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The Relationship between Household Type and Consumption Patterns in Japan - evidence from Japan's National Survey of Family Income and Expenditure

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ABSTRACT

The availability of non-labor income (including asset income and labor income from other household members) can reduce individuals' willingness to work. In general, when non-labor income increases, the demand for leisure increases due to the income effect, and as a result the supply of labor decreases. Ito and Dejima (2016) examined the influence of asset and rental income on employment (i.e. individuals' choice to work) of youths in Japan using anonymized microdata from the National Survey of Family Income and Expenditure from the years of 1989, 1994, 1999, and 2004. However, this anonymized microdata does not contain detailed information on household assets, which limited the ability to perform an in-depth analysis of employment and household assets. Ito and Dejima (2017) examined the impact of residential area and real estate prices on employment using individual data from the 2009 National Survey of Family Income and Expenditure. Results suggested a theoretical possibility that higher ownership of household assets increases the likelihood that household members choose not to work. This research also found geographic differences in the impact of real asset ownership on employment.

Recently, two models for household decision-making have received attention. The Unitary Model assumes that consumption decisions are made by the household unit and with the aim of maximizing overall household utility, whereas the Collective Model assumes that consumption decisions are made through negotiations between household members where each member seeks to maximize their own utility.

The Unitary Model stipulates that households' consumption decisions are not impacted by household members' individual incomes, as it assumes that the household unit seeks to maximize overall household utility. On the other hand, the Collective Model suggests that household members with higher incomes have increased negotiation power and therefore greater influence on household consumption decisions. The Unitary Model has not been widely adopted as a model for household consumption behavior, while for the Collective Model no strong empirical relationship between household members' individual negotiating power and household consumption decisions has been identified.

This research examines the relationship between household type and consumption behavior based on individual data from the National Survey of Family Income and Expenditure in order to evaluate whether the Unitary Model or Collective Model should be adopted as the model for household consumption behavior in Japan. The use of individual data allows analysis based on a broader range of household attributes including household members' employment, household members' individual incomes, and household size and structure, and therefore enables analysis into how household members' incomes act as proxies of their negotiating power.

Key words: Collective Model, National Survey of Family Income and Expenditure, Household Type, Consumption Function
JEL Classification Code: D12, D13, E21

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1. Introduction

It has been theoretically shown that non-labor income suppresses labor when leisure time is a normal good, because non-labor income has an income effect on labor supply. While many studies have focused on spousal income as non-labor income, household assets have reached considerable amounts in recent years, so empirical studies have also sought to quantitatively clarify the effects of household asset income on employment.

Research in Japan conducted so far consists mostly of microdata-based empirical analyses of the effects of individual and household socioeconomic attributes and household assets on labor supply. In particular, numerous quantitative studies based on the models of microeconomics have been conducted since Higuchi (1991). In a more recent example, Ota (2010) focused on showing how changes in education level distributions can explain changes in youth unemployment and non-employment. Further, Mimizuka (2002), Nishimura (2006), and Ito (2006, 2008) are examples of empirical studies on relations between household attributes such as parents' educational background or occupation and the employment situation of their children. Kurosawa and Genda (2001) focused on transitions according to educational attainment, and Nagase and Mizuochi (2009) examined relations between employment status immediately after graduation and the transition to regular employment. Regarding non-labor income, Ito and Dejima (2019) and Ito et al. (2019) used official microdata to analyze the impact of household assets such as risky assets (stocks etc.) and real assets (real estate etc.) on employment choices.

Macroeconomic propensity to consume varies according to micro-level aspects such as household type and form of employment (regular vs. non-regular etc.). This allows to compare household consumption patterns by categorizing them according to household type and household members' form of employment, and then observing variations for each group.

In this paper we aim to examine differences in household consumption structure based on household type, focusing specifically on the impact of intra-household income composition on household consumption structures. First, using individual data from the Japanese National Survey of Family Income and Expenditure (NSFIE), we classify form of employment as regular employment, non-regular employment, or non-employment. We then compare income distribution between these groups, and investigate the relation between household income composition and household consumption structure, focusing on the ten major groups of household expenditures.

2. Theoretical model and previous research

In our analysis, we refer to two decision-making models for household consumption. One is the "unitary model" according to which households make consumption decisions as a whole and with

the objective of maximizing household utility. The other is the "collective model," in which household consumption decisions are made through intra-household negotiations which are aimed at maximizing utility for individual household members according to their bargaining power. Both the unitary and collective models postulate that household structure and income composition impact household consumption. A related concept is the "income pooling" hypothesis, which suggests that household incomes are combined to determine consumption behavior.

In the unitary model, utility is maximized across the entire household, and therefore does not depend on household members' individual incomes (after controlling for income across the entire household). In contrast, in the collective model consumption decisions are made based on negotiations between household members whose bargaining power is determined by their individual incomes. Numerous previous studies have been criticized for their strong reliance on the unitary model. Meanwhile, the extent to which household expenditures are actually affected by household members' incomes has not been fully demonstrated for the collective model. In particular, the impact of spousal employment has not been examined in detail.

Even though their objectives and methodologies differ, several empirical studies conducted in Japan, such as Hayashi (1995), Altonji, Hayashi, and Kotlikoff (1997), and Kohara (2008), confirm that the income of household members can affect household consumption. Before the unitary model and collective model were established, Hayashi (1995) and other studies examined the effects of household structure on household consumption. The model used by Hayashi (1995) examines whether household consumption changes depending on cohabitation of parent–child generations, and is referred to as the "demand neutrality test." The goal of the study was to demonstrate a time-perspective verification, i.e. whether parents take the their children's utility into account when making consumption decisions. Specifically, given a household where parents and children live together, Hayashi (1995) aims to determine whether utility is maximized for the parent and child as a single entity, or whether utility is maximized for parent and child separately. Therefore, it can be said that Hayashi (1995) uses an approach that is similar to the current unitary and collective models.

Using individual data from the NSFIE, Hayashi (1995) showed that the composition of food expenditures varies based on the income ratio of parents and children. This result did not support maximizing parent–child utility, and thereby demonstrated that the temporal view does not extend to the child's generation. Therefore, the results can be interpreted as supporting the collective model over the unitary model.

Kohara (2008) conducted a quantitative analysis of factors influencing composition of and fluctuations in household consumption. This research was based on 2,418 questionnaire responses collected as part of the "Study on Household Distribution and Intergenerational Transfer" conducted by the Institute for Research on Household Economics in 2006, and demonstrated that factors governing intra-household negotiations (such as spousal income, wealth, age, etc.) affect household consumption, even when controlling for income of the whole household. This finding is consistent with the collective model. However, the research did not perform any hypothesis testing to reject the unitary model. Sawada (2008) used the same dataset to more closely examine whether household consumption reflects risk-sharing among household members.

Other studies have shown that individual bargaining power and therefore purchase of goods that enhance a household member's utility increases with this member's income. Put differently, the higher e.g. the spouse's labor income, the more spending is directed toward that spouse's preferred goods. On the other hand, longer working hours can be expected to increase the spouse's motivation to save time spent on domestic labor (intra-household production time), resulting in increased purchases of time-saving goods.

