation of such strategies and programs. At individual level, the organization, NGOs and Private companies also paid attention toward this issue and gave concession and relaxation to elderly people, but the step was not enough for all the geriatrics. At last, in August 26, 2004 the prime minister of the time, Ch, Shujaat Hussain permitted an inclusive package for senior citizens for the improvement of life to ensure their respect and honor in society. further This package was needed to save the senior citizens from awful situation in banks, hospitals and provide them seniory and priority. It would also give them priority at legal stage for the handling their legislative issues at courts and relative departments. But unfortunately, this bill is still in black and white not in implemented (Salahuddin & Jalbani, 2006). In 1982, the World Assembly on aged population adopted “Vienna International Plan of action on ageing (VIPAA) with reference to obligation of old aged people. It was the initial human rights instrument by UN on ageing. It suggested the segregation of elderly people from domestic setting, rejection from government policies, inclusion in home affairs and identification of values of old aged people. The adaptation was made after twenty years by Madrid International PoA (Plan of action) on Ageing in second world assembly of aged people. It focused on two points; the realization of basic rights and independence of old people, ensuring the pleasure of elderly people in social, civil, political, economic and cultural rights along with the eradication of discrimination against senior citizens. It also focused on the institutionalized consent of ageing related to retirement which led them to think about them “old” regardless of their abilities. It increased the economic dependency and lowered the capital. But these policies were inconsistence among various nations and didn’t show the wide-ranged institutional framework and policies for the fortification of
old person’s rights. There was the lack of accountability and participation by the policy makers and concerned institutions (Fredvang & Biggs, 2012).

According to Pakistan Bait-Ul-Mall (2018) in Pakistan, Social Safety Net program established the Old age benefit institution for the care of elderly people by the name of Pakistan Great Homes (Old Homes) which have been established in Lahore and Karachi under the great effort of Pakistan Bait-Ul-Mall department. This effort is trying to be developed on provincial as well as district level by the phased manners. Each of the Great Homes has the capacity to accommodate 100 destitute old citizens. It has been published at Express Tribune (2017) that there are 10 old aged homes working in Punjab Province of Pakistan. The first one was “Aafiyat” established under Government of Pakistan in 1977. But this institution and many others have admission criteria for the destitute old aged people to live and enter in. Moreover, the capacity of the institution is also for 50 persons. So many of the old aged destitute people are not able to get admitted into shelter homes due to the major reasons including unavailability of Identity card, lack of family background information, mental health and having infectious disease.

NGOs are also trying to work for the betterment of old aged people including Ladies Fellowship, Pakistan Association of Gerontology and Pakistan Senior Citizens Association (Karachi). But unfortunately, these organizations are not successful in their purposes because of financial limitations and many old aged populations whom they could not deal (Alam, Ibrar & Khan, 2016). That is the reason the old aged people have to adopt the residence at open places and started a new phase of life quite different from the previous way of living. In such new setting of living, the old aged people meet new association and way of living which change their habits and life patterns. In other words, they must pass through the phase of depersonalization and resocialization because of surrounding setting and survival. In present study, the research aimed to find out the way of depersonalization and resocialization in absence of boundary of total institution (by Goffman, 1957).

1.1 Research questions

- What are the past ways of living of geriatrics while staying at home with family?
- How the personality of old aged people altered after being homeless?
- How the homeless geriatrics are re-socialized by the surrounding environment?
- What are the concurrent life patterns of destitute elderly people at their place of living?

2 Literature review:

The institutions are often to claim with rehabilitation which is resetting of inmates with self-regulatory methods (Goffman, 1961, p69). But reorganization and mortification process are not long lasting. The experience is positive one in term of sharing experience and contacting each other. The actual meaning of total institution or shelter is not used for a space to live but the place to use for temporary living (Sparti, Tassi & Squillacciotti, 2014). The place of residence also altered the name of resident according to the living condition and give him a new recognition of name (Cleave, 2008).

In urban areas, there has been exclusion by spatial cleansing in residential setting which is known as anti-homeless realm monarchy for the regulation of public functioning. In this kind of setting, care home and shelter system play a vital role in the placement of old aged people to broaden the line of distinction among destitute and
people with home community. The establishment of boarder between homeless and housing community has aimed to restrict the communication among them with the objective of not contaminating the house community to have such risk of destitution later. The homeless people sleep outsides, provide social services to native areas, shared shelter, bear hunger that’s seems bitterly attractive than to tolerate violence (Van Straaten, Rodenburg, Van der Laan, Boersma, Wolf & Van de Mheen, 2018). Many of the old aged people are in in-danger condition while living at home due to poor financial condition and live in trauma of homelessness and risk to live in street in their later age (Landefeld, Miaskowski, Tieu, Ponath, Lee, Guzman & Kushel, 2017). They are more frequent to exposure to death and dying due to isolation and destitution and instability of emotional world which pulls them to lose hope for future life. While some destitute geriatrics used their past experiences to justify their current living condition because of their own fault and used expertise to improve their survival and sense of safety (Sumalinog, Harrington, Dosani & Hwang, 2017). The old people who are admitted to homeless community weather in institution or without institution has geriatric syndrome including cognitive impairment, functional decline, incontinence and feebleness. Such syndromes are found more in destitute geriatrics than those living in shelter associates (Brown, Kiely, Bharel & Mitchell, 2012). Many vagrant old aged people live in recreational sites, vehicles and shops sides which are not actually meant for their rehabilitation. The other places of their stay are sidewalks, parks, streets, tent encampment and abandoned buildings. While a little number of people are living at vehicles as it is convenient for the resident to move according to needs of life (Valverde, 2012). In Pakistan, the destitute people are living at play grounds, parks, Darbars (shrines), old markets and Minar-a-Pakistan in Lahore city. There are also some other problems attached with homelessness like theft, homosexuality, drug addiction, and prostitution. Unfortunately, some criminal groups also start residing at such places due to the lack of security check by the police because police are unable to discriminate the criminals from actual destitute people (Siddiqui, 2010). While discuss about the resocialization of destitute geriatrics, the self-esteem of destitute females changed as they moved to homeless condition. Those females who are living at homeless condition, compromise at their self-esteem for survival in society. While the uneducated homeless women have low self-esteem as compare to educated destitute females (Maqbool, Ijaz, Asif & Jahanzeb, 2014). There are three indication of survival and changing of self at shelter homes that the residents recover from stress and live back to a prosperous life. The person learns to free from boredom and become stronger from their previous stressful experiences. This process of resocialization takes the age duration from middle age to elder age (Edwards, Hall & Zautra, 2013). As the person grows old, he faces the problem of deterioration in functioning, anxiety, depression, sleeping disorder, tiredness and other cognitive disorders. But the adaptation to new residential environment proves helpful for them for leading a happy life by cope the adversity of life (Chambers, 2012). Now a day, old aged homes and shelter homes has become necessary for abandoned senior citizens to provide space of residence in their later age. Such awareness of institutionalization has been adopted from western culture and being popular among Asian countries (Devi & Roopa, 2013). In later age, the destitute elder in institutional care and noninstitutionalized incline to experience the loose of bond and association with family, friends, and relatives and work roles. They also lose connection
with their income resources and health. In this way they are unable to maintain their assortment of selection open to them earlier (Kreighbaum, 2016). Although both institutionalize, and noninstitutionalized groups experience the similar loose but institutionalized geriatrics are exposed to have hassle because of such problem as they are more stable than institutionalized old aged people (Zeraati, Haghani Zemeidani & Khodadadi Sangdeh, 2016). However, older adults can survive successfully if they are trained by broaden their social network and engagement in healthy activities to recover them potentially from home sickness and disturbance (Zaninotto, Falaschetti & Sacker, 2009). Factor of flexibility in personality of elderly people enhance the chance of their potential recovery and allows them to perform their health psychological functioning by developing the ability of well response in their changed surrounding and tackle with life stressors (Perna, Mielck, Lacruz, Emeny, Holle, Breitfelder, & Ladwig, 2012).

The element of flexible adaptation and survival is more in noninstitutionalized elderly citizens while institutionalized geriatrics has depression symptoms and death anxiety. Such symptoms are same in males and females in institutionalized old aged people. On the other hand, in noninstitutionalized geriatrics, males are better survivors as compare to females in open setting of residence and females are more depressive. They also found that the anxiety level at institution is more for unmarried elderly that married and widows. There is the need to develop the various skills in old age institutions to enable the senior citizens survive with stressors and challenges of life in their duration of destitution (Azeem & Naz, 2015). In institutions, the old aged people are put under such circumstances that insist them to transform themselves in which they see their lives very differently. Moreover, old aged people see through their faults of past as anger and aggression which they control in the current circumstances. Every individual old person goes through a process of extreme difficulty to survive in old institution, but it is very difficult for him to cope with the new environment. It is the stage where survivors live their lives and others who lose hope are inclined to death. The elements of tolerance, trust and reciprocity also play vital role in positive resocialization of geriatrics in the presence of friendly environment and motivation. While in the absence of systematic pattern of resocialization of institutionalization, the geriatrics are re-socialized by the mainstream of society (Wagner, 2018).

3 Methodology

The study is qualitative by nature which focused on the life patterns of homeless geriatrics by knowing their past through conversation and looking in to the current situation along with their re-socialization beyond an institution in district Multan which is the 5th biggest city of Pakistan. It is also called “the city of saints” so that’s is way many people stay at saints for refuge and residence in case of situation of homelessness and poverty because of the availability of free food named as “Langgar” (free food by the name of Allah). The multiple numbers of people reside at mausoleum in which old aged people are also included. The population of the study was the homeless geriatrics of district Multan, particularly from the area of Ghanta Ghar and shrine of Hazrat Baba Shah Rukan-a-Alam (R.A) and Hazarat Bahaudin Zakariya (R.A). To collect the rich information from the target population in depth interview was conducted. The arrangement of the questions asked to the respondent was changed for every individual
respondent during interview by keeping in view the course of discussion. The purposive and snowball sampling was used to identifying the respondents. 28 interviews were conducted to the old aged people but the relevant cases according to the nature of study were 12. The duration of each interview was consisted of 45 minutes to 1.30 hour. The interviews were conducted during the period of May 2017 to October 2017. The information was gathered from the homeless old aged people about their life patterns in past and present and the circumstances under which they became homeless. The sensitive questions were asked carefully, and the respondent was free to answer or not, about any question. Moreover, their verbalization was recorded through visual and audio recording after their consent to make video or record audio. The memos were also prepared to highlight the important points regarding research in a diary. Personal observation was also continued during interviewing the respondents by observing their way of talking, facial expressions, place of living, and conversation to companions and surrounding fellows. The outlook and apparent condition were also notified by keen observation to analyze the sameness of wordy expression and ostensible condition. Most of interviews were audio recorded in local language and then translated to English and some were in written form. Thematic analysis was applied to data by dividing the data into various themes according to the nature of the study. The data was divided into Sixteen themes: name, spiritual status, religious beliefs, family bond, social relationships, economic condition, ownership of land, earning source, place of residence, place of sleeping, effort for food, concept of luggage, clothing, washing of clothes, cleanliness, disease and disability and level of satisfaction. By looking into these themes, it was explored that how the life patterns of geriatrics altered from socialization, personalization and internalization to re-socialization by the way of depersonalization. These themes were approached by using verbal protocol.

Moreover, verbal protocol was also applied on data for retrospective and concurrent analysis of data. In verbal protocol, data are rich with the spoken thoughts of individuals related to their tasks and working. The individual is verbalized until the completion of target of researcher. Moreover, these verbalizations are recorded in shape of Verbatim by using tape recorder and then these verbal protocols are used empirically by dividing them into various categories according to testing theory. The individual is not aware to involve his cognitive procedure in conversation, but the researcher notifies those pinching points for the completion of research task. (Schulte-Mecklenbeck, Kühberger & Ranyard, 2011). Verbal protocol is further analyzed in to two protocols; retrospective verbal protocol and concurrent verbal protocol. Most commonly the verbal data is practiced in Concurrent Verbal Protocol in which the individual is subjected to think noticeably during conversation or verbatim. In addition, there is another method of accumulating verbal data is Retrospective Verbal Protocol which refers to the verbalizations for the completion of purposive research by following the events through cognitive processes. It is associated to the successive happenings and past experiences associated to research task by creating a back chain of events with concurrent verbal protocol. The verbalization made possible for the old aged people to access the long-term memory of homelessness by working on short term memory step vise while talking to researcher in hourly discussions and conversation.
4 Finding and Discussion

After being homeless, as per focus of the study, it was detected that how the personality of these destitute geriatrics altered through verbal protocol by the way of socialization to re-socialization by the way of depersonalization. For this purpose, the following themes were compared in retrospective and concurrent verbal protocol.

