Adequate Emergency Fund Holdings And Household Type

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This study used the 1992 Survey of Consumer Finances to construct five household types in order to examine the impact of household type on household emergency fund holdings. Households headed by blacks were less likely than otherwise similar households to have adequate emergency fund holdings. Age, risk tolerance and education of the household head were also found to have a positive impact on the probability of a household meeting the guidelines for adequate emergency fund holdings.
Key Words: *Emergency funds, Household type, Survey of Consumer Finances*

All households are vulnerable to many types of unplanned events which, in turn, may require unplanned expenses that can put a strain on household financial resources. For example, these events can include a disruption in income due to layoff or sickness, or the breakdown of household use assets such as a furnace or a car. Most financial planners recommend that an investment program should include the accumulation of an emergency fund, that is, liquid assets which can be accessed quickly in case of immediate need (Kapoor, Dlabay & Hughes, 1996, 408).

Household type, that is, the structure of the household unit, has been widely examined for its influence on consumption expenditures, resource planning styles and managerial behavior. Given the existing evidence, it is reasonable to assume that household type may play an important role in distinguishing behavior of emergency fund holdings. The Survey of Consumer Finances (SCF) is a national data set which is most often used to conduct studies which focus on family finances; however, there are no household type variables explicitly included in this data set. This study constructs five household types from the household listing variables in the 1992 SCF and examines household emergency fund behavior using the cross-sectional data.

Public policy programs targeted to households, specifically income maintenance and income support programs, are typically segregated by household type (among other criteria) for program eligibility and extent of assistance. The inclusion of household type in research would be useful for public policy analysis. Furthermore, differentiating financial behavior by household type may also be a valuable tool for financial planners and counselors. Trends of finances and attitudes regarding finances by family type could provide added information for professionals concerned with enhancing and better managing the resource base of their client households.

This article examines the effect of household composition on the probability of meeting a three-month guideline of adequate emergency fund holdings. Other factors pertaining to the household head such as age, education, and race, are controlled for as they have been found to affect this probability in previous emergency fund studies. In addition to variables characterizing the household head, variables measuring income, debt, saving motive, risk tolerance, income certainty, and region of residence were included as they were hypothesized to affect a household's asset accumulation behavior with respect to emergency fund reserves.

Concepts and Framework

Definition of Household and Family

Households exhibit tremendous diversity in their composition. The Census Bureau, however, identifies households as either family or nonfamily. A family household is comprised of a minimum of two persons. One of those persons is the householder (typically the person who owns or rents the living quarters,) and the others are related to the householder by birth, marriage, or adoption. Three types of family households were further differentiated by the Census Bureau: 1) married-couple families, 2) families with female householders (no husband present), and 3) families with male householders (no wife present) (U.S. Bureau of the Census, 1994, p.6). A nonfamily household has no relatives of the householder present in the home, and is often comprised

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of just one person - the householder (U.S. Bureau of the Census, 1994, p.6). Such classification of household types, however, is *not* readily available in the Survey of Consumer Finances (SCF), a nationally representative dataset for studying household finances. Prior research using the SCF to examine household financial resource behavior has therefore been limited to proxies indicating various household composition. These proxies include household size, marital status and gender of the householder, presence or number of children, etc. One major drawback of using proxies is that these variables act *independently* in explaining or predicting household behavior. Household type, however, indicates a household's composition and structure incorporating all or some of these proxies. For instance, to construct a household type indicating married couple with children requires information on marital status of the householder and presence of children. While these proxies have been shown to affect household behavior significantly, little is known about impacts of different household types on such behavior.

Significance of Household Type in Consumption and Managerial Behavior

Household type has been found to be a significant determinant of many types of consumption expenditure and resource planning styles (Epstein, 1979; Weiss, 1984; Horton & Hafstrom, 1985; Lino, 1990; Abdel-Ghany & Schwenk, 1993). Epstein (1979) found that one-parent households spent a lower dollar amount, but a higher percentage, of total income on housing and food than two-parent households. Horton and Hafstrom (1985) compared differences in consumption expenditure between single female-headed and two-parent families and found variation in income elasticities between the two groups for some major expenditure categories. Abdel-Ghany and Schwenk (1993) also examined differences in consumption between single-parent and two-parent households. Lino (1990) examined factors affecting expenditures of single-parent households and found that after-tax income significantly affected expenditures in housing, transportation, food, and clothing.