In this study, we used NSFIE expenditure items to heuristically detect the above effects. In particular, we aimed to detect areas where differences in spousal employment and income affect household consumption, realistically considering which expenditure areas are affected by increases in working hours[1].

3. Data used

This study used questionnaire data from the 2009 NSFIE. To capture detailed information on household consumption, income, and savings, this survey asked households to provide information on annual income, assets and liabilities, and a three-month record of household expenditures. The NSFIE is the largest statistical survey of Japanese households, with a sample size of approximately 55,000 households (excluding single households). This survey is particularly useful for the present study because it also contains information on each household member's employment status, whether they were seeking employment, and attributes such as employer and industry of occupation. This survey is therefore the only source of public government statistics that allows to ascertain not only work income and workplace attributes but also information such as household assets and asset income. The NSFIE also contains detailed information on household consumption expenditures, such as the ten major expenditure groups, and therefore allows precise analyses of the relation between household income composition and consumption expenditures while controlling for employment[2]. In this research, we focused on working households consisting of two or more members and with heads of household aged 20-59 years, and included both households with and without children. We excluded single households, although they are included in the NSFIE sample.

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[1] Note that we do not strictly distinguish between the unitary and collective models, as it is difficult to examine the endogenous nature of employment selection.

[2] Many previous studies on labor supply that examined the employment status of household members have used the Employment Status Survey as a data source. However, while the Employment Status Survey captures detailed attributes related to working behavior such as working hours, working days, and job types, it does not accurately present household assets and income compositions. Thus, apart from the working income of other household members, it is impossible to grasp the effects of non-labor income such as asset income on employment. Therefore, while the Employment Status Survey is the most widely used government statistics for examining relations between spousal income and employment, such as the Douglas-Arisawa Law, it cannot be used when asset income is included among control variables and effects of spousal employment are considered. The present study requires a large-scale statistical survey that includes not only items related to employment, consumption, and income, but also information about household assets. Only the NSFIE provides this data.

4. The Model Used for This Analysis

We used individual data from the 2009 NSFIE to analyze income composition and consumption structures for different household types. Subgroups were organized by household type based on combinations of head of household and spouse employment type (regular employment[3], non-regular employment[4], or non-employment). In addition to analyzing income composition in these categorized groups, we examined the relation between household type and consumption structure for the ten largest expenditures. Specifically, the analysis used the following model:

Share of ten largest expenditures among total consumption expenditure

$=f$(employment dummy, spousal regular employment dummy, spousal non-regular employment dummy, home ownership dummy, gender dummy, head-of-household age, head-of-household age squared, annual income from employer (log), ratio of spouse's work income among total annual household income, ratio of earned income among total annual income for household members under 65 years old, current amount of savings (log), asset income (log), current amount of debt (log), loan balance for housing and land purchases (log), housing and residential land assets (log), household members dummy, metropolitan area dummy)

This model uses the share of each of the ten major expenditure groups (food, housing, utilities, furniture and household products, clothing and footwear, healthcare, transportation and communication, education, culture and recreation, other consumption expenditures) among total consumption expenditures as the explained variable., After categorizing households according to whether one or both spouses worked, microdata analysis was performed based on these consumption ratios . Specifically, we examined the effect of household income composition and assets on household consumption for three subgroups: those where both the head of household and spouse are regular workers, those where the head of household is a regular worker and the spouse is a non-regular worker, and those where the head of household is a regular worker and the spouse is not working.

For explanatory variables in the model, to consider the employment situation of the head of household and the spouse, the model utilizes a working dummy, spousal regular working dummy, and spousal non-regular working dummy ("non-working of spouse" is a reference group). Based on the work classifications in previous research such as Ito and Dejima (2016), we set the working dummy as 1 for working and 0 for non-working. Note that for employment, heads of corporations, self-employed persons, those working in family businesses, and those working from home were excluded from the analysis. As the right-side tail of the distribution is large for real assets, we deleted

[3] Regular employment refers to full-time workers under a labor contract without a finite contract period.

[4] Non-regular employment refers to part-time workers including dispatched employees and contract workers with a finite contract period.

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records exceeding +3σ from the mean.

Home ownership, gender of head of household, and number of household members were set as dummy variables (reference groups were respectively no owned home, female, and two household members). Age and age squared were included as model variables. Annual earned income, current amount of savings, loan balance for housing and land purchases, and housing and residential land assets were set in the model after conversion to logarithmic values[5].

The ratio of spousal earned income to annual income was included in the model to reflect the household income composition. Similarly, the ratio of earned income to annual income for household members under 65 years old was included as a proxy for the ratio of earned income for cohabitating parents and children[6]. The goal was to ascertain how the consumption patterns observed for each expenditure item differ with respect to changes in ratios of income from cohabitating children against annual income of the household.

Unlike anonymized data, NSFIE questionnaire data contain regional classifications for major urban areas in Japan such as those for the Kanto (Tokyo), Chukyo (Nagoya), Kinki (Osaka/Kyoto/Kobe), and Kitakyushu/Fukuoka metropolitan areas. To uncover differences in consumption structures between metropolitan and non-metropolitan areas, a metropolitan area dummy was incorporated into the model, taking a value of 1 for any of the above four metropolitan areas and 0 otherwise.

Tables 1-1 through 1-10 contain full-sample analysis results calculated from the 2009 survey. Tables 2-1 through 2-10 contain analysis results for households in which both the head of household and the spouse are regular workers. Tables 3-1 through 3-10 show analysis results for households in which the head of household is a regular worker and the spouse is a non-regular worker. Tables 4-1 through 4-10 contain analysis results for households in which the head of household is a regular worker and the spouse is not working. Supplemental Table 1 contains the basic statistics for all households, and Supplemental Tables 2-1 through 2-3 contain the basic statistics for subgroups categorized by head-of-household and spousal employment pattern.

5. Results

The findings obtained from these analyses are as follows:

We first considered relations between consumption expenditures and employment of the head of household and spouse. In the case of food expenditures, we found that the share of food expenditures

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[5] Some records had values of zero yen for quantitative attributes such as current amount of savings. Therefore, quantitative attributes subject to logarithmic transformation in this model are replaced with their natural logarithm after adding 1 to all attribute values.

[6] "Ratio of earned income to annual income for household members under 65 years old" is calculated as follows:

$$\text{Ratio of earned income to annual income for household members under 65 years old} = \frac{\text{Annual earned income for household members under 65 years old}}{\text{Annual head-of-household earned income} + \text{Annual spousal earned income}}$$

among total consumption expenditures decreased as the ratio of spousal earned income among total household income increased. This suggests that couples in which both spouses work tend to spend relatively less on food compared with couples in which only one spouse works. Couples in which both spouses work may be reducing the time spent on housework by, for example, eating out or buying prepared meals at supermarkets, instead of purchasing food items to cook at home. It is noteworthy that the purchase of time-saving goods such as eating out results in a relative reduction in food expenditures. The results also show that the share of housing expenditures among total consumption expenditures decreases when the head of household's spouse is in regular employment. For clothing and footwear, spousal non-regular employment dummy has a significant negative coefficient, however the share of consumption for these goods among total household consumption increases as the ratio of the spouses' earned income among total household income increases; this suggests that as spousal income increases, the spouse's negotiating power in the household increases. In contrast, the spousal regular employment dummy has a significant negative coefficient for education expenditures, whereas the spousal non-regular employment dummy has a significant negative coefficient for education expenditures. From this, we can conclude that spousal form of employment impacts education expenditures in multiple ways. Further, the results for culture and entertainment expenditures show that their share among total household expenditures decreases when the spouse is employed, but tends to increase with spousal income ratio.

