Assessing the Federal Reserve's Index of Household Economic Well-Being: Obama to Trump to Covid to Biden

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1. INTRODUCTION: THE DIMENSIONS OF ECONOMIC WELL-BEING

Many journalists, economists, and commentators have often focused on "economic well-being" (EWB)as an important component of overall well-being for individuals, families, and households. They also have recognized the multidimensional nature of EWB as a concept, and have suggested specific and directly measurable indicators related to these dimensions.

Perhaps the two most obvious candidates for inclusion in a list of dimensions of EWB are monetary wealth and income. In addition, recent economic studies have suggested others such as debt and ability to meet "required" payments (perhaps defined as debt service payments and payments for housing). Other examples are ability to meet unexpected expenses, ability to maintain expense levels in the event of unexpected loss of income (e.g., as a result of job loss), insurance coverage (to protect from unexpected losses) and access to credit.

Survey researchers at the Federal Reserve have made contributions to our knowledge of levels and trends in EWB through their studies with data from the annual national Survey of Household Economic Decision-Making (SHED)conducted every year since 2013 under their auspices. The most recent (2023) version of the SHED includes sections on 20 different substantive areas that may impact the levels of household economic well-being reported by survey respondents.[1] For each of these areas, the SHED questionnaire includes a category of specific and primarily factual questions.

For example, questions in the "Banking" category ask specifically if in the past 12 months the respondent (and/or their spouse or partner) took each of the following actions:

- Currently have a checking, savings or money market account?
- Purchase a money order from a place other than a bank in the past 12 months?
- Cash a check at a place other than a bank in the past 12 month?
- Take out a payday loan or payday advance in the past 12 months?
- Take out a pawn shop loan or an auto title loan in the past 12 months?

[1] The substantive areas are: living arrangements, caregiving, employment, housing, natural disasters, banking, credit applications, credit conditions, cryptocurrency, education, student loans, retirement and investment, income and consumption, inflation, emergency funds, food security, criminal justice, health and insurance, childhood background, and demographics. [1]

- Obtain a tax refund advance to receive your refund faster in the past 12 months?
- Pay an overdraft fee on a bank account in the past 12 months?

Besides these specific and primarily factual questions, the SHED also asks the respondent to choose a response to the following subjective question:

> Overall, which one of the following best describes how well you are managing financially these days?

The four possible ordered responses are:

> 1-"Finding it difficult to get by",2-"Just getting by",3-"Doing okay", or 4-"Living comfortably".

This survey strategy follows an approach also used in a number of other surveys dealing with respondents' well-being and satisfaction. For example, in the National Health Interview Survey (NHIS), which is the major federal source for tracking population health levels and trends, the survey asks about specific health problems and diagnoses but also includes an overall subjective rating of the respondent's health status with an ordered 5-category response ranging from "poor" to "excellent".[2]

2. THE FEDERAL RESERVE METHOD FOR CONSTRUCTING AN OVERALL EWB INDICATOR

The ordered categorical response chosen by each SHED respondent represents an overall subjective assessment. That assessment is presumably based on the specific facts of their individual situation. When comparing average responses of differing groups of individuals, however, or when tracking trends in average responses over time, it is often very useful to have a method for aggregating responses across individuals who vary in their chosen categories of the overall subjective assessment.

The analogy to the NHIS also applies here. In tracking overall population health status over time, five separate trends (one for "poor", one for "fair", etc.)showing the precent of respondents in each category separately will rarely be easily translatable into a summary statement about trends for the whole population of respondents. What is needed for this purpose is to apply weights to each of the 5 response categories and to then compute the weighted sum of the respondent percentages in each

of the category. The process for determining these weights is therefore important.

The Federal Reserve has also developed and applied a process for deriving category weights (of the EWB responses in the SHED) that is straightforward and simple.[3, pp. 5-10] A weight of 1 is assigned to each of the 2 highest categories ("doing okay" and "living comfortably"), a weight of 0 is assigned to each of the 2 lowest categories ("finding it difficult" and "just getting by"), and the resulting weighted sum is described as the percent of respondents who are "at least doing okay".

Looking critically at this process, however, raises several concerns. What are the bases for assuming that the two highest responses are actually equivalent? What are the bases for assuming the two lowest responses are actually equivalent? Perhaps most importantly, are these assumptions consistent with the patterns of responses in the SHED data to the large number of specific survey items that are related to the factual (i.e., non-subjective) experiences of the respondents?

3. A SIMPLE AND IMPROVED METHOD FOR OVERALL EWB INDICATOR CONSTRUCTI0N: THE EWB-REV

There is a relatively simple alternative for constructing an overall EWB indicator that avoids the Federal Reserve's two arbitrary assumptions just described and that also makes use of the substantial information in the SHED on factual experiences of the respondent. This alternative method, which uses an iterative application of OLS regression, has been previously described in detail by Rubinfeld[4] and appears to have been first applied by Rubinfeld in a 1973 study on municipal bond credit ratings.[5] Other applications to voting behavior[4], to labor-force participation [4], and to self-reported health status [6] have also previously appeared in the literature.

In the current paper, we apply this method to the objective and subjective responses in the SHED survey data. The method provides estimates of the subjective values, relative to the highest-valued subjective outcome (i.e., in the case of the SHED data, "living comfortably"). These estimated subjective values can then be used to construct an alternative overall economic well-being measure that can be compared across groups of individuals and/or over time.

The explanatory variables used in this iterative OLS regression analysis were selected from 9 of the 21 categories of questions relating to specific facts that were included in the 2023 SHED survey questionnaire:

Income and consumption
Retirement and investments
Banking
Health and Insurance
Emergency funds
Housing
Credit conditions
Student loans
Demographics.[2]

A total of 71 variables were selected from these 9 categories for inclusion in the regressions. Most of these are binary variables but 10 are categorical variables and 4 are continuous (with 2 entered in quadratic form). Counting the multiple coefficients for each categorical variable, each regression included estimates for slightly more than 100 coefficients. Specific variable definitions, organized by category, are provided in Appendix A. The steps in the iterative method are described in Table 1.

[2] With the large number of measures already included, other categories mentioned in note 1 above were excluded given a residual concern for parsimony. Exclusion of particular categories were based on several rationales. First, while survey data in the 2023 SHED are available on 11,400 respondents, some categories (e.g., cryptocurrency, criminal justice) involved experiences with which very few respondents had any familiarity. Second, for some categories, such as food security, all questions and elicited responses that were arguably too subjective. Of course, with a larger data set and the same method of analysis used here, inclusion of these and other dimensions in would have be possible

TABLE 1: ITERATIVE OLS METHOD FOR ASSIGNING RELATIVE WEIGHTS AND CONSTRUCTING EWB-REV VALUES FROM SHED DATA

Step #	**Procedure**
1	Create a 0-1 dependent variable ("B24dum")set =1 for respondents with the best subjective EWB outcome ("living comfortably")and set=0 otherwise.
2.	Do OLS regression of B24dum on (a)explanatory variables based on the respondents' responses to a number of factual SHED survey items **and** (b)0-1 dummy variables B23dum and B22dum for cases with the relevant intermediate EWB outcomes("doing okay" and "just getting by" respectively.
3.	Replace "0" values of B24dum to —1 x (estimated B23dum coefficient "B23hat" and —1 x (estimated B22dum coefficient "B22hat") from step 2 only for respondents "doing okay" and for respondents "just getting by" respectively (Denote this modified dependent variable as B24dum*.)
4.	Rerun the OLS regression from Step 2, **but** use B24dum* as the dependent variable **and** drop B22dum and B23dum from the set of explanatory variables in the regression.
5.	Use step 4 regression results to compute predicted values of B24dum* only for (a) "doing okay" respondents and (b) for those "just getting by". Then compare means of these 2 predicted values with values of B22hat and B23hat respectively from step 2. **IF** for both B22hat and B23hat mean predicted values are very close (e.g., within 0.001), use these mean predicted values as weights assigned to "doing okay" and "just getting by" respectively. **IF NOT** repeat steps 4 and 5 over again and again until both mean predicted values change by less than 0.001.

We applied this procedure to all 11,400 respondents in the 2023 SHED data using a regression model with the variables from Appendix A and reported regression results in detail in Appendix B.[3] Further comments about the regression results are also given in Appendix B.

The process converged after 4 iterations. The initial estimated dummy variable coefficients for the two intermediate responses, and the mean predicted values for each of these responses after each of the 4 iterations following the initial regressions are shown in Table 2.

[3] Note that all regressions in the analysis used the population weights provided in the SHED data.

TABLE 2: ESTIMATED EWB-REV VALUES FOR INTERMEDIATKEY SHED RESPONSES FROM ITERATIVE OLS METHOD

		Value	Est Std. Err.	Std. Dev.	P-value
1	Initial Coefficient for "Just getting by"	-0.5825566	0.0058507		<0.0005
2	Mean Y-hat 1 for "Just getting by"	0.5849422		0.1517908	
3	Mean Y-hat 2 for "Just getting by"	0.5859481	.	0.1515989	
4	Mean Y-hat 3 for "Just getting by"	0.5878206		0.151993	
5	Mean Y-hat 4 for "Just getting by"	0.5885874		0.152245	
6	FED EWB value for "Just getting by"	0			
7	Initial Coefficient for "Doing Okay"	-0.7646814	0.0044681		<0.0005
8	Mean Y-hat 1 for "Doing Okay"	0.7685084		0.1297283	
9	Mean Y-hat 2 for "Doing Okay"	0.7691176		0.1294449	
10	Mean Y-hat 3 for "Doing Okay"	0.771163		0.1294057	
11	Mean Y-hat 4 for "Doing Okay"	0.7721098		0.1294489	
12	FED EWB value for "Doing Okay"	1.0			

Rows 1 and 7 show the estimated dummy variable coefficients for the 2 intermediate responses from the initial OLS regression. These coefficients are just -1 multiplied by the mean of the predicted values for cases reporting intermediate subjective responses. Rows 2-5 and 7-11 show the result from the 4 subsequent iterations. Results in rows 5 and 11 are the final estimated EWB-REV values for the cases with either of the 2 intermediate subjective overall economic well-being responses.

