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Asking Retrospective Questions in Household Surveys: Evidence from Vietnam*

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Abstract

Asking retrospective questions about consumption and income has become an important part of household surveys and research in developing countries. While recall errors in retrospective data may generate estimation biases, the nature and the magnitude of the errors are largely unknown, especially in the context of developing countries. To fill this gap in the existing studies, we collect unique household data from Vietnam, a resurvey of respondents of the Vietnam Household Living Standards Survey (VHLSS) 2006. This combined data allows us to investigate a variety of errors associated with recall surveys and the size of consumption categories in questionnaires. Our empirical results suggest that asking for total expenditure, rather than categorical expenditure, will cause fewer recall errors in a retrospective survey. This is especially true in the case of purchased or bartered consumption expenditure. Our results also suggest that while recall errors in the categorical sum of expenditure may exhibit mean-reverting patterns, retrospective total expenditure data is less likely to involve problems of mean reverting measurement error.

Keywords: Consumption; Income; Household Survey

JEL Classification Numbers: D12, O12

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1. Introduction

In many areas of economics, consumption and income are regarded as key variables in describing household and individual welfare, poverty, and wellbeing. Researchers and policymakers in both developed and developing countries use consumption and income to quantify living standards and the welfare effects of policy interventions. In developed countries, consumption and income data are usually collected on a regular basis by household-level diary surveys. In developing countries, on the other hand, cost and administrative factors often prohibit regular household diary surveys. Hence, retrospective questions on consumption and income form a particularly important part of household surveys as well as research into consumption and income in developing countries.

When consumption and income enter as an independent variable in regression models, it is natural to assume that measurement errors in retrospective data may generate estimation biases. When errors are mean zero random errors and the variable with errors is used as a dependent variable, the error will not cause estimation bias. In contrast, when errors are correlated with independent variables or errors involve a mean-reverting pattern, bias in estimation will arise (Gibson and Kim, 2007, 2009). However, the nature and the magnitude of recall errors have rarely been investigated, with a few exceptions (Chesher and Schluter, 2002; Gibson and Kim, 2007). Using two complementary Italian data sets, one based on recall and the other based on diaries, Battistin, Miniaci and Weber (2003) find that recall consumption data is heavily affected by heaping and rounding errors. Ahmed, Brzozowski and Crossley (2006) also compare diary and recall data from the same household in Canada. They found that expenditure

from recall data is consistently higher than that in a diary response and that consumption from diary data, which is supposed to provide the true consumption, is correlated with the gap between true and recall values. Also, Attanasio, Battistin, and Ichimura (2004) employ Consumer Expenditure Survey data from the United States to show that the diary and recall sample data generate different inequality patterns.

In the context of developing countries, using data from Papua New Guinea, Gibson (2002) compared estimation results of the consumption Engel equation; one collected using a diary and the other by a recall survey. He found that recalled food expenditure has downward measurement errors that are systematically correlated with household size, causing overestimation bias of the household size effect in estimating the consumption Engel equation. Gibson and Kim (2007) also found that recall surveys of household expenditure in Indonesia and Cambodia appear to have measurement errors in food expenditures and in food budget shares that are correlated with household size. More seriously, existing studies show that recall errors are not necessarily random, causing non-classical measurement errors that cannot be mitigated by standard instrumental variable methods (Black, Berger and Scott, 2000; Gibson and Kim, 2007).

However, in the context of developing countries, the nature and the causes of recall errors are still largely unknown and so biases arising from these errors have been ignored in most existing studies using recall data in developing countries. To fill the gap in these existing studies, we collect unique household data from Vietnam, a resurvey of respondents of the Vietnam Household and Living Standards Survey (VHLSS) 2006. This data allows us to investigate a variety of errors related with recall survey and the size of consumption categories. With this investigation, we aim to identify the systematic features of retrospective surveys, enabling us to make amendments when we

conduct regression analyses.

To preview, four findings emerge from our analyses. First, there is systematic bias arising from aggregating categorical retrospective expenditure items. In contrast, a retrospective question on total expenditure produces a smaller measurement error. Second, measurement errors in retrospective expenditure seem to be systematically related to household size. This suggests that the inclusion of household size as one of the control variables in regression equations may mitigate biases arising from measurement errors. Third, the measurement errors are more serious in self-generated goods consumption than those in bought or bartered consumption expenditure. Finally, as Gibson and Kim (2007) found, our estimation results suggest that the recall error in the categorical sum of expenditure may exhibit mean-reverting patterns. The use of expenditure data with this mean-reverting error as a dependent variable will generate downward bias in the estimated coefficient, in contrast to the attenuation bias arising from classical measurement errors in independent variables.

The remainder of this paper is organized as follows: Section 2 presents the conceptual framework for our analysis with retrospective survey errors. In Section 3, we present our data, descriptive statistics, and empirical results. The final section offers concluding remarks.

2. The Conceptual Framework

In this section, we summarize the conceptual framework for analyzing consumption or income data collected in a retrospective survey. When using retrospective data as independent variables, attenuation biases arising from the classical measurement errors

should be handled carefully. An instrumental variable approach is a standard method for dealing with this problem.

Even when using retrospective consumption or an income variable as a dependent variable, serious bias may arise. To illustrate this problem, we consider two cases. First, suppose we are interested in running the following regression:

$$y = X\beta + u, \tag{1}$$

where y represents either consumption or the income variable without retrospective survey errors. X is a set of independent variables determining consumption or income and u is a mean-zero error term where we assume that $E(u|X) = 0$. For example, in the case of estimating a consumption equation based on the life-cycle permanent income hypotheses, X should include a variety of household characteristics and assets, representing each household's level of physical, financial, and human assets. Denote that the dependent variable collected through a retrospective survey by y^*. Note that $y^* = y + v$, where v represents errors arising from retrospective survey. Accordingly, the model we can estimate with observable data is:

$$y^* = X\beta + \varepsilon, \tag{2}$$

where $\varepsilon \equiv u + v$, where v represents errors arising from the retrospective survey. Since it is likely that the retrospective errors are systematically related to household characteristics, we have $E(v|X) \neq 0$. Hence, estimating equation (2) by OLS will produce endogeneity bias.

In our data described below, we observe the retrospective error directly from our survey data combined with existing data. This unique data allows us to investigate the conditional expectation of v, i.e., $E(v|X)$, empirically. In empirical analyses, we adopt two alternative assumptions. First, we assume that the conditional expectation function of v given X is linear. Second, we also employ the median regression function of v conditional on X, i.e., $Q_{1/2}(v|X)$, where the conditional median function is taken to be linear in X.[1] By the median regression model, we aim to mitigate the problem arising from outliers.

Another measurement error problem arises when the measurement error is mean reverting (Gibson and Kim, 2007; Gibson and Kim, 2009). Following Gibson and Kim (2009), suppose that the observed dependent variable is represented by

$$y^* - y = \theta + (\lambda - 1)\, y + \xi, \tag{3}$$

where $\lambda<1$ shows the mean reverting error. In this case, as shown by Gibson and Kim (2009), estimated regression coefficients involve downward biases. We estimate equation (2) by regressing on actual data the gap between the retrospective survey and actual data. If the coefficient on the actual variable, y, turns out to be negative, the result is consistent with the mean-reverting measurement error.

We should note that combining equations (1) and (3) gives the same form of equation (2), indicating that equation (3) is a structural equation and equation (2) is a reduced form equation. If $\lambda<1$ for equation (1) and (2), an OLS estimate of equation (2) gives an unbiased estimator of $\lambda\beta$, leading to downward bias. In this way, equations (2)

[1] See Koenker (2005) for general discussion on quantile regression.

and (3) are related. However, equation (2) can accommodate model forms other than the structural equations of (1) and (3). Hence, equation (2) can be viewed as a more general model than equation (1).

3. Data: Sampling Strategies and Description

We use unique panel data from Vietnam, which is a combination of two data sets, i.e., the Vietnam Household Living Standards Survey (VHLSS) 2006 data and unique survey data collected jointly by the Research Institute of Economy, Trade and Industry (RIETI) and the Center for Agricultural Policy in Vietnam (CAP). Below, we refer to the latter data set as RIETI-CAP data.

VHLSS is a biennial, nationally representative, rotating-panel household survey conducted by the General Statistics Office (GSO) with technical assistance from UNDP and the World Bank. VHLSS is a multi-purpose household survey covering a variety of topics such as household characteristics, expenditure, income, health, and education. Enumeration areas of VHLSS data are chosen randomly from the 1999 Population Census enumeration areas and households are selected randomly in each enumeration area. In VHLSS 2006, 36,000 households were surveyed to provide representative income and other statistics at the provincial level. However, the sample size of the expenditure model was reduced to a quarter of the income survey, allowing comparisons of major groups of households and individuals, but not comparisons at the provincial level.

The RIETI-CAP data set is a resurvey of subsamples of the VHLSS 2006 households in selected provinces. Since the RIETI-CAP survey aims to collect data to

help design an insurance scheme to cover avian influenza and natural disasters, sub-samples of the past VHLSS are chosen from four different provinces that were (1) hit only by avian influenza, Ha Tay province; (2) hit only by natural disasters (flooding), Nghe An Province; (3) hit both by avian influenza and natural disasters (flooding), Quang Nam Province; and (4) hit by neither avian influenza nor natural disasters (flooding), Lao Cai Province. The selection of these four provinces was made using commune-level data in VHLSS 2004 (Table 1). Figure 1 shows the re-surveyed provinces.

The RIETI-CAP survey was conducted from late February 2008 until early April 2008 (Table 2). The REITI-CAP data for these four provinces include all households included in VHLSS 2006, i.e. both households with and without the expenditure module. The data covers around 500 households from each province, where 100 households are with both income and expenditure data and 400 households are with income data only. Accordingly, we collected data from a total of 2,018 households. The data includes a variety of information such as current and retrospective income and expenditure information, asset information, subjective questions on insurance subscriptions, borrowing, past loss experiences of natural disasters, risk and demand for various hypothetical insurance schemes, and time preference.

Consumption and Income Modules

In this subsection, we describe data on consumption expenditure in the VHLSS 2006 and RIETI survey data sets. In VHLSS 2006, detailed information was sought on market purchases and consumption from home production for 57 daily food and drink

items, 21 daily non-food items (such as lottery tickets, cigarettes, soap, personal care products, cooking fuel, matches and candles, and gasoline), and 33 annual non-food items (such as fabrics, ready-made clothing, mosquito nets, face towels, scarves, rush mats, blankets, pillows, tailoring or laundry services, shoes, nylon sheeting, light buds, and electric wire). For the daily food items, VHLSS 2006 collected the number of months in which purchases were made in the past 12 months for each food item, the number of times purchases were made during those months, the quantity purchased each time, and the value per purchase. These four pieces of information can be combined to obtain the total expenditure on food in the 12 months before the date of the interview. Besides market purchases including the bartered amount, information was also collected on consumption from home production.

Consumption questions in the RIETI-CAP Survey include information about the household expenditure and received or self-generated amount for 12 food and non-food items in the last 12 months, the total quantity of consumption items bought, bartered, self-generated, or given except during holidays and during holidays. We also asked about the rate of change for the total quantities from the year before. Hence, the RIETI-CAP survey provides us with 24 months of recall information. These consumption categories and change rates are carefully set so that the RIETI-CAP and VHLSS 2006 data can be matched. See Appendix A for the actual expenditure module in the RIETI-CAP questionnaire. Since VHLSS 2006 data is based on 12-month recall, we call this data "actual" as opposed to the RIETI-CAP survey, which gives 24 moth recall data. We call the latter data "recall."

