

The Child Abuse Issue “Do Aggregate Income, Primary Trained Teachers and Unemployment Matter?”

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Abstract--*The main purpose of this study is to examine the linkages of independent variable including aggregate income, consumer price index, women labour force, unemployment, primary train teachers on child abuse rates in Malaysia. In term to examine the impotency of each independent variable on child abuse case, this study has applied the Ordinary Least Squares (OLS) approach to derive the estimation model. The findings suggest that there are three independant variables that give a positive impact to child abuses rate, woman labor force, consumer price index and aggregate income. In addition, the findings suggest that the woman labour force ($t^* = 3.927977$), Consumer price Index ($t^* = 2.622482$), and aggregate income ($t^* = 2.399656$) significant in influencing the child abuse case in the long term for Malaysia. Further, under t-test procedure for estimated model, the study has proved that the woman labour force is the most significant variable contributes for child abuse incident. In implication, child abuse incident is a positively related to woman labour force, consumer price index and aggregate income in Malaysia. In other words, the government should implement policies specifically aimed at working women to address the increasing issue of child abuse in Malaysia. The female worker should be granted less time working hour or providing a childcare center near the workplace. This way, working women will be able to spend more time with their children. For example, for government employees, each department should provide its own childcare center.*

Key words--*Ordinary Least Squares approach (OLS), aggregate income, consumer price index, women labour force, unemployment , primary trained teachers, child abuse.*

I. INTRODUCTION

Children are suffering from a hidden epidemic of child abuse and neglect. It's a widespread war against our children that we have the power to stop, and understanding the issue is the first step to do. According to Aber (1994), Burger (2005) and Lindo, Schaller and Hanse (2013), the topic of child abuse and its prevention should be taken seriously and aggressively to educate the community at large. Our society is prone to the culture of silence due to many reasons. According to the National Statistics on Child Abuse, the most frequently reported type of abuse is neglect and is followed by physical and sexual abuse of children. Children may be abused physically, sexually, emotionally and by omission or commission in any permutation under these headings. As revealed by Malaysian Social Welfare Department statistics (2017), stated that in the five-year period (2012-2016), 2,419 cases were reported due to the negligence of parents.

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Many researchers have been done in the past to identify the factors that may be associated towards child abuse. According to Mohd Shahidan Shaari, Nor Hidayah Harun & Nor Ermawati Hussain (2019), in Malaysia Recently, the participation of female in labor force has prevailed all over the world.

The pattern of female involvement in the labor force has tremendously changed owing to the vast opportunities of attaining higher education especially in the 21st century. The national statistic has reported an exponential increment of child abuse cases, and this is far from reaching a plateau state. Data collected by the Department of Social Welfare, Royal Malaysian Police and Health authorities have shown steady rise of total reported cases from 2001 till 2015. The statistics are often misleading and cases reported are merely the tip of the iceberg. Many cases continue to be hidden from the public leading to unbearable suffering of children behind closed doors. The questions are – Is current effort enough to restrict and reform abuse against children? What preventive measures have been taken to curb the rise of child abuse in Malaysia? A better educational attainment has spurred them to a marketable workforce. However, regardless of their educational background, female still strive to be employed albeit with low payment so that they could keep pace with the rising cost of living. The role of female is as important as that of the male in the labor force. Although abuse can occur in any society of life, but most of the professionals are reluctant to make a diagnosis of abuse within the family group of high social economic status. Most reported cases of abuse have found that the economic situation of a couple is unstable, low and does not cover the cost of family life. This causes the male partner or husband having problems stress or poverty that causes unemployment. The high cost of living due to inflation can lead to the occurrence of child abuse. As In this case of Malaysia, the consumer price index, women labor force, unemployment and primary teachers have been identified as the norms that affect the child abuse in other words it called crime economics. For women labor force (WLF) and most researchers have concluded that *WLF* and consumer price index contributed positively in child abuse.