Comparison of these 2 estimates with the weights used by the Federal Reserve are also shown in Table 2 (Row 5 vs. Row 6 and Row 11 vs. Row 12).The differences are substantial. The most obvious difference is that in our EWB weight of 0.5885874 for the second lowest response ("Just getting by") was closer to the assigned weight

of 1 for "Living comfortably" than to the FED's assigned weight of 0 which it applies to both "Just getting by" and "Finding it difficult to get by".

Our weight for the second best response ("doing okay" was (0.7721098). This is about halfway between the weights for the second worst and best response; in contrast, the Fed's assigned a weight (1.0) equal to that for the best response ("Living comfortably").

The detailed results from the regressions used to derive our EWB weights are presented and discussed in Appendix B. The the regression results (in Appendices A and B) makes it clear that much of the information in the SHED based on factual experiences of the respondents influence their subejective well-being responses, and therefore our estimated subjective EWB weights, in a plausible direction.

4. Comparing EWB-REV vs. FED Weights for Tracking Changes in Overall Economic Well-Being

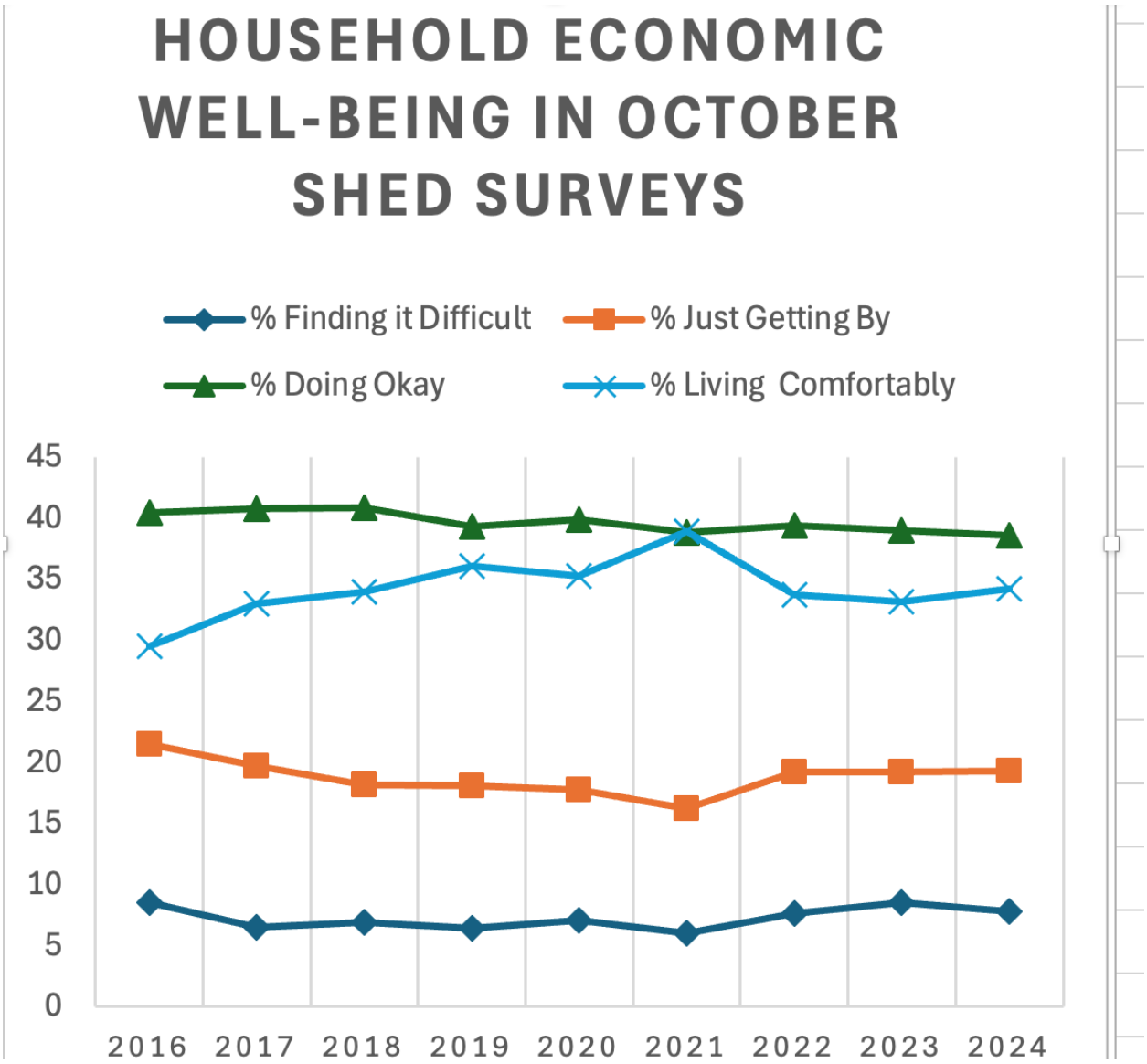
Do the differences between the FED's EWB weights and the regression-based EWB-REV weights matter in terms of tracking changes over time for all U.S. households? We examine the case of the 2017-2024 period which covers the first Trump term, the Covid pandemic, the macroeconomic policy response to Covid, and the last full year of Biden's presidency. Data on the percent of SHED respondents reporting each different level of subjective well-being are shown in Table 3.

Table 3:% Distribution of EWB Responses

Year	% Finding it Difficult	% Just Getting By	% Doing Okay	% Living Comfortably
2016	8.52	21.47	40.49	29.52
2017	6.49	19.7	40.78	33.04
2018	6.91	18.2	40.88	34.01
2019	6.45	18.1	39.31	36.08
2020	7.1	17.79	39.87	35.24
2021	6	16.27	38.81	38.92
2022	7.63	19.24	39.39	33.74
2023	8.57	19.25	39.02	33.17
2024	7.82	19.31	38.63	34.23

(Note that the reported percentages incorporate the population weights in the SHED in each year intended to reflect the entire distribution of U.S. households.) The differing trends in the

response categories can be seen more clearly in the following graph:



While the percentages for each of the four categories are fairly stable, there are several interesting changes over the time period. Going from the last Obama year (2016) to the first Biden year, there were declines in the lowest two categories and a clear increase in the percentage of respondents saying they were living comfortably. The most pronounced annual changes were from 2016 to 2017 with shifts away from the lowest categories and toward "living comfortably"),from 2020 to 2021 with similar changes, and fairly sharp reversals in these trends in 2021 to

2022. These changes coincided with the changes in presidential administrations, with the strong Covid relief effort in 2021, and with the cutbacks in Covid relief and the increase in price inflation from 2021 to 2022.

Applying the FED's EWB weights(0,0,1,1) and the regression-based EWB-REV weights (0, 0.5885874, 0.7721098, 1), we obtain 2 the two resulting time paths of overall national economic well-being (Table 4).

Table 4: FED AND EWB-REV LEVELS AND OCTOBER YEAR-TO-YEAR % CHANGES IN NATIONAL ECONOMIC WELL-BEING FROM SHED DATA

Yr.	National EWB FED	National EWB-REV	FED % Δ Past 12 Mos.	EWB REV % Δ Past 12 Mos.
2016	70.010	73.420		
2017	73.820	76.122	**5.442**	**3.680**
2018	74.890	76.286	1.449	0.216
2019	75.390	77.085	0.668	1.047
2020	75.110	76.495	-0.371	-0.765
2021	77.730	78.462	**3.488**	**2.571**
2022	73.130	75.478	**-5.918**	**-3.803**
2023	72.190	74.628	-1.285	-1.126
2024	72.860	75.422	0.928	1.064

The similarity in time trends between the FED and EWB-REV figures is not surprising since all differences in the weighting scheme apply only to the two intermediate responses. Note also that with either weighting scheme the year-to-year percentage changes are generally small. It is surprising, however, that in the 3 years of the period when year-to-year changes were larger than 1.5%, the percentage changes (in **bold**) with the FED weighting scheme were 35% to 70% larger than the changes with the EWB-REV weighting. This suggests that the resulting EWB level is more volatile over time with the FED wieghts than it is with the EWB-REV weights.

5.Concluding Remarks

This note, drawing on earlier work of Rubinfeld and others, illustrates how the important ordinal subjective response data from the FED annual SHED survey can be combined with respondents' reports of a variety of relevant factual experiences, to produce a weighting scheme for estimating a cardinal index of household economic well-being applicable to

groups of individuals that does not rely on the FED's practice of reducing, by assumption, the four-level ordinal subjective responses the binary response of either "doing at least okay" or "not doing at least okay". Future applications of the EWB-REV weighting scheme to other comparisons of economic well-being between groups of households and over time will hopefully indicate its potential utility for arriving at judgements about policy impacts on household economic well-being.

APPENDIX A: EXPLANATORY VARIABLES IN THE ITERATIVE OLS REGRESSIONS

Variable names and definitions for the explanatory variables included in all OLS regressions are shown in Table A1 below. All but 4 of these variables are categorical and the explanations for the category labels and definitions of the reference categories for all non-binary categorical variables are shown in the table. The 4 continuous variables are : (1) combined income of the respondent and spouse/partner expressed as percentile rankings (relrespinc); (2) monthly mortgage or rent payment levels (in $000's) (housecostK); (3) household size (pphsize) and its square; and (4) respondent age in years and its square.

Note that binary dummy variables for the 2 intermediate level responses to the overall subjective EWB question, denoted by B22dum (for "just getting by)" and B23dum (for "doing okay"), are also included only in the initial OLS regression. The dependent variable in that initial regression is the binary dummy =1 only for the highest level subjective EWB response. That dummy variable is then converted to a 4-level categorical variable in the second and subsequent regressions.