In the RIETI-CAP survey, we asked about rates of change of income components such as agriculture forestry, fishery, industry, construction, and trade and

services, as well as total self-employed income that is assumed to capture the above income components. We also asked about total salary and wage income, other income such as public transfers and aid, and remittances, as well as the total income from all income sources. Again, we designed the questionnaire carefully so that we can match the income change information in the RIETI-CAP survey with the income level information in VHLSS 2006. See Appendix B for the actual income module in the RIETI-CAP survey questionnaire.

4. Empirical Results

In our empirical implementation, we conduct three sets of analyses. First, we compare a variety of cumulative density functions to check the consistencies between the VHLSS 2006 data and the RIETI-CAP data as well as the internal consistency of the RIETI-CAP data. Second, following equations (1) and (2), we explore the relationship between the recall or measurement error, v and a set of observables, X. Finally, based on equation (2), we examine the nature of measurement errors by regressing the gap between retrospective consumption variable from the RIETI-CAP data and the actual consumption variable from VHLSS 2006 on the actual consumption variable from VHLSS 2006.

For the second regression analyses, we used the following variables for the set of observables, X:

List of Independent Variables

Variable name	Content
Asset	Asset in 2006 or 2007
income07	Total income in 2007
Incinc	Increase in income level
res_fehead_wife	Respondent is female head or female head's spouse (dummy)
res3	Respondent is son (dummy)
res4	Respondent is daughter (dummy)
Intp	Interpretation service required (dummy)
Rural	Rural (dummy)
m4s91	Sale and service unskilled worker (dummy)
m4s92	Head's occupation is unskilled worker in agriculture, forestry, or aquaculture (dummy)
m4s93	Unskilled worker in mining, construction, manufacturing, or transportation or other unskilled worker (dummy)
d1_esty	Head's ethnicity is code 1 (Kinh) (dummy)
d1_pro	Province dummy
d2_pro	Province dummy
d3_pro	Province dummy
Num	Number of household members
lit_res_fehead_wife	Respondent is female head or wife and she is literate (dummy)
lit_res_malehead_husband	Respondent is male head or husband and he is literate (dummy)
emax_sec	Maximum household education level is higher than lower secondary school (dummy)
age_res_fehead_wife	Age of the respondent when the respondent is female head or female husband
age_res_malehead_husband	Age of the respondent when the respondent is male head or male husband
educ_res_fehead_wife	Respondent is female head or wife and has graduated from primary school
educ_res_malehead_hus	Respondent is male head or husband and has graduated from primary school
emax_sec	The highest education level of household is at least secondary school
Ruralinc	Income * rural dummy

Comparisons of Consumption and Income CDFs

For comparisons of consumption and income CDFs, we obtain the following four sets of results. First, we employ the RIETI-CAP survey to compare the sum of categorical expenditure data from a long questionnaire in 2007 and total expenditure from a single broad "total expenditure" question in 2007. The latter single broad total expenditure question is asked because Browning, Crossley, and Weber (2003) suggested that this question will pick up unexpected sub-items and will achieve reasonable response rates with substantial valid variance.

Following Figure 2 (exp1a) and (exp1b) show the bought or bartered goods and self-generated goods, respectively. The systematic gap between these two variables implies that the item-wise consumption may miss some non-negligible consumption items. While some existing studies such as Jolliffe (2001) and Pradhan (2001) compared a long questionnaire with a short questionnaire, no existing studies employed a single total expenditure for the purposes of comparison.

Second, we compare the total expenditure based on the VHLSS 2006 data and the total retrospective expenditure of 2006 based on the total expenditure data in 2007 and expenditure change data from the RIETI-CAP survey. Figure 3 (exp2a) and (exp2b) represent the bought or bartered goods and self-generated goods, respectively. As we can see, there is a consistent gap between the two data sets. In fact, retrospective data tends to overestimate the actual expenditure amounts irrespective of whether goods are purchased or self-generated.

Third, we compare the categorical sum of 2006 expenditure based on the VHLSS 2006 data and the sum of categorical retrospective expenditure of 2006 based on the RIETI-CAP survey. Figure 4 (exp32a) and (exp32b) represent bought or bartered goods and self-generated goods, respectively. As before, there is a consistent gap between the two data sets. We may conclude that irrespective of whether the questionnaire asks about total or item-wise expenditure, retrospective data tends to overestimate the actual expenditure amounts for both purchased and self-generated goods.

In the above comparisons of expenditure series, the two-sample Kolmogorov-Smirnov tests for equality of distribution functions reject the same CDFs of each pair CDF at 1% level. We should note, however, that these consistent gaps do

not necessarily imply estimation biases even if we employ retrospective data. This is simply because the gaps can be effectively captured by observable data and/or various fixed effects in estimation.

Finally, we compare the categorical sum and aggregated income variables in three ways (Figure 5). In these comparisons, with the two-sample Kolmogorov-Smirnov tests for equality of distribution functions, we cannot reject the same CDFs of each pair CDF at the 1% level. First, in Figure 5 (inc1), we compare the weighted sum of self-employment income categories in VHLSS2006 with the total of self-employment income in VHLSS 2006. Both variables are multiplied by the corresponding income change variables in the RIETI-CAP survey to create the values for 2007. In Figure 5 (inc2), we also draw similar figures for the weighted sum of total self-employment income, salaries/wages, and other income compared with total income. Finally, in Figure 5 (inc3), we compare the weighted sum of categorical self-employment income, salaries/wages, and other income components with the total income variable. These figures suggest that the way income is queried does not generate serious bias in obtaining income distribution information because the weighted sum of detailed categorical income components is comparable to total income values.

Regression of the Gap on Household Characteristics

To analyze the features of measurement errors in the retrospective survey, we employ equations (1) and (2) and regress the recall or measurement error, v on a set of observables, X.

First, we regress the observed gap between the categorical sum of expenditure

in 2007 and total expenditure in 2007 on a set of observables based on the RIETI-CAP survey. We estimate this model for bought or bartered goods and self-generated goods separately and the results for each set of goods are shown in Table 3 and Table 4. For the bought or bartered goods in Table 3, median regression results show that households with higher asset holdings or higher income tend to report a higher gap, which is defined as the total minus categorical sum of expenditure. According to the OLS results, households whose income had increased rapidly report a higher gap. Also, based on the results of F-tests, we reject a null hypothesis in which all coefficients are jointly zero in all specifications. This indicates that the recall errors are correlated with observables, generating endogeneity bias in estimating equation (2).

With respect to the self-generated goods in Table 4, both the OLS and median regression show that households with higher asset holdings tend to report a higher gap. According to the median regression results, households with lower income report a higher gap, rural households report a lower gap, and there is a reporting bias specific to certain occupations such as unskilled workers in the mining, construction, manufacturing, and transportation industries and other unskilled workers. With respect to the overall results, with F-tests, we strongly reject the null hypothesis of the jointly zero coefficients, suggesting the possibility of endogeneity bias arising from the recall bias.

Second, we examine the gap between total retrospective expenditure based on the RIETI-CAP data and total expenditure based on the VHLSS 2006 data (Table 5). As before, we investigated the gaps for bought/bartered expenditure and for self-generated goods separately. For the goods bought or bartered, a larger household size corresponds to a lower gap, which is defined as retrospective expenditure minus actual consumption.

That is, retrospective expenditure compared to the actual is lower for larger households, a finding consistent with Gibson (2002). This suggests that including household size as one of the independent variables would be effective in mitigating the recall bias. However, no other variables are statistically significant, suggesting that there exists little bias for using retrospective data on total expenditure amounts. If we set a 5% significance level for the F-tests, eight out of ten specifications do not reject the null of the jointly zero coefficients. This suggests that the retrospective error is not necessarily correlated with observed household characteristics. For the self-generated goods in Table 6, both OLS and median regression show that asset variables have negative and statistically significant coefficients, indicating that households with higher asset holdings tend to report a lower retrospective recall gap. Unlike purchased consumption, the joint F test results indicate that the retrospective errors are correlated with observables.

Third, we compare the gap between the categorical sum of retrospective expenditure from the RIETI-CAP data and the sum of categorical expenditure from the VHLSS 2006 data. Again, we show the separate results, one for goods bought or bartered and the other for self-generated goods. Table 7 shows the results for bought or bartered goods. There are some statistically significant coefficients such as total income in 2007 and a provincial dummy variable. Also, the specification (45) shows that retrospective expenditure compared to the actual is lower for large households. In half of the F-test results, we reject the jointly zero coefficients, suggesting that the retrospective errors are correlated with observed variables in more cases than that in Table 5. For the categorical sum of self-generated consumption reported in Table 8, the asset variable, interpreter dummy, and Kinh ethnicity dummy have statistically

significant coefficients, suggesting that there is a systematic recall bias in self-generated expenditure. The joint test results show that we reject the jointly zero coefficients strongly.

In sum, our estimation results suggest that asking about total expenditure, rather than categorical expenditure, will involve less recall bias in a retrospective survey. This is especially true in the case of purchased or bartered consumption expenditure. This implies that when asking retrospective expenditure questions, questions on the total rather than categorical sum should be included. The result may be seen as consistent with De Mel, Mckenzie and Woodruff (2009), which employed data from two panel surveys of Sri Lankan micro-enterprises and found that simply asking about total profits provides a more accurate measure of firm profits than do detailed questions on revenues and expenses.

As for the income data, Table 9 analyzes the gap between the categorical sum of retrospective income and the total retrospective income. In other words, the former income data is based on a longer questionnaire and the latter income data is from a shorter questionnaire. Hence, this gap variable represents the error arising from the difference in the length of the questionnaires. As we can see, a variety of observables such as asset level, income in 2007, and income increase are systematically related to the gap. In addition, the joint F-tests reveal that the gaps are correlated with observed characteristics jointly. This may suggest that capturing income by its nature entails significant measurement errors which are systematically correlated with observed respondent characteristics.

Tests of Mean-Reverting Measurement Errors

To test the existence of mean reverting measurement errors, we follow Gibson and Kim (2007, 2009) to estimate the model of equation (4). We simply regress the gap between the retrospective consumption variable from the RIETI-CAP data and the actual consumption variable from VHLSS 2006 on the actual consumption variable from VHLSS 2006.

The estimation results are shown in Table 10. When we employ total retrospective consumption, we cannot reject the null hypothesis that the estimated λ is one (specification (1) and (2)). On the other hand, when we employ categorical sum of purchased or bartered expenditure, the estimation result shows that $\lambda<1$ with regular standard errors although we cannot reject the null hypothesis, $\lambda=1$, with robust standard errors (specification (3)). These results suggest that categorical sum data involves a mean-reverting measurement error.

5. Conclusion

Asking retrospective questions about consumption and income has become an important part of household surveys and research in developing countries. While recall errors in retrospective data may generate estimation biases, the nature and the magnitude of the recall errors are largely unknown, especially in the context of developing countries. To fill the gap in the existing studies, we collect unique household data from Vietnam, a resurvey of respondents of the Vietnam Household and Living Standards Survey (VHLSS) 2006. This data allows us to investigate a variety of errors associated with

recall surveys and the size of consumption categories. Our empirical results suggest that asking about total expenditure, rather than categorical expenditure, will produce less recall bias in a retrospective survey. This is especially true in the case of purchased or bartered consumption expenditure. As a byproduct, our results also suggest a need to include household size as a control variable when using retrospective consumption data as an independent variable.

