



Exploring Differences in Rural Household Debt between Thailand and Vietnam: Economic Environment versus Household Characteristics

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Abstract:

This study aims to explore cross-country differences in credit market participation, level of household debt holding and over-indebtedness between rural households in Thailand and Vietnam. Using a unique rural household survey data from “Vulnerability in Southeast Asia” project, it first identifies socio-economic determinants of such market outcomes for rural households in Thailand and Vietnam. It decomposes differences into a part that arise due to configuration of household characteristics or a part that arise due to differences in economic environments using three decomposition methods. Significant differences are observed in credit market participation rates and level of debt holding and indebtedness between rural households in Thailand and Vietnam. Rural households in Thailand tend to participate more in the credit market and face higher risk of over-indebtedness. These observed differences arise mainly due to dissimilarity in the economic environment for households with similar characteristics. Economically disadvantaged rural households in Thailand are more likely to participate in the credit market and face higher level of indebtedness mainly because credit markets are make borrowing easy. The higher gap observed in the upper part of the debt distribution between Thailand and Vietnam can be explained by differences in credit market conditions between the two countries.

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Keywords: Rural households, Microcredit, Household debt, Household Indebtedness, Decomposition Analysis, Thailand, Vietnam

1. Introduction

Cross-country comparison of the prevalence and amount of debt holding in Asia has been either impossible due to lack of comparable micro level data (Aminudin & Tissot, 2015) or complicated since such comparisons refer to households that are different in terms of socio-economic characteristics and economic environment they face depending on their country of residence (Christelis, Ehrmann, & Georgarakos, 2015). The measurement of household debt in Asia has been in itself a problem given low banking penetration and significant informal lending sector outside the banks (ADB, 2015). Hence, little is known about the prevalence of debt and distribution of amount of debt holding and indebtedness levels across countries in the region. In order to assess the vulnerabilities and risk from the rapid growth of household debt in Asia and explore heterogeneity hidden behind aggregate level indicators, the analysis of micro data is necessary especially for countries such as Thailand where the distribution of household debt varies across different household groups.

Previous research on household debt in advanced economies decompose the observed cross-country differences into a part that arises from differences in configuration of household characteristics such as age, education, income, assets and savings and those arising from differences in the economic environment (e.g., Christelis et al., 2015; Bover et al., 2016). According to Christelis et al. (2015), the underlying factors behind cross-country differences in economic environment are differences in (1) market characteristics such as the accessibility of certain debt products, (2) legal conditions such as legal enforcement of contracts indicated by the time needed to repossess collateral, taxation of debt, regulatory loan-to-value ratios at origination and depth of information about borrowers (Bover et al., 2016), (3) cultural factors such as social acceptance of indebtedness or (4) policies such as macro-prudential or monetary policies.

In this paper, we add to the literature on household finance by specifically focusing on rural households and analyzing cross-country differences in credit market participation, level of debt holding and indebtedness in Thailand and Vietnam; where the population is predominantly rural; informal lending plays an active role and the debt burden is higher among rural households (ADB, 2015). We use household survey data of the Thailand Vietnam Socioeconomic panel.¹

¹ For more details on the survey, see: <https://www.tvsep.de/overview-tvsep.html>

In our study we use decomposition methods to model credit market participation, level of household debt holding and over-indebtedness of rural households in Thailand and Vietnam. First, an extension of the Oaxaca-Blinder (Blinder 1973; Oaxaca 1973) decomposition method for non-linear models is used to calculate differences in prevalence of debt and over-indebtedness. Second, the Oaxaca-Blinder decomposition method is used to calculate the average differences in conditional amount of debt holding and indebtedness. Finally, the RIF-regression method proposed by Firpo, Fortin and Lemieux (2009) is additionally used to decompose the conditional amount of debt holding and indebtedness gap across the two countries and identify the contribution of individual covariates at different quantiles of the unconditional distributions.

Our results show significant differences in credit market participation rates, debt holding and indebtedness between rural households in Thailand and Vietnam. Higher prevalence of debt and over-indebtedness is found among rural households in Thailand and those who participate in the credit market also hold relatively larger amounts of debt and face higher debt burden. Particularly for the economically disadvantaged rural households, the economic environment in Thailand is more lenient to borrowing as compared to Vietnam. Additionally, differences in household characteristics explain the higher level of debt holding observed among rural households in Thailand. Finally, the findings from the RIF-regression decomposition analysis reveal that the differences in level of debt holdings and indebtedness increases when moving up the debt distribution.

The remainder of the paper is organized as follows: Section 2 briefly discusses the data we use. Section 3 presents the decomposition methods used. Section 4 and 5 outlines the results and provides concluding remarks.

2. Data

We use the 2008 data of rural household in Thailand and Vietnam collected by the project “Vulnerability in Southeast Asia” – a long-term research project funded by the German Research Foundation (DFG). The survey collected data from around 4200 rural households from six provinces in Northeastern Thailand and the North Central Coast and Central Highland of Vietnam. The six provinces, namely Buriram, Ubon Ratchathani and Nakhon Phanom from Thailand, Ha Tinh, Thua Thien Hue and Dac Lac from Vietnam, were first purposively selected targeting rural households that are either poor or face risk of falling into poverty to meet the general objective of the project (Hardeweg, Klasen & Waibel, 2012).

Then, three stage cluster sampling design was implemented to select the sample of households. Firstly, sub-districts were randomly selected from strata with probability that is proportional to the population density in each province. After selecting the sub-districts, two villages were again selected randomly with probability proportional to size. Finally, 10 households were sampled in each village from a household list ordered by household size using a systematic random sampling technique that gave each household equal chance of being selected. Hence, the households in our sample are representative of rural households in Northeastern Thailand and the North Central Coast and Central Highland of Vietnam.

The data contain detailed information on households borrowing, loan defaults and arrears along with a full set of household level data such as households demographics, social and economic characteristics and special modules on risks and shocks. This detailed data on financial situation of households allows us to examine rural households borrowing behavior in in the two countries and decompose the differences into their separate underlying factors. In total, we compare 2148 rural households in Vietnam with 2136 rural households in Thailand.

3. Empirical Strategy

This section outlines the methods used to decompose the observed difference in debt prevalence, debt holdings and over-indebtedness among rural households in Thailand and Vietnam, and proceeds in four parts. First, we begin with a discussion on the identification strategy and the parameters of interest using the observed log of debt distribution as an example to simplify the discussion. We then explain the three decomposition methods used to model differences in debt situation at a point in time, namely the non-linear Oaxaca-Blinder decomposition method (Fairlie 1999), the mean based Oaxaca-Blinder decomposition method (Blinder 1973; Oaxaca 1973) and the RIF-regression decomposition method (Firpo et al., 2009). The discussion on the decomposition methods is heavily based on Fortin, Leimieux, and Fripo (2011).