Moreover, according to Mohd Shahidan et al.(2019) by using the time series analysis, to prove this relationship between the variables, the data of number of child abuse case, consumer price index and female labor force, from 1990 to 2014 are collected and analyzed. The data on total cases of child abuse and neglect reported to Malaysian Department of Social Welfare according to types of abuse (abandoned, neglect, physical, emotional, incest, sexual and others). This study treats consumer price index as the controlled variable. This is because Tang (2009) found that CPI can influence a social problem, namely, crime rate. All the data used are extracted from the Malaysian Department of Social Welfare (2009; 2016) and the statistic of World Bank (2016). Based on the factors above, the paper aims to address the country's economics and to examine which variables are important in influencing Child Abuse in Malaysia. As a follow up to previous research, this study will further analyze the relationship and effects of macroeconomics variables, especially unemployment, consumer price index, women labor force and primary teachers in education on child abuse in Malaysia using time series data from 1989-2018. The finding of this study are aimed at providing an overview clear of macroeconomics scenarios in the country and to help policy makers in identifying ideal solutions to ensure the stability of the Malaysian economy.

Economic crime has been our focus in studying the issues of child abuse in Malaysia. For this reason, learning about the relationship between selected variables and child abuse is important in determining future resolutions and ideas for solving problems. This has been done by several researchers in previous studies. For

instance, The previous study used two independent variables, namely, female labor force participation and consumer price index on child abuse in Malaysia Mohd Shahidan et al.(2019). Although this study contributes significantly to the understanding that increasing female labor force can lead to more cases of child abuse in Malaysia. Moreover, as the economy grows, the number of female workers increases. Therefore further investigation on this issue is needed. As stated earlier, not only female working and consumer price index being the main factors for child abuse case in macroeconomic level. According to many reading, level of education like primary trained teachers (see, Mckee and Dillenburger, 2009; Vanderfailliea, Ruyckb, Galleb, Doorenb and Schottea, 2018 ; Vitalaki, 2013, among others), income in aggregate level (see, Misty and Heggeness, 2019; Maria, 2010, among others) and unemployment (see, Jone, 1990; Brown and Cao, 2018, among others) can be the contributor for the issue discussed. Therefore, the novelty of this study is to investigate the relationship between the participation of primary trained teacher, unemployed, income, consumer price index and female worker in affecting the child abuse cases in Malaysia. This study is important to determine whether the variables selected are contribute in child abuse case in the long term for Malaysia case.

II. LITERITURE REVIEW

In this section will discuss in depth regarding previous literature on child abuse issue. Issues related to child abuse can be caused by many factors including social, economic, demographic and geographical factors and other factors. But, the discussion in this section may focus on selected macroeconomics impact on child abuse case. This study will discuss in detail the issue of child abuse from a macroeconomic point of view. Nowadays, the macroeconomic factors are an important factor in influencing the rise in child abuse issues in Malaysia, as well as other factors as stated earlier. Thus, the discussion will be included based on selected macroeconomic factors including aggregate income, consumer price index, women labor force, unemployment and primary trained teachers. According to Misty et al. (2019), Maria (2010) among others, the issue of child abuse can be related to the case of low income level among the parents. Typically, in the case of low family income this can lead to issues of pressure on the family members and emotional disturbance among the parents and children. As a result of previous studies there is also evidence that low income family problems can have a further impact on children maltreatment. Rachael Lefebvre (2017) stated that, the consequences of child maltreatment have been repeatedly shown to extend into and beyond childhood to affect educational and employment outcomes, psychological and physical health, relationship quality, antisocial and criminal behaviour. This indicates that child abuse will have a high and many impacts that will affect the abused child and his or her parents. Yet, in the situation in Malaysia, it may be related to an increase in cases of emotional and mental disorders in your youth today (Department of Statistic Report, 2010-1018) that may be linked to the experiences of childhood abuse or maltreatment. When we discussed about the impact of aggregate income on child abused, this issue maybe related to consumer price index (CPI). But, there are little much researches that conducted on the subject between crime rate in child abuse and CPI. Exactly how the CPI affecting the child abuse by the certain people, especially in terms of crimes still uncertain.