We also found that the recall error in the categorical sum of expenditure is more likely to exhibit mean-reverting patterns. The use of expenditure data with this mean-reverting error as a dependent variable will generate downward bias in estimated coefficient, unlike the attenuation bias arising from classical measurement errors in independent variables. In contrast, retrospective total expenditure data may not involve problems of mean reverting measurement error.

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Table 1

Incidence of Natural Disasters in Vietnam by Province

(Computed by VHLSS 2004)

Province name	Average number of floods per community	Average number of typhoons per community	Average number of droughts per community	Average number of natural disasters per community (flood, typhoon, and drought)	Average number of animal epidemics per community
Ha Noi	0.091	0.000	0.136	0.227	0.909
Hai Phong	0.077	0.077	0.000	0.154	0.846
Vinh Phuc	0.455	0.227	0.091	0.773	0.773
Ha Tay	0.042	0.042	0.000	0.083	0.917
Bac Ninh	0.000	0.000	0.000	0.000	0.938
Hai Duong	0.273	0.030	0.000	0.303	0.939
Hung Yen	0.737	0.000	0.000	0.737	0.579
Ha Nam	0.000	0.063	0.000	0.063	0.875
Nam Dinh	0.658	0.158	0.026	0.842	0.605
Thai Binh	1.127	0.032	0.032	1.190	0.635
Ninh Binh	0.500	0.722	0.056	1.278	0.278
Ha Giang	0.429	0.524	0.238	1.190	0.762
Cao Bang	0.333	0.278	0.056	0.667	0.500
Lao Cai	0.111	0.333	0.000	0.444	0.333
Bac Can	0.294	0.235	0.059	0.588	0.235
Lang Son	0.263	0.316	0.368	0.947	0.579
Tuyen Quang	1.000	0.333	0.111	1.444	0.259
Yen Bai	0.524	0.190	0.095	0.810	0.619
Thai Nguyen	0.500	0.125	0.375	1.000	0.583
Phu Tho	0.333	0.667	0.111	1.111	0.333
Bac Giang	0.296	0.148	0.148	0.593	0.852
Quang Ninh	0.000	0.857	0.286	1.143	0.429
Lai Chau	0.458	0.250	0.250	0.958	0.583
Dien Bien	0.563	0.188	0.313	1.063	0.813
Son La	0.500	0.538	0.346	1.385	0.500
Hoa Binh	0.409	0.364	1.500	2.273	0.455
Thanh Hoa	0.310	0.379	0.241	0.931	0.552
Nghe An	0.533	0.111	0.378	1.022	0.444
Ha Tinh	0.536	0.071	0.429	1.036	0.357
Quang Binh	0.542	0.167	0.583	1.292	0.292
Quang Tri	0.211	0.263	0.526	1.000	0.789
Hue	0.333	0.111	0.111	0.556	0.778
Da Nang	0.000	0.167	0.167	0.333	0.833
Quang Nam	0.500	0.143	0.393	1.036	0.714
Quang Ngai	0.895	0.421	0.263	1.579	0.632
Binh Dinh	1.244	0.707	0.244	2.195	0.488
Phu Yen	0.636	0.545	0.227	1.409	0.409
Khanh Hoa	0.526	0.316	0.316	1.158	0.789
Kon Tum	0.643	0.357	1.571	2.571	0.786

Data) VHLSS 2004.

Table 1

Incidence of Natural Disasters in Vietnam by Province (continued)

(Computed by VHLSS 2004)

Province name	Average number of floods per community	Average number of typhoons per community	Average number of droughts per community	Average number of natural disasters per community (flood, typhoon, and drought)	Average number of animal epidemics per community
Gia Lai	0.385	0.308	0.654	1.346	0.538
Dac Lac	0.382	0.324	1.000	1.706	0.735
Dac Nong	0.000	0.083	0.625	0.708	0.333
Lam Dong	0.476	0.429	0.571	1.476	0.476
Ho Chi Minh city	0.000	0.231	0.154	0.385	0.923
Ninh Thuan	0.857	0.095	0.429	1.381	0.619
Binh Phuoc	0.286	0.619	0.476	1.381	0.524
Tay Ninh	0.120	0.240	0.000	0.360	0.800
Binh Duong	0.000	0.091	0.000	0.091	1.000
Dong Nai	0.294	0.471	0.147	0.912	0.647
Binh Thuan	0.583	0.167	0.417	1.167	0.583
Ba Ria - Vung Tau	0.000	0.238	0.000	0.238	0.952
Long An	0.231	0.051	0.103	0.385	0.974
Dong Thap	0.738	0.405	0.167	1.310	0.833
An Giang	0.727	0.295	0.023	1.045	0.682
Tien Giang	0.408	0.224	0.041	0.673	0.959
Vinh Long	0.139	0.222	0.028	0.389	0.972
Ben Tre	0.080	0.160	0.040	0.280	0.720
Kien Giang	0.500	0.750	0.000	1.250	0.583
Can Tho	0.500	0.500	0.000	1.000	0.778
Hau Giang	0.286	0.476	0.048	0.810	0.429
Tra Vinh	0.000	0.882	0.000	0.882	0.471
Soc Trang	0.138	0.276	0.069	0.483	0.862
Bac Lieu	0.000	0.348	0.000	0.348	0.826
Ca Mau	0.000	0.367	0.000	0.367	0.800
Vietnam average	**0.375**	**0.292**	**0.235**	**0.902**	**0.656**

Data) VHLSS 2004.

Table 2
Sample Information on the RIETI Survey

Province	Training schedule	Period of survey in province	No of enumerators	Sample households per field survey*	No of communes	Number of districts	Total household interviews per province
Lao Cai	21-23 Feb	Training day – 3rd week of April	35	15	18	9	450
Nghe An	09-11 Mar	Training day-2nd week of April	31	15	23	12	550
Quang Nam	13-15 Mar	Training day-first week of April	26	15	19	7	510
Ha Tay	20-21 Mar	Training day-3rd week of April	29	15	22	6	508

* Each commune usually has about six field surveys due to VHLSS

Table 3. The Gap Between the Categorical Sum and the Total of Bought/Bartered Expenditure

Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	gap1a(.5)	gap1a	gap1a(.5)	gap1a	gap1a(.5)	gap1a	gap1a(.5)	gap1a	gap1a(.5)	gap1a
Method	Median reg	OLS	Median reg	OLS	Median reg	OLS	Median reg	OLS	Median reg	OLS
asset	4.509***	0.217	4.955***	0.045	4.856***	-0.016	5.110***	-0.359	4.827***	-0.079
	(1.202)	(3.998)	(1.051)	(4.009)	(1.108)	(3.979)	(1.155)	(4.011)	(1.211)	(4.004)
income07	0.804***	0.596***	0.803***	0.598***	0.810***	0.590***	0.805***	0.595***	0.796***	0.585***
	(0.089)	(0.157)	(0.078)	(0.157)	(0.081)	(0.155)	(0.085)	(0.158)	(0.089)	(0.159)
incinc	-0.033***	-0.005	-0.037***	-0.005	-0.034***	-0.004	-0.038***	-0.005	-0.037***	-0.004
	(0.009)	(0.025)	(0.007)	(0.025)	(0.008)	(0.025)	(0.008)	(0.025)	(0.009)	(0.025)
res_fe	-158.205	-271.957	-515.967	-1,044.76						
	(126.750)	(259.137)	(335.131)	(665.885)						
intp	15.323	-946.930**	147.226	-956.619**	95.401	-865.372**	15.825	-853.960**	28.476	-846.131**
	(365.222)	(406.427)	(325.913)	(449.886)	(334.081)	(414.380)	(346.364)	(431.669)	(365.105)	(417.918)
rural	-5.242	-342.18	-80.411	-338.462	-43.116	-361.937	-137.634	-305.159	-94.63	-311.139
	(232.336)	(514.041)	(203.542)	(516.823)	(212.411)	(516.573)	(221.690)	(521.025)	(232.450)	(517.194)
m4s91	446.768	-490.713	412.226	-524.545	411.544	-599.844	556.114**	-543.354	385.879	-512.228
	(293.726)	(921.825)	(256.525)	(922.728)	(271.089)	(929.758)	(281.074)	(937.543)	(294.624)	(920.505)
m4s92	-197.925	-442.361	-202.617*	-449.314	-227.679*	-452.539	-117.571	-438.272	-180.548	-427.777
	(138.520)	(293.430)	(121.557)	(297.649)	(127.533)	(295.532)	(132.442)	(293.794)	(139.057)	(295.866)
m4s93	298.75	941.106*	293.03	928.645*	189.191	819.236	240.523	852.659	325.279	980.989*
	(276.035)	(526.268)	(242.147)	(529.033)	(254.018)	(532.504)	(262.683)	(521.203)	(274.025)	(528.582)
d1_esty	1,526.936***	2,747.320***	1,365.024***	2,738.961***	1,358.985***	2,813.031***	1,342.568***	2,697.422***	1,288.675***	2,664.463***
	(229.245)	(515.333)	(201.939)	(523.091)	(211.194)	(515.994)	(224.058)	(551.197)	(233.629)	(521.841)
d1_pro	-1,781.566***	-2,735.254***	-1,778.304***	-2,725.334***	-1,820.460***	-2,716.348***	-1,773.790***	-2,789.967***	-1,835.694***	-2,772.923***
	(172.101)	(355.402)	(151.917)	(355.628)	(158.762)	(356.617)	(166.898)	(361.433)	(173.777)	(361.447)
d2_pro	-1,560.492***	-1,499.194***	-1,637.269***	-1,505.119***	-1,756.924***	-1,527.119***	-1,706.265***	-1,632.819***	-1,636.443***	-1,526.432***
	(229.250)	(505.674)	(201.261)	(504.376)	(211.949)	(507.297)	(220.995)	(532.046)	(230.415)	(506.030)
d3_pro	-2,093.880***	-2,825.549***	-2,074.978***	-2,831.873***	-2,094.727***	-2,820.903***	-2,134.919***	-2,946.154***	-2,098.465***	-2,872.900***
	(168.866)	(373.513)	(148.785)	(371.957)	(156.591)	(370.191)	(165.460)	(386.777)	(171.290)	(384.348)
num	116.351***	363.793***	131.484***	358.213***	84.168**	328.608***	105.218***	351.525***	92.536**	337.530***
	(37.322)	(79.996)	(32.760)	(80.488)	(35.193)	(82.309)	(35.922)	(82.340)	(39.170)	(88.084)
lit_res_fehead_wife			635.847**	653.608						
			(284.239)	(514.459)						
lit_res_malehead_husband			177.87	-252.852						
			(225.472)	(558.986)						
res3			-81.916	310.424	-23.533	-218.18	-224.631	341.181	-336.649	497.091
			(356.729)	(809.976)	(370.612)	(841.376)	(355.571)	(718.383)	(348.631)	(667.121)
res4			129.737	335.978	-520.035	-1,265.58	-599.691	-682.808	-489.925	-469.758
			(501.396)	(826.049)	(492.374)	(857.459)	(488.665)	(779.175)	(492.961)	(686.548)
res_fehead_wife					1,177.012***	-110.257	-433.399*	-1,314.935**	-106.315	-230.842
					(375.923)	(787.187)	(223.429)	(547.767)	(129.599)	(268.259)
age_res_fehead_wife					-24.296***	-18.503				
					(6.206)	(11.709)				
age_res_malehead_husband					2.347	-16.797				
					(4.248)	(11.525)				
educ_res_fehead_wife							502.781**	1,329.543**		
							(205.156)	(577.748)		
educ_res_malehead_hus							-15.781	-262.39		
							(182.944)	(438.633)		
emax_sec									360.857**	335.019
									(153.679)	(302.269)
Constant	1,357.139***	961.527	1,326.455***	1,195.15	1,615.347***	1,842.549*	1,671.033***	1,278.29	1,487.682***	860.856
	(401.392)	(822.111)	(396.344)	(894.094)	(422.152)	(963.570)	(392.201)	(841.340)	(403.084)	(827.507)
Observations	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006
F test: coeff. of all var=0	33.66	18.79	33.39	15.38	31.27	15.21	28.17	16.01	26.92	15.76
Prob > F	0	0	0	0	0	0	0	0	0	0
R-squared		0.08		0.09		0.09		0.09		0.09