Also note that in the initial regression, the coefficients for the intermediate level binary dummy variables are simply equal to -1 times the mean of the predicted values of the dependent variable for persons in each of the 2 intermediate level response categories. These mean predicted values are used as the initial estimates of the 2 intermediate-level weights whose final values are determined when the iterative OLS process converges (with a tolerance of 0.001).

TABLE A1: VARIABLE NAMES AND DEFINITIONS BY CATEGORY

Category: Income & Consumption

Vble. Name	Vble. Definition
ppinc7	Household income 7 categories (<$10,000 reference):$10k-$24,999;$25k-$49,999;$50k-$74,999;$#75k-$99,999;$100k-$149,999;$150k+
I20	spending vs. inc. in past mnth. 3 categories(inc. greater ref.):equal;spend greater.
I0_a	=1 if respondent [and/or your spouse or partner] received any income from
	wages, salaries, or self-employment income in past 12 mos.;=0 otherwise
I0_b	=1 if respondent [and/or your spouse or partner] received any income from
	Interest, dividends, or rental income in past 12 mos.;=0 otherwise
I0_c	=1 if respondent [and/or your spouse or partner] received any income from
	Social Security (including old age and DI) in past 12 mos.;=0 otherwise
I0_d	=1 if resp. [and/or your spouse or partner] received Supplemental Security
	Inc. (SSI),TANF or cash assist. from a welfare prog. in past 12 mos.;=0 otherwise
I0_e	=1 if respondent [and/or your spouse or partner] received any income from
	Unemployment Insurance in past 12 mos.;=0 otherwise
I0_f	=1 if respondent [and/or your spouse or partner] received any income from a
	pension in past 12 mos.;=0 otherwise
I41_a	=1 if in past 12 mos. respondent [and/or your spouse or partner] received
	any Earned Income Tax Credit (EITC);=0 otherwise
I41_b	=1 if in past 12 mos. respondent [and/or your spouse or partner] received
	Supplemental Nutrition Assistance (SNAP or food stamps);=0 otherwise
I41_c	=1 if in past 12 mos. respondent [and/or your spouse or partner] received
	Women, Infants, and Children (WIC) nutrition program benefits; =0 otherwise
I41_d	=1 if in past 12 mos. respondent [and/or your spouse or partner] received
	any housing assistance from government programs;=0 otherwise
kiddylunch	=1 if in past 12 mos. respondent [and/or your spouse or partner] received
	free or reduced price school lunches for your children;=0 otherwise
relrespinc	=total combined relative inc. of resp. and spouse/partner in past 12 mos.*

Category: Housing

GH1	Home ownership 4 categories (own with mortgage ref.):own home free and clear with no mortgage; rent; neither own nor pay rent.
housecostK	=approximate rent/mortgage payment each month for respondent (and/or your spouse or partner) in $1,000's.**

Category: Retirement & Investments

Retired	=1 if retired;=0 otherwise
retplanok	Ret. savings on track 4 categories("no" ref.):1=yes;2=don't know;3=retired.)
K21_a	=1 if currently has retirement savings account (e.g., a 401(k) plan) ;=0 otherwise
K21_b	=1 if curently has pension with a defined benefit through an employer that will pay a monthly amount in retirement;=0 otherwise
K21_c	=1 if curently has stocks, bonds, ETFs, or mutual funds held outside a retirement account; =0 otherwise
K21_d	=1 if curently has savings account, money market account, or cert.of deposit (CD);=0 otherwise
K21_e	=1 if curently has cash value in a life insurance policy;=0 otherwise
K21_f	=1 if has business or real estate investment other than primary residence) ; =0 otherwise
K5A_anr	=1 if not retired & borrowed from ret. Account in past 12mos.;=0 otherwise
K5A_bnr	=1 if not retired & cashed out (permanently withdrawn) money from retirement account in past 12 mos.;=0 otherwise
K5A_cnr	=1 if not retired & reduced regular contributions to retirement accounts in past 12 mos.;=0 otherwise
ppfs0596	Approx. $ amt. household savings+ investments, 8 categories:missing (ref),<50k,50k-<100k,100k-<250k,250k-<500k,500k-<1m,1m+,not sure

Category:Student Loans

spousesl	=1 if curent student loan for spouse or partner;=0 no current loan (ref. cat.)
kidgkidsl	=1 if curent student loan for kids or grandkids;=0 no current loan (ref. cat.)
Sl1	=1 if has current student debt for own education; =0 if no current debt for own education (ref. category)
slbehind	=1 if behind on payments or in collections for any student loans from own education;=0 if no loans or not behind or in collections (ref. category).

Category: Demographics

pphsize	Household size (number of persons); also number squared
ppage	Respondent age in years, also age squared
ppgender	="female" if respondent is female;=0 otherwise

Category: Emergency Funds

EFUNDstatus	3 categories: =1 if has funds set aside to cover expenses for 3 mos. if illness, job loss, recession, or other emergencies?; 3= no set aside but could cover 3 months' expenses by borrowing, using savings or selling assets;=2 (ref) if no set aside and can't cover 3 mos. expenses.
EF3_a	=1 if respondent could pay for a $400 emergency expense by putting on a credit card paying if off in full in next statement;=0 otherwise
EF3_b	=1 if respondent could pay for a $400 emergency expense by putting on a credit card paying if off over time;=0 otherwise
EF3_c	=1 if respondent could pay for a $400 emergency expense with money currently in checking/savings account or with cash;=0 otherwise
EF3_d	=1 if respondent could pay for a $400 emergency expense by using money from a bank loan or line of credit;=0 otherwise
EF3_e	=1 if respondent could pay for a $400 emergency expense by by borrowing from a friend or family member;=0 otherwise
EF3_f	=1 if respondent could pay a $400 emergency expense by a payday loan, deposit advance, or overdraft;=0 otherwise
EF3_g	=1 if resp. could pay $400 emerg. expense by selling something;=0 otherwise
EF3_h	=1 if resp. said unable to pay for the expense right now;=0 otherwise
EF7	5 categories:Based on current financial situation, what is largest emerg. exp. you could handle now using only your savings? (<$100 reference category):$100-$499; $500-$999;$1k-$1,999;$2k+
EF6C_rent	=1 if received but did not fully pay rent/mortgage bill in past month;=0 otherwise
EF6C_util	=1 if received but did not fully pay water/gas/electric bill in past month;=0 otherwise
EF6C_tel	=1 if received but did not fully pay phone/internet/cable bill in past month;=0 otherwise
EF6C_car	=1 if received but did not fully pay car payment bill in past month;=0 otherwise

Category: Credit Conditions

lastyr ccardpay	=0 if no credit card currently (ref.);'= 1 if always paid in full) in past 12 mos.;=2 if had unpaid balance only once;=3 if had unpaid balance some of the time; '=4 if had unpaid balance most or all of the time in past 12 months.
lastmnth ccardpay	=0 if have no credit card or used no card in past month (ref.);'=1 if paid at least the min. on all cards in past month;=2 if did not pay or paid < the min. payment on at least one card in past month.
EF5C	=1 if other than credit card bills, paid all bills in full last month;=0 otherwise

Category:Health and Insurance

E1_a	=1 if during the past 12 mos., there was a time you needed a prescription medicine but went without because you couldn't afford it?=0 otherwise.
E1_b	=1 if during the past 12 mos., was there a time you needed a doctor or specialist but went without because you couldn't afford it?=0 otherwise.
E1_c	=1 if during the past 12 mos., was there a time you needed mental health care or counseling but went without because you couldn't afford it? =0 otherwise.
E1_d	=1 if during the past 12 mos., was there a time you needed dental care but went without because you couldn't afford it? =0 otherwise.
E1_e	=1 if during the past 12 mos., was there a time you needed follow-up care but went without because you couldn't afford it? =0 otherwise.
oopmmedx	Approximately how much did you pay out of pocket for unexpected major medical expenses in the past 12 months? 7 categories ($0 is ref.):$1-$499=1;$500-$999=2;$1k-$1,999=3;$2k-$4,999=4;$5k+=5;DK=6
E2B	=1 if respondent currently has medical debt;=0 otherwise
E4_a	=1 if respondent covered by employer/union health insurance;=0 otherwise
E4_b	=1 if respondent covered by TRICARE, VA, or other military or veteran's health care;=0 otherwise
E4_c	=1 if respondent covered by Medicare or Medicaid;=0 otherwise
E4_d	=1 if respondent covered by other purchased health insurance;=0 otherwise
E4_e	=1 if respondent covered by insurance purchased through a health insurance insurance exchange;=0 otherwise
E4_f	=1 if respondent covered by any other health insurance;=0 otherwise

Category:Banking

BK1	=1 if resp./spouse/partner has no checking, savings or money market account;=0 otherwise
BK2_a	=1 if resp./spouse/partner purchased money order from place other than a bank in past 12 months;=0 otherwise
BK2_b	=1 if resp./spouse/partner cashed a check at a place other than a bank In the past 12 months;=0 otherwise
BK2_c	=1 if resp./spouse/partner took out a payday loan or payday advance in the past 12 mos.;=0 otherwise
BK2_d	=1 if resp./spouse/partner took out a pawn shop loan or an auto title loan In the past 12 months;=0 otherwise
BK2_e	=1 if resp./spouse/partner obtained a tax refund advance in order to receive refund faster In the past 12 months;=0 otherwise
BK2_fnu	=1 if resp./spouse/partner paid an overdraft fee on a bank account In the past 12 months;=0 otherwise

