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Macroeconomic Factors and Household Debt in Selected Southeast Asian Countries

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Abstract

High and growing household debt is a major economic issue in Asia, contribute to the increasing living costs, personal loans, and housing loans. This study aims to examine the macroeconomic factors contributing to the rise in household debt across seven Southeast Asian countries between 2011 and 2021. Five independent variables were tested: GDP per capita, working population, unemployment rate, inflation rate, and lending interest rate. These variables were analysed using the Panel Data Analysis method, applying a cross-section Seemingly Unrelated Regression (SUR), which included panel specification and diagnostic tests. The estimation results showed that all macroeconomic variables had a negative relationship with household debt, except for the inflation rate. For policy implications, government should develop appropriate strategies related to these macroeconomic variables effectively to manage household debt. While household debt is not harmful, it must be controled at a manageable level. Future research should explore further issues of household debt across multiple countries within specific regions to provide a deeper understanding of their broader impacts.

Keywords: *Household Debt, Southeast Asia, Macroeconomic Factors, SUR Panel Data.*

Introduction

According to the Organisation for Economic Co-operation and Development (OECD), household debt is defined as a financial obligation arising from borrowed funds, including consumer loans and mortgages (Abd Samad et al., 2020). Household borrowing has reached high levels in recent decades, raising the big issues in macroeconomic and financial implications. Furthermore, credit serves as a vital financial tool to support consumption, excessive borrowing can strain household finances and increase the risk in a country. Even though variations in financial access, many developing economies have experienced a credit oversupply, leading to unproductive investments and overextended repayment capacities (Loc et al., 2018).

Furthermore, household debt refers to the total amount of money owed by adults in a household to relevant financial institutions, including both consumer debt and mortgage loans. It exhibits a liability incurred through borrowing money or purchasing goods and services on credit with a promise to repay the amount later (Madi et al., 2015).

In the era of modern economies, credit continues a vital financial tool that supports households in managing their consumption expenses. By accessing credit, households can enhance their purchasing power to increase utility and satisfaction. However, over time, credit may change from a financial resource to a financial burden in the source of debt. In many area, increased current consumption does not necessarily increase the satisfaction, however, as a portion of the household's future income must

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be allocated to debt repayment. In simple words, after enjoying the advantages of credit, households are obligated to repay the borrowed amount (Yunchao et al., 2020).

In addition, the Global Financial Crisis (2007–2008) build up discussions on household debt, particularly in emerging economies where total debt continue to increase (Bolibok, 2018). Increasing rapid credit expansion in Asia, particularly in China, Korea, and Thailand has over financial stability (Garrido et al., 2020). In Southeast Asia, countries such as Malaysia and Thailand have recorded high household debt-to-GDP ratios, with significant impacts for economic growth and financial security (Manabe & Cho, 2019). While short-term borrowing may stimulate economic activity, excessive debt accumulation poses long-term risks, leading slower economic growth and potential increase in financial crises (Valckx, 2017).

Based on economic implicatios, excessive household debt can lead to severe social consequences, including financial distress, mental health issues, and family problems such as divorce (Zain et al., 2019). In ASEAN regions, financial hardship has driven households toward illegal borrowing, thereby intensifying crime rates and social problem (Ho & Mainal, 2016).

Specified the rising debt trends in Southeast Asia and their economic and social consequences, this study aims to examine the key macroeconomic factors influencing household debt in seven Southeast Asian countries between 2011 and 2021. Particularly, it examines the impact of GDP, working population, unemployment rate, inflation, and lending interest rates on household debt levels. This study employs panel data analysis, relying on a fixed-effects model with cross-section seemingly unrelated regression (SUR).

The novelty of this study lies in its contribution of providing cross-country evidence from Southeast Asia, where household indebtedness is increasingly relevant yet remains underexplored in Southeast Asia. By addressing gaps within this regional context, the study enhancements the debate on household debt dynamics in the region.

The remainder of the study proceeds as follows. Section 2 reviews the theoretical and empiric literature on household debt. Section 3 explains the data and methods. Section 4 presents and discusses the results. Section 5 concludes and proposes recommendations and future research directions.