Note) Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4. The Gap Between the Categorical Sum and the Total of Self-Generated Consumption

Specification	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	gap1b(.5)	gap1b	gap1b(.5)	gap1b	gap1b(.5)	gap1b	gap1b(.5)	gap1b	gap1b(.5)	gap1b
Method	Median reg	OLS	Median reg	OLS	Median reg	OLS	Median reg	OLS	Median reg	OLS
asset	0.564***	9.506**	0.658***	9.485**	0.767***	9.363*	0.639***	9.219*	0.597***	9.449*
	(0.034)	(4.830)	(0.033)	(4.835)	(0.055)	(4.805)	(0.038)	(4.824)	(0.041)	(4.855)
income07	0.004	-0.144	0.005	-0.144	-0.002	-0.152	0.003	-0.169	0.005	-0.144
	(0.004)	(0.163)	(0.003)	(0.161)	(0.006)	(0.163)	(0.004)	(0.172)	(0.004)	(0.164)
incinc	0.001*	0.001	0.000*	0.001	0.001*	0.001	0.001*	0.002	0	0.001
	(0.000)	(0.017)	(0.000)	(0.017)	(0.000)	(0.017)	(0.000)	(0.018)	(0.000)	(0.017)
res_fe	-3.788	-261.215	6.495	331.936						
	(2.818)	(241.430)	(8.171)	(407.099)						
intp	4.678	414.717	5.759	508.172	10.375	489.512	5.862	568.351	5.844	429.95
	(7.743)	(464.924)	(7.516)	(446.695)	(12.706)	(475.136)	(8.493)	(526.292)	(9.205)	(509.865)
rural	8.747	384.227	7.004	368.076	15.108	337.658	14.514**	343.889	13.656*	357.808
	(5.983)	(329.349)	(5.773)	(333.371)	(9.728)	(331.796)	(6.576)	(333.753)	(7.164)	(328.699)
m4s91	-2.398	697.422	-1.753	697.327	-3.198	640.9	-2.305	662.539	-3.031	684.754
	(7.894)	(744.224)	(7.646)	(743.301)	(13.060)	(735.172)	(8.635)	(744.856)	(9.384)	(745.128)
m4s92	3.666	-4.798	5.095*	-15.698	6.44	-27.514	4.308	-11.298	3.502	-7.227
	(3.078)	(254.484)	(2.961)	(254.602)	(5.037)	(255.170)	(3.360)	(255.282)	(3.664)	(255.033)
m4s93	36.540***	147.007	37.120***	143.48	16.437	60.46	22.114***	157.353	19.945***	152.818
	(6.207)	(523.464)	(5.964)	(526.565)	(10.255)	(537.452)	(6.799)	(527.759)	(7.403)	(528.874)
d1_esty	1.061	2,096.614***	0.795	2,077.425***	2.933	2,115.837***	0.441	1,965.872***	2.047	2,084.235***
	(5.176)	(448.977)	(4.971)	(454.108)	(8.471)	(452.214)	(5.732)	(424.054)	(6.223)	(432.136)
d1_pro	-467.380***	-1,261.654***	-464.151***	-1,287.616***	-464.077***	-1,281.752***	-466.192***	-1,343.415***	-465.606***	-1,271.922***
	(3.784)	(191.568)	(3.658)	(196.393)	(6.203)	(191.459)	(4.199)	(201.990)	(4.532)	(190.339)
d2_pro	-469.528***	382.817	-467.331***	346.558	-467.967***	323.173	-469.045***	323.879	-467.957***	360.744
	(5.376)	(428.578)	(5.149)	(426.819)	(8.801)	(430.818)	(5.867)	(436.173)	(6.372)	(430.800)
d3_pro	-444.968***	171.672	-446.220***	150.749	-448.240***	129.793	-447.625***	81.498	-443.610***	152.494
	(3.746)	(371.365)	(3.606)	(371.097)	(6.158)	(370.573)	(4.178)	(367.791)	(4.495)	(369.560)
num	-1.892**	-6.079	-2.576***	-4.077	-3.141**	-26.701	-2.275**	-16.089	-2.028**	-8.014
	(0.828)	(51.099)	(0.792)	(51.247)	(1.392)	(52.802)	(0.909)	(51.805)	(1.023)	(55.862)
lit_res_fehead_wife			-10.042	-219.601						
			(7.076)	(395.711)						
lit_res_malehead_husband			3.018	380.163						
			(5.364)	(301.317)						
res3			-3.73	733.195*	12.698	292.379	-5.67	791.511	-4.893	398.81
			(8.582)	(428.040)	(14.558)	(480.995)	(8.829)	(489.590)	(9.023)	(391.794)
res4			-0.573	-1,179.818**	23.227	-1,312.526**	3.331	-777.391	1.597	-1,181.604**
			(12.450)	(574.484)	(19.484)	(538.308)	(12.381)	(525.844)	(12.997)	(466.497)
res_fehead_wife					26.469*	550.148	-1.06	152.611	-4.362	-201.457
					(14.956)	(753.084)	(5.612)	(344.199)	(3.422)	(252.813)
age_res_fehead_wife					-0.241	-17.949				
					(0.250)	(12.183)				
age_res_malehead_husband					0.454***	-2.55				
					(0.168)	(5.080)				
educ_res_fehead_wife							-3.301	101.95		
							(5.251)	(316.833)		
educ_res_malehead_hus							1.337	569.925		
							(4.573)	(348.185)		
emax_sec									-0.947	38.78
									(3.997)	(287.291)
Constant	461.111***	-965.274*	459.548***	-1,277.768**	435.534***	-700.601	455.387***	-1,148.899*	455.274***	-959.224*
	(9.020)	(561.257)	(9.680)	(594.663)	(16.940)	(642.431)	(10.084)	(595.399)	(10.818)	(576.900)
Observations	1812	1812	1812	1812	1812	1812	1812	1812	1812	1812
F test: coeff. of all var=0	1636.96	6.34	1387.8	5.38	477.41	5.57	1073.88	5.47	952.08	5.67
Prob > F	0	0	0	0	0	0	0	0	0	0
R-squared		0.03		0.03		0.04		0.04		0.03

Note) Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 5. The Gap Between the Total Retrospective Bought/Bartered Expenditure from RIETI-CAP Data and the Actual Total Bought/Bartered Expenditure from VHLSS 2006

Specification	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
	gap2a(.5)	gap2a	gap2a(.5)	gap2a	gap2a(.5)	gap2a	gap2a(.5)	gap2a	gap2a(.5)	gap2a
Method	Median reg	OLS	Median reg	OLS	Median reg	OLS	Median reg	OLS	Median reg	OLS
asset	0.656	3.791	-0.226	4.25	1.262	4.747	-0.05	3.764	0.166	3.342
	(5.820)	(8.114)	(3.851)	(8.164)	(4.666)	(8.159)	(5.692)	(8.170)	(4.130)	(8.103)
income07	0.13	-1.285	0.079	-1.265	0.114	-1.28	0.065	-1.287	0.13	-1.291
	(0.233)	(1.123)	(0.156)	(1.125)	(0.194)	(1.140)	(0.234)	(1.105)	(0.171)	(1.129)
incinc	-0.02	0.2	-0.012	0.193	-0.019	0.194	-0.006	0.198	-0.019	0.195
	(0.038)	(0.175)	(0.026)	(0.175)	(0.032)	(0.177)	(0.038)	(0.171)	(0.028)	(0.174)
res_fe	436.152	-840.371	-131.829	912.477						
	(628.549)	(961.909)	(1,242.045)	(1,983.419)						
intp	-1,629.08	-1,898.53	-236.242	-1,112.53	-1,125.53	-1,600.57	-819.774	-1,292.84	-552.746	-1,446.55
	(1,875.595)	(1,338.717)	(1,258.134)	(1,587.876)	(1,545.283)	(1,391.029)	(1,889.259)	(1,436.665)	(1,375.285)	(1,431.706)
rural	-331.887	-1,153.27	479.259	-1,456.88	-350.431	-1,530.17	-376.296	-1,273.85	-318.856	-1,228.49
	(1,217.736)	(1,790.082)	(809.037)	(1,873.130)	(1,002.012)	(1,918.241)	(1,218.838)	(1,857.699)	(895.723)	(1,856.783)
m4s91	1,332.60	3,100.67	1,981.184**	3,074.45	749.742	2,729.02	1,234.60	2,950.58	1,313.57	2,845.65
	(1,451.755)	(4,688.626)	(967.649)	(4,743.801)	(1,182.733)	(4,842.467)	(1,454.507)	(4,720.122)	(1,063.554)	(4,718.289)
m4s92	-374.408	-622.525	-759.853	-673.925	-505.613	-733.018	-462.565	-668.399	-433.424	-573.257
	(701.504)	(776.835)	(471.206)	(795.543)	(579.338)	(780.562)	(702.223)	(790.772)	(511.815)	(785.938)
m4s93	1,552.83	-822.026	1,090.62	-912.332	659.246	-1,067.55	1,283.26	-907.641	1,302.36	-784.867
	(1,344.885)	(1,232.530)	(913.061)	(1,268.452)	(1,125.832)	(1,320.542)	(1,347.651)	(1,232.729)	(981.187)	(1,229.380)
d1_esty	124.597	835.551	-226.008	512.599	430.942	660.464	-458.933	351.515	-63.221	616.139
	(1,158.116)	(1,199.134)	(795.401)	(1,199.469)	(984.238)	(1,201.363)	(1,206.504)	(1,162.544)	(867.241)	(1,178.743)
d1_pro	-692.625	-1,939.629**	-902.386	-2,188.829**	-819.407	-2,057.371**	-963.435	-2,340.813**	-1,025.38	-2,268.595**
	(845.375)	(896.749)	(568.360)	(953.423)	(692.020)	(902.762)	(853.656)	(956.944)	(623.258)	(924.156)
d2_pro	-1,702.41	-755.242	-1,933.956**	-1,107.34	-1,867.061**	-1,077.22	-2,016.540*	-951.498	-1,896.458**	-870.998
	(1,121.627)	(1,383.048)	(757.280)	(1,396.997)	(924.997)	(1,387.469)	(1,137.373)	(1,368.448)	(823.747)	(1,366.983)
d3_pro	-1,286.53	-357.63	-1,319.790**	-614.981	-1,327.473*	-444.908	-1,424.047*	-867.916	-1,433.992**	-615.175
	(835.230)	(1,140.085)	(563.991)	(1,145.379)	(700.490)	(1,052.359)	(862.722)	(1,138.707)	(613.865)	(1,127.370)
num	-35.565	-295.796	-41.029	-296.682	-141.548	-363.226	-61.901	-347.437	-44.858	-359.451
	(198.576)	(233.055)	(130.993)	(238.919)	(169.421)	(258.143)	(203.960)	(248.359)	(146.790)	(242.041)
lit_res_fehead_wife		2,328.143**	2.982							
			(1,018.250)	(1,787.096)						
lit_res_malehead_husband			1,567.005*	2,002.37						
			(891.159)	(1,286.364)						
res3			707.375	-383.846	-871.24	-1,887.35	644.982	-672.391	-555.91	-2,301.319*
			(1,386.561)	(1,646.178)	(1,713.657)	(2,231.290)	(1,858.843)	(1,378.607)	(1,259.692)	(1,293.686)
res4			-1,439.10	-1,442.97	-3,182.11	-2,114.82	-1,736.82	-857.416	-2,984.04	-2,477.54
			(2,122.822)	(3,504.254)	(2,550.779)	(3,558.088)	(2,980.687)	(3,142.257)	(2,119.315)	(3,043.399)
res_fehead_wife				3,612.414**	1,764.71	334.616	457.659	643.244	-835.171	
					(1,651.359)	(2,309.862)	(1,178.032)	(1,179.652)	(465.601)	(984.624)
age_res_fehead_wife				-66.554**	-48.723					
					(25.757)	(36.243)				
age_res_malehead_husband					-4.787	5.523				
					(20.677)	(39.670)				
educ_res_fehead_wife							1,645.39	254.212		
							(1,069.461)	(1,123.397)		
educ_res_malehead_hus							1,211.35	2,023.837*		
							(952.003)	(1,142.756)		
emax_sec									1,246.092**	1,280.511*
									(553.653)	(689.523)
Constant	3,813.697*	6,232.980***	2,264.21	5,315.883**	4,407.074**	7,085.133**	3,599.34	5,878.895**	3,039.820*	6,050.231***
	(2,167.223)	(2,159.954)	(1,605.584)	(2,519.518)	(2,073.374)	(3,307.659)	(2,292.991)	(2,357.908)	(1,655.569)	(2,254.637)
Observations	396	396	396	396	396	396	396	396	396	396
F test: coeff. of all var=0	0.9	1.54	2.19	1.38	1.53	1.26	0.86	1.29	1.76	1.35
Prob > F	0.563	0.095	0.004	0.139	0.076	0.214	0.627	0.191	0.032	0.158
R-squared		0.06		0.07		0.07		0.07		0.07