We also examined the effect of spousal income on consumption expenditures by head-of-household and spousal employment patterns. For example, for food expenditures, the ratio of spousal earned income among total household income has a significant negative coefficient when both the head of household and spouse are in regular employment. This shows that the higher the ratio of spousal earned income among total household income, the lower the share of food expenditures among total consumption expenditures, which confirms that eating habits such as eating out result in a lowering of food expenditures when performed with the objective of saving time by a couple in which both spouses are regular workers. However, when the spouse is a non-regular worker, the regression coefficient on food expenditures is not significant, while the regression coefficient is significant and negative when the spouse is not working. This could be due to the possibility that spouses earned employment income from working prior to the survey month. Focusing on culture and entertainment expenditures, if both the head of household and spouse are in regular employment, the ratio of spousal earned income to total household income has a significant positive coefficient. On the other hand, non-regular employment for the spouse has a significant negative coefficient. These results empirically demonstrate that patterns of consumption expenditures due to income composition vary with household employment patterns.

Our results regarding the effects of the number of household members on consumption expenditures are as follows. Looking at the household members dummy, it is noteworthy that an increased number of household members has a positive impact on items such as food and education expenditures, but a negative effect on expenditures such as clothing and footwear as well as culture and entertainment. This suggests that consumption structure varies with the number of household members, which in turn impacts household spending priorities.

Our findings regarding effects of household assets and asset income on consumption expenditures are as follows. For food expenditures, the regression coefficient on property income and current amount of savings is negative and significant, and the coefficient on current amount of debt is positive and significant across households and regardless of household type. This confirms that an increase in household assets negatively affects food expenditures. For culture and entertainment expenditures, it is noteworthy that property income, current amount of savings, and housing and residential land assets each have significant positive coefficients. This indicates the possibility of asset effects on culture and entertainment expenditures.

6. Conclusion

Using individual data from the NSFIE, we empirically analyzed the effects of income composition on household consumption structure while taking into account household structure and household members' employment status. The results show that household consumption structure varies with income composition, i.e. household members' individual incomes impact household consumption decisions, Results also show that consumption ratios for some items, such as clothing and footwear, increase with for higher ratios of spousal earned income to total household income, which confirms the stipulations made by the collective model. However, there are also expenditures such as education, where there is no explicit relation between consumption structure and earned income of household heads and spouses.

While this study included household employment patterns and number of household members in its analyses, it did not include three-generation households. We leave this topic for future studies.

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Table 1-1: Results of regression analysis on the composition of consumption expenditures—Food

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Employment dummy	0.000	0.004	
Spousal regular employment dummy	-0.002	0.002	
Spousal non-regular employment dummy	-0.006	0.001	***
Home ownership dummy	0.049	0.004	***
Gender dummy	0.005	0.002	**
Head-of-household age	0.004	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	-0.013	0.001	***
Ratio of spousal annual income	-0.041	0.004	***
Ratio of annual income for household members under 65 years old	0.000	0.000	*
Asset income (log)	-0.003	0.000	***
Current amount of savings (log)	-0.005	0.000	***
Current amount of debt (log)	0.000	0.000	***
Housing and residential land assets (log)	-0.001	0.001	*
Household members dummy(2)			
3	0.000	0.002	
4	0.010	0.002	***
5+	0.024	0.002	***
Metropolitan area dummy	0.002	0.001	**
Constant	0.215	0.014	***
Adj. R^2	0.085		
F	120.993		
N	23213		

Table 1-2: Results of regression analysis on the composition of consumption expenditures—Housing

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Employment dummy	0.001	0.003	
Spousal regular employment dummy	0.005	0.002	***
Spousal non-regular employment dummy	0.000	0.001	
Home ownership dummy	-0.143	0.003	***
Gender dummy	-0.005	0.002	**
Head-of-household age	-0.005	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	-0.002	0.001	**
Ratio of spousal annual income	-0.002	0.004	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.001	0.000	***
Current amount of savings (log)	-0.001	0.000	***
Current amount of debt (log)	-0.001	0.000	***
Housing and residential land assets (log)	-0.002	0.000	***
Household members dummy(2)			
3	-0.008	0.001	***
4	-0.014	0.001	***
5+	-0.015	0.002	***
Metropolitan area dummy	0.010	0.001	***
Constant	0.305	0.012	***
Adj. R^2	0.514		
F	1366.869		
N	23213		

Table 1-3: Results of regression analysis on the composition of consumption expenditures—Utilities

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Employment dummy	0.004	0.002	**
Spousal regular employment dummy	0.002	0.001	**
Spousal non-regular employment dummy	0.000	0.001	
Home ownership dummy	0.023	0.002	***
Gender dummy	0.000	0.001	
Head-of-household age	0.000	0.000	
Head-of-household age squared	0.000	0.000	***
Annual income (log)	-0.009	0.000	***
Ratio of spousal annual income	-0.026	0.002	***
Ratio of annual income for household members under 65 years old	0.000	0.000	**
Asset income (log)	-0.001	0.000	***
Current amount of savings (log)	-0.004	0.000	***
Current amount of debt (log)	0.000	0.000	***
Housing and residential land assets (log)	-0.001	0.000	***
Household members dummy(2)			
3	0.003	0.001	***
4	0.005	0.001	***
5+	0.011	0.001	***
Metropolitan area dummy	-0.009	0.000	***
Constant	0.140	0.006	***
Adj. R^2	0.137		
F	205.953		
N	23213		

Table 1-4: Results of regression analysis on the composition of consumption expenditures—Furniture and household products

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Employment dummy	-0.001	0.002	
Spousal regular employment dummy	-0.003	0.001	***
Spousal non-regular employment dummy	-0.003	0.001	***
Home ownership dummy	0.005	0.002	***
Gender dummy	0.000	0.001	
Head-of-household age	-0.002	0.000	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	-0.001	0.000	**
Ratio of spousal annual income	-0.003	0.002	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.000	
Current amount of savings (log)	0.000	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.000	0.000	
Household members dummy(2)			
3	-0.001	0.001	
4	-0.002	0.001	***
5+	-0.003	0.001	***
Metropolitan area dummy	-0.001	0.000	**
Constant	0.073	0.005	***
Adj. R^2	0.016		
F	21.610		
N	23213		

Table 1-5: Results of regression analysis on the composition of consumption expenditures—Clothing and footwear

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Employment dummy	-0.004	0.002	**
Spousal regular employment dummy	-0.001	0.001	
Spousal non-regular employment dummy	-0.002	0.001	***
Home ownership dummy	-0.004	0.002	***
Gender dummy	-0.008	0.001	***
Head-of-household age	-0.001	0.000	***
Head-of-household age squared	0.000	0.000	
Annual income (log)	0.004	0.000	***
Ratio of spousal annual income	0.013	0.002	***
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.000	
Current amount of savings (log)	0.001	0.000	***
Current amount of debt (log)	0.000	0.000	*
Housing and residential land assets (log)	0.002	0.000	***
Household members dummy(2)			
3	0.000	0.001	
4	-0.001	0.001	***
5+	-0.005	0.001	***
Metropolitan area dummy	0.003	0.000	***
Constant	0.047	0.006	***
Adj. R^2	0.039		
F	52.638		
N	23213		