3.1. Identification strategy

All three decomposition methods are based on estimating unconditional counterfactual distributions of the dependent variables. For the mutually exclusive groups of Thai rural households (T) and Vietnamese rural households (V), we for example observe the log of debt for each group (Y_T and Y_V respectively). The unconditional counterfactual distribution is then constructed to simulate how the log of debt distribution of rural households in Vietnam would be if they had the same configuration of characteristics and faced the same economic environment as rural households in Thailand. In other words, the observed household debt distribution of Thai rural households provides a counterfactual for

Vietnamese households, and vice versa. To establish these counterfactual distributions, the decomposition methods first examine the relationship between debt outcome variables such as log of debt and a set of observed and unobserved household characteristics.

$$Y_c = \theta_c(X_c, \varepsilon_c), \quad c \in \{T, V\} \quad \varepsilon_c \quad (1)$$

$$\Delta_Y = Y_V - Y_T = [\theta_V(X_V, \varepsilon_V)] - [\theta_T(X_T, \varepsilon_T)] \quad (2)$$

where X_V and X_T are vectors of observable characteristics, θ_V and θ_T are the functional forms of the log of debt equation and ε_V and ε_T are vectors of unobservable characteristics for the Vietnamese and Thai rural household groups respectively.

The unconditional counterfactual distribution of the log of debt can then be constructed by integrating the conditional distribution of log of debt given a set of observable characteristics of Vietnamese rural household over the marginal distribution of observable characteristics of the Thai rural household. If the unconditional distribution of log of debt of rural households in each country is given by:

$$F_{Y_c}(Y) = \int F_{Y_c|X}(Y|X = x) \cdot dF_{X_c}(X), \quad c \in \{T, V\} \quad (3)$$

where $F_{Y_c|X}(Y|X = x)$ is the conditional distribution of log of debt and $F_{X_c}(X)$ is the marginal distribution of X , the unconditional counterfactual distribution of log of debt can be constructed by either replacing the conditional distribution of Vietnamese rural households with the corresponding conditional distribution of the Thai rural households or by substituting marginal distribution of the observed characteristics. In this study, we use rural households in Thailand as the reference group and construct a counterfactual distribution of log of debt, $F_{Y_V}^c$, by replacing $F_{Y_V|X}(Y|X = x)$ with $F_{Y_T|X}(Y|X = x)$ in equation (2) when $c = V$:

$$F_{Y_V}^c(Y) = \int F_{Y_T|X}(Y|X = x) \cdot dF_{X_V}(X) \quad (4)$$

The unconditional counterfactual distribution $F_{Y_V}^c(Y)$ constitutes the distribution of log of debt that would have prevailed among the Vietnamese rural household if the distribution of characteristics were similar to the Thai rural household.

Following equation (1), the total difference in log of debt between rural households in the two countries can be written as:

$$\Delta_Y = \Delta_\theta + \Delta_X + \Delta_\varepsilon \quad (5)$$

where Δ_θ represents cross-country differences in the θ functions determined by institutional and economic environment in the two countries (i), Δ_X represents differences in the distribution of observable characteristics of rural households in the two countries (ii), and Δ_ε represents cross-country differences in the distribution of unobservable characteristics (iii). In constructing the unconditional counterfactual distribution of $F_{Y_V}^c$, replacing the conditional distribution of log of debt of the Vietnamese rural households with that of the Thai rural households group replaces both θ and the conditional distribution of ε . Therefore, cross-country difference in θ will be confounded by cross-country differences in the distribution of ε . In order to separate the cross-country differences in ε from the cross-country differences in θ (and X), the following two identification restrictions need to be imposed on the distribution of ε (see Fortin et. al, 2011 for detailed discussion of these assumptions).

- i. First the overlapping support assumption is imposed to ensure that no single characteristic can identify to which group the rural households belong to (Fortin et al., 2011). This assumption rule out cases where observable and unobservable characteristics in the debt structural model are different for Thai and Vietnamese rural households.
- ii. Second the conditional independence/ignorability assumption is imposed to ensure that the conditional distribution of ε given X is the same for rural households in both countries and is independent of their country membership ($\theta \perp \varepsilon | X, c = T, V$).

Under the overlapping support and conditional independence assumptions, the total difference in log of debt between rural households in Thailand and Vietnam, Δ_Y^v (where v represents a distributional statistics of log of debt such as the mean or quantiles), can be separated and identified in an aggregate decomposition as:

$$\Delta_Y^v = \Delta_\theta^v + \Delta_X^v \quad (6)$$

where $\Delta_\theta^v = v(F_{Y_V}^c - F_{Y_V}^c)$ captures the part driven by group differences in the log of debt structure (structural or coefficient effect) and $\Delta_X^v = v(F_{Y_V}^c - F_{Y_T}^c)$ captures the part driven by group differences in the distribution of the observed characteristics (composition or endowment effect). The coefficient and covariate effects can further be decomposed into contributions attributable to each characteristic. To perform the detailed decomposition and identify the contributions of each characteristic, further assumptions are required. Since these assumptions are specific to the decomposition methods, they will be discussed further with each estimation procedure explained in the following sub-section.

3.2 Estimation Procedures

3.2.1 Non-linear Decomposition Method

To assess the difference in the prevalence of debt, default and over-indebtedness between rural households in Thailand and Vietnam, we apply an extension of the Oaxaca-Blinder decomposition method for non-linear models elaborated by Fairlie (1999, 2005). This decomposition method computes the difference in the probability of holding debt, defaulting or over-indebtedness between the two countries and quantifies the contribution of group differences in the configuration of characteristics and cultural, institutional and economic environment to the outcome differential.

First, a logit model is estimated for the probability of holding debt, defaulting on a loan and being over-indebted, Y :

$$p_c(Y) = F(X\beta), c \in \{T, V\} \quad (7)$$

Following Fairlie (1999) the gap in the prevalence rate of debt, default and over-indebtedness between rural households in Vietnam and our reference country Thailand can be expressed as:

$$\bar{Y}^T - \bar{Y}^V = \left[\sum_{i=1}^{N^T} \frac{F(x_i^T \hat{\beta}^V)}{N^T} - \sum_{i=1}^{N^V} \frac{F(x_i^V \hat{\beta}^V)}{N^V} \right] + \left[\sum_{i=1}^{N^V} \frac{F(x_i^T \hat{\beta}^T)}{N^T} - \sum_{i=1}^{N^V} \frac{F(x_i^T \hat{\beta}^V)}{N^T} \right] \quad (8)$$

where \bar{Y}^c is the average probability of holding debt, default and over-indebtedness in country c , X^c is a set of average values of the household characteristics in country c , $\hat{\beta}^c$ is the coefficient estimates for country c , F is the cumulative distribution function from a logistic distribution and N^c refers to the sample size in each country. The first expression in the bracket represents the part of the cross-country debt prevalence gap which is driven by differences in the covariate effect (explained part). The second term captures the part of the cross-country debt prevalence gap that is driven by the coefficient effect (unexplained part). This unexplained gap can arise due to differences in cultural differences, institutional differences and other unobservable differences in economic environment between Thailand and Vietnam, which we refer to as the “coefficient effect”.