4.1 Naming

Name is the basic element of identification for an individual. When the old people stepped out from their homes and started living permanently out in an altered setting and surrounding, their identity started change from their name to fame (Arxer, del Puy Ciriza & Shappeck, 2017). Their names were changed according to their personality, look and by keeping in view their specialization and caste along with the factor of age (Tomasiwicz, & Tauroginski, 2017). The word “Baba” (elder male) and “Bibi” (elderly female) was attached to their names. Moreover, in one case the name was totally changed from “Fateh Ali” to “Baba Baloach” by identifying their casualty of language spoken and caste. There was no concern of people with the prior complete family name. But a new name was assigned to them as they started living and intermingling with other people around them.

4.2 Spiritual and religious beliefs

In later age, the religious beliefs turned into more strength and old people liked to spend more time in religious activities (Yamasaki, 2015). As the cases were collected from the old aged people residing at and around the shrine near Ghanta Ghar, their emotions had been attached to the saints and they became the followers of “Saeen” (lord). In majority of cases, old aged people who were so attached to real identities, Allah and beloved of Allah, were not so when they were residing at home within family setting. Religiousness has become dominant on them for their belief in life and every matter life. Many people recite “Tasbeehat” (Praising Allah) and Quran regularly which was not the part of routine while they were living at home.

4.3 Family bond

While living with family, their feelings of attachment were more associated to members of family (Raphael-Greenfield, & Gutman, 2015). But as they left home, their association with family became less strong with them due to the surrounding environment which taught them to live without the consultation and dependency of anybody even of family members. In major cases, the family members of geriatrics did not come to see them, and they were also not intended to meet their family again like before while stayed at home. These old aged people were living for themselves by not being the burden on family members.

4.4 Social relationships
The social relationships of majority of old aged people before leaving home were formal and in well manners. The etiquettes of conversation and dealing were kept in view. But as they started living in a new institution, they also started forgetting those manners (Jensen, 2018). In their current situation of homelessness, they were easily talkative and communicative to every person for passing time. Moreover, rough and informal language was used by majority of geriatrics to call one another (Arxer, del Puy Ciriza & Shappeck, 2017). But the thing was noticed that there were no long-term associations with people around but temporary, just for having good time.

4.5 Economic condition

The old aged people who were interviewed belonged to middle class families who also had land of cultivation and permanent house of live. Preponderance of them were well established and maintained, did their own business. But when the boundary of home left and the started living without boundary, there economical identity, position and conditions did not matter at their contemporary place of residence because here all people from various backgrounds were living with same standard of life and mostly with same routine in which their economical position did not matter. All the homeless old aged people were living there with identical situation no more differentiated with respect to their financial condition which was no more than poor despite of having strong family background like the study of Griffith, Seymour and Goldberg (2015).

4.6 Ownership of land

Most geriatrics had agricultural land, plots, home and property which were associated with their name parallel to the study of Ecker and Aubry, (2016). But after being insolvent, all their crowns of ownership of land ruined as they stepped out from home and decided to live under sky. At the present place of living, there property ownership was useless, and they were leading their life by wearing the uniform of sameness according to surrounding.

4.7 Earning source

The old aged people at their young age were very active and filled with potentiality. They were associated with employment, labor, business and skills which was their source of earning. But as the circumstances turned over, after being homeless, most of them stopped working as found in the study of Hsieh, (2016). By observing the people around, they kept their hesitation aside and stared beggary or accepting charity and donations of generous people. It had been their source of earning in current place of living and they didn’t labor except one case of Baba Allah Baksh who even did not like to beg but to earn. Otherwise all other homeless seniors had been lazy to do work. They considered that it was useless to put effort in earing by work for just for themselves. It’s better to beg and accept charity despite struggling for individuality as it was learned through the surrounding settings around them.

4.8 Place of residence
Like every normal individual, all the geriatrics had home and a permanent place of living before their arrival to a new living setting. They had a home with all the basic facilitations where they were living. As the old aged citizens left home, the parks, grounds, grassy plot and shrines became the places of their living without the care of facilitations and necessities as also discovered in the study of Siddiqui (2010). Most of them live in shrines and the grounds in and outside the shrine as other categories of homeless people who were living there before their arrival. The old people leant the way of livings to people who were already residing at such places.

4.9 Place of sleeping

It became possible by the study to compare the sleeping patterns of old aged people before and after leaving home. The way of alteration of place of sleeping was observed by verbalization that at home that geriatrics were used proper sleeping format and patterns of having bed. But as they started living homeless, they had to sleep at ground, floor and grassy plots with a sheet underneath as found in the work of Buches (2015). This way of sleeping was also adopted by the old aged people through observing the destitute people who were already living there homelessly. All the old aged people were not sleeping as they used to sleep at home. It was the way of their depersonalization and re-socialization at the current place of residence.

4.10 Effort for food

The senior citizens who did a job, business and laborer for earning did nothing after their arrival to the current place of residence. They got food from the customary pattern of distribution of food by the name of Allah at shrine called “Lannger”. Some of them walked to get that food where it had been distributed but majority of them got the food at their place of living without moving to the point of distribution parallel to the study of Siddiqui (2010). Moreover, the meal from the distribution generous people was also accepted by them while it was not done at home to beg or to take charity. But the current living environment disrupted the old personality of old people in new one.

4.11 Concept of luggage

The feelings when it was considered that the care of home and themselves was much necessary with the ornaments and necessary luggage were changed into the view of have little numbers of things with those destitute old aged people because of the issue of carrying the luggage with them in the absence of not having a permanent place of residence. The huge luggage was not accumulated by these old aged people keeping in mind the problem of care and carrying the luggage with them as found in the study of Zafra (2014). It was also learned by them by their surrounding which made their living facilitative in the absence of huge amount of luggage.

4.12 Clothing
Those old aged people who categorized a lot of dresses according to the occasions and events had taught to wear the clothes of charity and donation of other people. The dreams and desire of having multiple clothes had altered into have the clothes which could cover up the body not to show off the dressing. This thing happened in all of the homeless people after stepping out of home. The condition of compiled clothes of cupboard had been transferred to the situation of having two to four pair of dresses with stitches and repairing at various places as mentioned by James (2017) that they had used clothes of others and less in numbers. Even during the interview Janat Bibi was repairing her old shirt with needle. It was showing that how the old people changed their priorities and demands to compromise according to situation and surrounding by depersonalizing themselves.

4.13 Washing of clothes

By verbal protocol method, it was identified that the circumstances of getting washed clothes in well pressed and arranged form altered into the condition of washing the clothes by themselves even without detergent like the findings of Buches (2015) who told that they were deprived of laundry facility in their current living. Especially the male old aged people who never seen the washing of clothes were used to wash their clothes at taps in public. As mostly homeless geriatrics were residing at shrine, they washed their clothes by taps in the grounds to water the plants and at the place of making ablution. It was the circumstances of surrounding settings which made them to convert their habits from sophisticated one to informal one while all these happenings were the antagonistic to their personality cultivated by the re-socialization of current place of habitation.

4.14 Cleanliness

While habituating in homes, the special care was given to the cleanliness at home, of body and place of sitting. There was the regular check and balance of hygienic condition at home and of themselves. But as the impoverished elderly citizens initiated to live homeless, they also became careless about the hygienic conditions because of the free sitting environment, having not the permanent place of living, carelessness about daily bath and cleaning of cloths, similar to this, Leibing, Guberman and Wiles (2016) elaborated that in later age they were not able to clean their place of living. They used to sit at dusty places like footpaths, benches, grounds, grass and plots without any hesitation of dust and mud. Even during conversation, Baba Qasim cleaned the place with hand where there was muddy water and sat beside without hesitation. It was not the habit of all old aged people before their arrival at current place of living out of home but they became use to of such kind of thing because their surrounding public were also doing the same thing, so they left their values of cleanliness and adopted a bold way of living with mud and dust.

4.15 Disease and disability

Disease and disability are a natural thing but its dealing and coping with matters more. It was found by the study that majority of geriatrics were healthy and normal in
their early life before leaving home even after being homeless, but there were also some
old aged people who were disable by foot and hand. Interestingly, they were working
well when they were earning by themselves before coming to new setting even after
accident and disability. But as they started living under sky in a specific group and setting
of homeless people, they dominated their disability to make it excuse of not working and
employing because they learnt from the people around to do such kind of tactics to have
the sympathy, help and care of others for attaining some rupees and support. There were
also the geriatrics with genuine disease of hearing and asthma while some geriatrics were
disable by foot and hand. The surrounding environment made them lazier and more
workless as compare to disability and disease. But argument of worklessness was
developed on behalf of disability to cover up the habit of laziness which developed in
elderly people after habituating their current place of living. Moreover, they were also
facing mental illness to some extent in every case because of ups and downs of phases of
life they faced alone (Jensen, 2018).

4.16  Level of satisfaction

The level of satisfaction varied according to the nature of circumstances faced by
the geriatrics. Half of the respondents were not satisfied from their current situation as
they were made homeless stressfully not willingly as mention by Rerukh (2015) that with
age, the satisfaction level of old aged people became down because of harsh
circumstances. They long for the family environment and having their property back.
Among them the geriatrics demanded financial support to start up labor. Few of them
were even longing for death despite leading such life but they didn’t think to commit
suicide as it was “Harram”. While on the other hand, the old aged people who escaped
from home under critical circumstances were satisfied with their current life as they
considered themselves free from any kind of responsibilities and burden to earn for
others, but they loved to live for themselves in the present condition.

5  Conclusion

In the current study, resocialization of homeless geriatrics beyond boundary were explore
by qualitative approach of study. It was aimed to get information about the past events
and way of living of old aged people along with their current situational residential
patterns, and other perspectives of life. Along with it, the study was focused on the
deregulation of personality and irregularity in the life patterns after being itinerant. The
study was also conceptualized by the theory of total institution by Goffman 1957 about
the depersonalization and re-socialization of individuals’ identity and self. By
accumulation of data through case study method and in-depth interviews, the
verbalization of geriatrics was analyzed by verbal protocol method and thematic analysis.
Sixteen themes of the study were analyzed to deeply explore their schedule of living and
spending life at their current place of living by chaining their retrospective verbal
protocol. The study concluded that there was a hell of difference between their
retrospective way of living and current situational life patterns. Due to the reasons of
property conflicts, family attitude, being unmarried, death of spouse and parents, greed
behavior of children and siblings and spiritual beliefs, the geriatrics had to leave the
home and started living at the place where there would be no one to disturb them and interfere in their lives. It was found that the present personality and life patterns were quite different from their socialized personality while living at home. They were totally changed due to the influence and requirements of surrounding environment where they were living. They have covered and hidden their prior personality into a new identification due to the process of re-socialization which happened when they left home and started living homelessly. It was interesting to know that depersonalization and re-socialization happened in destitute geriatrics even in the absence of boundary of total institution but in noninstitutionalized setting where no specific regulation is required to depersonalize individuals but only a new setting of living. Further studies could compare the total institution life of geriatrics with those who are living without boundary for more clear vision of depersonalization and resocialization.

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6 References


Eco-friendly Innovation for Sustainability of Batik Industry

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Abstract
This article aims to explore a product innovation for industrial sustainability in an environmentally friendly framework. Entrepreneurs should take the competitiveness with the best management through innovations. Meanwhile, the interdependence of both industry and the environment elaborates human resources, natural safety, and consumer attention to be greatly regarded in the sustainability industry. Awareness and concern about products often conflict with environmental quality. This study was conducted by employing a qualitative method in 2017. Interviews, observation, and documentation were carried out to small and medium-sized enterprises of the Batik industry in Pekalongan City, Central Java, Indonesia.