Moreover, in this rapid developing world where the working force now is not entirely made up of men but apparently women, who also mother to the children and have to make a living for family. The increasing trend of women into labor force upholds new kinds of view into the gender parity in the jobs yet the notion here is how this trend affects the rate of child abuse in sort of a way. According to Mohd Shahidan et al.(2019) stated

that employment provides material benefits and enhances job-related skills and psychosocial functioning. But at the same time, the enrolment of women into labor force may leads the increasing case of the child abuse, neglected or meltradement cases. There are some researchers that have been doing researches to determine the relationship and causes and effects of enrolment of women into labor force with the child abuse cases. Amongst them are Kenny (2010) and Mohd Shahidan et al.(2019) who were analysed the relationship between child abuse and labor force. Both of these research differ quit a lot in the ways they correspond to the issue and the outcomes of their finding. In the study conducted by Kenny (2010), found that the diminished labor force functioning can be associated with the possible impact of exposure to childhood abuse. This shows that when the size of labor force decreases, this could lead to the happening of child abuse. M. Tanaka et al findings support the previous research that confirms the possible effect of child abuse on earning and employment. While, Shahidan, Hidayah and Ermawati (2019) found out that the increases in the number of child abuse cases caused by the increases in number of female labor force. The stresses from the workplace and the personal commitment to manage her family especially children needs led to the woman loss the stable work-life balance. This supported by the lacks of the husband intuition neither to help nor to understand the wife's emotions health igniting the pressures onto the woman over a period of time (Paul, 2014). In the end, the children usually would get the maltreatment by their own mother when the mother is not able to hold out her stress as the women are known vulnerable to stress (Shahidan, Hidayah and Ermawati, 2019).

The child abuse case may also relatedf to unemployment in the contry. Gillham, Tanner, Cheyne, Freeman, Rooney, and Lambie (1998) and Brown and Cao (2018) who were really concerned the relationship between child maltreatment and unemployment. Abusive and careless parental conduct is regularly affected by natural influences. One such ecological influence is unemployment. Parental unemployment can expand the measure of pressure put on a family, which may add to the connection among unemployment and abuse. Many of the studies that have been conducted on the relationship between unemployment and child abuse are focused on men (fathers) who are unemployed. In these studies, many researchers do not emphasize that women (mothers) are the main cause of child abuse.

III. METHODOLOGY AND MODEL SPECIFICATION

Model Specification

According to study proposed by Mohd Shahidan, Nor Hidayah and Nor Ermawati (2019), the rising issue on child abuse can be related onto two main factors, consumer price index (CPI and woman labor force (WLF);

$$CAR_t = \alpha_0 + \beta_2 CPI_t + \beta_3 WLF_t + v_t \quad (1)$$

By expanding the equation (1), in this study the model specification proposed is as follows;

$$CAR_t = \alpha_0 + \beta_1 Y_t + \beta_2 CPI_t + \beta_3 WLF_t + \beta_4 UEM_t + \beta_5 PER_t + \varepsilon_t \quad (2)$$

Where,

CAR_t	=	Child Abuse Rate in Malaysia
Y_t	=	Aggregate income for the year t
CPI_t	=	Consumer Price Index for the year t
WLF_t	=	Woman Labour Force for the year t

UEM _t	=	Unemployment for the year <i>t</i>
PER _t	=	Primary Trained Teachers for the year <i>t</i>
ε _t	=	Error term
<i>t</i>	=	Annual data from 1990 to 2018

Contrary to previous studies, this study will focus on the aggregate income, primary trained teachers and unemployment on child abuse issues in Malaysia. This study utilizes the multiple regression models using ordinary least square (OLS) as method proposed in Rambeli and Podivinsky (2013). The data is spinning from 1990 to 2018 in annually basis. For analysis purposes, this study employs the Eviews software.