Table 1-6: Results of regression analysis on the composition of consumption expenditures—Healthcare

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Employment dummy	-0.003	0.002	
Spousal regular employment dummy	-0.005	0.001	***
Spousal non-regular employment dummy	-0.006	0.001	***
Home ownership dummy	0.005	0.002	**
Gender dummy	0.002	0.001	**
Head-of-household age	-0.002	0.000	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	-0.001	0.000	***
Ratio of spousal annual income	-0.004	0.002	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.000	**
Current amount of savings (log)	0.001	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.000	0.000	
Household members dummy(2)			
3	0.000	0.001	
4	0.000	0.001	
5+	0.001	0.001	
Metropolitan area dummy	-0.001	0.001	**
Constant	0.081	0.007	***
Adj. R^2	0.013		
F	17.856		
N	23213		

Table 1-7: Results of regression analysis on the composition of consumption expenditures—Transportation and communication

Explanatory variable	Coeff.	Std. Dev.	Significance
Employment dummy	-0.008	0.005	
Spousal regular employment dummy	0.011	0.003	***
Spousal non-regular employment dummy	0.011	0.002	***
Home ownership dummy	0.028	0.005	***
Gender dummy	0.008	0.002	***
Head-of-household age	-0.004	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.001	0.001	
Ratio of spousal annual income	-0.009	0.005	*
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.001	0.000	**
Current amount of savings (log)	-0.002	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	-0.002	0.001	***
Household members dummy(2)			
3	-0.003	0.002 *	
4	-0.009	0.002	***
5+	-0.011	0.002	***
Metropolitan area dummy	-0.006	0.001	**
Constant	0.245	0.016	***
Adj. R^2	0.012		
F	17.055		
N	23213		

Table 1-8: Results of regression analysis on the composition of consumption expenditures—Education

Explanatory variable	Coeff.	Std. Dev.	Significance
Employment dummy	-0.002	0.004	
Spousal regular employment dummy	-0.006	0.002	**
Spousal non-regular employment dummy	0.009	0.002	***
Home ownership dummy	-0.011	0.004	**
Gender dummy	-0.029	0.002	***
Head-of-household age	0.014	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.001	0.001	
Ratio of spousal annual income	0.007	0.005	
Ratio of annual income for household members under 65 years old	0.000	0.000	***
Asset income (log)	-0.001	0.000	*
Current amount of savings (log)	0.001	0.000	***
Current amount of debt (log)	0.001	0.000	***
Housing and residential land assets (log)	0.002	0.001	***
Household members dummy(2)			
3	0.037	0.002	***
4	0.075	0.002	***
5+	0.086	0.002	***
Metropolitan area dummy	0.017	0.001	***
Constant	-0.291	0.015	***
Adj. R^2	0.168		
F	260.951		
N	23213		

Table 1-9: Results of regression analysis on the composition of consumption expenditures—Culture and entertainment

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Employment dummy	-0.015	0.003	***
Spousal regular employment dummy	-0.011	0.002	***
Spousal non-regular employment dummy	-0.010	0.001	***
Home ownership dummy	0.007	0.003	**
Gender dummy	-0.001	0.002	
Head-of-household age	0.004	0.000	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.004	0.001	***
Ratio of spousal annual income	0.015	0.003	***
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.000	*
Current amount of savings (log)	0.004	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.003	0.000	***
Household members dummy(2)			
3	-0.014	0.001	***
4	-0.013	0.001	***
5+	-0.018	0.001	***
Metropolitan area dummy	0.010	0.001	***
Constant	-0.013	0.011	
Adj. R^2	0.084		
F	119.721		
N	23213		

Table 1-10: Results of regression analysis on the composition of consumption expenditures—Other consumption expenditures

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Employment dummy	0.026	0.006	***
Spousal regular employment dummy	0.010	0.003	***
Spousal non-regular employment dummy	0.006	0.002	***
Home ownership dummy	0.040	0.006	***
Gender dummy	0.027	0.003	***
Head-of-household age	-0.010	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.017	0.001	***
Ratio of spousal annual income	0.050	0.006	***
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.002	0.000	***
Current amount of savings (log)	0.004	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.000	0.001	
Household members dummy(2)			
3	-0.014	0.002	***
4	-0.052	0.002	***
5+	-0.070	0.003	***
Metropolitan area dummy	-0.026	0.002	***
Constant	0.198	0.020	
Adj. R^2	0.162		
F	250.401		
N	23213		

Results of regression analysis on the composition of consumption expenditures—Head of household: regular worker; spouse: regular worker

Table 2-1: Food

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Home ownership dummy	0.039	0.011	***
Gender dummy	-0.024	0.007	***
Head-of-household age	0.005	0.002	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	-0.013	0.002	***
Ratio of spousal annual income	-0.010	0.010	***
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	-0.003	0.001	***
Current amount of savings (log)	-0.004	0.001	***
Current amount of debt (log)	0.001	0.000	*
Housing and residential land assets (log)	-0.001	0.001	
Household members dummy(2)			
3	-0.003	0.004	
4	0.010	0.004	***
5+	0.028	0.004	***
Metropolitan area dummy	0.003	0.003	**
Constant	0.212	0.035	***
Adj. R^2	0.078		
F	22.806		
N	3858		

Table 2-2: Housing

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Home ownership dummy	-0.165	0.008	***
Gender dummy	-0.017	0.005	***
Head-of-household age	-0.005	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	-0.001	0.002	***
Ratio of spousal annual income	0.003	0.008	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.003	0.001	***
Current amount of savings (log)	0.001	0.001	
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.000	0.001	
Household members dummy(2)			
3	-0.013	0.003	***
4	-0.009	0.003	***
5+	-0.009	0.004	***
Metropolitan area dummy	0.004	0.002	*
Constant	0.320	0.028	***
Adj. R^2	0.513		
F	271.574		
N	3858		

Table 2-3: Utilities

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.021	0.004	***
Gender dummy	-0.010	0.003	***
Head-of-household age	-0.001	0.001	***
Head-of-household age squared	0.000	0.000	
Annual income (log)	-0.006	0.001	
Ratio of spousal annual income	-0.010	0.004	***
Ratio of annual income for household members under 65 years old	0.000	0.000	**
Asset income (log)	-0.002	0.000	***
Current amount of savings (log)	-0.004	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	-0.001	0.001	**
Household members dummy(2)			
3	0.004	0.002	***
4	0.009	0.002	***
5+	0.017	0.002	***
Metropolitan area dummy	-0.005	0.001	***
Constant	0.133	0.015	***
Adj. R^2	0.129		
F	39.093		
N	3858		