The findings reveal that first, the Batik industry run by the entrepreneurs and home workers closely harmed the environment. Second, the wastewater treatment was managed by the local government to minimize the environmental damage through either individual or collective treatment. Third, an innovation of the eco-friendly product was promoted by the Batik entrepreneurs. This innovation was made by replacing chemical dyes with natural ones. Likewise, the consumer trend demanding for products with softer natural colors also contribute to the development of innovations. Fourth, the environmental management established by the Batik entrepreneurs faced several challenges, namely: 1) a limited entrepreneurship knowledge of waste management, 2) environmental awareness, particularly for waste water disposal, (c) high cost of a home-scale wastewater treatment plant, and 4) complicated processes of Batik production with natural dyes. Finally, the innovation was promoted by the entrepreneurs’ learning processes in terms of organizational learning and inter-organizational processes.

Keywords: eco-friendly innovation, entrepreneurs, sustainability, Batik, industry.
1. Introduction

Global climate changes happening in many countries have seized great attention from the government, academicians, researchers, and entrepreneurs (Kuo, 2016). Conserving the environment or saving the earth through reusing, recycling, reducing, planting, and analyzing environmental damage is fully attempted in many countries. Government regulations are established to take control of companies, civil societies, illegal logging, office waste such as paper, water, waste of electricity, air pollution, ozone depletion, and so on. Therefore, to deal with this issue, eco-friendly innovations go viral in many ways.

It is very necessary for the companies to apply well-established environmental management so as to change their business mindset. The companies’ tendency to stimulate to take advantage of the eco-friendly or green environmental innovations should be implemented within the corporate management (Chang & Chen, 2013). Additionally, the company sustainability forces the entrepreneurs to make a good decision as their responsibilities in order to encounter the turbulence of environmental changes (Simpson, Taylor, & Barker, 2004; Friedman & Miles, 2001). In many cases, the victims of the environmental damage, consumer demand, disease on children, and social safety need a serious attention from the entrepreneurs and government because they have perceived the importance of environmental issues (Chang & Chen, 2013).

Meanwhile, the boycott to environmentally unfriendly products disrupts the business continuity. An eco-friendly innovation is the best alternative and the appropriate strategy for the company that becomes a new market approach (Robertson & Yu., 2001). Brand image, furthermore, needs a distinctive orientation, and consumer demand declines when environmental rescue propaganda is demonstrated at many places. For this reason, good innovations serve to help entrepreneurs solve their business problems.

Innovations, nonetheless, are not a reliant and homogeneous process. It indicates that entrepreneurs should make an essential attribute to identify their business and put added value for the consumer satisfaction. Organizationally, the corporate environmental management would affect their strategies and managerial interpretation while making a new product and process protection through innovations (Chang & Chen, 2013; Green, Morton, & New, 2000). That is the reason why the identification of corporate management from environmental damage attracts a wide array of research to explore the impact for
corporate performance, including inhibiting and supporting factors (Chang & Chen, 2013; Rani, Chelliah, & Halim, 2014; Perez-Sanchez, Barton, & Bower, 2000). It implies that innovation processes happen at all levels of business. In other words, the environmental damage caused by offensive behavior such as indiscriminate waste disposal may contribute to water pollution, land contamination, and low air quality, and industry is one of actors performing this kind of behavior. The evidence of the entrepreneur behavior is discussed in the light of theoretical issues in the development of research analysis. The fact that an unhealthy environment influencing the mortality rank in some countries is presented as follows.

Figure 1.
Number of Deaths Due to Pollution

![Figure 1](image)

Source: WahanaLingkunganHidupIndonesia, 2012

Figure 1 shows us that pollution becomes one of the causes of the high mortality rates in those countries. The highest level is India, whereas the lowest is the Philippines. Meanwhile, Indonesia’s number of death due to pollution stayed at the fifth level in 2012. Further, high income is inversely proportional to the low life expectancy because of the pollution contributed by industry. This paper highlights the relationship between industry and the environment. It illustrates that industry and the environment complement each other in order to ensure their sustainability since industry is built for long-term goals. Industry, likewise, gives the contribution to nation development through innovations. Not to mention, market trend, consumer purchase, and the environment make the entrepreneurs adapt to rapidly changing business. Country development processes possess both good and
bad effects for human life, including the improvement of absorption of labor growth and the level of per capita income exposed in the following figure.

**Figure 2.**
*Growth of Industrial Cluster in the 2nd Quarter of 2017*

Figure 2 depicts that the Indonesia’s economy development in 2017 increased significantly in many sectors. Small industries, including Batik cloth, developed from -0.07 to 3.65. This fact illustrates a good condition to attract investors and generate people’s income. It can be pointed out that small and clothing industries also contribute the positive value. In Indonesia, small and medium-sized enterprises (SMEs) passed down from generation to generation. They have an essential role to enhance social welfare, company’s revenue, worker’s income, consumer purchase, consumer needs, and labor absorption noticeably. It is apparent to deem that the sustainability of industry takes priority over entrepreneurs. Unfortunately, the abundant production of encouragement frequently sacrifices the environment as the pollution becomes uncontrollable. In short, the negative environmental impact from industry is higher than household, hospital, transportation, or office. Table 1 below draws this condition.
Table 1. Environmental Polluters in Indonesia, 2012

<table>
<thead>
<tr>
<th>Polluter</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Valid Percentage</th>
<th>Cumulative Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Company</td>
<td>91</td>
<td>31.4</td>
<td>39.4</td>
<td>39.4</td>
</tr>
<tr>
<td>Government</td>
<td>26</td>
<td>9.0</td>
<td>11.3</td>
<td>50.6</td>
</tr>
<tr>
<td>Society</td>
<td>6</td>
<td>2.1</td>
<td>2.6</td>
<td>53.2</td>
</tr>
<tr>
<td>Company and Government Combination</td>
<td>66</td>
<td>22.8</td>
<td>28.6</td>
<td>81.8</td>
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<tr>
<td>Total</td>
<td>42</td>
<td>14.5</td>
<td>18.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing System</td>
<td>231</td>
<td>79.7</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
<td>20.3</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>290</td>
<td>100.0</td>
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</tr>
</tbody>
</table>

Source: Wahana Lingkungan Hidup Indonesia, 2012

2. Literature Review

This paper shed the light to the literature on the importance of sustainability of SMEs in the nation’s growth and its mutual dependence with the environment. The literature acknowledges various advantages to the adoption of an eco-friendly concept and practices. Meanwhile, the entrepreneur traits are creativity and innovation. In addition, entrepreneurship is best studied through the understanding of its key elements such as innovation and sustainability.

2.1 Eco-friendly Concept

An eco-friendly or green concept as a new innovation framework encourages special productivity of industrial goods and services (Lee, Wahid, & Goh, 2013). Similarly, eco-friendly entrepreneurship orientation occurs in all parts of the world (Wang, Hermens, Huang, & Chelliah, 2015) as well as SMEs can gain competitive benefits and build sustainable business by adopting good environmental practices (Simpson, Taylor, & Barker, 2004). Wong (2012) claims that green product and process innovations are positively associated with green product competitive advantages.

The eco-friendly drive has close relation to innovation. On the one hand, the entrepreneurs set the value of ecology or environment on their products, and on the other hand, they put the new idea into practice. Eco-friendly innovation is distinguished from a conventional one since the entrepreneurs initiate to put the eco-friendly identity which results from the entrepreneurs’ learning on the climate or environmental change as a business challenge (Renning, 2000).
The entrepreneurs promote eco-friendly products as well as their strategies to increase or expand by introducing the new products tremendously. This eco-friendly or green innovation represents a new identity for business (Chen, 2011). They make this innovation to break the market behavior as a response to the business challenge. The other objective is to enforce the local government regulations in relation to the environment in three steps, namely: designing, fabricating, and packaging (Unruh and Ettensohn, 2010). Previous research exposed that innovations on products contribute to company’s competitive profit (Chiou, Chan, Lettice, & Chung, 2011; Porter & van der Linde, 1995).

2.2 Innovation Concept

The value of innovation is promoted to develop and create a new specification or qualification for entrepreneurs’ products (Fernandes, 2012). Knowledge and experience-based innovation is a good way for entrepreneurs to push the productivity and reach success (Chen, Lai, & Wen, 2006). It is interesting to note that interaction between industry and the environment drives the entrepreneurs to make a lot of changes. Industrial dynamic strategies forced by motivation aim to make business more sustainable so as to win a competition or business advantage (Maheshwari, 2012; Kuo, 2016; Chen, Lai, & Wen, 2006).

Apparently, innovations of family firms constitute absolute necessities. Bocken, Farracho, Bosworth, & Kemp (2014) claim that innovation relates the development of value, culture, politics and technology. Value-based business innovations are yielded by knowledge and entrepreneur experience while product, design, function are important to reach the business sustainability. The competency of entrepreneurs tend to be well-built when they successfully adapt to environmental changes. These processes involve the learning process, starting from individual learning, organizational, and inter-organizational levels (Sanz-Valle, Naranjo-Valencia, Jiménez-Jiménez, & Perez-Caballero, 2011). Technology and creativity have a strong role in enhancing new innovations and the industry sustainability (Sanz-Valle, Naranjo-Valencia, Jiménez-Jiménez, & Perez-Caballero, 2011). Accordingly, de Sousa, Pelissier, & Monteiro (2012) assert that collaboration may increase due to the company’s creativity and innovation. It denotes that innovation becomes a business identity to create a distinction from other companies.
2.3 **Sustainability Concept**

The notions of sustainability have been proposed by some studies. Shaharir (2012) defines that knowledge sustainability is one of important components in any sustainability issue. Further, Klemes, Friedler, Bulatov, & Varbanov (2010) highlight that sustainability desire encourages the industry to emphasize integration and optimization. Moreover, sustainability deals with ecological issues (pollution, eco-friendly production, climate change, low quality of water, and wastewater treatment). It reveals that learning an issue of sustainability is a relatively strategic key to understand the change of entrepreneur orientation in relation to business.

Likewise, Maritz & Donovan (2013) point out that sustainability relies on a new discovery, improvement, reimbursement, and combination of them, whereas the commercialization of idea into a new design of commodity is considered an added value for the business sustainability. This situation stimulates companies to conduct a market survey, explore a new consumer trend, develop production technology, and organize marketing evaluation. The sustainability heavily depends on the capability of the enterprise’s manager in adapting to the changing environment that tends to be uncertain (Lee, 2009).

2.4 **Organizational Learning on Small and Medium-Sized Enterprises**

The discussion of organizational learning has increased for few recent years, especially in dealing with business challenges (Hooper, Jukes, & Stubbs, 2000; Hansen, Sondergard, Holm, & Kerndrup, 2005; Roome & Wijen, 2005). Besides, organizations would be more effective if they constitute learning organizations (LO) (Senge, 1990). Atkinson, Smith, & Hilgards (1987) note that learning can be defined as a relatively permanent change in behavior as a result of experience. According to Senge, Kleiner, Roberts, Ross, & Smith (1994), the LO should also learn and change as a result of adaptation to the environment and apply five rules/disciplines. The first is to build a shared vision through empowering individuals to draw a single image of the future. The second is to engage in a whole learning team and the dissemination of new knowledge. Third, the mental model of how the world needs to change to allow the growth of a new common view on what is allowed and what can be done. Fourth, individuals require to be continuously assessing the gaps in their knowledge and learning. The fifth is to manage a
thinking system. It means viewing the whole context of the organization; how pieces interact well with each other and the environment.

Principally, cognition or an understanding aspect indicates a contact of a businessman with a faced challenge. This makes the behavior aspect to be a response form toward business issues. Sometimes, both of them do not happen sequentially, and even on the contrary. There is the time when business responses occur reflexively and when it becomes the continuation of learning outcomes (Fiol & Lyles, 1985). Huber (1991) suggests that there are four constructs linked to organizational learning, namely: knowledge acquisition, information distribution, information interpretation, and organizational memory.