The covariate effect is the estimate of the total contribution of the whole vector of household characteristics to the cross-country gap in prevalence of debt, default and over-indebtedness. Using coefficient estimates from a logit regression for a pooled sample, $\hat{\beta}^*$ to avoid the familiar index problem in decomposition methods, the independent contribution of individual

covariates can be calculated as follows. For example, the independent contribution of real wealth, X_{RW} , and financial expectation, X_{FE} , to the debt prevalence gap can be expressed as:

$$\frac{1}{NV} \sum_{i=1}^{NV} F(\hat{\alpha}^* + X_{RWi}^T \hat{\beta}_{RW}^* + X_{FEi}^T \hat{\beta}_{FE}^*) - F(\hat{\alpha}^* + X_{RWi}^V \hat{\beta}_{RW}^* + X_{FEi}^T \hat{\beta}_{FE}^*) \quad (9)$$

$$\frac{1}{NV} \sum_{i=1}^{NV} F(\hat{\alpha}^* + X_{RWi}^V \hat{\beta}_{RW}^* + X_{FEi}^T \hat{\beta}_{FE}^*) - F(\hat{\alpha}^* + X_{RWi}^V \hat{\beta}_{RW}^* + X_{FEi}^V \hat{\beta}_{FE}^*) \quad (10)$$

Hence, the contribution of each of these variables to the debt prevalence gap is equal to the change in the average predicted probability from replacing the Vietnamese households' distribution with the Thai households' distribution of that variable while holding the contribution of the rest of the variables constant. Then, the sum of the contributions of each independent variable will be equal to total contribution of all of the independent variables estimated using the full sample.

3.2.2 Oaxaca-Blinder Decomposition Method

To compute the level of household debt and indebtedness gap between rural households in Thailand and Vietnam and decompose these gaps into their separate underlying factors, we use the mean-based Oaxaca-Blinder decomposition method. This method is based on the assumption that the relationship between log of debt and a vector of household characteristics is linear and additive:

$$Y_c = X_c \beta_c + \varepsilon_c, \quad E(\varepsilon_c) = 0, \quad c \in \{T, V\} \quad (11)$$

where X is a vector of explanatory variables, β is a vector of estimated coefficients including the intercept and ε is the error term. Given that $E(\varepsilon_c) = 0$, the total difference in the mean log of debt or over-indebtedness, Δ_Y^μ or $\mu(F_{Y_V} - F_{Y_T})$, can be decomposed as follow:

$$\Delta_Y^\mu = E(Y_V) - E(Y_T) = \underbrace{E(X_V) \beta_V - E(X_V) \beta_T}_i + \underbrace{E(X_T) \beta_T - E(X_V) \beta_V}_{ii} \quad (12)$$

where $E(X_V) \beta_T$ is the unconditional counterfactual distribution of log of debt or indebtedness at the mean. As discussed in the identification strategy section, this counterfactual distribution is constructed at the sample means $\mu(F_{Y_V}^C) \rightarrow E(Y)_V^C = E(X_V) \beta_T$. The terms i and ii in equation (12) are also analogues to components (i) and (ii) described in the identification strategy section. Rearranging equation (12), we get:

$$\Delta_Y^\mu = (E(X_V) [\beta_V - \beta_T]) + ([E(X_V) - E(X_T)] \beta_T) \quad (13)$$

Replacing $E(X_V)$ and $E(X_T)$ by their sample means \bar{X}_V and \bar{X}_T , as well as β_V and β_T by their ordinary least square regression estimates, $\hat{\beta}_V$ and $\hat{\beta}_T$, equation (13) can be written as:

$$\hat{\Delta}_Y^\mu = \frac{\bar{X}_T(\beta_V - \beta_T)}{\hat{\Delta}_\theta^\mu} + \frac{(\bar{X}_V - \bar{X}_T)\hat{\beta}_T}{\hat{\Delta}_X^\mu} \quad (14)$$

The first term, $\hat{\Delta}_\theta^\mu$, captures contributions of the coefficient effect to the total differences in log of debt between rural households in Thailand and Vietnam. The second term, $\hat{\Delta}_X^\mu$, captures the contributions of the covariate effect i.e. differences in the distribution of mean characteristics. Due to the additive linearity assumption of the Oaxaca-Blinder decomposition method, these two effects can be further decomposed into contributions attributable to each covariate. Then, the total covariate and coefficient effects are simply the sum of the contributions of individual characteristics:

$$\hat{\Delta}_X^\mu = \sum_{j=1}^j (\bar{X}_{Vj} - \bar{X}_{Tj})\hat{\beta}_{Tj} \quad (15)$$

and

$$\hat{\Delta}_\theta^\mu = (\hat{\beta}_{V0} - \hat{\beta}_{T0}) + \sum_{j=1}^j (\hat{\beta}_{Vj} - \hat{\beta}_{Tj})\bar{X}_{Tj} \quad (16)$$

where j represents the j th household characteristics and $\hat{\beta}_{V0}$ and $\hat{\beta}_{T0}$ are the estimated intercept coefficients of the rural households in Vietnam and Thailand respectively.

In the detailed decomposition, identifying the contribution of categorical variables is not invariant to the choice of the omitted base category. Changing the omitted category alters the contribution of the other categories and the contribution of the entire categorical variable to the coefficient effect. To solve this problem, we use a normalization approach proposed by Yun (2005b).

Finally, as the distribution of household debt is important in assessing financial market risk and sustainability of household debt, the Recentered Influence Function Regression (RIF-regression) method (Firpo et al., 2009) is additionally used to decompose the level of household debt and indebtedness gap across the two countries and identify the contribution of individual covariates and the economic environment at different quantiles of the unconditional (marginal) distributions.²

² For a detailed discussion of the RIF-regression decomposition method, see Firpo et al., 2009.

3.2.4 Explanatory variables

This section discusses the explanatory variables that are included in the decomposition analysis. The explanatory variables include various socio-economic and demographic characteristics that determine household's participation in the credit market and their level of indebtedness. The choice of the explanatory variables is largely based on the existing literature dealing with households indebtedness in both developing and developed countries, including Disney et al. (2008), Brown and Taylor (2008), Schicks (2014), and Christelis et al. (2015).