Household type and household composition have been identified by household management scholars as significant factors influencing resource planning styles and managerial behavior (Buehler & Hogan, 1986). Garrison and Winter (1986) examined managerial behavior of families with preschool children and other family types. They concluded that managerial behavior is more a function of family composition than socio-economic/demographic characteristics.

Reasons for Emergency Fund Holdings

Income instability is a very real possibility for many American households (Chang & Huston, 1995). Instability of earnings can be caused by many factors such as changing jobs resulting in short periods of income loss, reduction of wages, employment layoffs and employment cessation due to sickness or disability. In today's economic climate it is perhaps even more important than ever that households are equipped to deal periods of income disruption. In addition to the financial strain during periods of income decreases, the trauma of a change in financial status (particularly income drop) constitutes a major stress event for individuals and families (Sdorow, 1990). Perhaps if families are prepared for income drops the associated family stress can be lessened somewhat. In addition to protecting against earnings instability, households are also susceptible to emergency expenses regarding restoration of household capital stocks such as cars, appliances and other household durables. Thus, the need for emergency funds is imperative.

Definition of Emergency Fund Holdings

There is no universal consensus on either the definition or the standard of adequacy for household emergency funds. Johnson and Widdows (1985) defined emergency funds as financial holdings which are available to cover spending in the event of an emergency (income disruption) without drastically adjusting the household's current level of living. They outlined three measures of emergency fund holdings which vary in degree of liquidity:

1. **Quick** — assets held in savings, checking and money market accounts.
2. **Intermediate** — *quick* assets plus CD's and savings certificates.
3. **Comprehensive** — *intermediate* assets plus the value of stocks and bonds.

These three emergency fund measures were used in the empirical analysis of this study.

Guidelines for Adequacy

Guidelines for the adequacy of emergency funds vary anywhere from two or three months to a year's worth of living expenses (Garman & Forgue, 1997, pp. 77-78; Dunnan, 1994). Household emergency fund research has used both measures of monthly expenditure and/or income in the assessment and recent studies have tended to adopt a three-month guideline to denote adequacy

(Hanna & Wang, 1995; Chang, 1995; Chang & Huston, 1995). A three-month income reserve is used as an adequate holding of emergency funds in this article.

Factors Related to Emergency Fund Holdings

Previous studies on emergency fund holdings have found that age and education had a significant positive effect on the probability of meeting a specified guideline of emergency reserves. Households headed by a Black were consistently found to be less likely to meet the emergency fund guideline, regardless of various emergency fund measures, data sets, and guidelines used in the studies. The effect of income on the probability of meeting emergency fund guidelines varied, depending upon data sets and emergency fund measures used in the analysis (Chang, 1995; Chang & Huston, 1995; DeVaney, 1995; Hanna, Chang, Fan & Bae, 1993; Hanna & Wang, 1995).

Conceptual Framework

Chang, Hanna and Fan (1997) provide a theoretical model of intertemporal behavior with respect to emergency fund holdings. The theory presented in this article is appealing both for its modeling of rational household behavior and for its provision to testable hypotheses. No similar model exists for analysis of cross-sectional data.[a] One way of conceptualizing this behavior is via the application of Deacon & Firebaugh's (1988) systems framework.

The Deacon and Firebaugh (1988) systems framework can be used to frame the discussion regarding household behavior with respect to emergency fund asset accumulation. According to this model management decisions are made through a process which considers relationships among the three basic components: inputs, throughputs and outputs. Inputs consist of goals/demands/events and resources. In this case the inputs are a) the event, that is, the emergency situation the household is faced with and the demands of dealing with such event and, b) the corresponding resources the household has available to respond to the emergency situation. These resources can include time, experience and skill of household members and, of course, financial resources (liquid assets) available for emergency expenses.

The throughput component, which includes the managerial subsystem, is the process by which the household uses available resources to meet events. These changes in inputs, given the throughput process, result in the outputs. In this case the output is adequate emergency fund holdings and the throughput process is hypothesized to be affected by factors such as household head's characteristics (age, race, education), saving motive, income stability, and risk preference.