SMEs, additionally, are managed by a small team, and sometimes the owner also serves as a manager. Consequently, he/she takes responsibilities for materials, finance, marketing, employees, and business challenges. The owner/manager leadership plays a pivotal role in developing his/her business. As a founder, he/she may present an eco-friendly innovation as a new idea as well as their product identity.

3. Research Methodology

This present study aims to explore the entrepreneurs’ mindset in terms of an eco-friendly innovation for the sake of conserving the environment while producing Batik in Pekalongan City, Indonesia. The research conducted at SMEs would contribute to determine the value of entrepreneurship based on family, knowledge, and spiritual contexts regarding the innovation so as to encounter the environmental change. The organizational learning processes in this study were employed to discuss the innovation and sustainability of Batik industry more comprehensively.

Organizational learning and inter-organizational processes successfully emphasize the innovation created. It strengthens the role of the entrepreneurs in moving on the environmental change, consumer behavior, and productivity. Further, innovation can be seen as the result of the entrepreneurs’ learning processes from the inefficiency and ineffectiveness of products. Meanwhile, organizational learning is a dynamic process which enables the Batik entrepreneurs to adopt and adapt the business challenges. Based on several studies concerning eco-friendly innovations and the business sustainability, it is suggested that qualitative methods are more reliable (i.e. Shams and Bjornberg, 2006). For
this reason, this research carried out observation to several entrepreneurs who promoted to save the environment in their Batik production.

During this study, the Batik entrepreneurs were well-participated to share their determined behavior in terms of innovation-making. The researchers needed longer time to collect the data through observation comprehensively in investigating the phenomena occurred in the Batik industry and exploring the sociological process in relation to the context of values, family, culture, and spirituality. The interview conducted in this study covered these two research questions (RQs).

RQ 1. How do the Batik entrepreneurs react to the environment condition that may affect the sustainability of their industries?

RQ 2. How do the Batik entrepreneurs learn about business changes and eco-friendly innovations?

There were five Batik entrepreneurs who became the research participants. Each of them spent 2 to 2.5 hours for the interview. The main idea to innovate their products was relevant to the concepts presented in the previous section. It was demonstrated by the owners who made the eco-friendly innovation for their products. During the interview, the environmental damage was regarded by the entrepreneurs while taking their decision to change their business identity so as to create the sustainability of their Batik industry. This information contributed the researchers to analyze the Batik entrepreneurs’ mindset resulting from their organizational learning. Once the interview was done, the result was transcribed and coded, tabulated, and analyzed to present comprehensive elaboration.

4. Results and Discussion

In Pekalongan City, Batik industry is often managed by family, and most of them are Muslims. Erdem & Baser (2010) suggest that values, family, and religiosity of entrepreneurs become a special position in small business. Batik, additionally, has grown as humans’ culture since hundreds of years ago. Batik never cracks time by time, and is always dynamic (Astuty, 2014). The cultural and spirituality values are important elements underlying that Batik industry in Pekalongan City shapes a unique typology as long as Islamic values are powerful drivers of the Batik entrepreneurs’ calling. Optimism, mutual responsibility, justice, and balance tend to enhance the entrepreneurs’ eco-friendly innovation in decision-making. As Muslims, it is highly adhered that working is equal to worship. They spend their time to implement their spirituality into goodness, even in
industrial matters. In the Shaharir’s (2012) viewpoint, for Muslims, sustainability is a state of achieving a balanced condition, without exploitation of natural and human resources. Both consumers and entrepreneurs clearly assert that innovations are very necessary to make. It means that Batik industry as an existing business entity and the environment influence each other. The availability of raw materials, finance, technology, and consumer is included into all components of the environment that is very pivotal for the sustainability of this industry. It is supported by several studies exposing that eco-friendly innovations contribute to a business competitive benefits (Simpson, Taylor, & Barker, 2004; Chen, Lai, and Wen, 2006; Kuo, Y., Chen, M., 2016).

Batik industry has a multidimensional view of family influence. De Massis, Frattini, & Lichtenthaler (2013) declare that innovations in family business are different from non-family one. The experience from older and future generations should be important consideration when they face business dilemmas over family management involvement, generation-ownership dispersion, and family member reciprocity (Kellermanns, Eddleston, Sarathy, & Murphy, 2010). There are several factors affecting the Batik industry condition, namely: human resource, material, consumer purchase, marketing, government regulation, and promotion through exhibitions on national and international scales. At the same time, religious values take part in the sustainability development of the Batik industry as well. Not to mention, ethics and morality in religion may affect sustainability.

Table 2.
Number of Business Units and Workers of Batik in Pekalongan City from 2011 to 2013

<table>
<thead>
<tr>
<th>No.</th>
<th>Sub-district</th>
<th>2011 (Business Units)</th>
<th>2011 (Workers)</th>
<th>2012 (Business Units)</th>
<th>2012 (Workers)</th>
<th>2013 (Business Units)</th>
<th>2013 (Workers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>West Pekalongan</td>
<td>262</td>
<td>4,261</td>
<td>264</td>
<td>4,335</td>
<td>346</td>
<td>5033</td>
</tr>
<tr>
<td>2.</td>
<td>South Pekalongan</td>
<td>188</td>
<td>2,074</td>
<td>188</td>
<td>2,074</td>
<td>263</td>
<td>2575</td>
</tr>
<tr>
<td>3.</td>
<td>East Pekalongan</td>
<td>110</td>
<td>2,536</td>
<td>111</td>
<td>2,510</td>
<td>114</td>
<td>2483</td>
</tr>
<tr>
<td>4.</td>
<td>North Pekalongan</td>
<td>71</td>
<td>1,073</td>
<td>71</td>
<td>1,073</td>
<td>80</td>
<td>1030</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>632</td>
<td>9,944</td>
<td>634</td>
<td>9,992</td>
<td>803</td>
<td>11,121</td>
</tr>
</tbody>
</table>

Source: Industrial Offices, Cooperatives, and SMEs of Pekalongan City.

Table 2 reveals that Pekalongan City becomes a tremendous potential over the result of Batik cloth. Many workersearn a living in this creativecity. It is indicated by the spread of Batik industry, and the majority of Pekalongan people have their incomes from
this business. Producing and selling the Batik cloth have become the people’s livelihoods since they were children. This condition proposes that human resources are the main element in every single activity (Astuty, 2014).

Most entrepreneurs in Indonesia are on the small-medium scale so it is important to conduct an explanatory study in order to uncover the situation and innovation that impact on the sustainability of their business. Fernandes (2012) clarifies that design, utility, and process are made of the creativity of learning. Likewise, the collaboration among entrepreneurs, consumers, raw material suppliers, workers, and the government shows productive and integrative relations. Therefore, the Indonesian government encourages innovations in Batik industry. This research was conducted on products, natural dyes, and alternative media of Batik innovated by the entrepreneurs. Since 2014, Pekalongan City has been officially declared as a part of Creative Cities Network by UNESCO, in which crafts and folk art are an essential element of Pekalongan City’s identity. It indicates that this city has identified creativity as a strategic pillar for the sustainable urban development that suits eco-friendly innovations promoted by the Batik entrepreneurs.

The imbalance between industry and the environment becomes a priority for both big companies and SMEs. The unhealthy environment due to water contamination on both color and odor stimulates the society, government, and businessmen to conduct experiments to switch to natural dyes. The environment pollution level caused by Batik waste is quite unsettling because of the used chemical dyes. The lack of a reliance on rules, standards, or regulations may affect the treatment of the environment. Safeguarding the environment needs to be carried out massively in various countries by considering the government regulation, research, and enhancement of SMEs innovation. Table 3 presents that the Indonesian government pay serious attention concerning this issue.

### Table 3.
**Indonesian Government Regulation of the Environment**

<table>
<thead>
<tr>
<th>No.</th>
<th>Law/Regulation</th>
<th>Issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Law No. 32/2009</td>
<td>Environmental Protection and Management</td>
</tr>
<tr>
<td>2.</td>
<td>Minister of Environment Regulation No. 14/2010</td>
<td>Environmental Documents for Industry and/or Activities Having Permit and/or Activities Having No Environmental Documents</td>
</tr>
<tr>
<td>3.</td>
<td>Minister of Environment Regulation No. 05/2012</td>
<td>Type of Activities Requiring Environmental Impact Assessment (Amdal)</td>
</tr>
<tr>
<td>4.</td>
<td>Minister of Environment</td>
<td>Guidelines for Preparation of Environmental</td>
</tr>
<tr>
<td>Regulation No.</td>
<td>Documents</td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>5. 16/2012</td>
<td>Minister of Environment Regulation No. 17/2012 Guidelines for Public Participation in Environmental Impact Assessment and Environmental Permit</td>
<td></td>
</tr>
<tr>
<td>6. 08/2013</td>
<td>Minister of Environment Regulation No. 18/2012 Procedures of Assessment and Examination of Environmental Documents and Environmental Permit Issued Process</td>
<td></td>
</tr>
<tr>
<td>7. 27/2012</td>
<td>Government Regulation No. Environment Permit</td>
<td></td>
</tr>
<tr>
<td>8. 14/2012</td>
<td>Minister of Environment Regulation No. 19/2012 Guidelines for Economic Valuation of Gambut Ecosystem</td>
<td></td>
</tr>
<tr>
<td>9. 15/2012</td>
<td>Minister of Environment Regulation No. 20/2012 Guidelines for Economic Valuation of Forest Ecosystem</td>
<td></td>
</tr>
</tbody>
</table>

Table 3 illustrates that the Indonesian government enforces those regulations since the industry run activities/projects and it is under the control of the government. In order to avoid the violation of entrepreneurs, the Indonesian government manages other programs held by the Ministry of Environment and Forestry, the Ministry of Trade, and the Ministry of Cooperatives and SMEs by mentoring training in natural dyes used in Batik production.

The academic study or organizational learning has been done under industrial producing with environmental management in many countries (Elkin & Cone, 2009; Robinson, 2013; Millard, 2010). The entrepreneurship mindset to serve the consumer need is also determined by material benefits and social responsibility. Both entrepreneurs and consumers are moving on from economic exchange that is no longer short-term oriented needs into economic activities conserving the environment. The entrepreneurs’ concern drives their decisions to yield the eco-friendly products, which manage the industrial relation supported by organizational learning. Technology and research on innovations are embodied in new products, processes, and strategies. It suggests that not only does Batik entrepreneurs’ innovation give benefits, but it also promotes an ecology dimension. This
research reveals that the collaboration between entrepreneurs and the government were successful to minimize the environmental damage.

This study, moreover, is consistent with some previous research findings highlighting eco-friendly innovations by focusing on some key organizational learning and inter-organizational processes (Huber, 1991; Wang, Hermens, Huang, & Chelliah, 2015). The Batik entrepreneurs in this city took their ‘knowledge acquisition’ from environmental changes. It can be noticed that water pollution and a decline in the quality and quantity of raw materials had great impacts on their products. Consequently, the entrepreneurs should look for the alternative information to solve the problems. The government requires to collaborate with universities, researchers, teachers to find supporting information related to the environmental damage caused by industry. Furthermore, the new natural resources shared by the distribution of information for entrepreneurs lead to new information or comprehensive understanding. In Batik industry, natural dyes have become a new paradigm. These dyes are used as environmental understanding that results from new innovations and creative processes (Noci, & Verganti, 1999).

The environmental damage and limited raw materials are no longer a barrier to business continuity. It indicates that the interpretation of the obtained information requires a cognitive processes. As a result, media and information centers have a crucial role for the Batik entrepreneurs because high cost of products and social cost demand a good style of business management. Likewise, social and environmental problems become responsibilities not only for entrepreneurs, but also the nation, and even other countries. The common understanding of global changes makes the resilience of industry happen more accurately. Besides, eco-friendly innovations are proposed toward the survival of the universe. Functioning as an organization, Batik industry operates itself as experimenting or self-designing organization. This industry maintains a structure, processes, goals, and relationship between management with environmental changes in good adaptation. Sometimes, technology and research should be considered to fix and maximize the utility of products in this condition (Bressler, Bressler, & Bressler, 2011).