APPENDIX B: REGRESSION RESULTS FOR INITIAL, SECOND AND FINAL (FOURTH) REGRESSION ITERATIONS

INITIAL REGRESSION COMMAND CODE IN STATA

```
. reg B24dum B22dum B23dum i.ppinc7 i.I20 i.I0_a i.I0_b i.I0_c i.I0_d i.I0_e i.I0_f i.I41_a i.I41_b i.I41_c i.I41_d
i.kiddylunch c.relrespinc##c.relrespinc i.GH1 housecostK i.retired i.retplanok i.K21_a i.K21_b i.K21_c i.K21_d i.K21_e
i.K21_f i.K5A_anr i.K5A_bnr i.K5A_cnr i.ppfs0596 i.spousesl i.kidgkidsl i.SL1 i.slbehind c.pphhsize##c.pphhsize
c.ppage##c.ppage i.ppgender i.EFUNDstatus i.EF3_a i.EF3_b i.EF3_c i.EF3_d i.EF3_e i.EF3_f i.EF3_g i.EF3_h i.EF7
i.EF6C_rent i.EF6C_util i.EF6C_car i.EF6C_tel i.lastyrccardpay i.lastmnthccardpay i.EF5C i.E1_a i.E1_b i.E1_c i.E1_d
i.E1_e i.oopmajmedexp i.E2B i.E4_a i.E4_b i.E4_c i.E4_d i.E4_e i.E4_f i.BK1 i.BK2_a i.BK2_b i.BK2_c i.BK2_d i.BK2_e
i.BK2_fnu [aweight=weight_pop]
```

ITERATION 1 - INITIAL REGRESSION RESULTS

```
      Source |       SS           df       MS      Number of obs   =    11,400
-------------+----------------------------------   F(105, 11294)   =    517.47
       Model |    2092.133       105  19.9250761   Prob > F        =    0.0000
    Residual |  434.871241    11,294  .038504626   R-squared       =    0.8279
-------------+----------------------------------   Adj R-squared   =    0.8263
       Total |  2527.00424    11,399  .221686484   Root MSE        =    .19623
------------------------------------------------------------------------------------------
                      B24dum | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-----------------------------+------------------------------------------------------------
                      B22dum |  -.5825566   .0058507   -99.57   0.000     -.594025   -.5710882
                      B23dum |  -.7646814   .0044681  -171.14   0.000    -.7734397   -.7559232
                             |
                      ppinc7 |
        $10,000 to $24,999   |   .0130073   .0120703     1.08   0.281    -.0106526    .0366671
        $25,000 to $49,999   |   .0277255   .0117042     2.37   0.018     .0047832    .0506677
        $50,000 to $74,999   |   .0293523   .0124076     2.37   0.018     .0050313    .0536733
        $75,000 to $99,999   |   .0342112   .0128938     2.65   0.008     .0089371    .0594853
      $100,000 to $149,999   |    .039959   .0129617     3.08   0.002     .0145518    .0653663
          $150,000 or more   |   .0550651   .0134487     4.09   0.000     .0287034    .0814268
                             |
                         I20 |
    The same as your income  |  -.0266314   .0045886    -5.80   0.000    -.0356259    -.017637
      More than your income  |  -.1091848    .005698   -19.16   0.000    -.1203539   -.0980157

                       I0_a |
                       Yes  |  -.0117566   .0050135    -2.34   0.019     -.021584   -.0019291
                       I0_b |
                       Yes  |  -.0018224   .0050749    -0.36   0.720    -.0117701    .0081254
                       I0_c |
                       Yes  |  -.0042192   .0070852    -0.60   0.552    -.0181073     .009669
                       I0_d |
                       Yes  |   .0046387   .0094243     0.49   0.623    -.0138346    .0231119
                       I0_e |
```

Yes	-.0140647	.0122013	-1.15	0.249	-.0379813	.0098519
I0_f						
Yes	.0146178	.0071794	2.04	0.042	.000545	.0286906
I41_a						
Yes	.0051589	.0074704	0.69	0.490	-.0094844	.0198021
I41_b						
Yes	-.0395275	.007939	-4.98	0.000	-.0550892	-.0239658
I41_c						
Yes	-.0043052	.0126953	-0.34	0.735	-.0291902	.0205798
I41_d						
Yes	-.0050362	.0120988	-0.42	0.677	-.0287519	.0186796
1.kiddylunch	-.0009431	.0085319	-0.11	0.912	-.0176671	.0157809
relrespinc	.0450344	.0353581	1.27	0.203	-.0242736	.1143425
c.relrespinc#c.relrespinc	.047881	.0339204	1.41	0.158	-.0186088	.1143708
GH1						
Own your home free and c..)	.000638	.0065453	0.10	0.922	-.012192	.013468
Pay rent	-.004665	.0054002	-0.86	0.388	-.0152502	.0059203
Neither own nor pay rent	-.0207715	.0090323	-2.30	0.021	-.0384763	-.0030667
housecostK	-.0075676	.0024254	-3.12	0.002	-.0123217	-.0028134
1.retired	.0519378	.0077233	6.72	0.000	.0367988	.0670769
retplanok						
1	.062445	.0057437	10.87	0.000	.0511863	.0737036
2	.0303512	.0060819	4.99	0.000	.0184295	.0422728
3	0	(omitted)				
K21_a						
Yes	-.0061952	.0051339	-1.21	0.228	-.0162585	.0038682
K21_b						
Yes	-.0081737	.0050704	-1.61	0.107	-.0181126	.0017653
K21_c						
Yes	.0036746	.0049871	0.74	0.461	-.0061011	.0134502
K21_d						
Yes	-.000042	.0047403	-0.01	0.993	-.0093338	.0092498
K21_e						
Yes	.0084915	.0045142	1.88	0.060	-.000357	.0173401
K21_f						
Yes	.0088637	.0064177	1.38	0.167	-.0037161	.0214435
1.K5A_anr	.0016398	.0092881	0.18	0.860	-.0165665	.0198461
1.K5A_bnr	.0079616	.010083	0.79	0.430	-.0118029	.027726

1.K5A_cnr	-.0278855	.0081385	-3.43	0.001	-.0438383	-.0119326
ppfs0596						
Under $50,000	-.0056575	.0058016	-0.98	0.330	-.0170297	.0057147
$50,000 - $99,999	-.0040813	.0075096	-0.54	0.587	-.0188014	.0106388
$100,000 - $249,999	.0013104	.007404	0.18	0.860	-.0132028	.0158236
$250,000 - $499,999	.0072592	.0085211	0.85	0.394	-.0094436	.0239621
$500,000 - $999,999	.0187697	.0091308	2.06	0.040	.0008717	.0366676
$1,000,000 or more	.0414644	.0092679	4.47	0.000	.0232978	.059631
Not sure	.0306009	.0096416	3.17	0.002	.0117017	.0495
1.spousesl	-.0073745	.0074371	-0.99	0.321	-.0219525	.0072035
1.kidgkidsl	-.0017123	.0090671	-0.19	0.850	-.0194854	.0160609
SL1						
Yes	.0060789	.0064326	0.95	0.345	-.0065301	.018688
1.slbehind	-.0234428	.0142755	-1.64	0.101	-.0514252	.0045397
pphhsize	-.0075423	.0041326	-1.83	0.068	-.0156429	.0005583
c.pphhsize#c.pphhsize	.0005201	.0005017	1.04	0.300	-.0004633	.0015035
ppage	-.0043602	.0007408	-5.89	0.000	-.0058124	-.0029081
c.ppage#c.ppage	.0000341	7.69e-06	4.43	0.000	.000019	.0000491
ppgender						
Female	.0212128	.0038043	5.58	0.000	.0137557	.0286699
EFUNDstatus						
1	.0243628	.0066657	3.65	0.000	.0112969	.0374287
3	.0332985	.006599	5.05	0.000	.0203632	.0462337
EF3_a						
Put it on my credit card ..	.0267347	.0053522	5.00	0.000	.0162434	.037226
EF3_b						
Put it on my credit card ..	-.0117696	.0062263	-1.89	0.059	-.0239743	.0004351
EF3_c						
With the money currently ..	.0334275	.004877	6.85	0.000	.0238678	.0429872
EF3_d						
Using money from a bank l..	-.0225013	.0116607	-1.93	0.054	-.0453584	.0003557
EF3_e						
By borrowing from a frien..	-.0309755	.0073052	-4.24	0.000	-.045295	-.016656
EF3_f						
Using a payday loan, depo..	.0180761	.0159737	1.13	0.258	-.0132351	.0493873
EF3_g						
By selling something	-.0216717	.0081796	-2.65	0.008	-.0377051	-.0056383
EF3_h						
I wouldn’t be able to pay..	-.0788397	.0077468	-10.18	0.000	-.0940247	-.0636547