While the Deacon & Firebaugh (1988) framework provides a general paradigm, this rather loose translation of emergency fund behavior does not generate any concrete testable hypotheses in the empirical sense. Thus, previous research on household emergency fund behavior provides a source of information for hypothesizing the inclusion and associated effects of independent variables used in these analyses.

Method

Data and Sample

Data used in this study were selected from the 1992 Survey of Consumer Finances (SCF) cross-section data set. The survey attempts to provide an accurate representation of financial (wealth and income) information across U.S. households. Because research has demonstrated that a great amount of this nation's wealth and income is disproportionately distributed, the Survey of Consumer Finances employs a two-part sampling strategy in order to obtain a sufficiently large and unbiased sample of wealthier households. For more on the sampling, see Kennickell and Starr-McCluer (1994) or Montalto and Sung (1996).

The 1992 SCF uses multiple imputation to create 5 separate sets of data in order to address the problem of missing data. The repeated imputation inference (RII) technique outlined in Montalto & Sung (1996) was used in this analysis so that all five implicates are used to determine the means, standard errors and frequencies of the variables selected for examination. In addition, for this particular study, only households reporting positive income were included. There were 17 households reporting negative income and were deleted from the sample. In order to compensate for the dual-frame sample design and to ensure representation of the approximately 95 million U.S. households the weight, X42000, was used in this analysis (Kennickell & Starr-McCluer, 1994).

Measurement of Variables

Dependent variables The dependent variable in this study is the probability of adequacy of household emergency fund holdings using the three measures of emergency funds and a three-month income guideline. A

dummy variable is measured as Meet1=1 if a household met the criteria of three-months of income held in liquid assets (quick emergency fund) and Meet1=0 if the criteria were not satisfied. Similar operationalization is applied for two other measures of emergency funds: Meet2=1 if a household met the criteria of three-months of income held in liquid assets, CD and savings certificates (intermediate emergency fund) and Meet2=0 if the criteria were not satisfied; Meet3=1 if a household met the criteria of three-months of income held in liquid assets, CD's, savings certificates, and stocks and bonds (comprehensive emergency fund) and Meet3=0 if the criteria were not satisfied.

Independent variables The independent variables included in the analysis, which are used to predict the probability of meeting the three-month emergency fund guideline, include both variables related to the household head (age, education, and race) and variables which apply to the household unit (family income, debt, family type, and region). Age[b] and education are measured by number of years. Race has two categories: Black, and Non-Black if the head is a race other than Black. Income is measured as gross income from all sources for a one year period (1991) and debt is measured as the total outstanding debt a household unit is carrying at the time of the interview. Region is categorized by four dummy variables (North East, North Central, South, and West) indicating region of residence.

Variables which provide insight into possible influences upon the managerial subsystem within the household are saving motive, risk tolerance and income certainty. Saving motive has two categories: one which indicates if emergencies are the primary saving motive and another category for which some other motive was the primary impetus for saving. Willingness to assume financial risk was defined as a variable with two categories, with one indicating that the household was not willing to accept any financial risk and the other indicating the household would accept some financial risk. Income certainty was measured by whether the household indicated they had a good idea of their next year's income or not.

The household type variables are not directly available in the data set, but were constructed by separating households into 5 major types (with seven categories in total) of household composition. The household type variable was constructed using 12 of the household listing variables which describe the relationship of each member to the respondent. There are 23 relationships which are available for coding purposes. **Nuclear** families consist of the respondent, the spouse (or partner) and all children (own, step and foster). **Single-parent** families include the respondent and all children living in the household (own, step and foster). The **couple-only** household is comprised of the respondent and spouse (or partner). **Single person** households were divided into two categories: respondents who were employed and respondents who were not employed. The final category, **other** households, includes all combinations of living arrangements which do not satisfy the criteria established for the four household types outlined above. These *other* families were separated into two classes — those with four or more persons and those with two or three household members.