In the decomposition analysis, we control for observed households characteristics such as age, gender, level of education of the household head, marital status, household size, main occupation of household head, household income and wealth quintiles, type of shock households experienced, future financial expectation of households and their risk attitudes. Household's future financial expectation dummy variables were constructed using the question "Do you think your household will be better off next year?" The risk attitude of the households is based on a Likert scale response of 0 "unwilling to take risk" to 10 "fully prepared to take risk" for a question "Are you generally a person who is fully prepared to take risks or do you try to avoid taking risk?". Then, based on the Likert scale, we grouped the households into the three categories.

Table 2 shows a comparison of average characteristics of rural households in Thailand and Vietnam. On average, there are more Thai households in the top income, financial and real wealth quintiles than the Vietnamese households reflecting that Thai households have higher capacity to shoulder more debt than the Vietnamese households. On the contrary, rural households in Vietnam are younger and more educated and hence have higher earning capacity in the future which might explain a higher willingness to borrow and hold large amount of debt. However, Vietnamese rural households are also on average more risk averse than the Thai households and hence maybe less willing to hold large amount of debt.

(Insert Table 2 here)

4. Results

4.1. Decomposing the Prevalence of Debt and Over-indebtedness

Table 3 shows the differences in the prevalence of debt and over-indebtedness between rural households in Thailand and Vietnam and their decomposition into covariate and coefficient effects that denote configuration of household and economic environment characteristics effects, respectively. These results are estimated with the Oaxaca-Blinder decomposition method using coefficients from a pooled logit regression models as explained in sub-section 4.2.1. The aggregate decomposition shows that the observed differences in the prevalence of debt and over-indebtedness are largely due to the coefficient effect and always in favor of rural households in Thailand. In other words, the cultural, institutional and economic environment in Thailand appears to be much more conducive to rural households having debt or being over-indebted measured both in terms of defaulting on a loan or having a high debt burden than in Vietnam. If Vietnamese rural households faced the same cultural, institutional and economic environment as their Thai counterparts, the observed gap in the prevalence of debt and over-indebtedness would completely disappear and the Vietnamese households would face the problem of over-indebtedness just the same as their Thai counterparts.

(Insert Table 3 here)

A detailed decomposition of the coefficient effect for holding debt and being over-indebted according to the DSR indicator, also displayed in table 3, show that the constant term that represents the base category is what mainly generates the positive coefficient effect. In this study, the omitted category was selected in such a way that it represents rural households that are expected to be economically disadvantaged, i.e. households with the oldest, less educated and single household head whose main income sources is agricultural production and those that have worst financial future expectation and low income and wealth. Hence, the constant term in the decomposition analysis reflects to what extent the prevalence of debt and over-indebtedness among the most economically disadvantaged rural households in Vietnam would differ if they were to face the same cultural, institutional and economic environment as their Thai counterparts. The results reveal that the economically disadvantaged rural households in Thailand are much more likely to participate in the credit market and become over-indebted than their counterparts in Vietnam. This means that the economic environment in Thailand is significantly more conducive for the economically disadvantaged rural households to participate in the debt market and become over-indebted than in Vietnam. This finding is in line with the notion of a higher incidence of debt and over-indebtedness among the poor and vulnerable groups of the population in Thailand that are more likely to face difficulty in repaying their debt, especially when faced with adverse economic conditions (ADB, 2013). Additionally, we note that income is also one factor that contributes significantly to a positive coefficient effect for the difference in the prevalence

of over-indebtedness measured with the DSR indicator. This means that at any given amount of household income, the economic environment in Thailand favors having high debt service burden more than in Vietnam. On the other hand, the main factors contributing to a significant coefficient effect for the differences in prevalence of default are adverse shocks and risk preferences.

Looking at the covariate effect, it is estimated to be negative and is significant only in the case of differences in the prevalence of holding debt. This shows that if rural households in Thailand had the same characteristics as the rural households in Vietnam, they would be more likely to participate in the credit market. This implies that the observed higher household debt among rural households in Thailand is not really explained by endowment effects such as higher amount of income or wealth that might reflect a higher capacity to shoulder more debt. Looking further at the detailed decomposition of the covariate effect, it is noticeable that the estimated negative total covariate effect is largely due to age and education level of the household head. The explanation is that since age and level of education are related negatively and positively with holding debt respectively and Vietnamese rural households are younger and more educated than the Thai rural households, their prevalence of debt should be higher indicating a higher demand for debt and higher debt repayment capacity in the future. However, the economic environment effect is so strong that it takes over the opposite effect of the population characteristics. Finally, experiencing adverse shocks significantly reduces the difference while income fluctuation increases the difference. Though experiencing adverse shocks and income fluctuation both increase the likelihood of holding debt, the two factors had a different effect on the covariate effect because their incidence differed among rural households in the two countries (see table 2).

4.2. Decomposing the Amount of Debt Holdings

Table 4 reports the results of the decomposition analysis at the mean using the Oaxaca-Blinder decomposition method. Once again, the results from the Oaxaca-Blinder decomposition show that the coefficient effect largely explains the observed difference in debt holding indicating that the economic environment in Thailand is generally more favorable to holding higher amount of debt than the economic environment in Vietnam. If the rural households in Vietnam were to face the same economic environment as those in Thailand, the total difference in average log of debt between the households in the two countries would decrease by about 0.497 points (top panel, table 4). Therefore, about 71% of the total difference in average log of conditional amount of debt is explained by differences in the economic environment. According to the detailed decomposition analysis, financial wealth and financial expectation mainly contributed to the estimated positive coefficient effect. This means that for any given amount of financial wealth or type of financial expectation, the economic environment in Thailand is more favorable for rural households to hold higher amount of debt than in Vietnam.

(Insert Table 4 here)

However, the coefficient effect does not entirely explain the total observed difference in amount of debt holding instead approximately 29% of the difference is attributed to the covariate effect. As can be seen from the detailed decomposition, evidently rural households in Thailand have combination of characteristics that make them more likely to hold larger amounts of debt, particularly income, financial and real wealth reflecting a higher ability to repay debt. Income fluctuation in the previous year also contributed to the positive covariate effect since Thai rural households experienced more income fluctuation in the previous year than those in Vietnam and income fluctuation is positively related with holding higher amount of debt. On the contrary, education contributes significantly to a negative covariate effect implying that on average Vietnamese rural households are more educated than their Thai counterparts and education is positively related with holding higher amount of debt. Overall, rural households in Thailand have configuration of characteristics, such as better endowments, and an economic environment that's conducive to holding higher amounts of debt and hence have higher amounts of debt outstanding than rural households in Vietnam.