Note) Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 6. The Gap Between the Total Retrospective Self-Generated Consumption from RIETI-CAP Data and the Actual Total Self-Generated Consumption from VHLSS 2006

Specification	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
	gap2b(.5)	gap2b	gap2b(.5)	gap2b	gap2b(.5)	gap2b	gap2b(.5)	gap2b	gap2b(.5)	gap2b
Method	Median reg	OLS	Median reg	OLS	Median reg	OLS	Median reg	OLS	Median reg	OLS
asset	-8.132***	-10.231***	-8.485***	-9.770***	-8.428***	-9.571***	-7.944***	-9.568***	-7.840***	-9.697***
	(2.951)	(2.869)	(2.813)	(2.780)	(2.581)	(2.785)	(2.752)	(2.797)	(2.552)	(2.871)
income07	0.328*	0.373*	0.344**	0.383*	0.362**	0.377*	0.331**	0.355*	0.320**	0.381*
	(0.167)	(0.195)	(0.166)	(0.197)	(0.153)	(0.197)	(0.165)	(0.194)	(0.153)	(0.197)
incinc	-0.029	-0.043	-0.032	-0.046	-0.036	-0.048	-0.029	-0.04	-0.026	-0.045
	(0.032)	(0.039)	(0.032)	(0.039)	(0.030)	(0.040)	(0.032)	(0.039)	(0.030)	(0.040)
res_fe	-183.841	-773.130*	-676.279	-543.828						
	(328.371)	(438.052)	(969.353)	(1,057.301)						
intp	-1,065.04	-1,440.506*	-1,383.22	-1,482.071*	-1,132.08	-1,341.65	-1,135.83	-1,540.884*	-1,188.05	-1,496.201*
	(935.139)	(834.926)	(978.884)	(894.088)	(861.102)	(850.569)	(919.731)	(823.756)	(860.719)	(822.792)
rural	-784.678	-897.751	-728.225	-1,150.05	-456.182	-1,253.78	-762.513	-1,151.89	-863.504	-1,182.65
	(766.128)	(1,308.644)	(754.123)	(1,367.963)	(706.808)	(1,328.921)	(740.417)	(1,371.724)	(713.163)	(1,356.019)
m4s91	381.113	810.603	177.801	723.879	156.088	478.725	210.568	749.703	317.016	721.69
	(868.237)	(2,090.364)	(840.282)	(2,122.405)	(767.639)	(1,921.268)	(814.970)	(2,086.465)	(756.169)	(2,110.967)
m4s92	287.046	48.096	201.752	-11.191	265.321	-38.43	267.907	-11.776	229.021	-39.915
	(365.583)	(508.902)	(376.326)	(534.804)	(339.941)	(529.449)	(363.179)	(528.482)	(334.615)	(522.678)
m4s93	306.309	1,191.33	102.414	1,164.86	18.5	938.728	260.198	1,195.00	259.213	1,139.23
	(729.609)	(1,578.882)	(725.752)	(1,613.506)	(679.923)	(1,644.465)	(708.598)	(1,580.399)	(649.973)	(1,596.933)
d1_esty	-53.375	1,066.28	-88.964	990.808	-49.072	1,049.46	-204.736	1,003.14	-185.256	981.275
	(612.087)	(949.081)	(623.547)	(945.276)	(570.753)	(957.671)	(603.770)	(923.277)	(559.070)	(943.200)
d1_pro	-632.409	-1,328.255***	-692.055	-1,323.408**	-661.405*	-1,351.880**	-638.52	-1,295.472**	-721.577*	-1,307.003***
	(432.730)	(504.182)	(440.460)	(542.168)	(397.323)	(522.291)	(434.901)	(512.772)	(399.792)	(495.073)
d2_pro	-750.631	270.176	-680.449	250.802	-639.419	243.011	-886.282	353.425	-1,110.214**	212.313
	(614.247)	(1,239.001)	(629.103)	(1,252.510)	(574.439)	(1,249.342)	(603.474)	(1,236.487)	(558.074)	(1,258.618)
d3_pro	-1,149.559***	-883.688	-1,179.734***	-896.178	-1,254.652***	-838.706	-1,174.702***	-855.676	-1,267.871***	-883.278
	(435.575)	(750.571)	(442.261)	(768.417)	(404.864)	(777.520)	(443.029)	(742.152)	(393.866)	(736.910)
num	122.763	15.841	102.662	22.171	92.917	-26.285	121.171	39.074	186.303*	29.453
	(104.422)	(112.814)	(105.412)	(112.492)	(98.414)	(130.894)	(104.168)	(111.894)	(96.801)	(115.405)
lit_res_fehead_wife		235.469	-273.141							
			(791.932)	(910.481)						
lit_res_malehead_husband			-381.442	-28.333						
			(676.683)	(678.876)						
res3			801.653	-712.94	1,177.84	-1,105.73	927.375	-518.5	905.346	-664.207
			(1,013.540)	(1,001.490)	(985.928)	(1,107.963)	(932.683)	(908.541)	(796.738)	(846.484)
res4			-2,001.82	-2,527.848**	-1,968.01	-3,464.484***	-2,322.57	-2,895.337***	-2,157.61	-3,033.441***
			(1,645.075)	(1,052.802)	(1,483.807)	(1,031.298)	(1,522.960)	(941.332)	(1,378.057)	(808.444)
res_fehead_wife				439.039	135.366	-103.865	-35.99	-181.105	-774.108*	-1,196.972**
					(938.591)	(1,991.135)	(599.283)	(751.013)	(303.189)	(452.678)
age_res_fehead_wife				-8.503	-25.968					
					(14.600)	(33.889)				
age_res_malehead_husband					0.779	-8.525				
					(11.902)	(13.534)				
educ_res_fehead_wife							-167.738	-850.633		
							(553.165)	(697.115)		
educ_res_malehead_hus							-125.98	221.794		
							(499.920)	(618.448)		
emax_sec									-444.895	-174.075
									(356.688)	(509.866)
Constant	2,279.814*	2,944.671**	2,803.191**	3,325.341**	2,099.563*	3,984.966**	2,547.811**	2,998.585*	2,722.817**	3,457.111**
	(1,177.127)	(1,397.870)	(1,304.242)	(1,601.753)	(1,228.133)	(1,674.451)	(1,197.329)	(1,607.300)	(1,107.104)	(1,535.223)
Observations	362	362	362	362	362	362	362	362	362	362
F test: coeff. of all var=0	2.53	3.18	2.31	3.92	2.62	3.79	2.29	3.98	3.11	4.07
Prob > F	0.002	0	0.002	0	0	0	0.002	0	0	0
R-squared		0.06		0.06		0.06		0.06		0.06

Note) Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 7. The Gap Between the Categorical Sum of Retrospective Bought/Bartered Expenditure from RIETI-CAP Data and the Actual Categorical Sum of Bought/Bartered Expenditure from VHLSS 2006