Review of Literature

Life Cycle Hypothesis (LCH) and Household Debt

The Life Cycle Hypothesis (LCH), developed by Modigliani and Brumberg (1954), posits that consumers make rational financial decisions based on their expected lifetime income. In the early working years, household debt tends to be high as individuals borrow to finance education, housing, and family needs. As income increases with career progression, savings rise and debt levels decline. During retirement, households draw down their savings to sustain consumption (Hammad et al., 2016). This consumption-smoothing behaviour aligns with the economic concept that household debt is influenced by lifetime income, interest rates, and liquidity constraints (Debelle, 2004; Wong et al., 2023). Figure 1 illustrates the LCH model, with the image retrieved from Pettinger (2019), depicting financial behaviour over a lifetime.

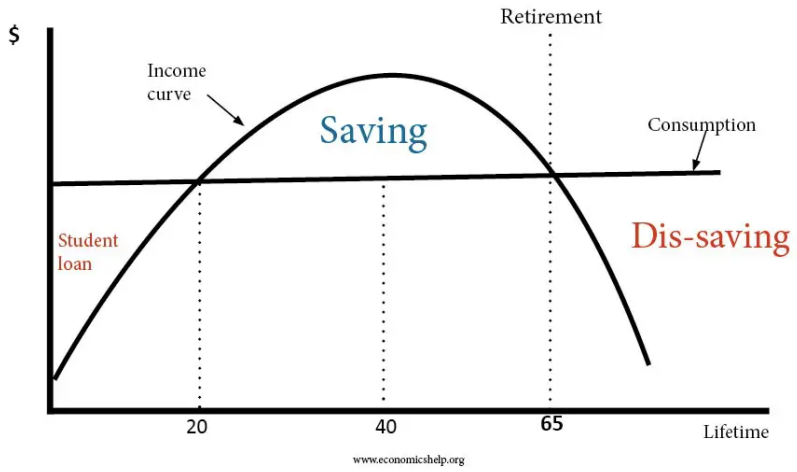

Figure 1: The Life-Cycle Hypothesis (Source: Pettinger, 2019)

Household Debt-to-GDP (HD)

Household debt, including secured (e.g., mortgages) and unsecured (e.g., credit cards) loans, is a critical metric for assessing financial stability (Prinsloo, 2002). Rising household debt raises concerns about financial instability, particularly in emerging markets (Yahaya & Sarwe, 2019). Based on empirical studies, household debt is defined in various ways, such as the debt-to-GDP ratio (Abd Samad et al., 2022; Dumitrescu et al., 2022), total household loans (Zain et al., 2019), or the debt-to-income ratio (Bolibok, 2018). This study employs the household debt-to-GDP ratio as the primary measure, assumed its large availability in international databases like the IMF. In addition, household debt plays a vital role in influencing economic stability and its vulnerability to shocks. Further study done by Chikeya and Ntsalaze (2025) used a systematic literature review technique to analyse household debt literatures and databases from 2004 to 2024. Their findings support that both country-level and household-specific factors are important in explaining household debt issues.

Macroeconomic Determinants of Household Debt

GDP per Capita. GDP per capita is a main indicator influencing household debt. While higher GDP often relates with increased borrowing due to improved financial access (Maneejuk et al., 2021; Canakci, 2021), some studies reveal mixed results (Abd Samad et al., 2020; 2022). In addition, during conomic expansion enhances household income, promoting greater credit demand (Zain et al., 2019; Mohamed et al., 2020), hence shows its significance varies across different models and estimation techniques.

Working Population (WPOP). The proportion of the working-age population significantly related household debt. A greater workforce leads to higher borrowing capacity and increased debt growth (Ho & Mainal, 2016). The Life-Cycle Hypothesis (LCH) recommends that younger and middle-aged individuals tend to build more debt (Girouard et al., 2006). Literatures findings show a positive relationship between the working population and household debt, as increased employment opportunities to higher consumption and improved accumulated credit access (Jumpanoi & Wanasilp, 2022; Maneejuk et al., 2021).