Having reviewed findings from the decomposition analysis at the mean, we now move on to the results from RIF-regression decomposition method to get deeper insights into the factors that explain the observed debt holding differential. Results from the RIF-regression decomposition analysis at different percentiles of the conditional debt distribution are presented in table 5. At the aggregate level, we can see that the cross-country difference in debt holding increases along the debt distribution. Interestingly, the observed difference in log of debt holding attributable to the covariate and coefficient effect also differs along the debt distribution. Evidently, from the lowest percentile up to the median, the covariate effect or differences in composition of rural households' characteristics positively and significantly explain the observed cross-country difference in the amount of debt holding. This means that up to the median, differences in the distribution of household characteristics accounts for the large portion of the difference between rural households' debt in Thailand and Vietnam. In contrast, from the median onwards, the covariate effect becomes insignificant reflecting that the distribution of households' characteristics such as higher endowments do not actually explain the higher amount of debt holding observed for rural households in Thailand in the top percentiles. Instead, the difference in debt holding beyond the median debt is fully explained by the coefficient effect. This indicates that the economic environment is what mainly contributes to the higher amount of debt holding observed among rural households in Thailand.

(Insert Table 5 here)

The detailed decomposition further explains these observed differences by capturing the contribution of each characteristic to the estimated log of debt equations. We find that, similar to the results at the mean, income, financial wealth, real wealth and income fluctuation mainly explain the estimated positive covariate effect at the lower percentile of the debt distribution. This suggests that the Thai rural households had higher endowments that explain the higher amount of debt they hold especially at

the lower tail of the debt distribution. Turning to the coefficient effects at the top percentiles of the debt distribution, again the detailed decomposition shows that income, financial and real wealth are the key significant contributors to the estimated positive effect. If we interpret the coefficient effect as capturing the economic environment then this finding suggests that Vietnamese rural households would have higher amount of debt if they were to experience the economic environment that Thai rural households with comparable level of income, financial and real wealth face.

In summary, the findings from the RIF-regression decomposition analysis are broadly consistent with the results from the decomposition analysis at the mean, while adding the key insight into the varying role of the coefficient and covariate effect at the different points of the debt distribution. In the case of higher amount of debt observed at the lower tail of the debt distribution, better endowments explain the gap reflecting that Thai households possess resources that indicate a higher demand for debt and capacity to bear higher debt burden. On the other hand, in the upper tail of the debt distribution, the high debt gap between rural households in Vietnam and Thailand is overwhelmingly explained by differences in the economic environment, with this differences widening at higher debt levels.

4.3. Decomposing the Indebtedness Indicators

According to the findings from the RIF-regression decomposition analysis, the higher amount of debt observed among rural households in Thailand is partly due to having better resources that might make them more capable of servicing their debt and less likely to face high debt burden. Hence, we further look into differences in debt burden using the common DSR, DIR and DAR indicators of indebtedness.

At the aggregate level we can see that rural households in Thailand on average have a higher debt burden or level of indebtedness even though they tend to have higher income and wealth compared to rural households in Vietnam (see table 4). This observed gap in debt burden is largely attributable to differences in the economic environment regardless of the indicator used. Looking further at the detailed decompositions, table 4 shows that financial wealth has a strong and positive effect on the difference in indebtedness levels using all three indicators through the coefficient effect. The reason behind this finding could be that saving secured loans are common in Thailand and hence amount of saving households have determines the amount of debt they take out by signaling better repayment capacity. Especially for group loans in Thailand, the maximum amount of loan households can borrow might depend on the accumulated amount of savings they have at the village bank (Coleman, 1999). Furthermore focusing on the DSR and DAR indicators, it is clear that the economic environment in Thailand is again more tolerant to the economically disadvantaged rural households to bear higher debt burden than in Vietnam as showed by the positive significant constant.

Turning to the covariate effect, we can see that configuration of the rural households characteristics in Thailand explains about 37% and 25% of the observed difference in level of indebtedness using the

DSR and DIR indicators respectively (see table 4). The key factors that contribute to the positive covariate are again financial and real wealth and are in favor of those in Thailand. These findings are in line with the findings from the decomposition analysis of the log of debt. Additionally, financial expectation and risk preferences explain the higher level of indebtedness among rural households in Thailand in terms of the DIR indicator. Since being a risk taker and having a worst future financial expectation is associated to facing higher debt burden, a positive significant contribution to the covariate effect means that more of the Thai households have these characters making them more disposed to higher debt burdens. In the case of the DAR, the covariate effect is negative indicating that rural households in Vietnam have characteristics that make them more likely to experience higher level of debt burden. However, given the favorable economic environment in Thailand that is more tolerant to rural households having higher debt burdens than in Vietnam, the negative covariate effect is neutralized.

Table 6, presents the RIF-regression decomposition results at different percentiles of the indebtedness distribution for the DSR indebtedness indicator. In general, the difference in the level of indebtedness increases when going along the indebtedness indicators distribution and the coefficient effect explains larger portion of the difference especially at the upper tail of the distribution. Turning to the specific results from the detailed decomposition for the DSR indicator, table 6 presents financial and real wealth as the key individual contributors to both the coefficient and covariate effects. This suggests that rural households in Thailand have higher amount of financial and real wealth that explain their need and capacity to bear higher amount debt relative to their income and also at any given level of wealth the economic environment in Thailand is more tolerant to rural households holding high level of indebtedness. Another notable finding is again that the economic environment in Thailand allows the economically disadvantaged group of rural households to get into high debt burden situation as shown by the high positive significant estimate of the constant term.³

(Insert Table 6 here)

Covariate effects also play a statistically significant role in explaining the observed difference in level of indebtedness between Thailand and Vietnam when using the DSR. The covariate effect is estimated to be positively significant indicating that rural households in Thailand have configuration of characteristics that make them assume larger level of debt burden than what is observed for rural households in Vietnam, especially at the lower tail of the distribution. The key characters that explain this positive effect are financial and real wealth, financial expectation, income fluctuation and risk preferences. Other characters such as age, education and income contribute negatively to the covariate

³ Similar results were found using the DIR and DAR indicators of indebtedness. However for the sake of brevity, the result table for the DIR and DAR indicators are not included in the this paper, but can be made available on request.

effect showing that Vietnamese rural households for instance have younger and more educated household heads that should make them more prone to face higher debt burdens than Thai households as these characters are associated with higher debt burden.

To sum up, the findings from the decomposition analysis of the three indebtedness indicators suggests that rural households in Thailand face significantly higher level of indebtedness compared to rural households in Vietnam. The main explanation for this observed cross-country debt burden gap is the economic environment in Thailand that seems to be more tolerant of high level of indebtedness among rural households.

5. Conclusions

This paper on the indebtedness of rural households in Thailand and Vietnam has several findings. First, there is higher prevalence of debt and over-indebtedness in Thailand as compared to Vietnam. Second, households in Thailand who participate in the credit market hold also larger amounts of debt and face higher level of indebtedness as compared to Vietnam. Third, these differences arise due to dissimilarity in the economic conditions in the two countries and not because of differences in household characteristics. For the economically disadvantaged rural households, the credit market conditions in Thailand are more lenient to borrowing as compared to Vietnam. Finally, the gap in debt holding and indebtedness increase significantly when moving up the debt distribution. The same is true for the factors that explain these differences. At the lower tail of the distributions, differences in household characteristics matter for Thai households while at the upper part of the distribution, differences in the economic environment explain the gap. The paper thus gives some indication about the possible impact of credit market liberalization for rural households in Vietnam.