Table 2-4: Furniture and household products

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.004	0.004	
Gender dummy	-0.005	0.003	*
Head-of-household age	-0.002	0.001	**
Head-of-household age squared	0.000	0.000	**
Annual income (log)	-0.001	0.001	
Ratio of spousal annual income	-0.006	0.004	*
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.000	
Current amount of savings (log)	0.000	0.000	
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.001	0.001	
Household members dummy(2)			
3	-0.002	0.002	
4	-0.001	0.002	
5+	-0.001	0.002	
Metropolitan area dummy	-0.001	0.001	
Constant	0.068	0.014	***
Adj. R^2	0.007		
F	2.874		
N	3858		

Table 2-5: Clothing and footwear

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.005	0.005	
Gender dummy	-0.003	0.003	
Head-of-household age	0.000	0.001	
Head-of-household age squared	0.000	0.000	
Annual income (log)	0.002	0.001	***
Ratio of spousal annual income	0.003	0.004	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.000	
Current amount of savings (log)	0.001	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.001	0.001	
Household members dummy(2)			
3	-0.004	0.002	***
4	-0.006	0.002	***
5+	-0.010	0.002	***
Metropolitan area dummy	0.007	0.001	***
Constant	0.037	0.016	**
Adj. R^2	0.035		
F	10.387		
N	3858		

Table 2-6: Healthcare

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	-0.004	0.005	
Gender dummy	-0.007	0.003	
Head-of-household age	-0.001	0.001	**
Head-of-household age squared	0.000	0.000	
Annual income (log)	-0.001	0.001	
Ratio of spousal annual income	0.006	0.005	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.001	0.000	
Current amount of savings (log)	0.002	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.001	0.001	
Household members dummy(2)			
3	0.005	0.002	**
4	0.004	0.002	*
5+	0.006	0.002	***
Metropolitan area dummy	0.000	0.001	
Constant	0.062	0.017	***
Adj. R^2	0.008		
F	2.999		
N	3858		

Table 2-7: Transportation and communication

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.034	0.013	
Gender dummy	0.015	0.008	**
Head-of-household age	-0.005	0.002	*
Head-of-household age squared	0.000	0.000	**
Annual income (log)	0.004	0.002	*
Ratio of spousal annual income	-0.019	0.012	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.001	
Current amount of savings (log)	-0.003	0.001	**
Current amount of debt (log)	0.000	0.001	
Housing and residential land assets (log)	-0.002	0.002	
Household members dummy(2)			
3	-0.006	0.005	
4	-0.013	0.005	***
5+	-0.010	0.006	***
Metropolitan area dummy	-0.001	0.004	
Constant	0.247	0.043	***
Adj. R^2	0.005		
F	2.382		
N	3858		

Table 2-8: Education

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.002	0.011	
Gender dummy	0.007	0.007	
Head-of-household age	0.013	0.002	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.002	0.002	
Ratio of spousal annual income	0.015	0.010	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.001	
Current amount of savings (log)	-0.002	0.001	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.001	0.001	
Household members dummy(2)			
3	0.037	0.004	***
4	0.074	0.004	***
5+	0.081	0.004	***
Metropolitan area dummy	0.016	0.003	***
Constant	-0.296	0.035	***
Adj. R^2	0.173		
F	54.724		
N	3858		

Table 2-9: Culture and entertainment

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	-0.013	0.008	
Gender dummy	-0.005	0.005	
Head-of-household age	0.003	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.000	0.001	
Ratio of spousal annual income	0.028	0.008	***
Ratio of annual income for household members under 65 years old	0.000	0.000	**
Asset income (log)	0.001	0.001	**
Current amount of savings (log)	0.004	0.001	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.005	0.001	***
Household members dummy(2)			
3	-0.016	0.003	***
4	-0.010	0.003	***
5+	-0.019	0.003	***
Metropolitan area dummy	0.014	0.002	***
Constant	0.012	0.027	
Adj. R^2	0.173		
F	22.640		
N	3858		

Table 2-10: Other consumption expenditures

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.078	0.018	***
Gender dummy	0.048	0.011	***
Head-of-household age	-0.009	0.003	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.013	0.003	***
Ratio of spousal annual income	-0.009	0.016	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.001	
Current amount of savings (log)	0.006	0.001	***
Current amount of debt (log)	-0.001	0.001	
Housing and residential land assets (log)	-0.003	0.002	
Household members dummy(2)			
3	-0.001	0.007	
4	-0.057	0.007	***
5+	-0.084	0.007	***
Metropolitan area dummy	-0.036	0.005	***
Constant	0.203	0.058	
Adj. R^2	0.173		
F	22.640		
N	3858		

Results of regression analysis on the composition of consumption expenditures—Head of household: regular worker; spouse: non-regular worker

Table 3-1: Food

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Home ownership dummy	0.054	0.007	***
Gender dummy	0.006	0.008	
Head-of-household age	0.004	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	-0.011	0.002	***
Ratio of spousal annual income	0.004	0.010	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	-0.002	0.001	***
Current amount of savings (log)	-0.005	0.001	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	-0.003	0.001	***
Household members dummy(2)			
3	0.002	0.003	
4	0.014	0.003	***
5+	0.028	0.003	***
Metropolitan area dummy	0.001	0.002	
Constant	0.196	0.028	***
Adj. R^2	0.067		
F	34.695		
N	7037		

Table 3-2: Housing

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Home ownership dummy	-0.143	0.006	***
Gender dummy	-0.009	0.006	
Head-of-household age	-0.006	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	-0.001	0.001	
Ratio of spousal annual income	0.015	0.008	*
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.001	0.000	
Current amount of savings (log)	0.000	0.000	
Current amount of debt (log)	-0.001	0.000	***
Housing and residential land assets (log)	-0.001	0.001	
Household members dummy(2)			
3	-0.007	0.003	***
4	-0.010	0.003	***
5+	-0.015	0.003	***
Metropolitan area dummy	0.011	0.002	***
Constant	0.322	0.023	***
Adj. R^2	0.487		
F	445.630		
N	7037		

Table 3-3: Utilities

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.019	0.003	***
Gender dummy	-0.002	0.003	***
Head-of-household age	0.000	0.001	***
Head-of-household age squared	0.000	0.000	
Annual income (log)	-0.007	0.001	
Ratio of spousal annual income	0.011	0.004	***
Ratio of annual income for household members under 65 years old	0.000	0.000	**
Asset income (log)	-0.001	0.000	***
Current amount of savings (log)	-0.003	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	-0.001	0.000	**
Household members dummy(2)			
3	0.007	0.001	***
4	0.008	0.001	***
5+	0.016	0.001	***
Metropolitan area dummy	-0.008	0.001	***
Constant	0.126	0.012	***
Adj. R^2	0.108		
F	57.603		
N	7037		

Table 3-4: Furniture and household products

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.006	0.003	**
Gender dummy	0.000	0.003	
Head-of-household age	-0.002	0.000	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.000	0.001	
Ratio of spousal annual income	0.000	0.004	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.000	
Current amount of savings (log)	0.000	0.000	
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.000	0.000	
Household members dummy(2)			
3	0.000	0.001	
4	-0.002	0.001	*
5+	-0.002	0.001	*
Metropolitan area dummy	0.000	0.001	
Constant	0.063	0.011	***
Adj. R^2	0.009		
F	5.339		
N	7037		