Specification	(41)	(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)
	gap32a(.5)	gap32a	gap32a(.5)	gap32a	gap32a(.5)	gap32a	gap32a(.5)	gap32a	gap32a(.5)	gap32a
Method	Median reg	OLS	Median reg	OLS	Median reg	OLS	Median reg	OLS	Median reg	OLS
asset	2.219	3.787	2.036	3.773	3.738	4.68	1.167	3.834	1.374	3.592
	[6.320]	[7.878]	[5.602]	[7.678]	[4.075]	[7.703]	[5.508]	[7.615]	[4.850]	[7.628]
income07	-0.597***	-1.664	-0.579***	-1.657	-0.617***	-1.67	-0.628***	-1.662	-0.583***	-1.666
	[0.203]	[1.091]	[0.179]	[1.097]	[0.132]	[1.107]	[0.177]	[1.090]	[0.156]	[1.095]
incinc	0.017	0.172	0.014	0.167	0.015	0.167	0.021	0.17	0.014	0.169
	[0.033]	[0.163]	[0.029]	[0.163]	[0.021]	[0.164]	[0.029]	[0.162]	[0.025]	[0.162]
res_fe	-252.117	-467.868	-570.399	-1,312.73						
	[543.224]	[961.072]	[1,442.901]	[1,191.044]						
intp	-101.383	-130.726	539.765	466.622	142.818	286.523	257.457	252.279	104.207	222.328
	[1,604.059]	[1,268.405]	[1,484.366]	[1,493.955]	[1,041.536]	[1,359.436]	[1,371.499]	[1,413.709]	[1,254.044]	[1,396.358]
rural	507.811	-740.81	178.829	-1,095.07	316.116	-1,169.85	263.805	-1,018.89	173.075	-956.732
	[1,031.774]	[1,803.932]	[929.134]	[1,917.364]	[665.107]	[1,958.117]	[912.613]	[1,901.437]	[810.864]	[1,900.068]
m4s91	1,792.19	3,398.87	1,272.94	3,268.46	514.048	2,965.30	1,278.54	3,299.99	910.536	3,248.66
	[1,237.544]	[4,812.542]	[1,089.769]	[4,882.300]	[817.288]	[4,961.484]	[1,096.342]	[4,860.114]	[963.114]	[4,846.493]
m4s92	-446.242	-913.575	-718.315	-1,003.95	-1,041.385***	-969.032	-563.237	-899.5	-515.845	-844.241
	[602.111]	[791.194]	[540.685]	[832.328]	[393.067]	[808.147]	[528.862]	[809.426]	[466.594]	[809.324]
m4s93	719.736	-271.089	948.253	-379.576	1,013.43	-568.049	1,000.31	-258.497	1,020.78	-187.955
	[1,177.815]	[1,123.242]	[1,030.998]	[1,158.155]	[757.477]	[1,196.886]	[1,013.343]	[1,137.166]	[888.630]	[1,129.185]
d1_esty	-1,216.08	-1,535.90	-1,292.50	-1,789.86	-1,108.252*	-1,629.62	-1,261.97	-1,789.66	-1,101.98	-1,682.25
	[993.773]	[1,446.802]	[891.240]	[1,462.489]	[657.975]	[1,450.601]	[881.921]	[1,456.219]	[781.095]	[1,445.133]
d1_pro	1,807.406**	858.923	1,628.069**	632.19	2,125.490***	740.21	1,874.435***	657.197	1,669.675***	653.231
	[717.189]	[801.606]	[650.828]	[840.822]	[467.675]	[798.650]	[642.962]	[851.206]	[564.744]	[812.574]
d2_pro	-234.572	-421.156	-353.114	-790.575	362.45	-747.257	-98.011	-637.557	32.928	-566.213
	[971.892]	[1,461.184]	[863.040]	[1,479.520]	[636.785]	[1,455.954]	[853.385]	[1,460.371]	[753.262]	[1,442.174]
d3_pro	65.247	1,531.03	142.333	1,354.05	688.322	1,502.01	18.625	1,294.52	65.451	1,378.65
	[719.914]	[1,149.547]	[645.178]	[1,147.764]	[472.830]	[1,027.660]	[651.558]	[1,180.015]	[555.191]	[1,141.485]
num	-212.248	-462.169*	-214.547	-479.714*	-413.684***	-559.745**	-266.681*	-493.057*	-248.920*	-502.845*
	[173.332]	[244.055]	[152.326]	[248.456]	[115.279]	[265.037]	[153.057]	[263.960]	[135.794]	[261.192]
lit_res_fehead_wife		1,015.48	1,632.27							
			[1,163.821]	[1,001.620]						
lit_res_malehead_husband			522.903	825.623						
			[1,025.305]	[1,040.836]						
res3			-526.76	-2,000.12	-1,156.97	-2,762.90	-474.081	-2,162.13	-1,156.96	-2,801.920**
			[1,556.194]	[1,590.518]	[1,170.683]	[2,274.276]	[1,358.108]	[1,460.043]	[1,105.063]	[1,344.340]
res4			18.796	2,155.94	-1,402.19	77.731	-577.097	716.613	-1,213.11	82.406
			[2,474.045]	[2,667.821]	[1,732.054]	[3,141.542]	[1,712.922]	[2,661.339]	[1,921.293]	[2,559.607]
res_fehead_wife				1,537.44	2,416.41	-84.069	-225.971	-171.877	-569.896	665.545
					[1,128.841]	[2,153.941]	[870.469]	[1,104.471]	[421.953]	[990.953]
age_res_fehead_wife				-40.260**	-61.716*					
					[17.505]	[31.483]				
age_res_malehead_husband					-6.299	-0.8				
					[14.240]	[39.937]				
educ_res_fehead_wife							334.405	290.599		
							[799.398]	[1,030.319]		
educ_res_malehead_hus							608.136	762.654		
							[714.515]	[1,140.240]		
emax_sec									698.081	697.316
									[497.678]	[775.249]
Constant	2,635.40	6,222.371***	2,726.69	6,473.921**	3,896.720***	7,465.727**	2,782.91	6,543.246**	2,537.125*	6,407.495**
	[1,864.515]	[2,372.998]	[1,863.138]	[2,650.975]	[1,395.446]	[3,516.460]	[1,700.485]	[2,557.651]	[1,503.655]	[2,480.965]
Observations	396	396	396	396	396	396	396	396	396	396
F test: coeff. of all var=0	2.69	1.21	2.75	1.23	6.53	1.23	2.98	1.14	3.86	1.19
Prob > F	0.001	0.265	0	0.23	0	0.234	0	0.308	0	0.268
R-squared		0.05		0.06		0.06		0.06		0.06

Note) Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 8. The Gap Between the Categorical Sum of Retrospective Self-Generated Consumption from RIETI-CAP Data and the Actual Categorical Sum of Self-Generated Consumption from VHLSS 2006

Specification	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)
	gap32b(.5)	gap32b	gap32b(.5)	gap32b	gap32b(.5)	gap32b	gap32b(.5)	gap32b	gap32b(.5)	gap32b
Method	Median reg	OLS	Median reg	OLS	Median reg	OLS	Median reg	OLS	Median reg	OLS
asset	-8.074***	-6.874**	-8.654***	-6.582*	-8.378***	-6.609*	-8.745***	-6.458*	-8.348***	-6.003
	(2.308)	(3.418)	(1.582)	(3.583)	(1.859)	(3.580)	(1.331)	(3.663)	(1.316)	(3.939)
income07	0.295***	0.425***	0.326***	0.440***	0.335***	0.436***	0.330***	0.422***	0.282***	0.427***
	(0.095)	(0.157)	(0.102)	(0.163)	(0.120)	(0.162)	(0.087)	(0.152)	(0.075)	(0.157)
incinc	-0.027	-0.054*	-0.033	-0.059*	-0.034	-0.056*	-0.034*	-0.053*	-0.023	-0.052*
	(0.018)	(0.029)	(0.021)	(0.031)	(0.025)	(0.030)	(0.018)	(0.028)	(0.015)	(0.029)
res_fe	-219.896	-576.866	-436.825	-25.879						
	(186.526)	(362.974)	(524.431)	(825.324)						
intp	-995.340*	-2,862.24	-1,001.914**	-2,584.80	-1,063.351*	-2,896.26	-908.061**	-3,042.02	-928.966**	-3,084.52
	(531.552)	(1,877.167)	(502.218)	(1,721.390)	(584.956)	(1,904.125)	(409.880)	(2,134.012)	(403.697)	(2,042.834)
rural	-536.375	-341.234	-566.715	-530.925	-597.417	-522.176	-536.107	-639.843	-479.543	-641.285
	(432.040)	(699.084)	(418.453)	(661.990)	(475.340)	(671.352)	(345.087)	(625.776)	(345.123)	(642.000)
m4s91	91.307	323.132	113.447	254.938	111.547	282.278	163.788	210.128	238.364	359.978
	(481.473)	(605.040)	(440.673)	(619.405)	(522.300)	(631.049)	(359.627)	(615.458)	(386.652)	(631.519)
m4s92	279.893	315.547	195.841	225.182	261.326	244.354	172.439	254.2	266.219	210.437
	(208.545)	(269.003)	(198.407)	(270.483)	(231.276)	(271.178)	(164.868)	(274.159)	(163.980)	(262.889)
m4s93	375.3	1,984.01	313.003	1,882.69	398.219	1,993.34	215.666	2,022.97	368.529	1,939.90
	(406.947)	(1,582.911)	(390.652)	(1,614.992)	(462.592)	(1,628.282)	(330.410)	(1,585.694)	(318.150)	(1,611.269)
d1_esty	-954.071***	-1,714.74	-1,008.875***	-1,858.86	-1,066.327***	-1,814.03	-858.840***	-1,694.09	-892.444***	-1,775.27
	(354.677)	(1,391.276)	(331.948)	(1,453.107)	(389.987)	(1,430.445)	(277.086)	(1,300.883)	(280.421)	(1,408.762)
d1_pro	170.782	102.605	165.005	-5.534	105.905	85.294	139.417	201.521	146.038	250.389
	(246.688)	(315.996)	(235.962)	(334.784)	(271.115)	(321.950)	(200.530)	(371.832)	(195.724)	(355.374)
d2_pro	-730.589**	462.616	-738.241**	346.965	-828.274**	418.365	-666.989**	404.532	-828.390***	350.413
	(347.133)	(1,169.414)	(324.806)	(1,157.998)	(381.192)	(1,165.075)	(267.206)	(1,181.042)	(276.688)	(1,161.415)
d3_pro	-275.044	-239.933	-261.719	-347.417	-343.21	-289.754	-319.347	-117.266	-295.269	-153.935
	(246.866)	(323.153)	(236.307)	(358.121)	(278.217)	(341.819)	(202.974)	(339.147)	(195.045)	(308.016)
num	67.749	72.397	89.141	74.064	69.684	88.814	108.620**	94.994	96.829**	116.609
	(59.497)	(68.317)	(55.225)	(68.928)	(67.519)	(76.435)	(47.262)	(82.426)	(47.286)	(86.827)
lit_res_fehead_wife		285.402	185.552							
			(433.986)	(626.773)						
lit_res_malehead_husband			22.341	775.364						
			(359.193)	(723.197)						
res3			674.685	160.71	746.351	-323.369	676.971	-994.484	759.639*	-376.635
			(544.722)	(646.429)	(671.914)	(725.264)	(430.404)	(1,295.329)	(403.373)	(612.754)
res4			-727.426	-1,844.92	-1,110.37	-2,370.967**	-1,061.41	-3,038.369*	-838.259	-2,423.337**
			(879.706)	(1,124.339)	(1,010.750)	(1,103.568)	(692.831)	(1,712.669)	(674.031)	(1,036.570)
res_fehead_wife				208.52	-682.701	-47.668	-1,030.09	-316.713**	-613.876	-654.464
					(641.248)	(925.737)	(270.364)	(1,092.678)	(148.466)	(406.030)
age_res_fehead_wife				-6.161	6.029					
					(10.042)	(12.959)				
age_res_malehead_husband					1.648	3.895				
					(8.110)	(10.306)				
educ_res_fehead_wife							-136.746	-80.052		
							(250.848)	(447.121)		
educ_res_malehead_hus							93.738	-677.91		
							(226.889)	(1,214.859)		
emax_sec									-250.426	-747.624
									(169.574)	(800.706)
Constant	2,371.374***	3,084.047**	2,397.115***	2,849.233**	2,522.981***	3,185.502**	2,128.331***	3,774.708*	2,364.623***	3,836.697**
	(665.750)	(1,443.218)	(699.721)	(1,399.727)	(824.381)	(1,594.082)	(542.151)	(2,004.376)	(538.770)	(1,835.424)
Observations	362	362	362	362	362	362	362	362	362	362
F test: coeff. of all var=0	4.91	2.58	6.61	2.24	4.9	2.18	9.06	2.16	9.73	2.22
Prob > F	0	0.001	0	0.003	0	0.004	0	0.004	0	0.004
R-squared		0.05		0.05		0.05		0.05		0.06

Note) Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 9. The Gap Between the Categorical Sum of Retrospective Income and Total Retrospective Income