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Table 1: Summary statistics for debt holdings (prevalence and conditional amounts), DSR, DIR, DAR and default in 2008 and 2010

		Thailand		Vietnam	
		2008	2010	2008	2010
Outstanding Debt	Prevalence	0.82	0.74	0.66	0.69
	10 th percentile	617	580	471	568
	50 th percentile	3205	2926	1812	2270
	90 th percentile	20294	16389	6196	8614
DSR	Prevalence>40%	0.43	0.14	0.11	0.10
	10 th percentile	0.00	0.00	0.00	0.00
	50 th percentile	0.31	0.00	0.02	0.01
	90 th percentile	1.63	0.54	0.46	0.40
DIR	Prevalence>50%	0.54	0.36	0.32	0.38
	10 th percentile	0.05	0.06	0.00	0.05
	50 th percentile	0.71	0.41	0.37	0.48
	90 th percentile	4.59	2.50	1.83	2.42
DAR	Prevalence>50%	0.09	0.05	0.03	0.04
	10 th percentile	0.01	0.01	0.00	0.01
	50 th percentile	0.08	0.07	0.07	0.08
	90 th percentile	0.50	0.40	0.28	0.33
Default	Prevalence	0.11	0.05	0.05	0.07

Table 2: Average household characteristics by country in 2008 and 2010

	Vietnam	Thailand
Age of HH head below 39	0.214	0.067
Age of HH head 40-49	0.306	0.241
Age of HH head 50-59	0.235	0.268
Age of HH head 60 and above (base category)	0.245	0.424
Female HH head (base category)	0.209	0.335
Married HH head	0.852	0.782
Household size	5.276	5.490
Illiterate (base category)	0.113	0.045
Primary education	0.317	0.843
Secondary education	0.513	0.0936
Higher education	0.057	0.0184
Agricultural HH	0.665	0.606
Self-employed HH	0.0751	0.082
Off-farm employed HH	0.209	0.184
Inactive HH (base category)	0.0509	0.128
Income quintile 1 (base category)	0.307	0.200
Income quintile 2	0.234	0.200
Income quintile 3	0.183	0.200
Income quintile 4	0.169	0.200
Income quintile 5	0.107	0.200
Financial wealth quintile 1	0.663	0.215
Financial wealth quintile 2	0.015	0.185
Financial wealth quintile 3	0.0687	0.199
Financial wealth quintile 4	0.0993	0.201
Financial wealth quintile 5	0.154	0.200
Real wealth quintile 1	0.286	0.200

Real wealth quintile 2	0.287	0.200
Real wealth quintile 3	0.180	0.200
Real wealth quintile 4	0.119	0.200
Real wealth quintile 5	0.128	0.200
Income fluctuation (t-1)	0.613	0.681
Unexpected shocks to expense	0.454	0.372
Expected shocks to expense	0.119	0.0966
Unexpected shocks to income	0.616	0.406
Better future financial expectation	0.506	0.513
Same future financial expectation	0.421	0.375
Worst future financial expectation	0.073	0.112
Risk averse	0.523	0.352
Risk neutral	0.197	0.416
Risk taker	0.28	0.232
Observations	2024	2091

Table 3: Decomposition of differences in the prevalence of debt and over-indebtedness in 2008

	Debt	DSR>40%	Default
Overall			
Thailand	0.817*** (0.01)	0.427*** (0.01)	0.111*** (0.01)
Vietnam	0.662*** (0.01)	0.113*** (0.01)	0.056*** (0.00)
Total difference	0.155*** (0.01)	0.314*** (0.01)	0.055*** (0.01)
Covariate effect	-0.033*** (0.01)	-0.009 (0.02)	-0.004 (0.01)
Coefficient effect	0.188*** (0.01)	0.324*** (0.02)	0.059*** (0.01)
Covariate effect			
Female	-0.001 (0.00)	0.003 (0.00)	-0.002 (0.01)
Age	-0.015*** (0.00)	-0.015** (0.01)	-0.003 (0.01)
Education	-0.010* (0.01)	-0.021 (0.01)	0.017 (0.05)
Married	-0.001 (0.00)	-0.001 (0.00)	-0.000 (0.00)
HH size	0.003*** (0.00)	0.002** (0.00)	0.004 (0.01)
Occupation	-0.001 (0.00)	0.002 (0.00)	0.003 (0.01)
Income	-0.001 (0.00)	0.004 (0.00)	0.000 (0.00)
wealth	-0.003 (0.00)	0.023*** (0.00)	-0.016 (0.03)
Financial expectation	-0.001 (0.00)	0.001 (0.00)	0.003 (0.01)
Adverse shocks	-0.007***	-0.008*	-0.011

	(0.00)	(0.00)	(0.02)
Income fluctuation ($t-1$)	0.006 ^{***}	0.004 [*]	0.009
	(0.00)	(0.00)	(0.02)
Risk preference	-0.001	-0.003	-0.008
	(0.00)	(0.00)	(0.02)
Coefficient effect			
Female	-0.020 ^{**}	-0.015 [*]	0.001
	(0.01)	(0.01)	(0.01)
Age	-0.032	0.017	-0.042 ^{**}
	(0.02)	(0.03)	(0.02)
Education	-0.020	-0.043	0.029
	(0.04)	(0.04)	(0.02)
Married	-0.040	-0.059	-0.007
	(0.04)	(0.04)	(0.03)
HH size	-0.074 [*]	0.022	-0.012
	(0.04)	(0.04)	(0.02)
Occupation	0.000	-0.007	0.004
	(0.01)	(0.01)	(0.01)
Income	0.023	0.096 ^{***}	0.023
	(0.03)	(0.03)	(0.02)
wealth	0.030	-0.026	-0.003
	(0.02)	(0.02)	(0.01)
Financial expectation	-0.064	-0.051	-0.019
	(0.04)	(0.05)	(0.03)
Adverse shocks	-0.042 ^{**}	0.010	0.023 [*]
	(0.02)	(0.02)	(0.01)
Income fluctuation ($t-1$)	0.002	-0.024	0.018
	(0.02)	(0.02)	(0.01)
Risk preference	-0.038	-0.098 ^{***}	0.029 [*]
	(0.03)	(0.03)	(0.02)
Constant	0.462 ^{***}	0.501 ^{***}	0.013
	(0.09)	(0.10)	(0.06)
Observations	4211	4211	4211

Notes:

1. Results are based on the Oaxaca-Blinder Decomposition Method.
2. *, **, & *** represent statistical significance at the 10%, 5%, & 1% level respectively.