Table 3-5: Clothing and footwear

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.002	0.003	
Gender dummy	-0.008	0.003	**
Head-of-household age	0.000	0.000	
Head-of-household age squared	0.000	0.000	
Annual income (log)	0.003	0.001	***
Ratio of spousal annual income	-0.012	0.004	***
Ratio of annual income for household members under 65 years old	0.000	0.000	***
Asset income (log)	0.000	0.000	
Current amount of savings (log)	0.001	0.000	***
Current amount of debt (log)	0.000	0.000	***
Housing and residential land assets (log)	0.001	0.000	**
Household members dummy(2)			
3	-0.003	0.001	***
4	-0.002	0.001	*
5+	-0.006	0.001	***
Metropolitan area dummy	0.003	0.001	***
Constant	0.043	0.011	***
Adj. R^2	0.034		
F	17.510		
N	7037		

Table 3-6: Medical

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.007	0.003	**
Gender dummy	-0.006	0.004	
Head-of-household age	-0.001	0.001	**
Head-of-household age squared	0.000	0.000	*
Annual income (log)	-0.003	0.001	***
Ratio of spousal annual income	-0.001	0.005	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.000	
Current amount of savings (log)	0.001	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.000	0.000	
Household members dummy(2)			
3	-0.002	0.001	
4	0.001	0.001	
5+	0.002	0.002	
Metropolitan area dummy	-0.001	0.001	
Constant	0.079	0.013	***
Adj. R^2	0.006		
F	3.973		
N	7037		

Table 3-7: Transportation and communication

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.021	0.008	**
Gender dummy	-0.016	0.009	*
Head-of-household age	-0.003	0.001	**
Head-of-household age squared	0.000	0.000	**
Annual income (log)	-0.003	0.002	
Ratio of spousal annual income	0.054	0.012	***
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.001	0.001	
Current amount of savings (log)	-0.001	0.001	
Current amount of debt (log)	0.001	0.000	
Housing and residential land assets (log)	-0.001	0.001	
Household members dummy(2)			
3	0.000	0.004	
4	-0.006	0.004	
5+	-0.008	0.004	**
Metropolitan area dummy	-0.005	0.002	*
Constant	0.269	0.033	***
Adj. R^2	0.012		
F	6.623		
N	7037		

Table 3-8: Education

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	-0.026	0.008	
Gender dummy	-0.008	0.009	
Head-of-household age	0.015	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.002	0.002	
Ratio of spousal annual income	-0.001	0.012	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.001	
Current amount of savings (log)	0.001	0.001	***
Current amount of debt (log)	0.001	0.000	
Housing and residential land assets (log)	0.004	0.001	
Household members dummy(2)			
3	0.048	0.004	***
4	0.087	0.004	***
5+	0.099	0.004	***
Metropolitan area dummy	0.023	0.002	***
Constant	-0.342	0.033	***
Adj. R^2	0.168		
F	95.627		
N	7037		

Table 3-9: Culture and entertainment

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.014	0.005	
Gender dummy	-0.003	0.006	
Head-of-household age	0.003	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.003	0.001	
Ratio of spousal annual income	-0.024	0.008	***
Ratio of annual income for household members under 65 years old	0.000	0.000	**
Asset income (log)	0.000	0.000	**
Current amount of savings (log)	0.004	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.002	0.001	***
Household members dummy(2)			
3	-0.018	0.002	***
4	-0.015	0.002	***
5+	-0.020	0.003	***
Metropolitan area dummy	0.008	0.002	***
Constant	0.027	0.021	
Adj. R^2	0.068		
F	35.463		
N	7037		

Table 3-10: Other consumption expenditures

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.046	0.011	***
Gender dummy	0.046	0.012	***
Head-of-household age	-0.008	0.002	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.017	0.002	***
Ratio of spousal annual income	-0.045	0.016	***
Ratio of annual income for household members under 65 years old	0.001	0.000	**
Asset income (log)	0.002	0.001	**
Current amount of savings (log)	0.002	0.001	***
Current amount of debt (log)	-0.001	0.001	*
Housing and residential land assets (log)	-0.001	0.001	
Household members dummy(2)			
3	-0.026	0.005	***
4	-0.076	0.005	***
5+	-0.093	0.005	***
Metropolitan area dummy	-0.030	0.003	***
Constant	0.218	0.043	***
Adj. R^2	0.158		
F	88.871		
N	7037		

Results of regression analysis on the composition of consumption expenditures—Head of household: regular worker; spouse: non-working

Table 4-1: Food

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Home ownership dummy	0.044	0.006	***
Gender dummy	0.010	0.003	***
Head-of-household age	0.007	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	-0.011	0.001	***
Ratio of spousal annual income	-0.028	0.013	**
Ratio of annual income for household members under 65 years old	0.000	0.000	**
Asset income (log)	-0.003	0.000	***
Current amount of savings (log)	-0.005	0.000	***
Current amount of debt (log)	-0.001	0.000	***
Housing and residential land assets (log)	0.000	0.001	
Household members dummy(2)			
3	0.000	0.003	
4	0.006	0.003	**
5+	0.019	0.003	***
Metropolitan area dummy	0.003	0.002	
Constant	0.134	0.020	*
Adj. R^2	0.084		
F	62.047		
N	9965		

Table 4-2: Housing

Explanatory variable	**Coeff.**	**Std. Dev.**	**Significance**
Home ownership dummy	-0.135	0.005	***
Gender dummy	-0.006	0.003	***
Head-of-household age	-0.003	0.001	*
Head-of-household age squared	0.000	0.000	***
Annual income (log)	-0.006	0.001	***
Ratio of spousal annual income	0.004	0.012	***
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.001	0.000	
Current amount of savings (log)	-0.001	0.000	*
Current amount of debt (log)	-0.001	0.000	*
Housing and residential land assets (log)	-0.003	0.001	***
Household members dummy(2)			
3	-0.004	0.002	*
4	-0.015	0.002	***
5+	-0.015	0.003	***
Metropolitan area dummy	0.011	0.002	***
Constant	0.304	0.018	***
Adj. R^2	0.518		
F	715.258		
N	9965		

Table 4-3: Utilities

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.026	0.002	***
Gender dummy	0.002	0.001	***
Head-of-household age	0.000	0.000	
Head-of-household age squared	0.000	0.000	
Annual income (log)	-0.007	0.001	***
Ratio of spousal annual income	0.001	0.006	
Ratio of annual income for household members under 65 years old	0.000	0.000	**
Asset income (log)	-0.001	0.000	***
Current amount of savings (log)	-0.004	0.000	***
Current amount of debt (log)	0.000	0.000	***
Housing and residential land assets (log)	-0.001	0.000	***
Household members dummy(2)			
3	0.001	0.001	
4	0.002	0.001	*
5+	0.006	0.001	***
Metropolitan area dummy	-0.009	0.001	***
Constant	0.123	0.009	***
Adj. R^2	0.122		
F	93.461		
N	9965		