5. Conclusion

A positive discourse on innovations and sustainability has been a wide array of concerns since a decline in economy and environmental damage disrupt human life.
Accordingly, organizational learning is required to facilitate the relationship between eco-friendly innovations and industry positively. In addition, the sustainability of eco-friendly and value-added innovations simultaneously proposes new behavior for not only the economic sustainability, but also the spiritual dimension. A critical function of this kind of innovation demonstrates what is deemed pivotal for the sustainability of Batik industry. This study also shows some challenges faced by the Batik industry in Pekalongan City, namely: 1) a limited entrepreneurship knowledge and skills of waste management, 2) environmental awareness, particularly for waste water disposal, (c) high cost of a home-scale wastewater treatment plant, and 4) complicated processes of Batik production with natural dyes.

Furthermore, the innovation on the Batik products is done by replacing chemical dyes with natural ones. The consumer demand of trends toward the Batik products with soft natural dyes contributes to the development of eco-friendly innovations. Not to mention, it is supported by the role of a local department of trade and tourism in organizing several exhibitions on both national and international scales every year that makes Batik more fashionable with a fairly high transaction value. Lastly, critical evaluation on the sustainability of Batik industry needs natural, physical, and spiritual values. All of these values simultaneously stimulate the Batik entrepreneurs to change the established economic goals from material or physical development into socialism as an economic system for the betterment of human welfare.

References


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**Transit Oriented Development towards Livability and Sustainability in KTM Subang Jaya**

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**Abstract**

Transit Oriented Development (TOD) contribute to the benefits that can relate with livability communities especially in the mixed use development area and make it rationalize to travel from one place to another without using any vehicles, with the suitable density of residential types and choices of public transportation. The aim is to measure the effectiveness how TOD can promote livability and sustainability. The objective of this paper is to identify the effectiveness of safety and accessibility which access to all public areas which will be emphasize in using the principles of TOD. The method used in this study is known as mixed of land uses test and connectivity test which then the data were analyzed using the simple analysis approach. In this paper, an attempt has been made to identify possibilities of making the TOD more effective in terms of mixed of land uses and connectivity to achieve livability and sustainability of the city.

**Keywords:** (Transit Oriented Development; Livability; Sustainability, Transit Station, Walk)

**1 Introduction**

According to Transit Orientated Development Guide in Queensland (2013), the TOD experience can be attained through mixed of land uses and a good connectivity especially a well safe and accessible for users in that area. The TOD can be occur in various planning concepts which promotes the creation of a network of well-designed, human-scale urban communities focused around transit stations. In this study, the aim is to accomplish an effective transit which increases the ridership towards liveability and sustainability. Furthermore, the TOD also is a moderate to high density development which located within an easy walk or walk-ability of a major transit stop, which generally with a mixed land use where it have residential, commercial, and shopping opportunities apart of it its design for the convenience of pedestrians without excluding the auto, (Wang, 2013). Meanwhile, the Transit Orientated Development (TOD) is a planning concept that promotes the creation of a network of well-designed, human-scale urban communities which focused mostly on transit stations (Rowe, 2013). A Transit-Oriented Development is actually like a community which explained the size which refers to the density, which is focused around a rail transit station. Gordon describes TODs by land area, while Cervero describes TODs by distance that an average person is able to walk from the station, (Bukowski et. all, 2013). Transit-oriented actually are intended to foster an improvement for urban environment and to be safe and enjoyable places to walk, cycle, and spend time outdoors for people at all ages and abilities. Therefore, to be livable places, is where walking and cycling are fun and easy. Transit oriented actually it support healthy lifestyles which are reduce rates of obesity, heart disease, and diabetes, (Transit Oriented Development Guideline; TransLink, 2012). Sustainability is means a capability to be persist without harm to the environment. Additionally in sustainable words it has three aspects which represent sustainable which is economic, environment and social, (Litman, 2011). Mostly, metropolitan growth cities have facing the world most common problem which is urban congestions or urban traffic problems. Therefore, this current development which is the Transit Oriented Development concept will be promoted as the basis of urban planning to ensure the viability of the public transportation. Thus the transportation systems in all major urban centers shall adopt a modal split of 50:50 between public and private transport. In addition of that, TOD seeks to implement a more sustainable approach to urban planning in the use of land around transit stations. Indeed, Transit Oriented Development (TOD) has it design concept. As been described by Iskandar Malaysia, 2011, where the TOD design concept actually based on pedestrian friendly, compact, mixed used development surrounding transit nodes and also
stations. As well as that, there was primary area which is within 400 m of radius from the station where it is the heart of TOD, which comprises of high density of commercial and residential buildings. Additionally, for the secondary area which is located within the 400 m - 800 m outer radius of transit station and also the nodes. Subsequently, the area is equipped with facilities for pedestrian and cycling network that connects lower density land uses. As matter of fact, for achieving it sustainability and livability, all the development should be safe and convenient especially for the pedestrian and cycling whereby the maximum trip length for walking mode is not more than 25 minutes from any direction within the TOD zone. Each TOD must have a mixed use core commercial area located adjacent to the transit stop. At a minimum, the core area should provide convenience retail and local serving offices. For an example, the MRT stations in Singapore City can be a good example to support this statement, since a lot of Singapore MRT stations in neighborhood areas are integrated with retail and services. Some of the pedestrian corridor (bridge and underground) allocated with retail and service spaces, where selling drinks, newspapers, clothes and others.

2 Background of TOD

According to Robert Cervero, 2006, Transit Oriented Development (TOD) is a straightforward concept which TOD actually a concentrate of a mix which is the density and pedestrian-friendly development around transit stations can promote transit riding, increased walk and bicycle travel, and other alternatives to the use of private cars. Meanwhile, livability in transit-oriented actually are intended to foster an improvement for urban environment and to be safe and enjoyable places to walk, cycle, and spend time outdoors for people at all ages and abilities. Therefore, to be livable places, is where walking and cycling are fun and easy. Transit oriented actually it support healthy lifestyles which are reduce rates of obesity, heart disease, and diabetes, (Transit Oriented Development Guideline; TransLink, 2012). Sustainability is from the root words of sustainable. Sustainable means a capability to be persist without harm to the environment. Additionally in sustainable words it has three aspects which represent sustainable which is economic, environment and social, (Litman, 2011).

2.1 Mix of Land Uses

The rejection of mono-function areas is prerequisite for integration of various types of people and activities. Indeed, mix in these context of TOD is providing and integrating a mix of uses which to create a greater variety of services catering for the diverse needs of a vibrant community. Notably, the complementary uses and activities within the area as for such whereas it’s a mix development which are residential, work places and local retail commerce. To successfully implement the TOD it should to be lively and can attract people. As well as, providing a good choice of food then it should be perfect as it needs of TOD which is lively and attractive. This is because, people want everything fixed and done in a short period of time. Furthermore, by emphasizing the uses of the mix development, it can broaden the network or particular function with including the land use where it has to meet the daily needs for the local community. All TODs must be mixed of land use and contain a minimum amount of public areas/facilities, core commercial and residential uses. Vertical mixed use buildings are encouraged but are considered a bonus to the basic horizontal mixed use requirement.

2.2 Connectivity

The local street system should be recognizable, formalized and inter-connected, converging to transit stops, core commercial areas, schools and parks. Multiple and parallel routes must be provided between the core commercial areas, residential and employment uses so that local trips are not forced onto arterial streets. The streets must be pedestrian friendly: sidewalks, street bus, building entries and parallel parking shelter and enhance the walking environment. The short distance and direct way for pedestrian and cycling routes should highly connected the networks of path and streets around it are small and permeable blocks as to make the pedestrian and cycling be convenient with easy connectivity from one place to another, (TOD standard version 1.0, 2013). Despite of the network the building environments also should address the street and the sidewalk with entries, balconies, porches, and activities which help create safe, pleasant walking environments. As a result, a comprehensive connectivity encourages and can bring the TOD alive in that location.
Therefore, the urban center must be provided with appropriate path for the pedestrian and cycling for them to connect with direct and short routes, while, the suburban neighbourhood low density need to provide a specific routes, where the road connectivity should be shorter than the motor vehicles routes which to make it accessible for pedestrian and cycling.

2.3 Transit Oriented Development (TOD) Concept

Nowadays, cities around the world, particularly given today’s complex lifestyles and business practices, have brought to alive for pursuing Transit Oriented Development (TOD) as the concept of development on the cities. Mostly, metropolitan growth cities have facing the world most common problem which is urban congestions or urban traffic problems. Therefore, this current development which is the Transit Oriented Development concept will be promoted as the basis of urban planning to ensure the viability of the public transportation. Thus the transportation systems in all major urban centers shall adopt a modal split of 50:50 between public and private transport. In addition of that, TOD seeks to implement a more sustainable approach to urban planning in the use of land around transit stations.

Consequently, Transit Oriented Development which is also known as TOD is a walk able mixed-use form of development typically focused within 400m radius of a transit station or any public bus network. The development shall be concentrated near the stations to make transit convenient for people and encourage rider ships. This form of development utilizes existing infrastructure, optimizes use of the transit network and enhances mobility for local communities. Furthermore TODs with communities continuing to face the pressures of increasing population growth and traffic congestion—and transit agencies continuing to invest in new and improved mass transit systems—planners and community leaders around the country are considering the merits of transit-oriented development (TOD). Sometimes called transit-supportive developments or transit villages, TODs refer to compact, mixed-use communities oriented around transit stops or stations. Combining moderate to high-density housing and complementary office/retail uses in a pedestrian-friendly environment, TODs are designed to make transit use as efficient and convenient as possible. Therefore, Transit Oriented Development (TOD) can produce higher levels of transit ridership which attracts so much by the transit agencies. As a matter of fact, TOD also can reduce automobile dependency and alleviating traffic congestion. Obviously, implementation of TOD can make one places more sustainable and consequently.
Methodology/Materials

This paper is aimed to measure the effectiveness of how TOD can promote livability and sustainability which integrate together with the mixed of land uses and connectivity from the literature review. This paper is a pilot study focuses on the Transit Oriented Development (TOD) in KTM station Subang Jaya. The study is conducted to identify the effectiveness of land use development, public facilities, quality of pedestrian walkway, the design and management of parking and the safety and accessibility. In addition, the study is conducted at KTM station Subang Jaya which located in Subang as the study area. The KTM Subang Jaya is part of Petaling and the station is served by KTM Berhad. It is located on SS16, Jalan Kemajuan, Subang Jaya, and Selangor. The survey conducted is known as the simple analysis which is using the mean of mixed of land uses and connectivity. The respondents consist of four different groups which are not working, student, private sector and government. The student group consist of user from ages less than 15 years old. Meanwhile, the not working, private sector and government groups consist of 25 years old and above. The compendium or survey was brought about three different hours, respectively, which re at 7:00 a.m.-10:00 a.m., 12:00p.m. - 2.00 p.m. and 4:00 p.m. - 6:00 p.m. The data were analyzed using the comparative approach whereby, the raw data from the survey field are compared with the data from current guidelines and the parameters found in the literature reviews and the background study.

Results and Discussions

This study was designed to provide the answers the question from the objective of this study. Therefore, from the analysis, the results of this study are focuses on the two principles of the TOD only which are mixed of land uses and connectivity.

4.1 The Scoring Criteria

Using the scoring criteria actually can portray the level of impact for each point that has been collected which can create a transit oriented development. These scoring criteria actually measure the extent of a given forecast leverages of public transport infrastructure which is to design a development that can lessen car use and boost the use of transit, cycling and walking. Therefore, the point system assists as a proxy for, expected, declined in greenhouse gas emissions. These, is suitable as its focus on sustainability and liveability with Transit Oriented Development in the study area. This scoring criteria have the points which, given awards positive points which is better performance. As for ten (10) points are the best, while zero (0) is considered as the baseline of the points and negative points (-1) or solely points which is a penalty and it means worse performance. These awarded points were to meet the design characteristics that are the key to basic Transit Oriented Development (TOD).