EF7						
$100 to $499	.0676047	.0074461	9.08	0.000	.0530089	.0822004
$500 to $999	.0681082	.0088595	7.69	0.000	.0507421	.0854742
$1,000 to $1,999	.0797328	.0094715	8.42	0.000	.061167	.0982986
$2,000 or more	.1097259	.0092226	11.90	0.000	.0916481	.1278037
1.EF6C_rent	-.0749968	.0135867	-5.52	0.000	-.1016291	-.0483646
1.EF6C_util	-.0119036	.0112362	-1.06	0.289	-.0339286	.0101213
1.EF6C_car	-.0065366	.0136954	-0.48	0.633	-.0333819	.0203087
1.EF6C_tel	-.0208369	.0124803	-1.67	0.095	-.0453004	.0036267
lastyrccardpay						
1	.0254937	.0098825	2.58	0.010	.0061223	.0448651
2	.0364911	.0126341	2.89	0.004	.0117261	.0612562
3	.0127026	.0107662	1.18	0.238	-.008401	.0338062
4	-.0103074	.0109476	-0.94	0.346	-.0317665	.0111518
lastmnthccardpay						
1	-.0092023	.0083952	-1.10	0.273	-.0256583	.0072537
2	-.0302838	.0146316	-2.07	0.038	-.0589642	-.0016034
EF5C						
Yes	.0051704	.0069106	0.75	0.454	-.0083756	.0187163
E1_a						
Yes	-.0039868	.008013	-0.50	0.619	-.0196937	.0117201
E1_b						
Yes	-.0198904	.0076385	-2.60	0.009	-.0348632	-.0049176
E1_c						
Yes	-.0420242	.0077291	-5.44	0.000	-.0571746	-.0268738
E1_d						
Yes	-.0364122	.0060598	-6.01	0.000	-.0482904	-.0245341
E1_e						
Yes	-.0114613	.0088166	-1.30	0.194	-.0287432	.0058207
oopmajmedexp						
1	-.0033287	.0092819	-0.36	0.720	-.0215228	.0148653
2	.0009551	.0091033	0.10	0.916	-.016889	.0187993
3	-.0074927	.0087484	-0.86	0.392	-.0246412	.0096557
4	-.007007	.0088916	-0.79	0.431	-.0244361	.010422
5	-.0168551	.0115244	-1.46	0.144	-.0394449	.0057347
6	.0083226	.0206117	0.40	0.686	-.0320799	.0487252
E2B						
Yes	-.0249476	.0058158	-4.29	0.000	-.0363475	-.0135476
E4_a						
Yes	.0026059	.0053432	0.49	0.626	-.0078676	.0130795

```
                    E4_b |
                    Yes  |   .0163645   .0065213     2.51   0.012     .0035816    .0291475
                    E4_c |
                    Yes  |  -.0129322   .0061873    -2.09   0.037    -.0250604   -.0008039
                    E4_d |
                    Yes  |   -.008948   .0081973    -1.09   0.275    -.0250161      .00712
                    E4_e |
                    Yes  |   .0172945   .0097425     1.78   0.076    -.0018024    .0363915
                    E4_f |
                    Yes  |   .0315896   .0079054     4.00   0.000     .0160937    .0470856
                         |
                     BK1 |
                    Yes  |  -.0396257   .0091243    -4.34   0.000    -.0575108   -.0217405
                         |
                   BK2_a |
                    Yes  |   .0142189   .0070473     2.02   0.044      .000405    .0280327
                   BK2_b |
                    Yes  |   .0171529   .0080266     2.14   0.033     .0014193    .0328865
                   BK2_c |
                    Yes  |   -.043098   .0123735    -3.48   0.000    -.0673522   -.0188438
                   BK2_d |
                    Yes  |   .0083252   .0130221     0.64   0.523    -.0172003    .0338507
                   BK2_e |
                    Yes  |   .0275577   .0165371     1.67   0.096    -.0048579    .0599734
            1.BK2_fnu |  -.0281881   .0067967    -4.15   0.000    -.0415108   -.0148653
                _cons |    .756412   .0247459    30.57   0.000     .7079057    .8049182
------------------------------------------------------------------------------------------
```

ITERATION 2 – STATA CODE FOR RECODING DEPENDENT VARIABLE

```
. gen B24dum1=B24dum
. replace B24dum1=0.7646814 if B23dum==1
. replace B24dum1=0.5825566  if B22dum==1
```

ITERATION 2 – STATA REGRESSION COMMAND

```
. reg B24dum1 i.ppinc7 i.I20 i.I0_a i.I0_b i.I0_c i.I0_d i.I0_e i.I0_f i.I41_a i.I41_b i.I41_c i.I41_d i.kiddylunch
c.relrespinc##c.relrespinc i.GH1 housecostK i.retired i.retplanok i.K21_a i.K21_b i.K21_c i.K21_d i.K21_e i.K21_f
i.K5A_anr i.K5A_bnr i.K5A_cnr i.ppfs0596 i.spousesl i.kidgkidsl i.SL1 i.slbehind c.pphhsize##c.pphhsize
c.ppage##c.ppage i.ppgender i.EFUNDstatus i.EF3_a i.EF3_b i.EF3_c i.EF3_d i.EF3_e i.EF3_f i.EF3_g i.EF3_h i.EF7
i.EF6C_rent i.EF6C_util i.EF6C_car i.EF6C_tel i.lastyrccardpay i.lastmnthccardpay i.EF5C i.E1_a i.E1_b i.E1_c i.E1_d
i.E1_e i.oopmajmedexp i.E2B i.E4_a i.E4_b i.E4_c i.E4_d i.E4_e i.E4_f i.BK1 i.BK2_a i.BK2_b i.BK2_c i.BK2_d i.BK2_e
i.BK2_fnu [aweight=weight_pop]
```

ITERATION 2 – REGRESSION RESULTS

Source	SS	df	MS	Number of obs	=	11,400
Model	412.486833	103	4.00472653	F(103, 11296)	=	104.02
Residual	434.871241	11,296	.038497808	Prob > F	=	0.0000
				R-squared	=	0.4868
Total	847.358073	11,399	.074336176	Adj R-squared	=	0.4821
				Root MSE	=	.19621

B24dum1	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
ppinc7						
$10,000 to $24,999	.0130073	.0120689	1.08	0.281	-.0106498	.0366643
$25,000 to $49,999	.0277255	.0117018	2.37	0.018	.0047879	.050663
$50,000 to $74,999	.0293523	.0124064	2.37	0.018	.0050336	.053671
$75,000 to $99,999	.0342112	.0128894	2.65	0.008	.0089458	.0594766
$100,000 to $149,999	.039959	.0129582	3.08	0.002	.0145588	.0653593
$150,000 or more	.0550651	.0134431	4.10	0.000	.0287142	.081416
I20						
The same as your income	-.0266314	.0045586	-5.84	0.000	-.035567	-.0176959
More than your income	-.1091848	.0056825	-19.21	0.000	-.1203235	-.0980462
I0_a						
Yes	-.0117566	.0050097	-2.35	0.019	-.0215764	-.0019367
I0_b						
Yes	-.0018224	.0050739	-0.36	0.719	-.0117681	.0081233
I0_c						
Yes	-.0042192	.0070844	-0.60	0.551	-.0181058	.0096675
I0_d						
Yes	.0046387	.0094231	0.49	0.623	-.0138322	.0231095
I0_e						
Yes	-.0140647	.0122	-1.15	0.249	-.0379789	.0098495
I0_f						
Yes	.0146178	.0071735	2.04	0.042	.0005565	.0286791
I41_a						
Yes	.0051589	.0074674	0.69	0.490	-.0094784	.0197962
I41_b						
Yes	-.0395275	.0079372	-4.98	0.000	-.0550858	-.0239692

I41_c						
Yes	-.0043052	.0126925	-0.34	0.734	-.0291848	.0205744
I41_d						
Yes	-.0050362	.0120975	-0.42	0.677	-.0287493	.018677
1.kiddylunch	-.0009431	.0085309	-0.11	0.912	-.0176652	.015779
relrespinc	.0450344	.0353345	1.27	0.203	-.0242274	.1142962
c.relrespinc#c.relrespinc	.047881	.0338523	1.41	0.157	-.0184754	.1142374
GH1						
Own your home free and c..)	.000638	.0065439	0.10	0.922	-.0121892	.0134652
Pay rent	-.004665	.0053977	-0.86	0.387	-.0152455	.0059156
Neither own nor pay rent	-.0207715	.0090311	-2.30	0.021	-.038474	-.003069
housecostK	-.0075676	.0024249	-3.12	0.002	-.0123209	-.0028143
1.retired	.0519378	.0077168	6.73	0.000	.0368116	.0670641
retplanok						
1	.062445	.0057109	10.93	0.000	.0512506	.0736393
2	.0303512	.0060662	5.00	0.000	.0184603	.042242
3	0	(omitted)				
K21_a						
Yes	-.0061952	.0051333	-1.21	0.228	-.0162574	.0038671
K21_b						
Yes	-.0081737	.0050696	-1.61	0.107	-.018111	.0017637
K21_c						
Yes	.0036746	.0049856	0.74	0.461	-.0060982	.0134473
K21_d						
Yes	-.000042	.0047393	-0.01	0.993	-.0093318	.0092478
K21_e						
Yes	.0084915	.0045134	1.88	0.060	-.0003556	.0173387
K21_f						
Yes	.0088637	.0064161	1.38	0.167	-.0037128	.0214403
1.K5A_anr	.0016398	.0092812	0.18	0.860	-.016553	.0198325
1.K5A_bnr	.0079616	.0100817	0.79	0.430	-.0118003	.0277234
1.K5A_cnr	-.0278855	.0081334	-3.43	0.001	-.0438284	-.0119426
ppfs0596						
Under $50,000	-.0056575	.0058007	-0.98	0.329	-.017028	.0057129
$50,000 - $99,999	-.0040813	.0075082	-0.54	0.587	-.0187988	.0106362
$100,000 - $249,999	.0013104	.0074033	0.18	0.860	-.0132013	.0158222

$250,000 - $499,999	.0072592	.0085201	0.85	0.394	-.0094417	.0239602
$500,000 - $999,999	.0187697	.0091246	2.06	0.040	.0008838	.0366555
$1,000,000 or more	.0414644	.0092396	4.49	0.000	.0233531	.0595757
Not sure	.0306009	.0096393	3.17	0.002	.0117061	.0494956
1.spousesl	-.0073745	.0074356	-0.99	0.321	-.0219495	.0072005
1.kidgkidsl	-.0017123	.009064	-0.19	0.850	-.0194792	.0160547
SL1						
Yes	.0060789	.0064314	0.95	0.345	-.0065277	.0186856
1.slbehind	-.0234428	.0142703	-1.64	0.100	-.0514151	.0045296
pphhsize	-.0075423	.0041305	-1.83	0.068	-.0156387	.0005541
c.pphhsize#c.pphhsize	.0005201	.0005016	1.04	0.300	-.0004631	.0015032
ppage	-.0043602	.0007404	-5.89	0.000	-.0058115	-.002909
c.ppage#c.ppage	.0000341	7.68e-06	4.43	0.000	.000019	.0000491
ppgender						
Female	.0212128	.0037993	5.58	0.000	.0137656	.0286601
EFUNDstatus						
1	.0243628	.0066567	3.66	0.000	.0113146	.037411
3	.0332985	.0065898	5.05	0.000	.0203812	.0462157
EF3_a						
Put it on my credit card ..	.0267347	.005346	5.00	0.000	.0162555	.0372139
EF3_b						
Put it on my credit card ..	-.0117696	.0062214	-1.89	0.059	-.0239647	.0004255
EF3_c						
With the money currently ..	.0334275	.0048745	6.86	0.000	.0238726	.0429824
EF3_d						
Using money from a bank l..	-.0225013	.0116596	-1.93	0.054	-.0453561	.0003535
EF3_e						
By borrowing from a frien..	-.0309755	.0073037	-4.24	0.000	-.0452919	-.016659
EF3_f						
Using a payday loan, depo..	.0180761	.0159705	1.13	0.258	-.0132289	.0493811
EF3_g						
By selling something	-.0216717	.0081752	-2.65	0.008	-.0376965	-.0056469
EF3_h						