Specification	(101)	(102)	(103)	(104)	(105)	(106)	(107)	(108)
	gapinc3(.5)	gapinc3	gapinc3	gapinc3(.5)	gapinc3	gapinc3(.5)	gapinc3	gapinc3(.5)
Method	Median reg	OLS	OLS	Median reg	OLS	Median reg	OLS	Median reg
asset	0.274	-0.804	-0.835	0.26	-0.879	0.247	-0.995	-0.867
	[0.294]	[10.707]	[10.718]	[0.326]	[10.722]	[0.318]	[10.769]	[10.733]
income07	0.002	2.291**	2.288**	0.002	2.283**	-0.001	2.273**	2.288**
	[0.021]	[1.092]	[1.093]	[0.024]	[1.092]	[0.023]	[1.093]	[1.094]
incinc	-0.751***	-0.765***	-0.765***	-0.751***	-0.764***	-0.752***	-0.763***	-0.765***
	[0.002]	[0.196]	[0.196]	[0.002]	[0.196]	[0.002]	[0.196]	[0.196]
res_fe	-40.192	8.292	354.155					
	[30.411]	[276.167]	[258.576]					
intp	840.770***	775.853***	879.370***	838.177***	853.221***	851.596***	920.453***	802.532***
	[87.663]	[288.298]	[267.300]	[96.821]	[293.938]	[97.052]	[273.224]	[277.034]
rural	233.030***	2,282.874***	2,294.816***	252.402***	2,284.160***	221.931***	2,292.079***	2,291.902***
	[55.901]	[703.991]	[701.722]	[61.864]	[700.344]	[61.092]	[702.619]	[699.344]
m4s91	-141.040**	-302.216	-307.873	-130.509*	-362.583	-123.31	-324.601	-308.47
	[70.273]	[343.792]	[344.834]	[77.763]	[352.182]	[76.955]	[344.379]	[340.452]
m4s92	205.101***	269.779	259.018	211.753***	244.779	220.566***	270.947	273.805
	[33.151]	[323.407]	[330.235]	[36.792]	[326.173]	[36.308]	[321.931]	[316.005]
m4s93	66.687	373.29	361.393	71.662	289.423	75.396	400.103	382.439
	[66.188]	[645.751]	[649.157]	[73.807]	[637.157]	[72.680]	[641.778]	[648.587]
d1_esty	-82.132	239.038	215.806	-68.54	252.36	-72.51	110.109	216.102
	[54.992]	[290.489]	[284.945]	[61.156]	[294.267]	[61.171]	[283.206]	[273.447]
d1_pro	116.368***	831.057***	805.217***	113.809**	812.086***	118.868***	761.428**	820.642***
	[41.242]	[301.326]	[300.669]	[45.723]	[299.029]	[45.727]	[307.909]	[296.351]
d2_pro	230.086***	726.231**	706.729**	245.302***	673.346**	252.483***	677.576**	720.913**
	[55.051]	[317.982]	[317.870]	[61.200]	[323.655]	[60.393]	[320.048]	[317.478]
d3_pro	133.414***	289.199	273.979	131.653***	251.473	143.032***	210.62	277.271
	[40.445]	[260.946]	[263.324]	[45.054]	[258.763]	[45.353]	[278.770]	[261.859]
num	22.099**	-15.654	-15.368	22.354**	-37.053	24.365**	-26.126	-22.565
	[8.962]	[100.848]	[100.501]	[10.185]	[102.132]	[9.885]	[98.852]	[91.481]
lit_res_fehead_wife		-20.192						
			[302.832]					
lit_res_malehead_husband		366.79						
			[285.140]					
res3			359.956	-22.972	61.223	-8.212	417.319	33.616
			[576.202]	[106.208]	[600.487]	[97.036]	[575.812]	[586.087]
res4			18.467	-11.956	47.285	28.289	437.456	51.78
			[637.051]	[141.753]	[584.263]	[133.970]	[562.326]	[520.374]
res_fehead_wife			-36.795	924.056	37.272	328.758	10.371	-52.871
				[108.123]	[750.542]	[61.380]	[272.370]	[291.441]
age_res_fehead_wife			0.208	-18.531*				
				[1.786]	[11.168]			
age_res_malehead_husband			0.422	0.229				
				[1.222]	[5.837]			
educ_res_fehead_wife						-68.418	122.131	
						[56.232]	[328.008]	
educ_res_malehead_hus					76.291	536.843*		
						[50.157]	[285.600]	
emax_sec								89.069
								[223.863]
Constant	-290.555***	-2,735.789***	-3,035.992***	-342.970***	-2,617.827***	-354.072***	-2,939.565***	-2,758.472***
	[96.387]	[915.335]	[902.000]	[122.083]	[870.470]	[108.053]	[959.599]	[904.620]
Observations	2008	2008	2008	2008	2008	2008	2008	2008
F test: coeff. of all var=0	18755.6	21.49	17.33	11938.29	17.18	12202.92	17.93	19.76
Prob > F	0	0	0	0	0	0	0	0
R-squared		0.57	0.57		0.57		0.57	

Note) Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 10. Tests of the Mean Reverting Measurement Errors

Specification	(1)+	(2)+	(3)++	(4)++
Dependent variable	gap2a (purchased /bartered)	gap2b (self-generated)	gap32a (purchased /bartered)	gap32b (self-generated)
Independent variable				
[Without province fixed effects]				
Actual (λ-1)	0.098	-0.129	-0.164	0.074
(Unadjusted standard error)	(0.078)	(0.111)	(0.082)**	(0.121)
(District cluster adjusted)	(0.163)	(0.146)	(0.144)	(0.198)
(Commune cluster adjusted)	(0.169)	(0.119)	(0.199)	(0.182)
R-squared	0.004	0.03	0.01	0.01
[With province fixed effects]				
Actual (λ-1)	0.098	-0.177	-0.153	-0.039
(Unadjusted standard error)	(0.079)	(0.122)	(0.083)*	(0.133)
(District cluster adjusted)	(0.174)	(0.131)	(0.147)	(0.137)
(Commune cluster adjusted)	(0.172)	(0.115)	(0.197)	(0.129)
R-squared	0.01	0.03	0.02	0.01
[With district fixed effects]				
Actual (λ-1)	0.027	-0.16	-0.259	-0.071
(Unadjusted standard error)	(0.094)	(0.127)	(0.097)***	(0.146)
(District cluster adjusted)	(0.186)	(0.176)	(0.155)	(0.178)
(Commune cluster adjusted)	(0.143)	(0.129)	(0.157)	(0.152)
R-squared	0.17	0.21	0.21	0.12
[With commune fixed effects]				
Actual (λ-1)	-0.061	-0.038	-0.300	0.021
(Unadjusted standard error)	(0.111)	(0.151)	(0.115)***	(0.197)
(District cluster adjusted)	(0.218)	(0.302)	(0.195)	(0.396)
(Commune cluster adjusted)	(0.208)	(0.224)	(0.220)	(0.370)
R-squared	0.5	0.6	0.51	0.42
Observations	398	364	398	364

Note) Standard errors in parentheses. + the gap between the total retrospective expenditure from RIETI-CAP Data and the actual total expenditure from VHLSS 2006. ++ the gap between the categorical sum of retrospective expenditure from RIETI-CAP data and the actual categorical sum of expenditure from VHLSS 2006. * significant at 10%.

Figure 1

Surveyed Provinces

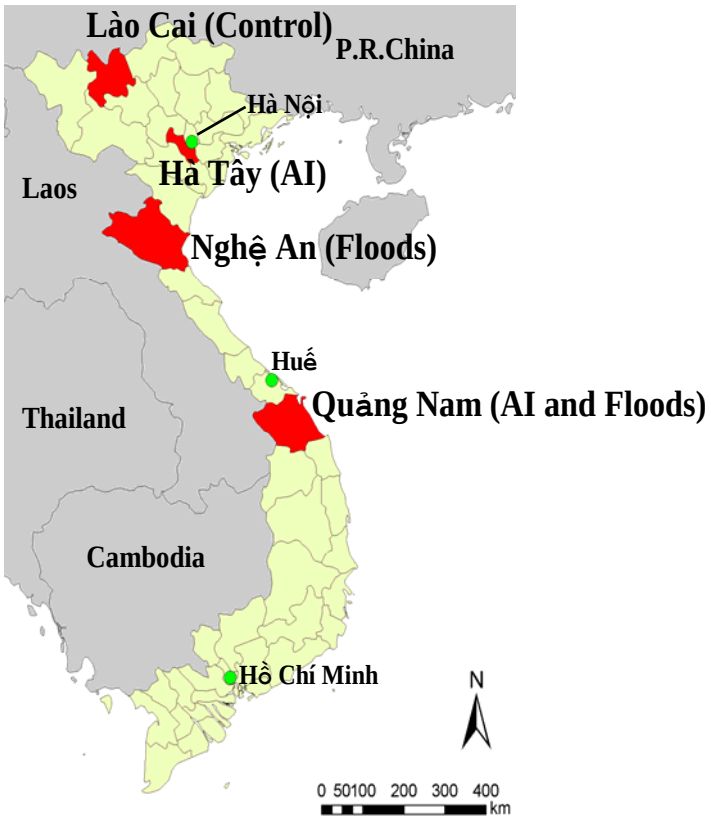


Figure 2

Cumulative Distribution Functions of the Categorical Sum of Expenditure and Total Expenditure in 2007

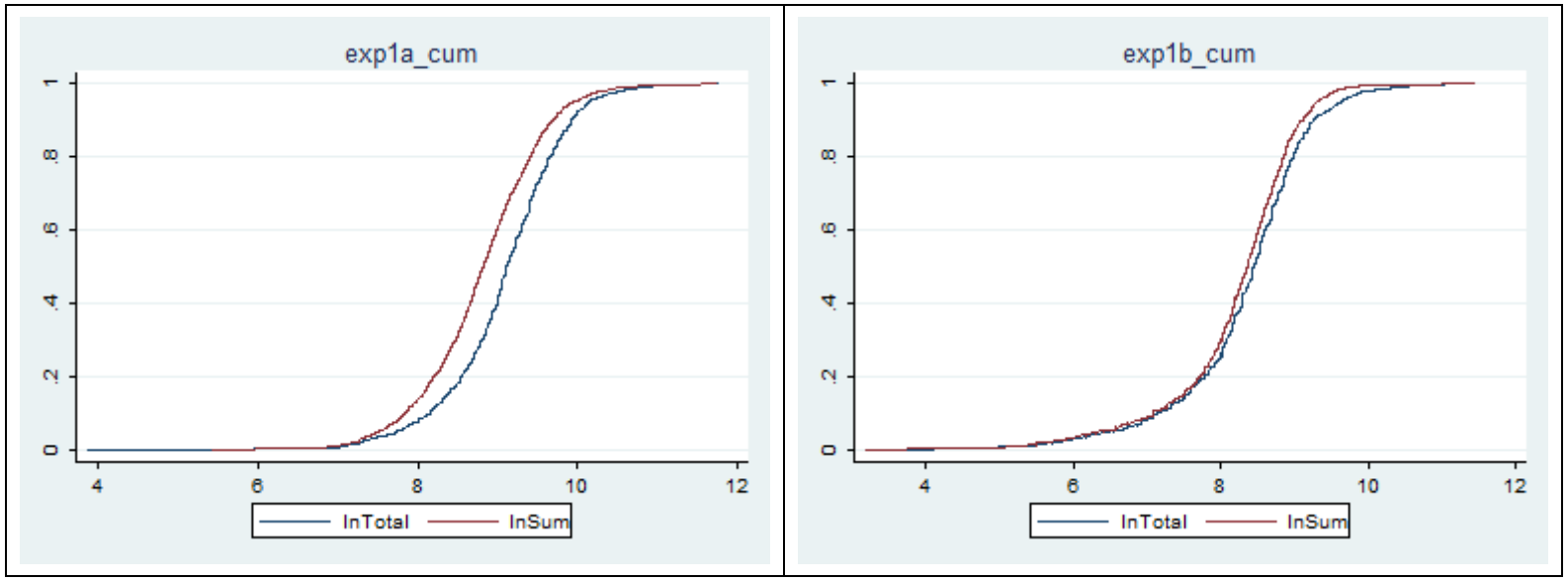


Figure 3

Cumulative Distribution Functions of the Total Expenditure Based on VHLSS 2006 and Total Expenditure Based on the RIETI-CAP Survey