4.2 The Parameters

The parameters or principle for these studies actually it has eight (8) principles. But for this paper, the mix of land uses and connectivity are been used to achieve the objective for this study.

i. Mixed of land uses

The mix of complementary uses and activities within a local area where there’s a mix of residences, workplaces and local retail commerce, it also has many daily trips which can remain short and walk-able. The diverse uses peaking at different times keep the local streets animated and safe. Moreover, it's encouraging walking and cycling activity, and fostering a vibrant human environment where people want to live. There were a mix housing prices, which allows some workers to live near their jobs and prevents lower-income residents from being displaced to outlying areas and most of all is to encouraging this group become dependent on motor vehicles. The balanced of mix uses and balance mix of resident income level are the main factor of this principle. The mix used buildings that are within 500 meters walk of an existing, or planned, necessarily have a source of fresh food. Therefore, the fresh food includes fresh fruits and vegetables, dairy produce, meat and seafood. Moreover, the sources of fresh food include any and all small and large commercial grocery stores, public markets and street vendors, or any documentable weekly or more frequent local source of fresh food. If these sources do not currently exist on the development, but are planned, they can be scored. Additionally, the sources of fresh food outside the development and within 500 meters walking distance are also eligible sources. The points for accessibility to food in the study area is 0 points, it has Carrefour, now known as Aeon Big which located less than 350 meters by walking from the mix used area.
From the table 4.1, the points for accessibility to food in the study area is 0 points, it has Carrefour, currently known as Aeon Big which located less than 350 meters by walking from the mix used area. In TOD perceptions, the mix parameter helps to optimize the transit utilization. Moreover, it reduces peak crowding and spread travel demand throughout the day with this mix parameter. Therefore, it creates a liveable living as it enjoyable to stay and convenient access to reach fresh food and at the same time create a sustainable living in the study area by reducing the use of a private vehicle to reach for fresh food which reduces the emission of hazardous gases to the environment.

![Figure 4.1: Level of satisfactions of users' accessibility to food](image)

The figure 4.1 had shown the level of satisfactions of users towards accessibility to food in the study area. Fifty-four per cent (54%) are strongly agreed with the accessibility to food, like Aeon Big and Subang Parade nearby their dwelling, which convenience for them to reach fresh food every day. The liveability and sustainability combined together as it makes a vibrant pedestrian environment throughout the day and evening. The location of grocery stores near the transit stations which support the walkability in the study area. The convenient access to goods and services makes transit much more attractive to retail near transit, promote local business opportunities and create a lively street life, a pleasant pedestrian environment, and a safe and secure public realm in the study area. The access to food under the mix parameter has shown that it achieve the objective of the study which is the land use development in the study area is support the transit.

Table 4.1: Accessibility to food

<table>
<thead>
<tr>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>0</td>
</tr>
</tbody>
</table>

Table 4.2: The mean of mix

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Level of satisfaction</th>
<th>Total of Respondent</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
</tr>
<tr>
<td>Access to food</td>
<td>3.00</td>
<td>2.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Average Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on the mean of ‘Mix’, the average mean for the mix parameter for ‘Access to food’ is 4.48. This encourages a mix of land uses immediately adjacent to frequent transit passenger facilities. Access of food should be located reasonably close to transit as it encourage a diverse mix to fulfil the needs of daily life in convenient locations for transit riders. Furthermore, the ground floor facing the street can enhance a safe and lively pedestrian environment near the transit station. The access to food under the mix parameter has shown that it achieve the objective of the study which is the land use development in the study area is support the transit.

ii. Connect

The short and direct pedestrian and cycling routes require highly connected networks of paths and street around small and permeable blocks. The high of pedestrian and cycling connectivity actually enhancing less motor vehicle usage.

Table 4.3: The mean of connect

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Level of satisfaction</th>
<th>Total of Respondent</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
</tr>
<tr>
<td>Pedestrian intersection density</td>
<td>4.28</td>
<td>4.40</td>
<td>4.60</td>
</tr>
<tr>
<td>Small blocks</td>
<td>1.00</td>
<td>1.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Average Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According from the table 4.3, the average mean for ‘Connect’ is 3.44, which is the ‘pedestrian intersection density’ mean is the highest attributes with 4.42. However, based on the observation, the neglected of infrastructure for walking has decreased the level of satisfaction of users in the study area for pedestrian intersection density. Walking is part of healthy activity has been withdrawn as people tend to use another mode of transport such as private vehicles which create socially overcrowding and localized pollution in the study area. Meanwhile the ‘small blocks’ mean is 2.47. The direct route not only separated with the vehicles, but also reduced travel time. Moreover, to make it more sustainable, with the environmental friendly for pedestrian and cyclist. Furthermore, to access to transit there are direct routes between the small blocks, which it safer and reduced travel time, as livable aspects focus on safeness and the happiness for the user especially in the study area. The connect parameters actually achieve the objectives of the study which about the evaluation of the level and quality of activity of pedestrian walkway under the pedestrian intersection density. Moreover, the objective of effectiveness
of safety and accessibility which access to all public areas also shown that this connect parameters has achieve it in pedestrian intersection density and small blocks in the study area.

Research findings on mixed of land uses and connectivity can be concluded that, the points for accessibility to food in the study area is 0 points, it has Carrefour, currently known as Aeon Big which located less than 350 meters by walking from the mix used area. Fifty-four per cent (54%) are strongly agreed with the accessibility to food, like Aeon Big and Subang Parade nearby their dwelling, which convenience for them to reach fresh food every day. In TOD perceptions, the mix parameter helps to optimize the transit utilization. Moreover, it reduces peak crowding and spread travel demand throughout the day with this mix parameter. Therefore, it creates a livable living as it enjoyable to stay and convenient access to reach fresh food and at the same time create a sustainable living in the study area by reducing the use of a private vehicle to reach for fresh food which reduces the emission of hazardous gases to the environment.

The pedestrian intersection density in the study area has -3 point. Thirty-five (35) respondents with percentage of 38% are strongly disagreed with pedestrian in tersection density in the study area. Meanwhile, small blocks in the study area are 90% or more of all blocks in the development are less than 150 in length, therefore, the point is 1. Forty-nine (49) respondents strongly agreed with the small block which is the direct route for the pedestrians and cyclist. The neglected of infrastructure for walking has decreased the level of satisfaction of users in the study area for pedestrian intersection density. Walking is part of healthy activity has been withdrawn as people tend to use another mode of transport such as private vehicles which create socially overcrowding and localized pollution in the study area.

The connect parameters actually achieve the objectives of the study which about the evaluation of the level and quality of activity of pedestrian walkway under the pedestrian intersection density. Moreover, the objective of effectiveness of safety and accessibility which access to all public areas also shown that this connect parameters has achieve it in pedestrian intersection density and small blocks in the study area.

5 Conclusion
This paper concluded that the mixed of land uses and connectivity are suitable for the study area to achieve it livability and sustainability for the development of the TOD. To make the study more robust as this paper only analyzed the mixed of land uses and connectivity from other principles of TOD. Furthermore, this study are helpful for the TOD development not only in Subang but also in Malaysia for the users in Malaysia especially with the western and Asian literature and also applicable to the concept of TOD safety and accessibility.
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Assessment on the Relationship between Social-Physical Attributes and Urban Quality of Life in, Malaysia.

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Abstract

Quality of life in urban areas has become an important factor for sustaining any urban living. A wide range of factors contribute to quality of life and neighbourhood satisfaction is one of the factors that has been highlighted by many researchers. Neighbourhood satisfaction comprises both social and physical factors. Households located in urban areas are able to benefit from variety of urban infrastructure and services provided by the public sector and achieve better living standard. However, increase in the number of urban population has resulted in higher crisis of unemployment, shelter and amenities provision in urban areas. This study intends to evaluate the social-physical attributes that can influence the urban residents’ quality of life by adopting neighbourhood satisfaction as a mediator between the two. Primary data collected through a survey involving 384 respondents were utilized in this study and SEM – AMOS was used for the data analysis. This study covers seven local authorities in the Klang Valley. The findings revealed that, the partial mediation exists, that the neighbourhood satisfaction mediates the relationships between social-physical attributes and quality of life.

Keywords: Social-physical, neighbourhood satisfaction, urban quality of life.
1. Introduction

Urban area is characterised by high concentration of people. To date, half of the world’s populations live in urban areas. It is estimated that by 2030, more than three quarter of the total of population in Malaysia will live in urban areas (Zainal et al., 2012). There is a strong association between national average per capita income and level of urbanisation. The economic development has influenced the urbanization rates. Based on Peng (2012), the increase rate of urbanisation in Malaysia has also led to the increase the number of migrants in Klang Valley. The high rate of migration to Klang Valley is due to affordable housing price, development of new residential areas, acceptable cost of living, employment and job opportunities and good environment and physical features (Fadzil, 2014). The migrants choose to move to urban area to obtain a higher level of wellbeing and quality of life for their family.

Quality of life (QoL) can be defined as ‘goodness of life’ and ability to live successfully and happily within the environment (Mohit & Ali, 2016). Hassan (2013)’s definition encompassing personal development, healthy lifestyles, access and freedom to acquire knowledge and enjoy living standards that exceed the basic needs and individual psychology. Quality of life observed people life satisfaction on physical health, family, education, employment, wealth, religious, belief, finance and the environment. There are many factors that contribute to the quality of life and neighbourhood satisfaction is one of the factors highlighted by most researchers (Mohit, 2012; Sirgy et al, 2002; Oktay, 2010; El Din 2013). Social and physical are the factors that contribute to the neighbourhood satisfaction (Mohit, 2012; Abdul Ghani Salleh, 2012; Sirgy et al, 2002; Hur & Marrow –Jones, 2008).

Sirgy et al (2002) stated that physical features contribute significantly to residents’ satisfaction on their neighbourhood. There are different features of social and physical highlighted by some of the researchers, such as noise, crime level, race relation, accidents rate, community relationship, safety, density of housing, landscape and proximity to neighbourhood facilities (Mohit, 2010; Aiello, 2010; Sirgy et al, 2002; Permentier & van Ham, 2011; Temelová & Slezákova, 2014). The studies however are not in agreement regarding the role of socio-physical feature on the neighbourhood satisfaction and quality of life. For instance, crime and distance to the city centre did not influence satisfaction according to Permentier & van Ham (2011). Sampson and Raudenbusch (2004) found that level of crime is correlated with neighbourhood satisfaction while Graham and Chaparro (2012) found a correlation between insecurity and happiness. However, Di Tella & Shargrodsky (2009) found no evidence of any relationship between crime and neighbourhood satisfaction.

Salleh (2012) highlighted that dwelling unit, housing area, environment, education, health, public facilities, recreational facilities and public transport are physical features of neighbourhood satisfaction. Whereby, interaction with neighbour, social interaction, ethnic relation, public safety, religious facilities and politics facilities are the social features of neighbourhood satisfaction. His study in Penang demonstrate that residents in urban neighbourhood are generally satisfied with physical and social features in their neighbourhood but there are some features that create dissatisfaction such as safety, public transportation services, political activities and the living cost in their satisfaction that will affect their quality of life. This paper aims to evaluate the social-physical attributes that can
influence urban residents’ quality of life by adopting neighbourhood satisfaction as a mediator between the two. It engenders increasing awareness of important social issues impacting on the wellbeing of Malaysian people. It is also important for the local authorities to identify the factors that influence neighbourhood satisfaction to enable them to make an informed decision in enhancing the live of urban residents.

2.0 Literature Review

2.1 Social-Physical Attributes and Neighbourhood Satisfaction.

Neighbourhood satisfaction can be measured with a set of attributes such as social and physical attributes, economic attributes and environment attributes. Sirgy et. al., (2002) develop a conceptual model by proposed three neighbourhood attributes that can affect to residents satisfaction which are social, physical and economic. The attributes are social, physical and economic features. The domains of social features are integration with neighbours, outdoor play space, people living in the neighbourhood, crime level and interracial relationship in neighbourhood (Prementier, 2011 ; Basolo & Strong, 2002 ; Parkes et al., 2002). For economics features, the domains are home value in the neighbourhood, cost of living, socioeconomic status and neighbourhood improvement (Sirgy, 2002 ; Salleh, 2012 ; Wakekoro, 2015). These study supported by Salleh (2012) examines the neighbourhood features that can contribute to overall satisfaction by neighbourhood satisfaction.