Unemployment Rate (UR). Unemployment negatively affects household debt by reducing income and limiting borrowing capacity (Yahaya & Sarwe, 2019; Kusairi et al., 2019). Studies consistently find an inverse relationship between unemployment and household debt, as job losses increase default risks and constrain loan approvals (Abd Samad et al., 2020; Kolios, 2021). However, several studies report statistically insignificant findings, suggesting variations across different economic contexts (Bolibok, 2018; Rubaszek & Serwa, 2014).

Inflation Rate (INF). Inflation influences household debt through its impact on purchasing power and borrowing costs. Lower inflation rates reduce the real burden of debt, encouraging borrowing (Debelle, 2014). While some studies confirm a negative relationship between inflation and household debt (Abd Samad et al., 2020; Canakci, 2021). However, there are also mixed or insignificant findings relationship in emerging countries through panel data testing (Azmin et al., 2019; Mohamed et al.,

2020). The relationship is often country-specific, as inflation affects credit availability and household saving behaviour differently.

Lending Interest Rate (INT). The lending interest rate, or cost of borrowing, is a crucial determinant of household debt. Studies generally find a positive correlation, indicating that lower interest rates incentivize borrowing (Zain et al., 2019; Endut & Hua, 2008). However, some studies suggest that rising interest rates can also increase household debt through higher loan repayments and sustained credit demand (Azmin et al., 2019). Contrasting evidence from Abd Samad et al. (2022) highlights negative effects in certain economies, suggesting that the influence of interest rates varies depending on financial development and regulatory environments.

In addition, the influence of macroeconomic and ecological factors on household debt has been identified through an OLS multiple regression analysis covering the period from 2003 to 2021 (Osmanovic & Alvi, 2024). The findings show that house prices and unemployment have a significant relationship with household debt, while trade in goods has a significant negative effect on household debt.

Research Methodology

Data Collection Method

This study focused on household debt and five other macroeconomic independent variables in seven Southeast Asian nations from 2011 to 2021. The data were collected from websites such as the World Bank, particularly from the World Development Indicators portal and CEIC Data. The sample included Malaysia, Indonesia, Thailand, the Philippines, Singapore, Myanmar, and Brunei.

However, there were several limitations in obtaining complete data. For example, household debt-to-GDP data for the Philippines is not available from the IMF, and for Brunei, the data is incomplete on the World Bank but complete on CEIC in terms of household debt alone. The dataset for the period between 2011 and 2021 constitutes static panel data with no time lag, allowing the study to examine factors influencing household debt.

Estimation Model

After reviewing the data based on previous studies by Abd Samad et al. (2020) and Zain et al. (2019), the following consumer debt model is suggested as below:

$$LHD = f\ (LGDPPC, LWPOP, UR, INF, INT) \quad (1)$$

Where, household debt (HD) is a function of GDP per capita income (GDPPC), working population (WPOP), unemployment rate (UR), inflation rate (INF) and lending interest rate (INT).

The model proposed by this study is applied based on the literatures from the previous studies by Abd Samad et al. (2020) and Zain et al. (2019) to examine the variables of income, working population, unemployment rate, inflation rate and lending interest rate with household debt. The model proposed as follows:

$$LHD_{it} = \beta_0 - \beta_1 LGDPPC_{it} + \beta_2 LWPOP_{it} - \beta_3 UR_{it} + \beta_4 INF_{it} + \beta_5 INT_{it} + \varepsilon \quad (2)$$

where,

LHD = Natural log household debt-to-GDP

β_0 = Constant value

LGDPPC = Natural log Gross Domestic Product per capita

LWPOP = Natural log working population rate with population (%)

UR = Unemployment rate

INF = Inflation rate

INT = Lending interest rate

i = country

t = time

ε = error term

Based on the above model, several modification was made by transforming variable household debt, GDP per capita, and the working population into logarithmic form to avoid heteroscedasticity problem and ensure accurate linearity. The model aligns with the life-cycle hypothesis, whereby households take out loans when their incomes are lower than expected, allowing them to allocate resources optimally for consumption over their lifetimes. Finally, this study is anticipated that income (represented by GDP per capita) and household debt will be negatively correlated (Abd Samad et al., 2020).