I wouldn’t be able to pay..	-.0788397	.0077344	-10.19	0.000	-.0940005	-.0636789
EF7						
$100 to $499	.0676047	.0074365	9.09	0.000	.0530279	.0821814
$500 to $999	.0681082	.0088242	7.72	0.000	.0508111	.0854052
$1,000 to $1,999	.0797328	.0094437	8.44	0.000	.0612214	.0982442
$2,000 or more	.1097259	.009192	11.94	0.000	.091708	.1277438
1.EF6C_rent	-.0749968	.0135686	-5.53	0.000	-.1015937	-.0484
1.EF6C_util	-.0119036	.0112352	-1.06	0.289	-.0339266	.0101194
1.EF6C_car	-.0065366	.0136923	-0.48	0.633	-.0333759	.0203028
1.EF6C_tel	-.0208369	.0124758	-1.67	0.095	-.0452916	.0036179
lastyrccardpay						
1	.0254937	.0098806	2.58	0.010	.0061261	.0448614
2	.0364911	.0126321	2.89	0.004	.0117301	.0612522
3	.0127026	.0107609	1.18	0.238	-.0083906	.0337958
4	-.0103074	.0109447	-0.94	0.346	-.0317609	.0111461
lastmnthccardpay						
1	-.0092023	.0083924	-1.10	0.273	-.0256528	.0072482
2	-.0302838	.0146252	-2.07	0.038	-.0589517	-.0016159
EF5C						
Yes	.0051704	.0069095	0.75	0.454	-.0083735	.0187142
E1_a						
Yes	-.0039868	.0080104	-0.50	0.619	-.0196886	.011715
E1_b						
Yes	-.0198904	.0076362	-2.60	0.009	-.0348586	-.0049221
E1_c						
Yes	-.0420242	.0077276	-5.44	0.000	-.0571717	-.0268767
E1_d						
Yes	-.0364122	.0060566	-6.01	0.000	-.0482842	-.0245402
E1_e						
Yes	-.0114613	.0088082	-1.30	0.193	-.0287269	.0058044
oopmajmedexp						
1	-.0033287	.0092801	-0.36	0.720	-.0215194	.0148619
2	.0009551	.009096	0.11	0.916	-.0168745	.0187848
3	-.0074927	.0087452	-0.86	0.392	-.0246349	.0096495
4	-.007007	.0088907	-0.79	0.431	-.0244343	.0104203
5	-.0168551	.0115221	-1.46	0.144	-.0394404	.0057301
6	.0083226	.020608	0.40	0.686	-.0320725	.0487178

E2B						
Yes	-.0249476	.0058141	-4.29	0.000	-.0363443	-.0135509
E4_a						
Yes	.0026059	.0053421	0.49	0.626	-.0078656	.0130774
E4_b						
Yes	.0163645	.0065196	2.51	0.012	.003585	.0291441
E4_c						
Yes	-.0129322	.0061867	-2.09	0.037	-.0250591	-.0008052
E4_d						
Yes	-.008948	.0081948	-1.09	0.275	-.0250113	.0071152
E4_e						
Yes	.0172945	.0097406	1.78	0.076	-.0017988	.0363878
E4_f						
Yes	.0315896	.0079032	4.00	0.000	.016098	.0470812
BK1						
Yes	-.0396257	.0091232	-4.34	0.000	-.0575087	-.0217426
BK2_a						
Yes	.0142189	.0070448	2.02	0.044	.0004099	.0280279
BK2_b						
Yes	.0171529	.0080243	2.14	0.033	.0014239	.0328819
BK2_c						
Yes	-.043098	.0123711	-3.48	0.000	-.0673476	-.0188485
BK2_d						
Yes	.0083252	.0130205	0.64	0.523	-.0171973	.0338477
BK2_e						
Yes	.0275577	.0165346	1.67	0.096	-.0048529	.0599684
1.BK2_fnu	-.0281881	.0067921	-4.15	0.000	-.0415018	-.0148743
_cons	.756412	.0246388	30.70	0.000	.7081156	.8047083

ITERATION 2 – RECODING DEPENDENT VARIABLE (B24dum1) VALUES FOR INTERMEDIATE RESPONSES

*****USE PREDICT COMMAND TO OBTAIN MEAN VALUES OF PREDICTIONS FOR INTERMEDIATE CASES (B23dum==1 for “Doing okay and B22dum==1 for “Just getting by”).

```
. predict B23hatnu1 if B23dum==1
(option xb assumed; fitted values)
. predict B22hatnu1 if B22dum==1
(option xb assumed; fitted values)

. sum  B22hatnu1 B23hatnu1
    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
   B22hatnu1 |      2,137    .5849422    .1517908   .0882174   1.002591
   B23hatnu1 |      4,450    .7685084    .1297283   .1601671   1.067576
```

******RECODE DEPENDENT VARIABLE VALUES FOR INTERMEDIATE CASES WITH MEANS OF PREDICTED VALUES

```
. replace B24dum1=.765084 if B23dum==1
.  replace B24dum1=.5849422 if B22dum==1

. tab B24dum1
    B24dum1 |      Freq.     Percent        Cum.
------------+-----------------------------------
          0 |        939        8.24        8.24
   .5849422 |      2,137       18.75       26.98
    .765084 |      4,450       39.04       66.02
          1 |      3,874       33.98      100.00
------------+-----------------------------------
      Total |     11,400      100.00
```

ITERATION 3 – REGRESSION RESULTS

```
      Source |       SS           df       MS      Number of obs   =    11,400
-------------+----------------------------------   F(103, 11296)   =    103.62
       Model |  410.898561       103  3.98930641   Prob > F        =    0.0000
    Residual |  434.878027    11,296  .038498409   R-squared       =    0.4858
-------------+----------------------------------   Adj R-squared   =    0.4811
       Total |  845.776588    11,399  .074197437   Root MSE        =    .19621

------------------------------------------------------------------------------
                    B24dum1 | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
----------------------------+-------------------------------------------------------------------
                     ppinc7 |
        $10,000 to $24,999  |   .0130363   .0120689     1.08   0.280    -.0106209    .0366936
        $25,000 to $49,999  |   .0278002   .0117019     2.38   0.018     .0048625    .0507379
        $50,000 to $74,999  |   .0293362   .0124065     2.36   0.018     .0050173    .0536551
        $75,000 to $99,999  |   .0340951   .0128895     2.65   0.008     .0088295    .0593607
      $100,000 to $149,999  |   .0398558   .0129583     3.08   0.002     .0144554    .0652563
          $150,000 or more  |   .0549327   .0134432     4.09   0.000     .0285816    .0812837
```

I20						
The same as your income	-.0264539	.0045586	-5.80	0.000	-.0353895	-.0175182
More than your income	-.1090225	.0056825	-19.19	0.000	-.1201612	-.0978838
I0_a						
Yes	-.0117537	.0050097	-2.35	0.019	-.0215737	-.0019338
I0_b						
Yes	-.0018333	.0050739	-0.36	0.718	-.011779	.0081125
I0_c						
Yes	-.0042029	.0070845	-0.59	0.553	-.0180896	.0096839
I0_d						
Yes	.0046721	.0094232	0.50	0.620	-.0137989	.0231432
I0_e						
Yes	-.0140474	.0122001	-1.15	0.250	-.0379618	.0098669
I0_f						
Yes	.0145509	.0071735	2.03	0.043	.0004895	.0286123
I41_a						
Yes	.0051258	.0074674	0.69	0.492	-.0095116	.0197633
I41_b						
Yes	-.0395384	.0079373	-4.98	0.000	-.0550968	-.0239799
I41_c						
Yes	-.0042234	.0126926	-0.33	0.739	-.0291032	.0206564
I41_d						
Yes	-.0050021	.0120976	-0.41	0.679	-.0287155	.0187112
1.kiddylunch	-.0009439	.008531	-0.11	0.912	-.0176661	.0157783
relrespinc	.0450429	.0353348	1.27	0.202	-.0242195	.1143052
c.relrespinc#c.relrespinc	.0476539	.0338526	1.41	0.159	-.0187031	.1140108
GH1						
Own your home free and c..)	.0006142	.006544	0.09	0.925	-.0122131	.0134416
Pay rent	-.0046053	.0053978	-0.85	0.394	-.0151859	.0059753
Neither own nor pay rent	-.0207904	.0090311	-2.30	0.021	-.038493	-.0030878
housecostK	-.0075587	.002425	-3.12	0.002	-.0123121	-.0028054
1.retired	.051825	.0077168	6.72	0.000	.0366986	.0669513
retplanok						

