The Adequacy of Emergency Funds to Cover Household Expenditures

An analysis of households in the Consumer Expenditure Survey confirmed previous findings, with only 31% having enough liquid assets to cover 3 months of spending. A logit showed that meeting the guideline increased with income, age and education and decreased with household size. Black households were significantly less likely than similar non-Black households to meet the guideline.

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Why do most U.S. households not meet recommended guidelines for emergency funds? Hanna, Chang, Fan and Bae (1993) presented a model of optimal emergency savings. Previous empirical studies have found that most U.S. households do not meet the recommended standard of having enough liquid assets to cover at least 3 months of expenses. A 3 period model developed by Hanna, et al. (1993) showed that the household's expected probability of an income drop was the crucial variable in determining optimal holdings of emergency funds. Because of the existence of means-tested social insurance programs, it might be rational for low income households to hold relatively low levels of emergency funds (Hubbard, Skinner & Zeldes, 1995). Chang and Lindamood (1993) showed that less than 10% of U.S. households had a chance of an income drop of 50% or more, although less educated households and farmers were at greater risk. Suggested guidelines for emergency fund holdings range from 3 to 6 months of income. Theoretical and empirical analyses of the risk of large income drops imply that a 3 month guideline is more reasonable than a 6 month guideline. Therefore, this paper will focus empirical analysis on factors related to whether households meet the 3 month guideline.

A dataset was created with households who had 4 consecutive quarters of interviews in 1990-91 in the BLS Consumer Expenditure Survey. There were 4,256 consumer units ("households") with complete reporting of income. The procedures in this paper for defining variables were similar to those reported in Hanna, et al. (1993).

Results

About 31% of the households had enough liquid assets to cover at least 3 months of *spending* (henceforth referred to as meeting the guideline.) To allow comparison with other datasets lacking spending data,

proportions based on income rather than spending measures were also calculated. Almost 28% met the guideline based on pretax income, 29% based on income after taxes (but not after pension deductions) and 30% based on income after taxes and pension deductions.

A logistic regression (logit) was estimated with 32 variables. A pruned logit was then run, using only the variables significant at the 0.05 level or better from the first logit. The results of the pruned logit are shown in Table 1. The pseudo R^2 was 0.28. The predicted probability of meeting the guideline increased with annual income. At the mean values of other variables, the probability of meeting the guideline increased from 7% at zero income to 41% at an annual income after taxes and pension deductions of $60,000 (Figure 1, middle line). The predicted probability of meeting the guideline decreased with household size, at the mean values of other variables, from 46% for 1 person households to 35% for 2 person, 25% for 3 person, 24% for 4 person, 19% for 5 person and 8% for households with 6 or more persons. At the mean values of other variables, Black households had a predicted probability of meeting the guidelines of 11%, compared to 34% for non-Black households. Figure 1 shows the predicted probability of meeting the guideline by income level, for all households and for Black and non-Black households. Even at an annual income of $60,000 per year, Black households had a predicted probability of meeting the guideline of only 17%, compared to 45% for non-Black households. At the mean values of other variables, those with less than 12 years of education had a probability of 18% of meeting the guideline, compared to 44% for those with 16 or more years of education. At the mean values of other variables, the predicted probability of meeting the guideline was 13% for 25 year old reference persons, 26% for 45 year olds and 46% for 65 year olds. There were significant but small relationships between net

home equity and meeting the guideline and between other income and meeting the guideline.

Table 1.
Pruned Logit of Having Enough Liquid Assets to Cover 3 Months' Spending.

Variable	Coef.	Sig.
Income after taxes&pension ded.	0.00009	0.0001
Income squared/1E6	-0.00112	0.0001
Income cubed/1E12	0.00424	0.0001
Age	0.04290	0.0001
Race Black	-1.38820	0.0001
Education (compared to <12 years of education)		
12 years	0.70720	0.0001
13-15 years	0.79060	0.0001
16+ years	1.24840	0.0001
Other money income(not taxable)	0.00006	0.0010
Net home equity	7.78E-7	0.0096
Household Size (compared to size > 5)		
Household size=1	2.31520	0.0001
Household size=2	1.90030	0.0001
Household size=3	1.39350	0.0001
Household size=4	1.34760	0.0001
Household size= 5	1.05890	0.0007
Pseudo R^2 = 0.28319		

Figure 1
Predicted Probability of Meeting the Guideline, by Income, for Black and non-Black Households.
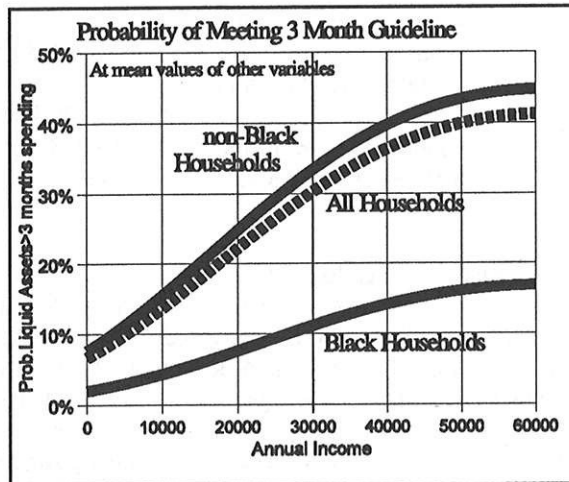
Conclusions

Almost 70% of households did not have enough liquid assets to cover 3 months of spending. Actual patterns of meeting the guideline did not seem to be related to the theoretical need for emergency funds, at least in terms of the risk of a large drop in household income. It is possible that households are rationally relying on bankruptcy or social welfare programs. If, however, households are taking risks based on misperceptions of the costs of bankruptcy or other dangers possible because of inadequate emergency funds, or not considering new cuts in welfare programs, consumer education may be needed.

References

Chang, Y. R. & Lindamood, S.(1993). Factors Related to the Risk of Household Income Variability, Financial Counseling and Planning, 4 47-66.

Hanna, S., Chang, Y.R., Fan, X.J., and Bae, M.K. (1993). Emergency fund levels of households: is household behavior rational? In T. Mauldin (Ed.) Proceedings of the American Council on Consumer Interests 39th Annual Conference, (pp. 215-222). Columbia, MO: ACCI.

Hubbard, R. G., Skinner, J. & Zeldes, S. P. (1995). Precautionary saving and social insurance. Financial Research Center Working Paper 3-95, Wharton School, University of Pennsylvania.

Endnotes
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