As a result of strong job market and low unemployment rates, household debt tends to increase, showing that households have a stable source of income and a strong ability to repay their debts. Hence, the unemployment rate is predicted to have a negative impact on household debt, showing changes in borrowing attributes. Based on the same model, households are prefer to borrow more when they are in younger stage and save less as they grow older (Abd Samad et al., 2020).

Panel Data Analysis

This study employed a static panel data analysis to examine the relation between household debt and macroeconomic factors in seven Southeast Asian countries. Static panel data analysis was applied to simultaneously cater for both time-series and cross-section data.

In addition, the benefit of static panel data test for serial correlation in random or fixed effects models is attractive, as it can be applied through general conditions and is easy to employ (Wooldridge, 2002). In addition, this method permitted the analysis of both cross-country variations and temporal dynamics.

Therefore, the static panel data analysis was employed in this study to examine the relationship between household debt and macroeconomic factors in seven Southeast Asian countries, with the cross-sectional units N=7 and time periods T=11, resulting in a total of 77 observations. This method integrates both time series and cross-sectional data, allowing for the simultaneous analysis of temporal and individual country variations. The static panel data approach was chosen to capture how different countries vary from one another while accounting for changes over time.

This approach enabled the researchers to identify both country-specific effects and temporal dynamics. Accordingly, the following tests were conducted: descriptive statistics and the Jarque-Bera normality test were used to evaluate the distributional properties of the data. Subsequently, panel specification tests were conducted to determine the most appropriate panel data analysis method—either the Pooled Ordinary Least Squares (POLS) model, the Fixed Effects (FE) model, or the Random Effects (RE) model.

To develop a more robust panel regression model, diagnostic tests were also carried out to detect potential issues such as multicollinearity, serial correlation, and heteroscedasticity.

Results and Discussion

Descriptive Analysis

Table 1 Descriptive Analysis of Macroeconomic Variables of Household Debt

	LHD	LGDPPC	LWPOP	UR	INF	INT
Mean	2.961407	8.971054	4.144533	3.404961	2.523454	7.591342
Median	2.839955	8.706346	4.148628	3.440000	2.184886	5.500000
Maximum	4.500105	11.19539	4.287661	9.300000	9.454172	20.10256
Minimum	-0.292627	6.991028	3.977249	0.250000	-1.260506	3.060000
Std. Dev.	1.346102	1.286916	0.064630	2.201940	2.378116	4.196005

Skewness	-0.727361	0.273152	-0.211332	0.668831	0.645275	1.270092
Kurtosis	2.547715	1.917465	2.871231	3.066744	3.009428	3.258164
Jarque-Bera	7.445829*	4.717303	0.626349	5.755093	5.343826	20.91572*
Probability	0.024163	0.094548	0.731122	0.056273	0.069120	0.000029
Observations	77	77	77	77	77	77

Note: * indicate that there is a significance at 5% level

A summary of the statistical analysis for all variables in the model across the seven selected Southeast Asian countries is presented in Table 1. The descriptive analysis includes household debt to GDP (HD), GDP per capita (GDP), working population (WPOP), unemployment rate (UR), inflation rate (INF), and lending interest rate (INT).

As shown in Table 1, the overall mean of the natural log of household debt-to-GDP (LHD) is 2.96, with minimum and maximum values of -0.29 and 4.5, respectively. The average natural log of GDP per capita is 8.97, with a minimum of 6.99 and a maximum of 11.2. For the working population, the average is 4.14%, with values ranging from 3.98% to 4.29%. The average unemployment rate across the seven countries is 3.4%, with a minimum of 0.25% and a maximum of 9.3%. The average inflation rate is 2.56%, with values ranging from -1.14% to 9.45%. Finally, the mean lending interest rate is 7.59%, with a minimum of 3.06% and a maximum of 20.10%.

Regarding skewness, only the lending interest rate is positively skewed (i.e., skewness > 0), indicating a distribution with a long right tail. The remaining independent variables have negative or near-zero skewness, suggesting less pronounced right tails. In terms of kurtosis, the values for the natural log of GDP per capita, the natural log of the working population, unemployment rate, inflation rate, and lending interest rate are 1.917465, 2.971231, 3.066744, 3.00942, and 3.258164, respectively. The kurtosis values for unemployment rate, inflation rate, and lending interest rate exceed 3, indicating leptokurtic distributions—distributions that are more peaked than the normal distribution. Conversely, the natural log of GDP per capita and the natural log of the working population are platykurtic, meaning their distributions are flatter than the normal distribution, as their kurtosis values are below 3.