Matthieu Permentier et al (2011) evaluate the relationship between neighbourhood attributes and neighbourhood satisfaction and perception of neighbourhood reputation. The study concluded that the objective attributes contribute more than neighbourhood satisfaction in explaining the perceived reputation. Subjective attributes are more important to explain neighbourhood satisfaction. The study found that the neighbourhood features such as social-physical can affect neighbourhood satisfaction and overall quality of life. Turkgulo (1997) in his study in Nigeria emphasised on the attributes that related to accessibility. This study is also supported by Toscano et al., (2008) and Salleh (2008).These studies highlighted the importance of accessibility in measuring neighbourhood satisfaction. The accessibility include the accessible to the public library, religious building, LRT, bus and taxi stations (Mohit, 2010).
A study in Dublin by Howley et al. (2009), evaluates the relationship between high-density living and neighbourhood satisfaction within the central city. The findings from the research showed environmental quality, noise, lack of community involvement, traffic and lack of services and facilities are the factors that influence the dissatisfaction to the neighbourhood. Study in Netherlands, neighborhoods satisfaction is influenced by dwelling satisfaction (Hanneke & Christine, 2013). The results from the study indicated that residents who are satisfied with facilities provided such as shop and green spaces are more satisfied with the neighbourhood in general (Prementier et al, 2010; Lu, 1999; Mohan & Twigg, 2007).

Hur & Morrow-Jones (2008) studied the impact of physical attributes on homeowners and neighbourhood satisfaction in Franklin County, Ohio. General appearance, density of housing, trees, safety from crime, cleanliness, pedestrian access to store, local government service and accessibility to recreational opportunities are the components of physical attributes that can influence homeowners’ satisfaction on the neighbourhood. The results from the finding showed the most significant factors to the neighbourhood satisfaction are general appearance and density of housing while, satisfaction with trees, pedestrian access to stores, and racial composition in the neighbourhood are not significant in determining the neighbourhood satisfaction.

However, it shown later by Mohit (2016) in his study in Kuala Lumpur on subjective perception on the neighbourhood environment and their quality of life, the neighbourhood physical features is highly depending on the urban design/aesthetics of the neighbourhood, followed by the variable of nearness to facilities, street lighting, and landscape/greenery. Access to public transport and noise level in the neighbourhood have negative effect on physical features of the neighbourhood. In terms of social condition aspect, safety in the neighbourhood is the most important factor for neighbourhood satisfaction, followed by community cohesion, race relation and the least important are open space, sense of privacy at home and ties with people in the community. Social interaction with neighbourhood and crime level in the neighbourhood shows negative effect on social features of the neighbourhood.

Ibem et al (2015) examine neighbourhood satisfaction among residents in public housing in urban areas of Ogun State southwest Nigeria. Result from the study showed that poor access to basic services and infrastructure facilities caused dissatisfaction on the neighbourhood environment in the housing estate. Dissatisfaction also comes from the social and economic environment features in the estates. From the study, availability and access to services and infrastructural facilities, cleanliness, socio-economic environment; location of homes, noise, privacy; and security in the estates are the important features that influenced neighbourhood.

Salleh (2012) highlighted that dwelling unit, housing area, environment, public facilities, recreational facilities and public transport as physical features of neighbourhood satisfaction. Whereby, interaction with neighbour, social interaction, ethnic relation, public safety, religious facilities and politics facilities are the social features of neighbourhood. The study was conducted in Penang and the finding shows that the residents in urban neighbourhood are generally satisfied with physical and social features in their neighbourhood but there are some features that give dissatisfaction to the residents such as safety, public transportation
services, political activities and the living cost in their satisfaction that will affect their quality of life.

2.2 Quality of Life

Most people choose to move and live in cities to get all the basic needs and amenities provided by in every city and metropolitan area. The reason is to increase the quality of life of their families (Maran, 2012). Numerous environmental attributes in different places and different area has influence their lives and their overall quality of life (Maran & Kweon, 2011). In economic views, QoL can be considered as economic good due to its embedded characteristics. Wingo (1973) an urban economist gives three reasons why QoL is considered as an economic good. First, people are willing to trade off other things to get the QoL as the QoL is scarce and obtaining QoL would make them equally happy. Secondly, household and business make decision on where to stay and locate based on QoL consideration. Thirdly, community resources need to be allocated to QoL as QoL is a public good. The result of the consumption of market goods, leisure, public goods and other characteristics of physical and social of the environment in which it is located is a result of satisfaction that achieved by the individual (Wingo, Gillingham & Reece, 1979).

Traditionally, QoL is linked to monetary factors such as GDP, price levels and cost of living. With the high growth rates showed that there are improvements in the state of economy in terms of growth in industrial production, import and export and foreign investment (Rokicka, 2014). However, new economic thinking moved away from the traditional thinking and concept of QoL towards more complex definitions and concepts (Lambiri, 2006). This is because society is not always benefited from the increase in GDP growth to improve society living standard and human security. Some of the disadvantages from the prosperity period and where economic growth is increasing, social inequalities might grow, and poverty remains at the same level or even increases. Increased traffic, noise, congestions in urban areas, crime, environmental damage, and increased stress are the side effects of economic growth and it also can affect people QoL (Rokicka, 2014). There is an increasing emphasis on the sustainable of urban development by the capitalist societies. To have a great quality of life, neighbourhood satisfaction must be concern (Howley et al, 2009; Mohan & Twigg, 2007; Sirgy & Cornelil, 2002).

There are mixed findings on the relationship between neighbourhood satisfaction and quality of life. Sirgy & Cornelil (2002) propose three models to examine the relationship between neighbourhood satisfaction and quality of life, the result found that there is positive relationship between these variables as neighbourhood satisfaction is as a mediating variable between social, physical and economic as an independent variables and quality of life as a dependent variable. Supported by Mohit (2012), the findings from the study conclude that overall quality of life is influenced by neighbourhood satisfaction along with the neighbourhood attributes and the study found that economics factor give more satisfaction followed by physical attributes and social attributes found least effect to the neighbourhood satisfaction. El Din et al., (2013) studied the quality of life of the neighbourhood and conclude that neighbourhood satisfaction is important to achieve a better quality of life. In contrast, Oktay (2009) concluded that there is no relationship between neighbourhood satisfaction and quality of life. This study intends to evaluate the influence of social-physical...
attributes on urban residents’ quality of life by adopting neighbourhood satisfaction as a mediator between the two.

In modelling this relationship, several hypotheses are tested:

H1: Social-Physical has a significant effect on Neighbourhood Satisfaction
H2: Neighbourhood Satisfaction has significant effect on Quality of Life
H3: Social-Physical has a significant effect on Quality of Life
H4: Neighbourhood Satisfaction mediates the relationship between social-physical attributes and quality of life

3.0 Data and Methods

The main purpose of this study is to evaluate the contribution of the social-physical attributes that on the urban residents’ quality of life by adopting neighbourhood satisfaction as a mediator between the two. Hence, respondents’ satisfaction level of social-physical attributes was measured along with the satisfaction of their neighbourhood and the quality of life. This study obtained through primary data gathered using self-administered questionnaires. Potential respondents requested to complete the questionnaire at their own time. Fivepoint likert-scale used to measure the satisfaction level with ‘1=very poor…5=very good’. Three types of variables were used in the research design, socio-physical as independent variable, quality of life as dependent variable and neighbourhood satisfaction as a mediator between the independent and dependent variables.

This study covers seven local authorities in the Klang Valley namely Kuala Lumpur City Hall, Petaling Jaya City Council, Shah Alam City Council, Klang Municipal Council, Sepang Municipal Council, Subang Jaya Municipal Council and Selayang Municipal Council. The main reason to choose these seven local authorities was because they represent the Greater Klang Valley (Al et al., 2016).

Stratified random sampling was used as the sampling technique. The population data set reported by Department of Statistic Malaysia (2016), show in Table 1 (DOSM, 2016) to get the sample size of the respondents based on the population of household in Klang Valley. The criteria of the respondents were (1) The respondents must be resided in low cost housing and medium cost housing and (2) Respondents must be 21 and above years of age.

To determine on the sample size, we refer to Krejcie &Morgan (1970) table which stated that for population more than 1,000,000, the minimum sample size is 384. As the population in Greater Kuala Lumpur is 2,047,646 the total number of respondents in this paper is 500 respondents. The distribution of the questionnaires was covered into two types of housing low cost housing and middle cost housing. Table 1 presents the distribution of respondents by municipalities. The data was analysed using Structural Equation Modelling (SEM) approach.
Table 1: Distribution of respondents by municipalities

<table>
<thead>
<tr>
<th>Local Authorities</th>
<th>Total Population (000)</th>
<th>Percentage of population</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuala Lumpur City Hall</td>
<td>670</td>
<td>15 %</td>
<td>75</td>
</tr>
<tr>
<td>Selayang Municipal Council</td>
<td>581</td>
<td>13 %</td>
<td>65</td>
</tr>
<tr>
<td>Shah Alam City Council</td>
<td>509.5</td>
<td>12 %</td>
<td>60</td>
</tr>
<tr>
<td>Klang Municipal Council</td>
<td>820.8</td>
<td>19 %</td>
<td>95</td>
</tr>
<tr>
<td>Subang Jaya Municipal Council</td>
<td>814.2</td>
<td>19 %</td>
<td>95</td>
</tr>
<tr>
<td>Petaling Jaya City Council</td>
<td>705.7</td>
<td>16 %</td>
<td>80</td>
</tr>
<tr>
<td>Sepang Municipal Council</td>
<td>272.4</td>
<td>6 %</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>4373.6</td>
<td>100 %</td>
<td>500</td>
</tr>
</tbody>
</table>

Source: Department of Statistics (2016) and author’s calculation.
4.0 Results and Discussion

4.1 Socio-Demographic Characteristics

Table 2 presents gender groups are fairly represented between male (55%) with females (45%). The respondent’s age group is between 21 years old to 59 years old which 58.9% of the respondents are married and 39.9% of the respondents are single. 16.2% of the respondents are from postgraduate degree holder and 47.4% are from undergraduate degree holder. In terms of employment sectors, majority of the respondents are from private sector (60.1%) and 28.8% of the respondents are working in public sector. With the respect to monthly income level, the most frequent group is between RM1000-RM3000 (53.8%) and monthly income per month from RM9001 and above is the smallest group 5.9%.

Table 2: Respondents’ Socio-Demographic Characteristics

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>55</td>
</tr>
<tr>
<td>Female</td>
<td>45</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>21-30</td>
<td>47.2</td>
</tr>
<tr>
<td>31-45</td>
<td>36.6</td>
</tr>
<tr>
<td>46-59</td>
<td>16.2</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
</tr>
<tr>
<td>No formal education</td>
<td>1.2</td>
</tr>
<tr>
<td>Primary School</td>
<td>2.5</td>
</tr>
<tr>
<td>PMR/SRP</td>
<td>0.8</td>
</tr>
<tr>
<td>SPM/SPMV</td>
<td>10.6</td>
</tr>
<tr>
<td>STPM/STAM/Matriculation</td>
<td>3.9</td>
</tr>
<tr>
<td>Certificate</td>
<td>2.0</td>
</tr>
<tr>
<td>Diploma</td>
<td>15.1</td>
</tr>
<tr>
<td>Degree</td>
<td>47.4</td>
</tr>
<tr>
<td>Tertiary education (Master/PhD)</td>
<td>16.2</td>
</tr>
<tr>
<td>Others</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>39.9</td>
</tr>
<tr>
<td>Married</td>
<td>58.9</td>
</tr>
<tr>
<td>Divorced</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Employment Sector</strong></td>
<td></td>
</tr>
<tr>
<td>Private Sector</td>
<td>60.1</td>
</tr>
<tr>
<td>Public Sector</td>
<td>28.8</td>
</tr>
<tr>
<td>Self Employed</td>
<td>7.5</td>
</tr>
<tr>
<td>Others</td>
<td>3.5</td>
</tr>
<tr>
<td><strong>Monthly Net Income</strong></td>
<td></td>
</tr>
<tr>
<td>1000-3000</td>
<td>53.8</td>
</tr>
<tr>
<td>3001-5000</td>
<td>31.9</td>
</tr>
<tr>
<td>5001-9000</td>
<td>8.4</td>
</tr>
</tbody>
</table>
### 4.2 The Confirmatory Factor Analysis (CFA)