Table 4-4: Furniture and household products

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.006	0.002	***
Gender dummy	0.001	0.001	
Head-of-household age	-0.002	0.000	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.000	0.000	
Ratio of spousal annual income	0.009	0.005	*
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.000	
Current amount of savings (log)	0.000	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.000	0.000	
Household members dummy(2)			
3	0.000	0.001	
4	-0.003	0.001	**
5+	-0.005	0.001	***
Metropolitan area dummy	-0.001	0.001	*
Constant	0.066	0.008	***
Adj. R^2	0.009		
F	12.027		
N	9965		

Table 4-5: Clothing and footwear

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	-0.008	0.002	***
Gender dummy	-0.008	0.001	***
Head-of-household age	-0.001	0.000	***
Head-of-household age squared	0.000	0.000	*
Annual income (log)	0.005	0.001	***
Ratio of spousal annual income	-0.003	0.006	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.000	
Current amount of savings (log)	0.001	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.002	0.000	***
Household members dummy(2)			
3	0.002	0.001	*
4	0.001	0.001	
5+	-0.004	0.001	***
Metropolitan area dummy	0.002	0.001	***
Constant	0.047	0.008	***
Adj. R^2	0.036		
F	25.824		
N	9965		

Table 4-6: Medical

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.005	0.003	
Gender dummy	0.002	0.002	
Head-of-household age	-0.001	0.001	**
Head-of-household age squared	0.000	0.000	*
Annual income (log)	-0.002	0.001	***
Ratio of spousal annual income	0.002	0.007	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.001	0.000	**
Current amount of savings (log)	0.001	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.000	0.000	
Household members dummy(2)			
3	0.000	0.001	
4	-0.002	0.001	
5+	-0.002	0.002	
Metropolitan area dummy	-0.002	0.001	*
Constant	0.080	0.011	***
Adj. R^2	0.008		
F	6.202		
N	9965		

Table 4-7: Transportation and communication

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.032	0.006	***
Gender dummy	0.006	0.004	
Head-of-household age	-0.004	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.001	0.001	
Ratio of spousal annual income	0.031	0.015	**
Ratio of annual income for household members under 65 years old	0.000	0.000	*
Asset income (log)	0.001	0.001	**
Current amount of savings (log)	-0.002	0.001	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	-0.003	0.001	***
Household members dummy(2)			
3	-0.006	0.003	**
4	-0.011	0.003	***
5+	-0.014	0.003	***
Metropolitan area dummy	-0.005	0.002	**
Constant	0.245	0.023	***
Adj. R^2	0.012		
F	9.361		
N	9965		

Table 4-8: Education

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	-0.001	0.006	
Gender dummy	-0.029	0.003	***
Head-of-household age	0.011	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.004	0.001	***
Ratio of spousal annual income	-0.037	0.013	***
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	-0.001	0.000	**
Current amount of savings (log)	0.001	0.000	**
Current amount of debt (log)	0.001	0.000	**
Housing and residential land assets (log)	0.001	0.001	
Household members dummy(2)			
3	0.035	0.003	***
4	0.076	0.003	***
5+	0.089	0.003	***
Metropolitan area dummy	0.014	0.002	***
Constant	-0.253	0.020	***
Adj. R^2	0.169		
F	136.134		
N	9965		

Table 4-9: Culture and entertainment

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.010	0.004	**
Gender dummy	0.000	0.003	
Head-of-household age	0.008	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.004	0.001	***
Ratio of spousal annual income	-0.012	0.011	
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.000	0.000	
Current amount of savings (log)	0.004	0.000	***
Current amount of debt (log)	0.000	0.000	
Housing and residential land assets (log)	0.003	0.001	***
Household members dummy(2)			
3	-0.009	0.002	***
4	-0.011	0.002	***
5+	-0.014	0.002	***
Metropolitan area dummy	0.009	0.001	***
Constant	-0.096	0.016	***
Adj. R^2	0.085		
F	62.655		
N	9965		

Table 4-10: Other consumption expenditures

Explanatory variable	Coeff.	Std. Dev.	Significance
Home ownership dummy	0.023	0.008	***
Gender dummy	0.021	0.005	***
Head-of-household age	-0.015	0.001	***
Head-of-household age squared	0.000	0.000	***
Annual income (log)	0.012	0.002	***
Ratio of spousal annual income	0.032	0.018	*
Ratio of annual income for household members under 65 years old	0.000	0.000	
Asset income (log)	0.002	0.001	***
Current amount of savings (log)	0.004	0.001	***
Current amount of debt (log)	0.001	0.000	*
Housing and residential land assets (log)	0.001	0.001	
Household members dummy(2)			
3	-0.018	0.004	***
4	-0.044	0.004	***
5+	-0.060	0.004	***
Metropolitan area dummy	-0.022	0.002	***
Constant	0.349	0.027	***
Adj. R^2	0.137		
F	106.336		
N	9965		

Supplemental Table 1: Basic statistics on the composition of consumption expenditures

Variable	Mean	Std. Dev.	Min.	Max.	Freq.
Share of food to consumption expenditures	0.2407	0.0887	0.0085	0.9850	23213
Share of housing to consumption expenditures	0.0592	0.1043	0.0000	0.8772	23213
Share of utilities to consumption expenditures	0.0722	0.0396	0.0000	0.5183	23213
Share of furniture and household products to consumption expenditures	0.0301	0.0329	0.0000	0.4856	23213
Share of clothing and footwear to consumption expenditures	0.0411	0.0353	0.0000	0.5815	23213
Share of medical to consumption expenditures	0.0379	0.0431	0.0000	0.7172	23213
Share of transportation and communication to consumption expenditures	0.1523	0.0981	0.0000	0.9303	23213
Share of education to consumption expenditures	0.0632	0.0974	0.0000	0.7633	23213
Share of culture and entertainment to consumption expenditures	0.0982	0.0677	0.0000	0.7113	23213
Share of other consumption expenditures to consumption expenditures	0.2053	0.1341	0.0000	0.9226	23213
Employment dummy	0.9662	0.1808	0.0000	1.0000	23213
Spousal regular employment dummy	0.1826	0.3863	0.0000	1.0000	23213
Spousal non-regular employment dummy	0.3234	0.4678	0.0000	1.0000	23213
Home ownership dummy	0.7321	0.4429	0.0000	1.0000	23213
Gender dummy	0.8949	0.3067	0.0000	1.0000	23213
Head-of-household age	44.6125	9.0561	20	59	23213
Head-of-household age squared	2072.2805	798.3101	400	3,481	23213
Annual earned income (unit: 10,000 yen)	646.8805	345.3029	0	2,772	23213
Ratio of spousal annual income	0.1498	0.2197	0.0004	1.0000	23213
Ratio of annual income for household members under 65 years old	0.6748	13.0816	0	864	23213
Property income (yen)	857.7029	11213.9627	0	572,068	23213
Current amount of savings (10,000 yen)	995.8843	1347.1214	0	28,780	23213
Current amount of debt (10,000 yen)	659.4830	1093.2199	0	50,000	23213
Housing and residential land assets (10,000 yen)	1680.2795	1764.4805	0	15,204	23213
3-person household	0.2732	0.4456	0.0000	1.0000	23213
4-person household	0.3505	0.4771	0.0000	1.0000	23213
5-person+ household	0.1760	0.3808	0.0000	1.0000	23213
Metropolitan area dummy	0.4500	0.4975	0.0000	1.0000	23213