Based on the Jarque-Bera p-value results, GDP per capita, working population, unemployment rate, and inflation rate—with p-values of 0.094548, 0.731122, 0.056273, and 0.069120, respectively—are considered normally distributed, as their p-values exceed the 0.05 significance level. However, the dependent variable (LHD) is not normally distributed, with a p-value of 0.024163, which is less than the 0.05 threshold.

Panel Specification Test

Table 2. Panel Specification Test Results

Test	P-value	Null Hypothesis
F-test	0.0000	Reject
Breusch Pagan-LM test	0.0000	Reject
Hausman Test	0.0010	Reject

The panel specification test is conducted to identify and determine the most appropriate panel data analysis technique—whether the Pooled Ordinary Least Squares (POLS), Fixed Effect, or Random Effect model is most suitable under the given circumstances. The conclusion is drawn from the panel specification tests presented in Table 2, which include the F-test, the Breusch-Pagan LM Test, and the Hausman Test.

Based on the analysis, the F-test result shows a p-value of 0.0000, which is lower than the 1% significance level. This leads to the rejection of the null hypothesis, indicating that the Pooled OLS model is not appropriate. Therefore, the Fixed Effect model is considered next.

The Breusch-Pagan LM test also rejects its null hypothesis, as the p-value is 0.0000 again, below the 1% significance level, suggesting that the Random Effect model is suitable. As both Fixed and

Random Effect models appear to be appropriate, the Hausman test is conducted to choose between them.

The Hausman test result shows a p-value of 0.0010, which is less than the 1% significance level. This leads to the rejection of the null hypothesis, indicating that the Fixed Effect model is more appropriate than the Random Effect model.

Therefore, based on the results of all three panel specification tests, the Fixed Effect model is determined to be the most suitable panel data analysis technique for this study.

Diagnostic Tests

Table 3 Multicollinearity Test Result

Variable	LGDPPC	LWPOP	UR	INF	INT
Centred VIF	4.71	2.11	3.28	2.21	2.77
Mean VIF = 3.02					

Based on the multicollinearity test from Table 3, the mean of Variance Inflation Factors (VIF) is 3.02 where each of independent variables in the data also showed that the VIF is lower than 5. According to Studenmund (2017), the common rule of thumb says that if VIF is higher than 5, then multicollinearity is severe. The tests in Table 4 show that there is no severe multicollinearity in all independent variables which are not highly correlated with each other as the results showed values less than 5.

Table 4 Heteroscedasticity and Serial Correlation Results

Test	P-value	Result
Heteroscedasticity	0.0000	Significant
Serial Correlation	0.0001	Significant

Next, the heteroscedasticity test is carried out by using EViews which divides the result between the cross-section and period result from likelihood test. The test results showed that both are p-value 0.0000 < 0.01, hence there is presence of heteroscedasticity, thus rejecting the null hypothesis. This justifies the use of Generalised Least Squares (GLS) for this presence issue (Ma'in et al., 2022).

In a mean time, by using the Breusch Pagan-LM diagnostic test, the computed value of d from the pooled regression model (Table 4), the p-value is at 0.0001 < 0.01 which indicates that there is positive serial correlation, thus rejecting the null hypothesis. From the serial correlation (Breusch-Pagan LM test) that exist in Table 5, as the value is positive serial correlation, the panel data analysis is vital to reduce biased hypothesis tests and inefficient estimates. Thus, it adds the justification of using Generalised Least Squares (GLS) to solve the serial correlation or autocorrelation issue.

To conclude, the problems of heteroscedasticity and serial correlation can be resolved by application of fixed-effects regression with Cross-section SUR and white diagonal which as result from consideration from past articles by Arellano (1987), Beck and Katz (1995), and Wooldridge (2002) and referring to the previous study by Kok and Ersoy (2009) to ensure the model will be more robust.