Individual CFA is carried out for each construct before testing their construct correlation. In this stage, the construct validity and reliability were assessed by inspecting their fitness indexes and factor loading. The recommended value for the factor loadings and construct reliability are 0.60 and 0.70 respectively (Brown, 2014; Raykov, 1997). Meanwhile, the recommended value for each fitness index (Hair, Babin, & Krey, 2017) is presented as follows:

#### Table 3: Fitness Index

<table>
<thead>
<tr>
<th>Name of category</th>
<th>Name of index</th>
<th>Level of acceptance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute Fit Index</td>
<td>RMSEA</td>
<td>RMSEA &lt; 0.08</td>
</tr>
<tr>
<td></td>
<td>GFI</td>
<td>GFI &gt; 0.90</td>
</tr>
<tr>
<td>Incremental Fit Index</td>
<td>AGFI</td>
<td>AGFI &gt; 0.90</td>
</tr>
<tr>
<td></td>
<td>CFI</td>
<td>CFI &gt; 0.90</td>
</tr>
<tr>
<td></td>
<td>TLI</td>
<td>TLI &gt; 0.90</td>
</tr>
<tr>
<td></td>
<td>NFI</td>
<td>NFI &gt; 0.90</td>
</tr>
<tr>
<td>Parsimonious Fit Index</td>
<td>Chisq/df</td>
<td>Chi-Square/ df &lt; 3.0</td>
</tr>
</tbody>
</table>

According to MacKinnon (2008) and Awang et al. (2015), the recommended value for the factor loading in the model is 0.60 and above. As a result, the factor loading below 0.60 should be dropped from the model to increase the impact of the construct reliability and validity. The factor loading show the strength relationship between indicator and construct. Hair, Babin &Krey (2017) suggest the study should report at least one index from each of the three models fit namely Absolute Fit, Incremental Fit and Parsimonious Fit to prove construct validity. From table 3, all fitness indexes have achieved the required level. Thus the measurement model has achieved the construct validity (Zainudin, 2015). The study needs to report the Composite Reliability (CR) which indicate the reliability of the construct and the Average Variance Extracted (AVE) which indicate the convergent validity of the construct. The threshold value for CR is 0.6 or higher while the threshold value of AVE has to be 0.5 or higher. The results in show all Composite Reliability (CR) and Average Variance Extracted (AVE) exceeds the threshold value of 0.6 and 0.5 respectively which indicate the convergent validity and composite reliability of all main constructs in the model (Zainudin, 2015).
4.3 Structural Equation Model (SEM)

SEM procedure will produce two sets of output namely the standardised regression weight and the regression weight estimate of the model. The standardized regression output consists of standardized beta coefficient between construct, factor loading for items as well as factor loading for the component, $R^2$ for items as well as $R^2$ for the equation, and the $R^2$ for the model. Meanwhile, the unstandardized regression consists of unstandardised beta coefficients between construct, standard errors of path coefficients and critical ratio. Therefore, the unstandardised regression should be reported to determine the significant level for hypothesis testing. The study proposed two hypotheses to be tested using Structural Equation Modelling (SEM). The following three of the hypotheses are direct hypotheses (path analysis), which represent the effects of exogenous constructs on the respective endogenous constructs:

H1: Social-Physical has a significant effect on Neighbourhood Satisfaction
H2: Neighbourhood Satisfaction has significant effect on Quality of Life
H3: Social-Physical has a significant effect on Quality of Life

Table 5: Regression Weights

<table>
<thead>
<tr>
<th>Estimate</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighbourhood_Satisfaction &lt;- Social_Physical</td>
<td>.240</td>
<td>.060</td>
<td>4.023</td>
<td>*** Significant</td>
</tr>
<tr>
<td>Quality of Life &lt;- Neighborhood_Satisfaction</td>
<td>.236</td>
<td>.048</td>
<td>4.911</td>
<td>*** Significant</td>
</tr>
<tr>
<td>Quality of Life &lt;- Social_Physical</td>
<td>.241</td>
<td>.054</td>
<td>4.470</td>
<td>*** Significant</td>
</tr>
</tbody>
</table>

The results of hypothesis testing for the causal effect Social-Physical attributes on Neighbourhood Satisfaction as expressed in H1. The path coefficient of Social-Physical attributes to Neighbourhood Satisfaction is 0.240. This value indicates that for every one unit increase in Social-Physical attributes, its effect would contribute 0.240 unit increase in Neighbourhood Satisfaction. The regression weight estimate of 0.240 has a standard error of 0.060. The critical ratio is shown as 4.023 standard errors above zero. The probability of getting a critical ratio of 4.023 in an absolute value is 0.000. What it means is that the regression weight for Social-Physical in the prediction of Neighbourhood Satisfaction is significant at 0.005 level, hence, the hypothesis that Social-Physical attributes has a significant effect on Neighbourhood Satisfaction is duly supported.

The results of hypothesis testing for the causal effect of Neighbourhood Satisfaction on Quality as expressed in H2. The path coefficient of Neighbourhood Satisfaction on Quality is 0.236. This value indicates that for every one unit increase in Neighbourhood Satisfaction, its effect would contribute 0.236 unit increase in Quality of Life. The regression weight estimate of 0.236 has a standard error of 0.048. The critical ratio is shown as 4.911 standard errors above zero. The probability of getting a critical ratio of 4.911 in an absolute value is 0.000. What it means is that the regression weight for Neighbourhood Satisfaction in the prediction of Quality of life is significant at 0.05 level, hence, the hypothesis that Neighbourhood Satisfaction has a positive and significant effect on Quality of Life is duly supported.
The results of hypothesis testing for the causal effect of Social-Physical attributes on Quality of Life as expressed in H3. The path coefficient of Social-Physical attributes to Quality of Life is 0.241. This value indicates that for every one unit increase in Social-Physical attributes, its effect would contribute 0.241 unit increase in Quality of Life. The regression weight estimate of 0.241 has a standard error of 0.054. The critical ratio is shown as 4.470 standard errors above zero. The probability of getting a critical ratio of 4.470 in an absolute value is 0.000. What it means is that the regression weight for Social-Physical in the prediction of Quality of Life is significant at 0.05 level, hence, the hypothesis that Social-Physical attributes has a positive and significant effect on Quality of Life is duly supported.

4.4 Testing Mediation

The current study contained one research hypothesis that need for the assessment of indirect effect. The mediator construct for this study is neighbourhood satisfaction. The previous discussion stated that the neighbourhood satisfaction mediates the relationships between Social-Physical attributes and Quality of Life. To do so, this study adopted Step-Wise (Baron & Kenny, 1986) approach. This approach is recognized as prominent tool for assessing the mediation effect. Hypothesis statement for testing the mediation effect as per below:

H4 : Neighbourhood satisfaction mediates the relationship between social/physical attributes and quality of life

![Figure 1: Social-Physical on Quality of Life](image-url)
INDIRECT EFFECT | DIRECT EFFECT
--- | ---
a = Social on neighbourhood satisfaction = 0.24***  
b = Neighbourhood Satisfaction = 0.25***  
a x b = 0.24 x 0.25 = 0.06***  
c’ = Social on Quality = 0.26***  

**TEST:**
The result showed that the mediation is occurred in the model due to significant indirect effect. To compute the $z$-test, the value of indirect effect (a x b) should be significant different from zero or must higher than the direct effect (c’).

**TEST**
a x b = 0.06 < 0.26. It shows that the value of indirect effect is smaller than the value of direct effect although the significant indirect are shown in the result.

**CONCLUSION**
Therefore, this model needs to re-analyze by determining the value of direct effect when the mediator excluded from the model (Iacobucci, Saldanha, & Deng, 2007; Awang, 2015; Baron & Kenny, 1986). Accordingly, the partial mediation is said exist when the direct effect increased after the model is estimated without the presence of mediation construct (Neighbourhood Satisfaction). This step is only acceptable when the indirect effect significant.

The result of hypothesis H4 indicates that neighbourhood satisfaction mediates the relationship between socio-physical attributes and quality of life. The type of mediation here is called ‘partial mediation’ since the direct effect of socio-physical on quality of life is significant after the mediator variable entered the model. In this case, socio-physical attributes is significant direct effect on quality of life and significant indirect effect on quality of life through mediator variable namely neighbourhood satisfaction.
5.0 Conclusion

Quality of life of urban residents in the Klang Valley is contributed by the neighbourhood satisfaction which influence by the social-physical attributes together with the neighbourhood satisfaction. As reported in the results and findings, there are three subscales under social-physical attributes which are open space, public facilities and services, and social and culture. Overall quality of life of urban residents is influence positively by the satisfaction with neighbourhood satisfaction as the result showed that the mediation is occurred in the model due to significant indirect effect between social-physical attributes and quality of life.

Social and cultural is a construct of social-physical attributes that found can influence quality of life. Provision and condition of public community space, public library and barrier free for disabilities and elderly are the factors that can influence quality of life in urban area. For open space and recreational area, the condition of playground and recreational area, pedestrian walkway and the landscape in neighbourhood are also found as the factors that can contribute to resident’s quality of life. Last but not least, in terms of public facilities and services, affordable health facilities, public toilet, parking facilities, post office and police station found as important attributes in order to increase quality of life.

As a conclusion, since the findings have proved that there is positive relationship between social-physical attributes and quality of life, there are steps of improvements by the local authorities and developer. There are several recommendations for the improvement as per below:

a. To provide more convenient public space and facilities to disabilities and elderly.
b. Developer has to upgrade the maintenance of the public amenities in the neighbourhood
c. To provide more affordable health facilities and more parking space in the public facilities area in the neighbourhood.
d. As to maintain neighbourhood satisfaction and quality of life, public participation and consultation must be undertaken for better future planning and development.
e. The assessment on quality of life among urban residents should be made time to time by the local authorities as the needs by the residents might be change.
References


Lambiri, D., Biagi, B., & Royuela, V. (2007). Quality of life in the economic and urban


### Table 4: Results of Confirmatory Factor Analysis

<table>
<thead>
<tr>
<th>Construct</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social-Physical attributes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Social and Culture</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2 Provision and condition of public community space</td>
<td>0.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E3 Public community space are accessible to all races</td>
<td>0.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E4 Provision and condition public library</td>
<td>0.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E5 Provision of barrier free for disabilities and elderly</td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E6 Locations of public space in my neighbourhood are strategic</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Open Space and Recreational Area</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F1 Condition of playground and recreational area</td>
<td>0.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F2 Provision and condition of pedestrian walkway</td>
<td>0.68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F3 Landscape in neighbourhood area is beautiful and elegant</td>
<td>0.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F4 Recreational area and urban public spaces in neighbourhood well maintained by the Local Authority</td>
<td>0.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Public Facilities and Services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G2 Health facilities are adequately provided and affordable</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G3 Public toilet within the neighbourhood</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G4 Parking facilities</td>
<td>0.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G5 Post office</td>
<td>0.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G6 Police Station</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G7 Location of public facilities and services are strategic and accessible</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Neighbourhood Satisfaction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a My neighbourhood has a good provisions of facilities and services meet my needs</td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b My neighbourhood is clean and well-maintained</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c Trust and confidence among each other (with other community)</td>
<td>0.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d My neighbourhood is safe and have low crime rate</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e My neighbourhood has beautiful landscape and green area</td>
<td>0.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f The location of my neighbourhood is strategic and easy access from other area</td>
<td>0.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g The location of my neighbourhood adopted green technology for a sustainable lifestyle</td>
<td>0.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h Good place to raise kids</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Quality of Life</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B11 Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a Low education level is linked with unemployment</td>
<td>0.92</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b High level of education were associated with the better job opportunity</td>
<td>0.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c Academic knowledge is associated with better job opportunity</td>
<td>0.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d Lack of skill contributed towards unemployment</td>
<td>0.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j I am satisfied with my current income</td>
<td>0.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k My current income is sufficient my own/my family needs and expenses</td>
<td>0.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital facilities</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinic facilities</td>
<td>0.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction of health facilities</td>
<td>0.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical health problem</td>
<td>0.86</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>