IV. EMPIRICAL FINDINGS

According to estimating model (equation 3), the result suggest that the incidence of child abuse rate in Malaysia is positively affected by aggregate income, consumer price index, women labor force and primary trained teachers. But, the unemployment affected the child abuse case in Malaysia, negatively. The results further suggest that, women labor force is the most significant variable affecting the child abuse rate, at 99 percent significant level. In another words, if the woman labor force increases by 1 percent, the child abuse rate rises by 3.928 percent at 99 percent significant level. This result means, if one women jump in to career development will leads to 3 child abuse case in Malaysia. The second dominant independent variable is consumer price index. According to the formal statistical test, if the consumer price index rises in 1 percent, the incidence of child abuse rate in Malaysia will arise at 2.622 percent , 95 percent significant level. Moreover, the 1 percent increase in aggregate income will increase the child abuse rate case by 2.4 percent at 95 percent significant level. Finally, as stated earlier in the primary trained teachers increases in 1%, this will lead the case of child abuse at 1.014%, but not significant. In contrast, the unemployment will reduce the child abuse case in Malaysia by 1 case of children survival from abuse of every increasing in unemployment.

Estimated model (Equation 3)

$$CAR_t = -4.830338 + 0.95563Y_t + 0.038631CPI_t + 0.177563WLF_t - 0.043297UEM_t + 0.006018PER_t$$

$$SE = (1.031974)(0.398233) ** (0.014731) ** (0.045205) *** (0.041364)(0.005933)$$

$$t^* = (-4.680677)(2.399656)(2.622482)(3.927977)(-1.046730)(1.014455)$$

$$F^* = 69.64920$$

$$R^2 = 0.938046$$

$$\text{Adjusted } R^2 = 0.924578$$

$$\text{Durbin Watson (DW)} = 2.100948$$

Where,

CAR	=	Child Abuse Rate <i>t</i>
Y _t	=	Aggregate income in Malaysia for the year <i>t</i>
CPI _t	=	Consumer Price Index in Malaysia for the year <i>t</i>
WLF _t	=	Women Labor Force for the year <i>t</i>
UEM _t	=	Unemployment rate for the year <i>t</i>
PER _t	=	Primary trained teacher

t = Annual data starting from 1990 to 2018

Notation:

*** : Important at the 99% significant level

** : Important at the 95% significant level

Generally, statistical criteria identify the relationship between the variables. Table 2, simplify the finding for statistic test, t-test. Based on the tests carried out, the results of the t-test indicate either acceptance or rejection the hypothesis. Therefore, if the t-test carried out above shows that the critical value ($t = (\alpha/2, N-K)$) is 2.064 (refer to statistical table at 5 percent level) which is smaller than statistical value (t^*), this mean that variables are important to explain child abuse case at 95% significant level. On the other hand, if the critical value ($t = (\alpha/2, N-K)$) is bigger than statistical value (t^*), this mean that variables are not important to explain child abuse case at 95% significant level. Meanwhile, based on Table 3 the result shows that, the critical value is $F = 2.98$ $F_{\alpha, v1, v2} = 2.78$ at the 95% significant level, while $F^* = 69.64920$. Since $F^* > F_{\alpha, V_1, V_2}$, therefore the result will reject $H_0 H_0$. In other words, all independent variables is good combination (goodness of fitted model) in explaining the dependent variable at a 95% significant level. This study also confirm that, the estimated model is passed from all diognostic testing under econometric criteria including Autocorrelation, Heteroscidasticity and Multicollinearity. For Autocorrelation test, the Durbin Watson (DW) test is performed under tow condition 1 persen significant level and 5 percent significant level, as reported in Table 4. In conclusion, there is no Autocorellation problem exist at 1% and 5% significance level. The Durbin Watson (DW) statistical value is 2.100948 located at the middle between dU and 4-dL. Based on the results of this test, there was no auto-corellation problem exist in the estimated model. Moreover, the Durbin Watson (DW) statistical value 2.100948 located at the middle between dL and 4- dU. Based on the results of this test, there was fail no auto-corellation problem exist in the estimated model. While Table 5 simplify the heteroscedasticity finding, by using Park test. The result also confirmed that all VIF values are lower then 10, indicates that all variables free from Multicollinearity problem.