Supplemental Table 2-1: Basic statistics for composition of consumption expenditures. Head of household: regular worker; spouse: regular worker

Variable	Mean	Std. Dev.	Min.	Max.	Freq.
Share of food to consumption expenditures	0.2260	0.0881	0.0225	0.6876	3858
Share of housing to consumption expenditures	0.0480	0.0954	0.0000	0.8772	3858
Share of utilities to consumption expenditures	0.0637	0.0377	0.0000	0.4498	3858
Share of furniture and household products to consumption expenditures	0.0282	0.0327	0.0000	0.4132	3858
Share of clothing and footwear to consumption expenditures	0.0456	0.0380	0.0000	0.3174	3858
Share of medical to consumption expenditures	0.0351	0.0414	0.0000	0.6177	3858
Share of transportation and communication to consumption expenditures	0.1555	0.1039	0.0036	0.8532	3858
Share of education to consumption expenditures	0.0566	0.0921	0.0000	0.6594	3858
Share of culture and entertainment to consumption expenditures	0.0988	0.0685	0.0000	0.7113	3858
Share of other consumption expenditures to consumption expenditures	0.2424	0.1513	0.0000	0.8746	3858
Home ownership dummy	0.8072	0.3946	0.0000	1.0000	3858
Gender dummy	0.9497	0.2186	0.0000	1.0000	3858
Head-of-household age	44.9948	9.0388	21	59	3858
Head-of-household age squared	2106.2125	796.2049	441	3,481	3858
Annual earned income (unit: 10,000 yen)	916.3227	381.9972	0	2,772	3858
Ratio of spousal annual income	0.3702	0.1677	0.0005	1.0000	3858
Ratio of annual income for household members under 65 years old	0.2974	13.9037	0.0004	863.5000	3858
Property income (yen)	855.6024	10832.2107	0	334,693	3858
Current amount of savings (10,000 yen)	1243.6941	1503.3689	0	16,770	3858
Current amount of debt (10,000 yen)	752.4222	1111.3701	0	23,500	3858
Housing and residential land assets (10,000 yen)	1841.6510	1763.1151	0	14,896	3858
3-person household	0.2571	0.4371	0.0000	1.0000	3858
4-person household	0.3134	0.4639	0.0000	1.0000	3858
5-person+ household	0.2141	0.4103	0.0000	1.0000	3858
Metropolitan area dummy	0.3320	0.4710	0.0000	1.0000	3858

Supplemental Table 2-2: Basic statistics for composition of consumption expenditures. Head of household: regular worker; spouse: non-regular worker

Variable	Mean	Std. Dev.	Min.	Max.	Freq.
Share of food to consumption expenditures	0.2374	0.0850	0.0238	0.6887	7037
Share of housing to consumption expenditures	0.0463	0.0929	0.0000	0.8429	7037
Share of utilities to consumption expenditures	0.0709	0.0371	0.0000	0.5183	7037
Share of furniture and household products to consumption expenditures	0.0283	0.0311	0.0000	0.4856	7037
Share of clothing and footwear to consumption expenditures	0.0394	0.0331	0.0000	0.5220	7037
Share of medical to consumption expenditures	0.0343	0.0378	0.0000	0.6793	7037
Share of transportation and communication to consumption expenditures	0.1571	0.0967	0.0000	0.8683	7037
Share of education to consumption expenditures	0.0770	0.1053	0.0000	0.6937	7037
Share of culture and entertainment to consumption expenditures	0.0938	0.0638	0.0000	0.6048	7037
Share of other consumption expenditures to consumption expenditures	0.2155	0.1353	0.0021	0.8790	7037
Home ownership dummy	0.7903	0.4072	0.0000	1.0000	7037
Gender dummy	0.9838	0.1263	0.0000	1.0000	7037
Head-of-household age	45.5946	8.4399	21	59	7037
Head-of-household age squared	2150.0865	751.5767	441	3,481	7037
Annual earned income (unit: 10,000 yen)	686.3737	276.5192	0	2,528	7037
Ratio of spousal annual income	0.1568	0.1226	0.0006	1.0000	7037
Ratio of annual income for household members under 65 years old	0.1257	5.6708	0.0004	475.5000	7037
Property income (yen)	650.0919	8433.5623	0	402,111	7037
Current amount of savings (10,000 yen)	902.4388	1182.1316	0	27,500	7037
Current amount of debt (10,000 yen)	743.8200	1006.7878	0	18,312	7037
Housing and residential land assets (10,000 yen)	1715.0153	1654.0626	0	14,911	7037
3-person household	0.2259	0.4182	0.0000	1.0000	7037
4-person household	0.4066	0.4912	0.0000	1.0000	7037
5-person+ household	0.2124	0.4091	0.0000	1.0000	7037
Metropolitan area dummy	0.4380	0.4962	0.0000	1.0000	7037

Supplemental Table 2-3: Basic statistics for composition of consumption expenditures. Head of household: regular worker; spouse: non-working

Variable	Mean	Std. Dev.	Min.	Max.	Freq.
Share of food to consumption expenditures	0.2435	0.0876	0.0085	0.9850	9965
Share of housing to consumption expenditures	0.0658	0.1072	0.0000	0.8184	9965
Share of utilities to consumption expenditures	0.0725	0.0381	0.0000	0.3397	9965
Share of furniture and household products to consumption expenditures	0.0319	0.0344	0.0000	0.4333	9965
Share of clothing and footwear to consumption expenditures	0.0415	0.0354	0.0000	0.5815	9965
Share of medical to consumption expenditures	0.0415	0.0468	0.0000	0.7172	9965
Share of transportation and communication to consumption expenditures	0.1479	0.0964	0.0000	0.9303	9965
Share of education to consumption expenditures	0.0586	0.0913	0.0000	0.7273	9965
Share of culture and entertainment to consumption expenditures	0.1029	0.0693	0.0000	0.6570	9965
Share of other consumption expenditures to consumption expenditures	0.1940	0.1236	0.0000	0.9226	9965
Home ownership dummy	0.6888	0.4630	0.0000	1.0000	9965
Gender dummy	0.9255	0.2625	0.0000	1.0000	9965
Head-of-household age	43.2190	9.1988	20	59	9965
Head-of-household age squared	1952.4888	803.2469	400	3,481	9965
Annual earned income (unit: 10,000 yen)	614.7874	286.9952	0	2,718	9965
Ratio of spousal annual income	0.0249	0.1140	0.0004	1.0000	9965
Ratio of annual income for household members under 65 years old	0.1502	5.7900	0.0004	456.0000	9965
Property income (yen)	831.9858	11449.1074	0	557,333	9965
Current amount of savings (10,000 yen)	980.3569	1280.7092	0	17,930	9965
Current amount of debt (10,000 yen)	653.0737	1171.7410	0	50,000	9965
Housing and residential land assets (10,000 yen)	1672.3293	1810.5526	0	15,100	9965
3-person household	0.2943	0.4558	0.0000	1.0000	9965
4-person household	0.3661	0.4818	0.0000	1.0000	9965
5-person+ household	0.1567	0.3636	0.0000	1.0000	9965
Metropolitan area dummy	0.5091	0.4999	0.0000	1.0000	9965