Table 4: Decomposition of differences in average log of debt, DSR, DIR and DAR in 2008

	Amount of Debt	DSR	DIR	DAR
Overall				
Thailand	8.133 ^{***}	48.346 ^{***}	106.224 ^{***}	17.956 ^{***}
	(0.03)	(1.34)	(2.96)	(0.64)
Vietnam	7.436 ^{***}	15.590 ^{***}	63.779 ^{***}	11.861 ^{***}
	(0.03)	(0.77)	(2.11)	(0.43)
Total difference	0.697 ^{***}	32.755 ^{***}	42.445 ^{***}	6.095 ^{***}
	(0.04)	(1.54)	(3.63)	(0.77)
Covariate effect	0.200 ^{***}	12.303 ^{***}	10.881 ^{**}	-2.805 ^{**}
	(0.07)	(2.16)	(5.43)	(1.14)
Coefficient effect	0.497 ^{***}	20.452 ^{***}	31.564 ^{***}	8.900 ^{***}
	(0.08)	(2.46)	(6.22)	(1.33)
Covariate effect				
Female	0.001	0.244	-0.764	-0.135
	(0.01)	(0.28)	(0.66)	(0.14)
Age	0.016	-0.199	-0.798	0.311

Education	(0.01) -0.171***	(0.41) -1.838**	(1.08) -5.655***	(0.25) -2.490***
Married	(0.03) -0.010*	(0.89) -0.383**	(2.19) -0.159	(0.53) -0.083
HH size	(0.01) 0.001	(0.18) 0.074	(0.48) -0.014	(0.10) 0.015
Occupation	(0.00) 0.012	(0.07) 0.109	(0.15) 0.793	(0.03) 0.206
Income	(0.01) 0.021***	(0.21) -0.691	(0.65) -1.005	(0.15) 0.184**
Financial wealth	(0.01) 0.164***	(0.51) 12.115***	(1.49) 10.967**	(0.09) 1.697*
Real wealth	(0.06) 0.166***	(1.61) 3.006***	(4.27) 6.341***	(0.87) -2.979***
Financial expectation	(0.02) -0.001	(0.50) -0.043	(1.17) 1.716*	(0.35) 0.049
Adverse shocks	(0.01) -0.013	(0.34) -0.459	(0.91) -2.839***	(0.21) -0.094
Income fluctuation (<i>t-1</i>)	(0.01) 0.011**	(0.35) 0.285	(0.94) 0.513*	(0.21) 0.170**
Risk preference	(0.00) 0.003	(0.18) 0.081	(0.30) 1.787*	(0.08) 0.343
	(0.01)	(0.40)	(1.02)	(0.21)
Coefficient effect				
Female	-0.008 (0.03)	-0.917 (1.01)	-2.949 (2.23)	-1.120** (0.50)
Age	-0.045 (0.09)	1.457 (2.76)	-0.982 (6.61)	-0.641 (1.49)
Education	0.092 (0.15)	-1.946 (6.36)	7.409 (13.69)	2.331 (2.76)
Married	0.055 (0.12)	-1.164 (3.91)	-0.753 (10.24)	-1.949 (2.21)
HH size	0.103 (0.12)	-0.590 (3.78)	-1.014 (11.43)	4.366* (2.23)
Occupation	0.046 (0.03)	-0.502 (1.14)	1.102 (2.51)	0.758 (0.61)
Income	-0.121 (0.10)	-17.249*** (5.41)	-6.301 (12.47)	0.297 (2.03)
Financial wealth	0.179*** (0.04)	7.400*** (1.56)	10.766*** (3.48)	2.167*** (0.67)
Real wealth	-0.093 (0.08)	4.436 (3.12)	-8.637 (7.18)	-7.298*** (1.91)
Financial expectation	0.248* (0.15)	-3.278 (4.40)	14.408 (10.87)	3.060 (2.56)
Adverse shocks	-0.097 (0.06)	2.604 (1.93)	-1.871 (4.75)	-1.515 (0.98)
Income fluctuation (<i>t-1</i>)	-0.012 (0.06)	0.127 (1.82)	-2.637 (4.42)	0.319 (0.95)
Risk preference	-0.118 (0.08)	-12.082*** (2.91)	-4.558 (6.89)	-1.524 (1.47)
Constant	0.267 (0.31)	42.155*** (11.02)	27.581 (27.09)	9.649* (5.49)
Observations	3117	3975	3141	3397

Notes:

1. Results are based on the Oaxaca-Blinder decomposition method.
2. *, **, & *** represent statistical significance at the 10%, 5%, & 1% level respectively.

Table 5: Decomposition of differences in log of debt in 2008

	Log of debt				
	10 th	25 th	50 th	75 th	90 th
Overall					
Thailand	6.509 ^{***} (0.06)	7.188 ^{***} (0.05)	8.064 ^{***} (0.04)	8.905 ^{***} (0.05)	9.880 ^{***} (0.08)
Vietnam	6.138 ^{***} (0.06)	6.896 ^{***} (0.03)	7.518 ^{***} (0.04)	8.154 ^{***} (0.04)	8.707 ^{***} (0.05)
Total difference	0.371 ^{**} (0.08)	0.292 ^{**} (0.06)	0.546 ^{***} (0.05)	0.751 ^{**} (0.06)	1.173 ^{**} (0.09)
Covariate effect	0.280 [*] (0.15)	0.209 ^{**} (0.10)	0.221 ^{***} (0.08)	0.130 (0.09)	-0.048 (0.14)
Coefficient effect	0.090 (0.18)	0.083 (0.11)	0.325 ^{***} (0.09)	0.621 ^{***} (0.10)	1.221 ^{***} (0.16)
Covariate effect					
Female	-0.023 (0.02)	-0.002 (0.01)	-0.000 (0.01)	0.008 (0.01)	0.006 (0.02)
Age	0.046 (0.03)	0.013 (0.02)	0.021 (0.02)	0.003 (0.02)	-0.014 (0.03)
Education	-0.173 ^{***} (0.05)	-0.161 ^{***} (0.03)	-0.128 ^{***} (0.03)	-0.122 ^{***} (0.04)	-0.266 ^{***} (0.07)
Married	-0.008 (0.01)	-0.017 [*] (0.01)	-0.008 (0.01)	-0.013 [*] (0.01)	-0.012 (0.01)
HH size	0.001 (0.00)	0.001 (0.00)	0.001 (0.00)	0.000 (0.00)	0.000 (0.00)
Occupation	0.009 (0.01)	0.010 (0.01)	0.018 ^{**} (0.01)	0.023 ^{**} (0.01)	0.016 (0.02)
Income	0.018 ^{**} (0.01)	0.014 ^{**} (0.01)	0.015 ^{**} (0.01)	0.022 ^{**} (0.01)	0.029 ^{**} (0.01)
Financial wealth	0.323 ^{***} (0.13)	0.215 ^{***} (0.08)	0.143 ^{**} (0.06)	0.026 (0.07)	-0.081 (0.11)
Real wealth	0.112 ^{***} (0.03)	0.118 ^{***} (0.02)	0.147 ^{***} (0.02)	0.182 ^{***} (0.02)	0.243 ^{***} (0.03)
Financial expectation	-0.005 (0.02)	0.004 (0.02)	0.001 (0.01)	-0.003 (0.01)	-0.007 (0.02)
Adverse shocks	-0.054 ^{**} (0.02)	-0.011 (0.02)	-0.009 (0.01)	-0.010 (0.02)	0.014 (0.03)
Income fluctuation (<i>t-1</i>)	0.017 ^{**} (0.01)	0.011 [*] (0.01)	0.007 (0.00)	0.011 [*] (0.01)	0.014 (0.01)
Risk preference	0.015 (0.02)	0.015 (0.02)	0.013 (0.01)	0.002 (0.02)	0.009 (0.03)
Coefficient effect					
Female	-0.027 (0.05)	-0.012 (0.04)	-0.046 (0.03)	0.012 (0.04)	0.061 (0.05)
Age	-0.085 (0.18)	-0.041 (0.12)	0.074 (0.11)	-0.008 (0.12)	-0.234 (0.16)
Education	-0.156 (0.35)	0.052 (0.24)	-0.143 (0.19)	0.122 (0.21)	0.443 (0.31)
Married	0.036 (0.26)	0.235 (0.17)	-0.119 (0.14)	0.158 (0.16)	0.302 (0.23)
HH size	-0.221 (0.24)	-0.006 (0.16)	0.078 (0.14)	-0.007 (0.18)	0.336 (0.27)
Occupation	0.008 (0.06)	-0.007 (0.04)	0.039 (0.04)	0.070 (0.04)	0.227 ^{***} (0.07)
Income	0.091 (0.75)	-0.005 (0.50)	0.097 (0.46)	0.144 (0.53)	1.540 [*] (0.87)