V. CONCLUSION

The motivation of this study is to examine the impact of selected macroeconomics variables on child abuse case in Malaysia from 1990 to 2018. The macroeconomic variables including, women labor force, consumer price index, unemployment, aggregate income and primary trained teachers. In conclusion, the results of previous studies clearly indicate that, the influence of women labor force and the consumer price index on the incidence of child abuse is positive. But this study has made the latest findings by confirming that it is not just women labor force and the consumer price index that can influence child abuse cases in Malaysia, but the factors of aggregate income, unemployment and primary trained teacher have contributed to the increase in these cases. In implication, child abuse incident is a positively related to woman labor force, consumer price index and aggregate income in Malaysia. In other words, the government should implement policies specifically aimed at working women to address the increasing issue of child abuse in Malaysia. The female worker should be granted less time working hour or providing a childcare center near the workplace. This way, working women will be able to spend more time with their children. For example, for government employees, each department should provide its own childcare center. This study uses a deterministic approach, so it is suggested that in future advanced research methods can be performed on the same data to see the long-term and short-term

effects of variables.

APPENDIX

Table 1: Notation Analysis

Independent Variables	1 - α	%	A	(*) Notation
Aggregate income (Yt)	0.9751	95%	0.0249	Importance at the 95% significant level (**)
Consumer Price Index (CPIt)	0.9848	95%	0.0152	Importance at the 95% significant level (**)
Women Labour Force (WLFt)	0.9993	99%	0.0007	Importance at the 99% significant level (***)
Unemployment rate (UEMt)	0.6939	69%	0.3061	Importance at 69% significant level
Primary trained teacher (PERT)	0.6791	67%	0.3209	importance at 67% significant level

Table 2: t-test results

Independent Variable	Hypothesis	Statistical Test	Critical Value	Results
Aggregate income (Yt)	$H_0: \beta_1 = 0$ $H_1: \beta_1 \neq 0$	$t^* = \frac{\beta_1 - \beta_1 - \beta_1}{S_e(\beta_1) S_e(\beta_1)}$ $t^* = 2.399656$	$t = (\alpha/2, N-K)$ $t = (0.05/2, 29-5)$ $t = (0.025, 24)$ $t = 2.064$	$t^* > t$, then reject H_0 . This means that the Aggregate income is important for explaining CAR at the 95% significant level (**)
Consumer Price Index (CPIt)	$H_0: \beta_1 = 0$ $H_1: \beta_1 \neq 0$	$t^* = \frac{\beta_1 - \beta_1 - \beta_1}{S_e(\beta_1) S_e(\beta_1)}$ $t^* = 2.622482$	$t = (\alpha/2, N-K)$ $t = (0.05/2, 29-5)$ $t = (0.025, 24)$ $t = 2.064$	$t^* > t$, then reject H_0 . This means that the Consumer Price Index is important for explaining CAR at the 95% significant level (**)
Women Labour Force (WLFt)	$H_0: \beta_1 = 0$ $H_1: \beta_1 \neq 0$	$t^* = 3.927977$	$t = (\alpha/2, N-K)$ $t = (0.05/2, 29-5)$ $t = (0.025, 24)$ $t = 2.064$	$t^* > t$, then reject H_0 . This means that the Women Labour Force is important for explaining CAR at the 95% significant level (*)
Unemployment rate (UEMt)	$H_0: \beta_1 = 0$	$t^* = \frac{\beta_1 - \beta_1 - \beta_1}{S_e(\beta_1) S_e(\beta_1)}$ $t^* = -1.046730$	$t = (\alpha/2, N-K)$ $t = (0.05/2, 29-5)$ $t = (0.025, 24)$	$t^* < t$, then accept H_0 . This means that the Women Labour Force is not important for

	$H_1: \beta_1 \neq 0$		t = 2.064	explaining CAR at 95% significant level.
Primary Trained Teacher (PERT)	$H_0: \beta_1 = 0$ $H_1: \beta_1 \neq 0$	$t^* = \frac{\beta_{\text{est}} - \beta_{\text{pop}} - \beta_1}{(SE(\beta_1) SE(\beta_1))}$ t* = 1.014455	t = ($\alpha/2$, N-K) t = (0.05/2, 29-5) t = (0.025, 24) t = 2.064	t* < t, then accept Ho. This means that the Primary Trained Teacher is not important for explaining CAR at 95% significant level.