The first four classifications of household type (nuclear, single parent, couple-only and single person) are considered to be primary economic units (PEU) by the SCF. A PEU consists of all the people listed in the household listing who are financially dependent on the respondent of the family unit, where the family unit is defined as a group of persons living in the same housing unit who are related to each other by blood, marriage, or adoption (Kennickell, 1994). Couples living as married are designated as married. There was no gender restriction imposed. The survey does not sample institutions such as old people's homes, sanitoriums, convents, military bases, dormitories, etc., which contain ten or more unrelated families. The other classification may or may not contain PEU's.

Method of Analysis

Logistic regression is used to estimate coefficients of variables hypothesized to affect the household's probability of having adequate emergency fund holdings.[c] The coefficient estimates resulting from a logistic regression in SAS provide estimates which are stated in terms of the natural logarithm of the odds. These estimates are then used to calculate predicted probabilities[d] for significant independent variables at the mean values of all other independent variables.

Results

Descriptive Statistics

Descriptive statistics of the entire sample are listed in Table 1. The sample was categorized into five household types with 15% **nuclear** families, 9% **single parent** families, 14% **couple-only** households, 26% **single-person** households (12% for single person, working; 14% for single-person, not working) and the remaining 36% of all households did not fall into the classifications listed above (21% for households with two or three

members; 15% for households with four or more members). Of all the households included in the analysis, only 22% met the three-month emergency fund guideline with the Quick Measure. Even with the Comprehensive Measure of emergency fund, only 33% of all households had funds sufficient to meet the three-month guideline. On average, household heads were about 48 and a half years old, had almost 13 years of formal education, and the vast majority were of a race other than Black. Only 34% of all households indicated that their primary saving motive was for emergencies. Sixty-five percent of all households indicated that they had a good idea of their income for the next year. Half of the households in this study indicated that they were willing to take at least some financial risk.

Table 2 summarizes sample statistics for the independent variables by the seven household categories. Examination of the descriptive statistics suggests that there is much variation among the seven household categories. On average, nuclear and couple-only households reported the highest levels of total income while single-parent and single-person-not-working households had the lowest levels of total income. Debt level is the highest in the nuclear household category ($77,942) and the lowest in the single-person-not-employed household category ($6,325). On average, the single-person-not-employed households also were the oldest, least educated, and most risk averse (Table 2). Single-parent households had the highest proportion (33%) of Black-headed households while couple-only households had the smallest (4%). The single-parent families were also the least certain about their future income. Although about one-third of all household categories reported saving for an emergency was one important saving motive, single-parent households and other households with four or more members were least likely to meet the adequate emergency fund guideline among all household categories, regardless of various measures of emergency fund (Table 2).

Table 3 summarizes the dependent variables, Meet1, Meet2, and Meet3. Using a means comparison test, all the households are statistically significantly different in their mean values of meeting the three month guideline with some exceptions. For the quick measure (meet1) nuclear families and other households with 2 or 3 members, single parent and other households with 4 or more members, and other households with 2 or 3 members and single person employed households are not statistically significantly different. For the intermediate measure (meet2), these same pairs of households are not statistically different except nuclear families and other households with 2 or 3 members are significantly different. For the comprehensive measure (meet3), the nuclear families and single person employed households are not significantly different from each other.

Table 1
Description of Variables for Entire Sample

Variable Name	Measurement	Mean or Freq.
Income	Total household income from all sources	$39,071
Debt	Total debt accumulated by the household	$35,929
Age	Age of household head (respondent) in years	48.4
Education	Number of years of schooling of the household head	12.9
Race	Black=1, if head is Black; Black=0, Otherwise	13%
Household Type		
Nuclear	Household consists of mother, father and their children	15%
Single-parent (ref. group)	Household consists of one parent and his/her children	9%
Couple-only	Household consists of husband and wife (partners) only	14%
Sing., emp.	One person unit — employed	12%
Sing.,not-emp.	One person unit — not employed	
Other, size $4	Other composition than above with 4 or more persons	14% 15%
Other, size = 2 or 3	Other composition than above with 2 or 3 persons	21%
Saving Motive	Em=1, if primary saving motive is for emergencies Em=0, otherwise	34%
Risk Tolerance	Risk=1, if household accepts at least some financial risk Risk=0, otherwise	50%
Income Certainty	Inc=1, if unit has good idea of next year's income Inc=0, otherwise	65%
Met Quick measure	Meet1=1, Met the three-month guideline, Meet1=0,Otherwise	22%
Met Intermediate	Meet2=1, Met the three-month guideline, Meet2=0, Otherwise	28%
Met Compre-hensive	Meet3=1, Met the three-month guideline, Meet3=0, Otherwise	33%