Panel Data Findings

The analysis in this study utilises one of the leading econometric software tools, EViews, to run static panel data models across several specifications to derive key empirical findings. Table 5 presents the results of the static panel data regression, which aims to identify the effects of GDP per capita and other macroeconomic variables on household debt in seven ASEAN countries. Based on the earlier panel specification tests (Table 2), the Fixed Effect model was determined to be the most appropriate.

This analysis employs the cross-section Seemingly Unrelated Regression (SUR) method, which estimates a feasible Generalised Least Squares (GLS) specification to correct for both cross-sectional heteroskedasticity and contemporaneous correlation (IHS Markit, 2020). In addition, the white diagonal robust standard errors are applied to account for unstructured heteroskedasticity. The application of cross-section SUR is further justified by the panel dimensions, where the number of time periods (T = 11 years) greater than the number of cross-sections (N = 7).

This approach is supported with Kok and Ersoy (2009), who used the cross-section SUR method in their study examining FDI determinants across 24 developing countries over 30 years. The use of the cross-section SUR method also improves the Durbin-Watson test statistics, with values exceeding 1.5, suggesting a reduced likelihood of autocorrelation (Column 5). Furthermore, the Breusch-Pagan LM diagnostic test results show p-values above the 5% significance level, leading to the failure to reject the null hypothesis, indicating no significant autocorrelation.

With the serial correlation issue addressed, the panel data results are considered robust and reliable, allowing the analysis to proceed to the next stage with greater confidence in the model's validity.

Table 5 Regression Results of All Models and Fixed-Effect Model (Cross-Section SUR And White Diagonal)

	Pooled Regression Model	**Fixed Effect Model**	**Random Effect Model**	**Fixed Effect Model (Cross-section SUR and white diagonal)**
Constant Term	-32.50236*** (0.0000)	16.09864*** (0.0000)	9.711816*** (0.0032)	**15.47163*** (0.0000)**
LGDPPC	0.059361 (0.5885)	-0.353456 * (0.0909)	0.054258 (0.7223)	**-0.312935*** (0.0000)**
LWPOP	8.838182*** (0.0000)	-2.220144*** (0.0019)	-1.585204** (0.0206)	**-2.204904*** (0.0000)**
UR	0.024411 (0.6484)	-0.089324* (0.0549)	-0.041648 (0.3030)	**-0.068411*** (0.0000)**
INF	0.054519 (0.1828)	0.008492 (0.5125)	0.013548 (0.2941)	**-0.000190 (0.9561)**
INT	-0.252867*** (0.0000)	-0.063518** (0.0266)	-0.073716*** (0.0074)	**-0.043749*** (0.0002)**
R-squared	0.835628	0.986790	0.185097	**0.997451**
Adj R-squared	0.824052	0.984555	0.127710	**0.997020**
F-statistic	72.18928	441.4258	3.225396	**2312.462**
Prob (F-statistics)	0.00000	0.00000	0.011104	**0.00000**
Total Observation	77	77	77	**77**
DW Test	0.358731	0,7827	0.722822	**1.607596**
BP-LM Test (Diagnostic)	0.0001	0.0037	0.0029	**0.9988**

Note: ***,**, * denote the rejection of null hypothesis at 1%, 5% and 10% level, respectively

Adjusted R-squared is a measurement for the goodness fit of the overall model with the overestimation correction of increased variables in the model. The adjusted R-squared in this study is 0.997451 where the independent variable in this research will explain the 99.7% of the variation in the dependent variable. Whereas the rest of 0.3% are variables which are not included in this study. On top of that, the p-value for F-statistics is at 0.00000, resulting that the explanatory variable as a group is significant in determining the dependent variable at 1% level of significance.

The Gross Domestic Product per capita is negative and statistically significant at 0.01 level of significance with p-value of 0.0000 with coefficient value of -0.312935. It means, rejecting the null hypothesis, whereby there is a relationship between GDP per capita and the household debt. This is in line with previous study by Maneejuk et al. (2021), which measured the provinces of the whole country, regardless of the economic status, showing that the higher GDP per capita, the household debt will be lower.