Financial wealth	0.347*** (0.10)	0.251*** (0.06)	0.121** (0.05)	0.137** (0.06)	0.058 (0.09)
Real wealth	-0.528 (1.18)	0.534 (0.76)	0.149 (0.67)	0.577 (0.79)	2.747** (1.20)
Financial expectation	0.313 (0.27)	0.302* (0.17)	0.439*** (0.16)	0.196 (0.17)	0.403 (0.25)
Adverse shocks	-0.053 (0.12)	-0.038 (0.09)	-0.064 (0.08)	-0.101 (0.09)	0.035 (0.13)
Income fluctuation ($t-1$)	0.047 (0.11)	-0.016 (0.08)	0.066 (0.07)	-0.109 (0.08)	-0.050 (0.12)
Risk preference	-0.167 (0.15)	-0.181* (0.11)	0.007 (0.09)	-0.195* (0.11)	-0.164 (0.18)
Constant	0.484 (1.27)	-0.985 (0.80)	-0.372 (0.68)	-0.373 (0.79)	-4.484*** (1.33)
Observations	3005	3005	3005	3005	3005

Notes:

1. Results are based on the RIF-Regression decomposition method.
2. *, **, & *** represent statistical significance at the 10%, 5%, & 1% level respectively.

Table 6: Decomposition of differences in DSR distribution at the 50th, 75th and 90th percentiles in 2008

	50 th	DSR 75 th	90 th
Overall			
Thailand	29.400*** (1.37)	70.269*** (2.44)	139.900*** (3.53)
Vietnam	1.732*** (0.22)	14.730*** (1.17)	44.104*** (2.26)
Total difference	27.668*** (1.39)	55.539*** (2.70)	95.796*** (4.19)
Covariate effect	12.502*** (1.95)	16.135*** (3.61)	18.237*** (5.57)
Coefficient effect	15.166*** (2.32)	39.404*** (4.20)	77.560*** (6.42)
Covariate effect			
Female	-0.065 (0.26)	0.097 (0.48)	0.138 (0.71)
Age	-1.061*** (0.36)	-1.539** (0.72)	1.267 (1.13)
Education	-1.226 (0.76)	-1.505 (1.57)	-3.869 (2.47)
Married	-0.135 (0.16)	-0.566* (0.29)	-0.615 (0.43)
HH size	0.170* (0.09)	0.089 (0.12)	0.068 (0.18)
Occupation	0.221 (0.21)	0.057 (0.38)	-0.211 (0.55)
Income	-0.787** (0.31)	-2.110*** (0.81)	-3.720*** (1.43)
Financial wealth	14.029*** (1.58)	16.427*** (2.74)	16.075*** (4.19)
Real wealth	2.289*** (0.42)	5.062*** (0.86)	9.490*** (1.41)
Financial expectation	0.387 (0.32)	-0.429 (0.60)	-0.152 (0.91)
Adverse shocks	-0.806** (0.32)	-0.090 (0.60)	-1.422 (0.91)

	(0.33)	(0.64)	(0.99)
Income fluctuation (<i>t-1</i>)	0.145	0.372	0.464
	(0.17)	(0.33)	(0.50)
Risk preference	-0.660*	0.272	0.724
	(0.38)	(0.72)	(1.09)
Coefficient effect			
Female	-0.998	-0.918	-5.291**
	(0.83)	(1.66)	(2.67)
Age	5.703**	2.380	-6.146
	(2.27)	(4.46)	(7.37)
Education	1.171	-2.438	-22.646
	(5.40)	(9.58)	(17.10)
Married	0.109	1.180	-4.562
	(3.24)	(6.30)	(10.30)
HH size	7.320**	-4.297	-17.428
	(3.28)	(6.74)	(10.70)
Occupation	0.464	-0.045	-1.021
	(1.06)	(2.08)	(3.15)
Income	-136.192***	-236.540***	-228.663***
	(12.74)	(25.62)	(48.45)
Financial wealth	9.193***	13.515***	11.377***
	(1.40)	(2.55)	(4.09)
Real wealth	83.035***	91.632**	107.448*
	(18.09)	(36.82)	(58.35)
Financial expectation	-5.271*	-6.268	-10.526
	(3.19)	(6.89)	(11.49)
Adverse shocks	2.569	2.808	3.778
	(1.79)	(3.56)	(5.41)
Income fluctuation (<i>t-1</i>)	-0.697	-2.494	-2.548
	(1.70)	(3.32)	(5.10)
Risk preference	-8.213***	-23.234***	-23.562***
	(2.65)	(5.28)	(7.88)
Constant	56.975***	204.121***	277.349***
	(18.69)	(37.36)	(57.35)
Observations	3997	3997	3997

Notes:

1. Results are based on the RIF-Regression decomposition method.
2. *, **, & *** represent statistical significance at the 10%, 5%, & 1% level respectively.