Table 3: Wald test results

Variable	Hypothesis	Statistical Test	Critical Value	Result
Model Estimation	Ho: $\alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = 0$ H1: $\alpha_i \neq 0$	F* = 69.64920	F α , V ₁ , V ₂ 0.05, K-1, N-K 0.05, 4, 25 = 2.78	69.64920 > 2.78 Reject H_0

Table 4: Autocorrelation test results

Calculation	Results
Significant level of 1% Dw = 2.100948 N = 29 (K-1) = K' = 4 dL = 0.921 dU = 1.512 4-dL = 3.079 4-dU = 2.488	
Significant level of 5% DW = 2.10094 N = 29 (K-1) = K' = 4 dL = 1.124 dU = 1.743 4-dL = 2.876 4-dU = 2.257	

Table 5: Park Test results

Independent Variable	Variables	Hypothesis	Statistical Test	Critical Value	Results
Aggregate income (Yt)	Yt	$H_0: \beta_1 =$ <i>homoscedasticity</i> $H_1: \beta_1 \neq$ <i>heteroscedasticity</i>	$t^* = \frac{\beta_{\text{est}} - \beta_i}{S_e(\beta_i)}$ $t^* = .186992$	$t = (\alpha/2, N-K)$ $t = (0.05/2, 29-5)$ $t = (0.025, 24)$ $t = \pm 2.064$	The results suggest that, $t^* < t = (\alpha/2, N-K)$. Thus, no heteroscedasticity at 5% significant level.
Consumer Price Index (CPIt)	CPIt	$H_0: \beta_1 =$ <i>homoscedasticity</i> $H_1: \beta_1 \neq$ <i>heteroscedasticity</i>	$t^* = \frac{\beta_{\text{est}} - \beta_i}{S_e(\beta_i)}$ $t^* = .127050$	$t = (\alpha/2, N-K)$ $t = (0.05/2, 29-5)$ $t = (0.025, 24)$ $t = \pm 2.064$	The results suggest that, $t^* < t = (\alpha/2, N-K)$. Thus, no heteroscedasticity at 5% significant level.
Women Labour Force (WLFt)	WLFt	$H_0: \beta_1 =$ <i>homoscedasticity</i> $H_1: \beta_1 \neq$ <i>heteroscedasticity</i>	$t^* = \frac{\beta_{\text{est}} - \beta_i}{S_e(\beta_i)}$ $t^* = 1.197673$	$t = (\alpha/2, N-K)$ $t = (0.05/2, 29-5)$ $t = (0.025, 24)$ $t = \pm 2.064$	The results suggest that, $t^* < t = (\alpha/2, N-K)$. Thus, no heteroscedasticity at 5% significant level.
Unemployment rate (UEMt)	UEMt	$H_0: \beta_1 =$ <i>homoscedasticity</i> $H_1: \beta_1 \neq$ <i>heteroscedasticity</i>	$t^* = \frac{\beta_{\text{est}} - \beta_i}{S_e(\beta_i)}$ $t^* = 1.094016$	$t = (\alpha/2, N-K)$ $t = (0.05/2, 29-5)$ $t = (0.025, 24)$ $t = \pm 2.064$	The results suggest that, $t^* < t = (\alpha/2, N-K)$. Thus, no heteroscedasticity at 5% significant level.
Primary Trained Teacher (PERT)	PERT	$H_0: \beta_1 =$ <i>homoscedasticity</i> $H_1: \beta_1 \neq$ <i>heteroscedasticity</i>	$t^* = \frac{\beta_{\text{est}} - \beta_i}{S_e(\beta_i)}$ $t^* = 1.178985$	$t = (\alpha/2, N-K)$ $t = (0.05/2, 29-5)$ $t = (0.025, 24)$ $t = \pm 2.064$	The results suggest that, $t^* < t = (\alpha/2, N-K)$. Thus, no heteroscedasticity at 5% significant level.

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