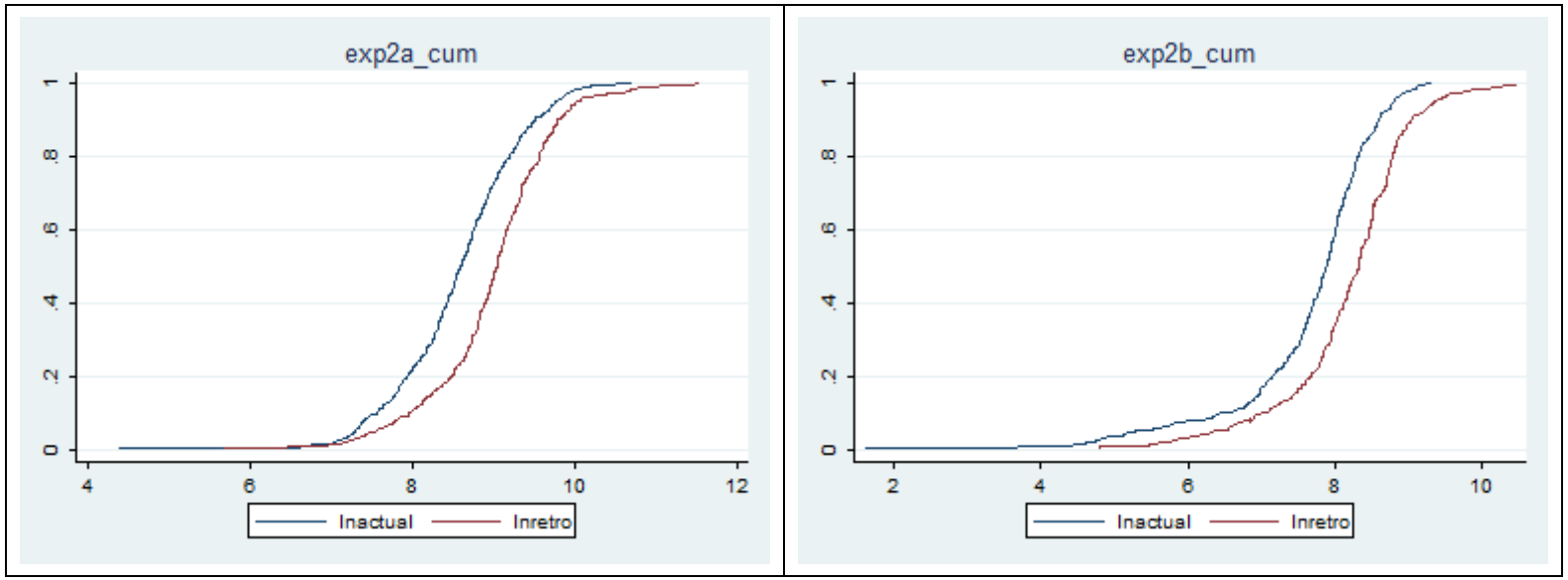


Figure 4

Cumulative Distribution Functions of

the Categorical Sum of Expenditure Based on VHLSS 2006

and the Categorical Sum of Retrospective Expenditure Based on the RIETI-CAP Survey

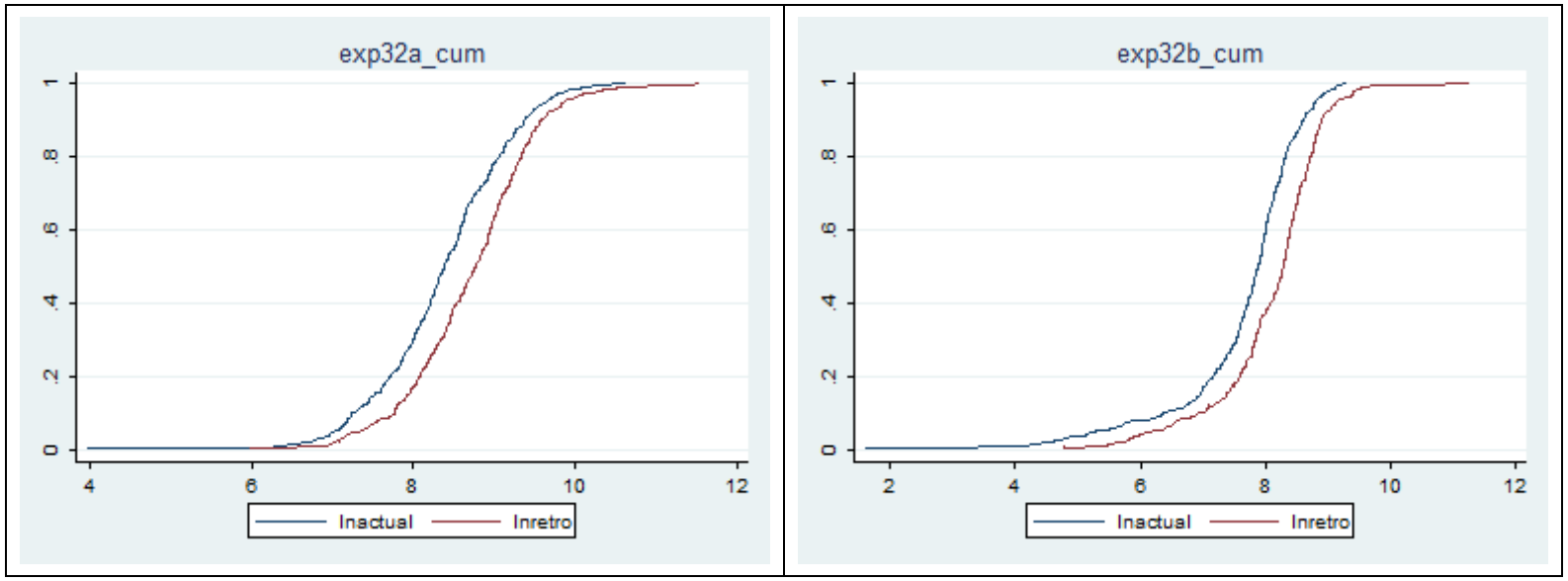
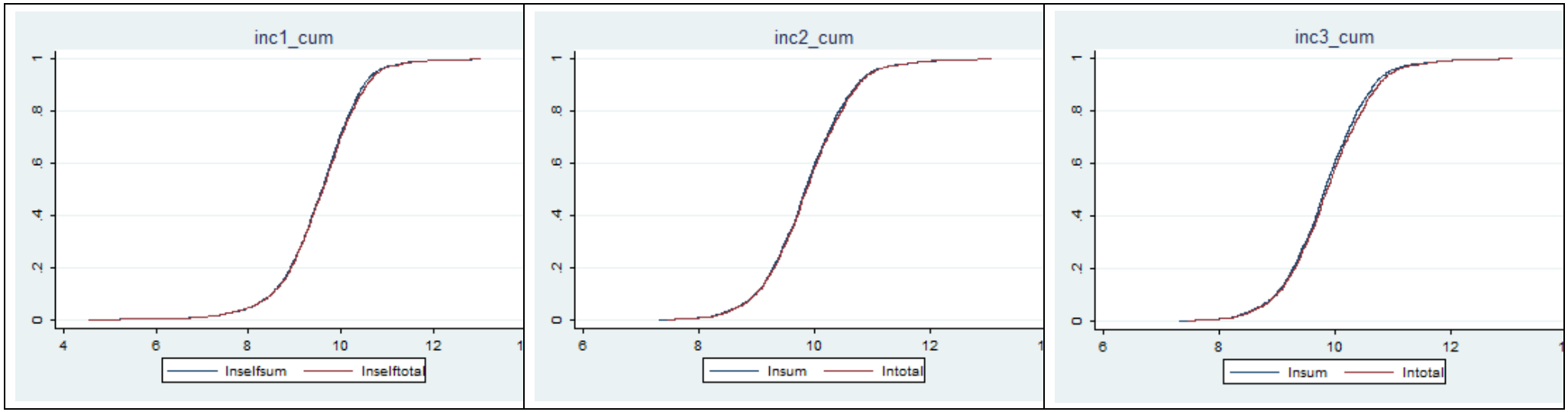


Figure 5

Cumulative Distribution Functions of

the Categorical Sum and Aggregated Income Variables



Appendix A: Expenditure Questionnaire

Section 15 EXPENDITURE

Section 15A Expenditure by Category EXCEPT during holidays

Code	1 Apart from holidays, indicate which of the following items has your household consumed in the last 12 months? ASK QUESTION 1 FOR ALL ITEMS BEFORE STARTING QUESTIONS 2-4 MARK X IF YES ↓		BOUGHT OR BARTERED 2 How many times a month on average did your household buy or barter? (times)	BOUGHT OR BARTERED 3 The average value each time your household bought or bartered (thousand VND)	SELF-GENERATED OR GIVEN 4 Value of self-generated or given goods consumed or received per month (thousand VND)
1	Rice		p15ac21	p15ac31	p15ac41
2	Meat		p15ac22	p15ac32	p15ac42
3	Fish and shrimps		p15ac23	p15ac33	p15ac43
4	Eggs		p15ac24	p15ac34	p15ac44
5	Sugar, molasses, cake, candy		p15ac25	p15ac35	p15ac45
6	Alcohol and beer		p15ac26	p15ac36	p15ac46
7	Vegetable		p15ac27	p15ac37	p15ac47
8	Fruits		p15ac28	p15ac38	p15ac48
9	Eating out		p15ac29	p15ac39	p15ac49
10	Clothing, hat, shoes		p15ac210	p15ac310	p15ac410
11	Transportation, communication		p15ac211	Per month p15ac311	p15ac411
12	Culture, sports and recreation		p15ac212	p15ac312	p15ac412

Section 15B Total Expenditure

Code		1. The total value [Please confirm that the amount is the total for the last 12 months (Thousand VND)	2. Compared to last year, was the amount increased/decreased? Please pick one number from the answer code
1	Items bought or bartered in the last 12 months EXCEPT during holidays	p15bc11	p15bc21
2	Items self-generated or given in the last 12 months EXCEPT during holidays	p15bc12	p15bc22
3	Items bought or bartered in the last 12 months DURING holidays	p15bc13	p15bc23
4	Items self-generated or given in the last 12 months DURING holidays	p15bc14	p15bc24

CODE for Q2	
>= 50% decrease	1
30-50% decrease	2
10-30% decrease	3
0-10% decrease	4
No change	5
0-10% increase	6
10-30% increase	7
30-50% increase	8
>= 50% increase	9

Appendix B: Income Questionnaire

Section 18 CHANGE IN INCOME **NOTE to the Interviewer: Codes 1---7 correspond to income from self-employment. For the categories of industries, please refer to the industry codes at the beginning of module 4 of VHLSS 2006. Also, code 8 corresponds to salary/wage received when employed by some others, e.g. company, government institution**

Code	Income Source	1 MARK X if you have income from the source		2 What was the percentage change in income in each category? Pick one from the answer codes.
		2006	2007	
1	Agriculture (self employed)	p18c1a1	p18c1b1	p18c21
2	Forestry (self employed)	p18c1a2	p18c1b2	p18c22
3	Fishery (self employed)	p18c1a3	p18c1b3	p18c23
4	Industry (self employed)	p18c1a4	p18c1b4	p18c24
5	Construction (self employed)	p18c1a5	p18c1b5	p18c25
6	Trade and service (self employed)	p18c1a6	p18c1b6	p18c26
7	Self Employment TOTAL			P18C27
8	Salary/Wage	p18c1a8	p18c1b8	p18c28
9	Other income (Public transfers and aid, remittance)	p18c1a9	p18c1b9	p18c29
10	TOTAL (all income sources)	NA	NA	p18c210

CODE for Q2	
>=50% decrease	1
30-50% decrease	2
10-30% decrease	3
0-10% decrease	4
No change	5
0-10% increase	6
10-30% increase	7
30-50% increase	8
>=50% increase	9