Table 2
Independent Variables by Household Type

Variable	Nuclear	Single Parent	Couple-Only	Single (employed)	Single (Not empl.)	Other (4 or more)	Other (2-3)
Income	$64,155	$21,934	$52,454	$31,863	$14,435	$41,569	$38,323
Debt	$77,942	$20,018	$39,028	$24,082	$6,325	$42,562	$32,568
Age	42.1	42.4	55.5	42.9	67.0	39.4	48.3
Education	13.9	12.5	13.3	13.9	11.4	12.6	12.7
Black	8%	33%	4%	12%	12%	17%	11%
Emergency Save	31%	28%	32%	35%	37%	34%	37%
Risk Tolerance	70%	35%	59%	63%	28%	46%	48%
Income Certain	74%	52%	74%	65%	61%	59%	66%

Table 3
Dependent Variables by Household Type with multiple comparison test

Variable	Nuclear (1)	Single parent (2)	Couple-only (3)	Single emp. (4)	Single not emp. (5)	Other,4 or more (6)	Other, 2-3 (7)
Meet1=1*	18%	9%	35%	22%	35%	8%	22%
Meet2=1 **	22%	12%	43%	31%	47%	12%	30%
Meet3=1***	30%	15%	48%	33%	49%	16%	35%

all household types are significantly different at the 0.01 level of significance except:
* for Meet1 the pairs 1&7, 2&6, 3&5, and 4&7 are not statistically significantly different
** for Meet2 the pairs 2&6, 3&5, and 4&7 are not statistically significantly different
***for Meet3 the pairs 1&4, 1&7, 2&6, 3&5, and 4&7 are not statistically significantly different

Regression Results

Results from the logistic regression are summarized in the appendix. In general, effects of independent variables on dependent variables are consistent across the three models. Household income, age, education, and race of the household head, household type (couple-only household), saving motive, and risk tolerance affected the dependent variable significantly at least at the 0.05 level of significance in each model. Household income positively affected the probability of meeting the guideline for all three measures of emergency funds, however, only the result for the Comprehensive measure was statistically significant. The magnitude of this income effect, however, was negligible. Age and education had a positive effect on the probability of the household having an adequate emergency fund. Households headed by a Black were less likely to meet the three-month guideline for emergency fund than were otherwise similar households with a head who was not Black. In all three models, couple-only households, single person (both employed and not employed) and other households with 2 or 3 members were more likely than otherwise similar single-parent households to meet the three-month guideline. Households which were willing to accept at least some financial risk and households which save for emergencies were more likely to meet the three-month emergency fund guideline.

Effects of Variables on Meeting Guideline

Age had a positive effect on the probability that a household would have adequate emergency fund holdings, holding other variables at their mean values. For each year the predicted probability increased by almost one percent in the Quick Measure model and Intermediate model and over one percent in the Comprehensive Measure model. For example, using the Intermediate Measure, a household headed by a 50 year old was about two and a half times more likely to meet the three-month guideline than an otherwise similar household headed by a 25 year old.

Similarly, households headed by more educated respondents were more likely to have adequate emergency fund holdings, holding all other variables in

the analysis constant. For an additional year of schooling, the probability of meeting the guideline increased by about 2% for the Quick Measure and 4% for the Comprehensive Measure model. For example, in the Quick Measure model, the probability of meeting the three-month guideline for a household head with a 4-year college degree (16 years of schooling) was about 8 percentage points higher than that of a household headed by a high school (only) graduate (12 years of schooling). Households with a Black head were less than half as likely to meet the three-month guideline for emergency funds as otherwise similar household heads from other races, for all measures of emergency funds.