Meanwhile, the working population is negative and statistically significant at 0.01 significance level with p-value of 0.0000 with coefficient value of -2.204904. It means, rejecting the null hypothesis, whereby there is a relationship between working population and the household debt. The result of working population is in line with a study by Ho and Mainal (2016) which results the p-value from the working population variable is below the significance value.

The result of unemployment rate is negative as expected in the estimation and statistically significant at 0.01 level of significance with p-value of 0.0000 with coefficient value of -0.068411. This is consistent with major past studies by Abd Samad et al. (2020, 2022), Jumpanoi and Wanasilp (2022), Maneejuk et al. (2021), and Zain et al. (2019) that have common results of this variable which ultimately, rejecting the null hypothesis which means the unemployment rate is adversely related to the household debt.

On top of that, inflation rate is at the parameter of -0.000190 units with p-value of 0.9561, which is not significant. This finding is in line with the study results by past researchers, such as Ho et al. (2016) and Meng et al. (2011) where the former using country-by-country, it produces the different outcome of between developing (significant) and developed countries (insignificant) while the latter although it is significant that indeed it is negative effect with low inflation rate using the CPI model with justification that inflation will undermine the principal and discourages lending, at least at the supply side. Hence, it fails to reject the null hypothesis which means the inflation rate does not influence the household debt in this case.

The lending interest rate is negative and significant at 0.01 level of significance towards household debt with a parameter of -0.043749 unit with p-value of 0.0002. Thus, it means rejecting the null hypothesis, whereby the lending interest rate has a relationship with the household debt in seven Southeast Asia countries. This finding is supported by previous studies by Abd Samad et al. (2022), Bolibok (2018), and Maneejuk et al. (2021) which these studies have significant and negative relationship with the household indebtness.

Conclusions

The study utilised fixed panel data and Generalised Least Squares to determine significant variables, such as GDP per capita, working population, unemployment rate, and lending interest rate. Inflation rate does not significantly impact the household debt. The most impacted macroeconomic variables are GDP per capita, working population, inflation rate, and lending interest rate in Southeast Asia. The Fixed Effect model is the appropriate model for the study,

Empirical results suggest that policymakers should consider improving awareness of rising household debt to ensure people maintain their livelihoods. Although macroeconomic factors are negatively correlated, this precaution is necessary as financial crises can deteriorate economic health due to the debt cycle. This is because financial shocks can lead to a decline in economic health (Abd Samad et al., 2020).

First, in terms of GDP per capita, governments involved should maintain the good improvement of the economic growth rate in any instruments depending on the parameters of each country to encourage people to improve their quality of life. Based on previous study such as by Maneejuk et al. (2021) found that improving economic growth can reduce the household debt, particularly in low, medium, and high debt regimes. Second, the working population and unemployment rate are related, and governments should maintain job stability and provide more opportunities for the labour force to earn a livelihood. This can help control the household borrowings and repay loans when the household income increases, as described in the life-cycle model. Third, the lending interest rate is currently unavoidable, but it should remain stable to incentivise borrowing and improve consumer satisfaction. Fourth, higher debt levels increase sensitivity to interest rate fluctuations, making gradual adjustments necessary. This is especially important when the financial system and economy undergo fundamental changes, raising questions about the monetary transmission mechanism.

Future research aims to identify common macroeconomic variables that causing the household debt to rise in emerging developing and developed countries in a specific region, regardless of the country's development status. Several previous studies related to panel data analysis between household debt and macroeconomic factors, such as by Abd Samad et al. (2020) and Bolibok (2018) more focusing on specific group of countries either emerging or OECD nations.

This research study reveals a need for review or improvement of monetary or macroeconomic policies in seven selected countries. The relationship between the household debt and GDP, including GDP per capita, working population, inflation rate, unemployment rate, and lending interest rate, varies depending on the situation. Policymakers should provide correct policies or revise existing ones to address the household debt, which is generally not harmful but must be manageable. In addition, policymakers adopt a proactive and data-driven approach to regularly monitor household debt levels and related macroeconomic indicators, implement targeted financial literacy programs, and ensure access to responsible lending practices in order to maintain economic stability and sustainable growth.

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