1	.062221	.0057109	10.90	0.000	.0510265	.0734154
2	.0302111	.0060663	4.98	0.000	.0183201	.042102
3	0	(omitted)				
K21_a						
Yes	-.0061803	.0051334	-1.20	0.229	-.0162426	.0038821
K21_b						
Yes	-.0081668	.0050697	-1.61	0.107	-.0181042	.0017707
K21_c						
Yes	.0036416	.0049857	0.73	0.465	-.0061312	.0134143
K21_d						
Yes	-.000011	.0047393	-0.00	0.998	-.0093009	.0092789
K21_e						
Yes	.0084702	.0045135	1.88	0.061	-.000377	.0173174
K21_f						
Yes	.0088358	.0064161	1.38	0.169	-.0037409	.0214125
1.K5A_anr	.0017778	.0092813	0.19	0.848	-.0164151	.0199707
1.K5A_bnr	.0079342	.0100818	0.79	0.431	-.0118278	.0276962
1.K5A_cnr	-.0278004	.0081335	-3.42	0.001	-.0437434	-.0118573
ppfs0596						
Under $50,000	-.0056352	.0058008	-0.97	0.331	-.0170057	.0057353
$50,000 - $99,999	-.0041095	.0075083	-0.55	0.584	-.0188271	.0106081
$100,000 - $249,999	.0013229	.0074034	0.18	0.858	-.013189	.0158347
$250,000 - $499,999	.0072677	.0085202	0.85	0.394	-.0094333	.0239688
$500,000 - $999,999	.0187433	.0091247	2.05	0.040	.0008573	.0366292
$1,000,000 or more	.0414118	.0092397	4.48	0.000	.0233003	.0595232
Not sure	.0305797	.0096394	3.17	0.002	.0116848	.0494746
1.spousesl	-.0074082	.0074356	-1.00	0.319	-.0219833	.007167
1.kidgkidsl	-.0016467	.009064	-0.18	0.856	-.0194138	.0161204
SL1						
Yes	.0060546	.0064315	0.94	0.347	-.0065522	.0186613
1.slbehind	-.0235524	.0142705	-1.65	0.099	-.051525	.0044202
pphhsize	-.0075017	.0041305	-1.82	0.069	-.0155982	.0005948
c.pphhsize#c.pphhsize	.0005173	.0005016	1.03	0.302	-.0004658	.0015005
ppage	-.0043525	.0007404	-5.88	0.000	-.0058038	-.0029012
c.ppage#c.ppage	.000034	7.68e-06	4.42	0.000	.0000189	.000049

ppgender						
Female	.021134	.0037993	5.56	0.000	.0136867	.0285813
EFUNDstatus						
1	.0242813	.0066567	3.65	0.000	.011233	.0373296
3	.0331621	.0065899	5.03	0.000	.0202448	.0460795
EF3_a						
Put it on my credit card ..	.026666	.0053461	4.99	0.000	.0161867	.0371452
EF3_b						
Put it on my credit card ..	-.0116724	.0062215	-1.88	0.061	-.0238676	.0005228
EF3_c						
With the money currently ..	.0333761	.0048745	6.85	0.000	.0238212	.0429311
EF3_d						
Using money from a bank l..	-.0225246	.0116597	-1.93	0.053	-.0453795	.0003304
EF3_e						
By borrowing from a frien..	-.031014	.0073037	-4.25	0.000	-.0453305	-.0166974
EF3_f						
Using a payday loan, depo..	.0179972	.0159706	1.13	0.260	-.013308	.0493024
EF3_g						
By selling something	-.021614	.0081753	-2.64	0.008	-.037639	-.0055891
EF3_h						
I wouldn’t be able to pay..	-.0788825	.0077345	-10.20	0.000	-.0940433	-.0637216
EF7						
$100 to $499	.0675516	.0074365	9.08	0.000	.0529747	.0821285
$500 to $999	.0679596	.0088243	7.70	0.000	.0506624	.0852568
$1,000 to $1,999	.0795779	.0094438	8.43	0.000	.0610664	.0980894
$2,000 or more	.1094265	.0091921	11.90	0.000	.0914084	.1274445
1.EF6C_rent	-.0752506	.0135687	-5.55	0.000	-.1018477	-.0486535
1.EF6C_util	-.0119027	.0112353	-1.06	0.289	-.0339259	.0101204
1.EF6C_car	-.0066257	.0136924	-0.48	0.628	-.0334652	.0202139
1.EF6C_tel	-.0209396	.0124759	-1.68	0.093	-.0453945	.0035153
lastyrccardpay						
1	.0254456	.0098806	2.58	0.010	.0060778	.0448133
2	.0365025	.0126322	2.89	0.004	.0117413	.0612637
3	.0127322	.0107609	1.18	0.237	-.0083611	.0338256
4	-.010265	.0109448	-0.94	0.348	-.0317187	.0111887

lastmnthccardpay						
1	-.0091338	.0083924	-1.09	0.276	-.0255844	.0073168
2	-.0302959	.0146253	-2.07	0.038	-.0589641	-.0016278
EF5C						
Yes	.0051498	.0069096	0.75	0.456	-.0083942	.0186937
E1_a						
Yes	-.0040528	.0080105	-0.51	0.613	-.0197548	.0116491
E1_b						
Yes	-.0198257	.0076362	-2.60	0.009	-.034794	-.0048573
E1_c						
Yes	-.0419785	.0077277	-5.43	0.000	-.0571262	-.0268309
E1_d						
Yes	-.0363379	.0060567	-6.00	0.000	-.04821	-.0244658
E1_e						
Yes	-.0115947	.0088083	-1.32	0.188	-.0288605	.0056711
oopmajmedexp						
1	-.0033828	.0092802	-0.36	0.715	-.0215736	.014808
2	.0010994	.009096	0.12	0.904	-.0167304	.0189293
3	-.0074589	.0087453	-0.85	0.394	-.0246012	.0096834
4	-.0069963	.0088908	-0.79	0.431	-.0244237	.0104311
5	-.0168539	.0115221	-1.46	0.144	-.0394394	.0057315
6	.0084276	.0206081	0.41	0.683	-.0319679	.0488231
E2B						
Yes	-.0249108	.0058142	-4.28	0.000	-.0363076	-.0135141
E4_a						
Yes	.0026318	.0053422	0.49	0.622	-.0078398	.0131034
E4_b						
Yes	.0163811	.0065197	2.51	0.012	.0036014	.0291607
E4_c						
Yes	-.0129444	.0061867	-2.09	0.036	-.0250714	-.0008173
E4_d						
Yes	-.0088796	.0081949	-1.08	0.279	-.024943	.0071838
E4_e						
Yes	.0173525	.0097407	1.78	0.075	-.001741	.0364459

```
                    E4_f |
                    Yes  |   .0316099   .0079032     4.00   0.000     .0161182    .0471017
                         |
                     BK1 |
                    Yes  |  -.0396514   .0091233    -4.35   0.000    -.0575346   -.0217682
                         |
                   BK2_a |
                    Yes  |   .0141921   .0070448     2.01   0.044      .000383    .0280012
                         |
                   BK2_b |
                    Yes  |   .0171371   .0080243     2.14   0.033      .001408    .0328662
                         |
                   BK2_c |
                    Yes  |  -.0431234   .0123712    -3.49   0.000    -.0673731   -.0188737
                         |
                   BK2_d |
                    Yes  |   .0083679   .0130206     0.64   0.520    -.0171548    .0338906
                         |
                   BK2_e |
                    Yes  |   .0275719   .0165347     1.67   0.095     -.004839    .0599828
                1.BK2_fnu |  -.0281878   .0067922    -4.15   0.000    -.0415016   -.0148739
                    _cons |   .7572061    .024639    30.73   0.000     .7089093    .8055028
------------------------------------------------------------------------------------------
```

ITERATION 4 REGRESSION RESULTS

(Using dependent variable recodes for intermediate responses based on Iteration 3 regression results.)

```
      Source |       SS           df       MS      Number of obs   =    11,400
-------------+----------------------------------   F(103, 11296)   =    103.74
       Model |  411.424311       103  3.99441078   Prob > F        =    0.0000
    Residual |  434.952441    11,296  .038504997   R-squared       =    0.4861
-------------+----------------------------------   Adj R-squared   =    0.4814
       Total |  846.376751    11,399  .074250088   Root MSE        =    .19623

------------------------------------------------------------------------------------------
                     B24dum1 | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-----------------------------+------------------------------------------------------------
                      ppinc7 |
         $10,000 to $24,999  |    .012937     .01207     1.07   0.284    -.0107223    .0365963
         $25,000 to $49,999  |   .0277448   .0117029     2.37   0.018     .0048052    .0506845
         $50,000 to $74,999  |   .0293621   .0124076     2.37   0.018     .0050412    .0536831
         $75,000 to $99,999  |   .0342729   .0128906     2.66   0.008     .0090051    .0595407
       $100,000 to $149,999  |   .0398203   .0129594     3.07   0.002     .0144177    .0652229
           $150,000 or more  |   .0548008   .0134444     4.08   0.000     .0284474    .0811541
                             |
```

I20						
The same as your income	-.0260931	.004559	-5.72	0.000	-.0350295	-.0171567
More than your income	-.1092999	.005683	-19.23	0.000	-.1204396	-.0981603
I0_a						
Yes	-.0114905	.0050102	-2.29	0.022	-.0213113	-.0016697
I0_b						
Yes	-.0019351	.0050744	-0.38	0.703	-.0118818	.0080115
I0_c						
Yes	-.0042383	.0070851	-0.60	0.550	-.0181263	.0096496
I0_d						
Yes	.004691	.009424	0.50	0.619	-.0137816	.0231636
I0_e						
Yes	-.0141194	.0122012	-1.16	0.247	-.0380359	.009797
I0_f						
Yes	.0142598	.0071742	1.99	0.047	.0001972	.0283224
I41_a						
Yes	.0048959	.0074681	0.66	0.512	-.0097428	.0195346
I41_b						
Yes	-.0397133	.007938	-5.00	0.000	-.0552731	-.0241535
I41_c						
Yes	-.0043452	.0126937	-0.34	0.732	-.0292271	.0205367
I41_d						
Yes	-.0050229	.0120986	-0.42	0.678	-.0287382	.0186925
1.kiddylunch	-.0010274	.0085317	-0.12	0.904	-.017751	.0156963
relrespinc	.0467598	.0353378	1.32	0.186	-.0225085	.1160281
c.relrespinc#c.relrespinc	.0448441	.0338555	1.32	0.185	-.0215185	.1112067
GH1						
Own your home free and c..)	.0004977	.0065445	0.08	0.939	-.0123307	.0133262
Pay rent	-.0046692	.0053982	-0.86	0.387	-.0152507	.0059123
Neither own nor pay rent	-.0208844	.0090319	-2.31	0.021	-.0385885	-.0031803
housecostK	-.0075261	.0024252	-3.10	0.002	-.0122799	-.0027724
1.retired	.0516778	.0077175	6.70	0.000	.0365502	.0668055
retplanok						
1	.0618957	.0057114	10.84	0.000	.0507003	.0730911