Holding all other variables at their mean values, households willing to accept at least some financial risk were 1.0 to 1.5 times more likely to have an adequate emergency fund than otherwise similar risk averse households. Households indicating a primary saving motive for emergencies had only about a 3 to 5 percentage point greater probability of meeting the three-month guideline. And, although the coefficient on income was statistically significant its effect, when calculated at mean values, was extremely negligible and therefore was not considered to be a substantial factor in determining household emergency fund adequacy behavior.

Table 4
Predicted Probabilities of Meeting the Guidelines by Family Type

Variable	Predicted Probabilites		
	Quick Measure	Intermediate Measure	Comprehensive Measure
Single-parent	15.2%	19.7%	23.7%
Nuclear	19.9%	20.2%	29.8%
Couple-only	28.2%*	35.6%*	37.9%*
Single - employed	25.4%**	36.4%*	37.8%*
Single - not emp.	27.2%*	36.8%*	40.3%*
Other - size $ 4	13.5%	20.1%	23.8%
Other - size 2 or 3	24.3%**	32.7%*	36.9%*

*statistically significant difference from single parent, at 1% level
**statistically significant difference from single parent, at 5% level
Predicted probabilities calculated from logits reported in Appendix, at mean values of other variables.

According to the predicted probabilities, calculated at mean values, couple-only households were more likely to meet the emergency fund guideline than single-parent households by about 13 percentage points in the Quick Measure model, 16 percentage points in the Intermediate Measure model, and 14 percentage points in the Comprehensive Measure model (Table 4). Single person employed households were more likely to meet the emergency fund three month guideline than single-parent households in all three models. Single person not employed households were more likely to meet the emergency fund three month guideline than single-parent households in all three models. Other households with 2 or 3 members were more likely to meet the emergency fund three month guideline than single-parent households.

Discussion and Conclusion

Household composition certainly seems to play an important role in the probability of a household having adequate emergency reserves. In general, single-parent families are the most vulnerable while couple-only, single-person (both employed and not employed) , and other households with 2 or 3 members are the most likely to meet the three-month guideline for adequate emergency fund holdings. Generally, household type variables were also shown to have an increasing magnitude in impact when the measure of emergency fund expanded from the Quick to Comprehensive Measures. The significant effects of household types on emergency fund holdings found in this study warrant the inclusion of such variable in future household finance research. In particular, descriptive statistics showed that single-parent and single-person-not-employed households had lower financial resources and lower risk tolerance than nuclear and couple-only households. Inclusion of household type in studies such as household credit use and debt behavior, and portfolio allocation behavior may provide more insight in understanding household behavior in these areas.

Overall, results from the three logistic regression models are quite consistent. The findings suggest that households which have the greatest probability of having adequate emergency fund holdings have a non-Black, relatively old and educated head, and are single (non-employed) individuals with willingness to accept at least some financial risk. Race, age and education of the household head appear to be important factors in determining whether a household will meet the three-month emergency fund guideline regardless of different measures of emergency funds. These findings are consistent with previous studies regarding emergency

fund reserves (Chang & Huston, 1995; Chang, 1995; Hanna & Wang, 1995). The positive relationship on both age and education is understandable since families approaching retirement years are wise to keep relatively more of their assets in less risky, and perhaps more liquid forms as compared to households in earlier stages of the life cycle.

Why do Black-headed households tend to have a lower probability of having adequate emergency funds than household's headed by someone from another race, holding other factors such as income and education constant? This is not entirely clear. Perhaps, as Chang & Huston (1995) suggested, these Black-headed households have a lower lifetime income, which is not controlled for in these analyses, they are more likely to be eligible for public assistance and therefore are rational in their behavior to not have adequate emergency funds as defined in this study. Perhaps these families have other alternatives to select from when managing the risk of unexpected events. Or, perhaps there is some other intervening variable that was not controlled for which is responsible for the effect produced by this race variable. Because this result is so consistent across emergency fund studies, it does seem that further investigation into this matter is warranted.

The results for risk tolerance are rather interesting. It appears that households which are willing to take at least some financial risk are more likely to have adequate emergency fund holdings than households which are not willing to take any financial risk. One may expect that households not willing to take financial risk would have more of their assets in liquid form. The results may suggest that a household is not willing to take financial risk until they have a comfortable level of liquid assets. Most financial planners recommend starting an investment program with the accumulation of an emergency fund (Kapoor, Dlabay & Hughes, 1996).