2	.0306556	.0060668	5.05	0.000	.0187636	.0425476
3	0	(omitted)				
K21_a						
Yes	-.0061867	.0051338	-1.21	0.228	-.0162498	.0038765
K21_b						
Yes	-.0080857	.0050701	-1.59	0.111	-.018024	.0018526
K21_c						
Yes	.0035592	.0049861	0.71	0.475	-.0062144	.0133328
K21_d						
Yes	-.0000339	.0047397	-0.01	0.994	-.0093246	.0092568
K21_e						
Yes	.0085039	.0045139	1.88	0.060	-.000344	.0173519
K21_f						
Yes	.0087096	.0064167	1.36	0.175	-.0038682	.0212873
1.K5A_anr	.0016201	.0092821	0.17	0.861	-.0165744	.0198145
1.K5A_bnr	.0078487	.0100826	0.78	0.436	-.011915	.0276124
1.K5A_cnr	-.0275886	.0081342	-3.39	0.001	-.043533	-.0116442
ppfs0596						
Under $50,000	-.0055885	.0058013	-0.96	0.335	-.01696	.005783
$50,000 - $99,999	-.0042069	.0075089	-0.56	0.575	-.0189257	.0105119
$100,000 - $249,999	.0012921	.007404	0.17	0.861	-.013221	.0158052
$250,000 - $499,999	.0071819	.0085209	0.84	0.399	-.0095206	.0238844
$500,000 - $999,999	.0183146	.0091255	2.01	0.045	.0004271	.0362021
$1,000,000 or more	.0404304	.0092405	4.38	0.000	.0223173	.0585434
Not sure	.0303651	.0096402	3.15	0.002	.0114686	.0492616
1.spousesl	-.0072789	.0074363	-0.98	0.328	-.0218553	.0072975
1.kidgkidsl	-.0014792	.0090648	-0.16	0.870	-.0192479	.0162894
SL1						
Yes	.0061646	.006432	0.96	0.338	-.0064433	.0187724
1.slbehind	-.0238028	.0142717	-1.67	0.095	-.0517778	.0041722
pphhsize	-.0074171	.0041308	-1.80	0.073	-.0155143	.0006801
c.pphhsize#c.pphhsize	.0005107	.0005016	1.02	0.309	-.0004725	.001494
ppage	-.0043356	.0007405	-5.86	0.000	-.005787	-.0028842
c.ppage#c.ppage	.0000339	7.68e-06	4.41	0.000	.0000188	.0000489
ppgender						

Female	.0211348	.0037996	5.56	0.000	.0136869	.0285827
EFUNDstatus						
1	.0247067	.0066573	3.71	0.000	.0116573	.0377562
3	.0333481	.0065905	5.06	0.000	.0204297	.0462666
EF3_a						
Put it on my credit card ..	.0269588	.0053465	5.04	0.000	.0164787	.037439
EF3_b						
Put it on my credit card ..	-.0117494	.006222	-1.89	0.059	-.0239457	.0004468
EF3_c						
With the money currently ..	.0334957	.004875	6.87	0.000	.02394	.0430515
EF3_d						
Using money from a bank l..	-.0225169	.0116607	-1.93	0.054	-.0453739	.00034
EF3_e						
By borrowing from a frien..	-.0310982	.0073044	-4.26	0.000	-.045416	-.0167804
EF3_f						
Using a payday loan, depo..	.0178203	.015972	1.12	0.265	-.0134876	.0491282
EF3_g						
By selling something	-.0219278	.008176	-2.68	0.007	-.0379541	-.0059015
EF3_h						
I wouldn’t be able to pay..	-.0794559	.0077351	-10.27	0.000	-.0946181	-.0642937
EF7						
$100 to $499	.0680659	.0074372	9.15	0.000	.0534878	.082644
$500 to $999	.0690167	.0088251	7.82	0.000	.051718	.0863153
$1,000 to $1,999	.0805168	.0094446	8.53	0.000	.0620037	.0990299
$2,000 or more	.1098332	.0091928	11.95	0.000	.0918136	.1278528
1.EF6C_rent	-.0755809	.0135699	-5.57	0.000	-.1021802	-.0489816
1.EF6C_util	-.0119191	.0112363	-1.06	0.289	-.0339441	.010106
1.EF6C_car	-.0066922	.0136936	-0.49	0.625	-.033534	.0201497
1.EF6C_tel	-.0211237	.012477	-1.69	0.090	-.0455808	.0033333
lastyrccardpay						
1	.0253399	.0098815	2.56	0.010	.0059705	.0447094
2	.0367146	.0126332	2.91	0.004	.0119512	.0614779
3	.013148	.0107619	1.22	0.222	-.0079471	.0342432
4	-.010028	.0109457	-0.92	0.360	-.0314835	.0114276
lastmnthccardpay						

1	-.0092907	.0083931	-1.11	0.268	-.0257427	.0071613
2	-.0308413	.0146265	-2.11	0.035	-.0595119	-.0021707
EF5C						
Yes	.0052514	.0069101	0.76	0.447	-.0082937	.0187964
E1_a						
Yes	-.0039191	.0080112	-0.49	0.625	-.0196223	.0117842
E1_b						
Yes	-.0197981	.0076369	-2.59	0.010	-.0347677	-.0048284
E1_c						
Yes	-.0419809	.0077284	-5.43	0.000	-.0571298	-.0268319
E1_d						
Yes	-.0363888	.0060572	-6.01	0.000	-.0482619	-.0245157
E1_e						
Yes	-.0117963	.008809	-1.34	0.181	-.0290635	.005471
oopmajmedexp						
1	-.0033292	.009281	-0.36	0.720	-.0215216	.0148631
2	.001088	.0090968	0.12	0.905	-.0167434	.0189193
3	-.0072025	.0087461	-0.82	0.410	-.0243463	.0099413
4	-.0069547	.0088915	-0.78	0.434	-.0243836	.0104742
5	-.0171031	.0115231	-1.48	0.138	-.0396904	.0054843
6	.0085748	.0206099	0.42	0.677	-.0318241	.0489738
E2B						
Yes	-.0250334	.0058147	-4.31	0.000	-.0364311	-.0136356
E4_a						
Yes	.0026878	.0053426	0.50	0.615	-.0077847	.0131603
E4_b						
Yes	.0165399	.0065202	2.54	0.011	.0037592	.0293207
E4_c						
Yes	-.0129073	.0061873	-2.09	0.037	-.0250354	-.0007792
E4_d						
Yes	-.0088464	.0081956	-1.08	0.280	-.0249111	.0072183
E4_e						
Yes	.0172928	.0097415	1.78	0.076	-.0018022	.0363879
E4_f						

```
                        Yes  |   .0318119   .0079039     4.02   0.000     .0163188    .0473049
                             |
                         BK1 |
                        Yes  |  -.0396883   .0091241    -4.35   0.000     -.057573   -.0218036
                             |
                      BK2_a  |
                        Yes  |   .0144163   .0070454     2.05   0.041     .0006061    .0282266
                             |
                      BK2_b  |
                        Yes  |   .0169159    .008025     2.11   0.035     .0011854    .0326463
                             |
                      BK2_c  |
                        Yes  |  -.0433529   .0123723    -3.50   0.000    -.0676047   -.0191011
                             |
                      BK2_d  |
                        Yes  |   .0083524   .0130217     0.64   0.521    -.0171725    .0338772
                             |
                      BK2_e  |
                        Yes  |   .0272994   .0165361     1.65   0.099    -.0051142    .0597131
                 1.BK2_fnu   |  -.0285221   .0067927    -4.20   0.000    -.0418371   -.0152071
                      _cons  |   .7586885   .0246411    30.79   0.000     .7103876    .8069893
------------------------------------------------------------------------------------------------

*******CHECKING FOR CONVERGENCE AFTER ITERATION 4

predict B23hatnu4 if B23dum==1
predict B22hatnu4 if B22dum==1

. sum B23hatnu* B22hatnu*

    Variable |        Obs        Mean    Std. dev.       Min        Max
-------------+---------------------------------------------------------
   B23hatnu1 |      4,450    .7685084    .1297283   .1601671   1.067576
   B23hatnu2 |      4,450    .7691176    .1294449   .1608215   1.067373
   B23hatnu3 |      4,450     .771163    .1294057   .1612347   1.067664
   B23hatnu4 |      4,450    .7721098    .1294489   .1613074   1.067864
   B22hatnu1 |      2,137    .5849422    .1517908   .0882174   1.002591
-------------+---------------------------------------------------------
   B22hatnu2 |      2,137    .5859481    .1515989   .0893403   1.002676
   B22hatnu3 |      2,137    .5878206     .151993   .0897391   1.004185
   B22hatnu4 |      2,137    .5885874     .152245   .0896995   1.004965

***COMPUTING CHANGE FROM ITERATION 3 TO ITERATION 4 IN ESTIMTED ITERATION WEIGHTS
. di  .5885874 -.5878206
.0007668
. di  .7721098 -  .771163
.0009468
```

BOTH CHANGES <0.001 SO CONVERGENCE IS ACHIEVED