Saving motive, income certainty, and income did not show significant or substantial effects on the probability of having adequate emergency reserves. Chang & Huston (1995) found a similar result for income using the intermediate measure of emergency funds. Previous research using the comprehensive measure of emergency funds has revealed income to be a significant variable. Thus, it appears that the relationship between income and emergency funds is sensitive to the measurement used for emergency fund holdings, i.e., the degree of liquidity of this reserve.

Although 34% of the total households in this sample indicated that saving for emergencies was their primary reason for saving, this intention did not seem to have a substantial relationship to the probability of a household actually having sufficient reserves for emergencies. Income certainty is an important factor to consider when deciding the level of emergency fund reserves and one would expect that households with more variation in income from year to year would have an increased need for emergency funds to cover times of income drops. The variable used in this analysis to capture income certainty does not indicate any direction associated with income for the next year. That is, the information provided only reveals if the household has a good idea of income for next year, but not whether they expect a decrease, increase or no change from current income levels. Thus, there could be many effects being captured with this variable, all of which may be contributing to the insignificant coefficient found in this analysis. Perhaps an interaction of related variables may help to clarify this situation in subsequent research.

In any case, it is apparent that the majority of all households in the study (77%) did not meet the three-month guideline, and thus did not have an adequate emergency reserve. Given the austerity of the current political climate about welfare programs, these statistics are rather disturbing. Most households in this sample would have much less than a three-month recovery period if they were to experience a loss of income. It appears that the creation of household types within the data set has been beneficial in this case.

Because of the effects of environment, social class, and family on individuals, social policies and resulting programs need to be tailored to the unique needs of specific populations. Social policy programs such as the former Aid to Families with Dependent Children were designed based on household composition and the results from this study are couched within a compatible format for policy makers to examine. Financial planners and counselors may also benefit from having results in this form. Household composition, or household type, can provide additional insight into the potential vulnerabilities to which certain households are most susceptible. For example, these results suggest that single-parent, financially risk averse families with Black, relatively young and uneducated heads are the households which have the highest probability of not having adequate emergency reserves. The strong relationship between education and the probability of having adequate emergency funds suggests that consumer

education programs may be helpful in boosting the number of households which have adequate emergency fund holdings. Educating households to hold adequate levels of emergency funds is particularly important in light of this nation's move toward a weaker social safety net. Households must become more responsible for the "unexpected" since society has decided to put even more stringent limits on the extent to which it will provide assistance.

Limitations and Suggestions for Further Research

There are limitations in terms of variable measurements in this study. First, the traditional concept of emergency funds is based on the household having an appropriate reserve set aside in liquid form to cover household expenses in case of an unexpected event. Like some of the previous studies in this area, this analysis used income rather than expenses because the data does not support using expenses as a measure. Finding a measure closer to expenses would be a great improvement for future research regarding the adequacy of emergency fund holdings. Second, the measure regarding income certainty needs to be clarified as do the issues surrounding the effects of the race variable.

The whole concept of *emergency funds* needs to be re-evaluated, especially when analyzing this phenomena within the context of cross-sectional data. Evidence indicates that a large majority of households do not meet financial planners' recommendations. In order to better assess this concept, research in the area should take into account a household's circumstances and more fully assess the resources available to meet unexpected events. For example, rather than focusing solely on liquid assets, factors such as income stability, work history, family support networks, health status, and the inclusion of credit into the equation would greatly enhance our understanding of household readiness and response to emergency situations.

Appendix

Logistic regression results.

Variable	Coefficients		
	Quick Measure	Intermediate Measure	Comprehen-sive Measure
Household income	6.901E-8	7.165E-8	2.691E-6*
Household debt	3.34E-7	1.27E-9	4.43E-7
Age of head	0.0447*	0.0484*	0.0517*
Education of head	0.1053*	0.1232*	0.1493*
Black	-0.8192*	-1.0781*	-1.0185*
Nuclear	0.3228	0.3319	0.3148
Couple-only	0.7827*	0.8106*	0.6782*
Single - employed	0.6400**	0.8466*	0.6731*
Single - not emp.	0.7344*	0.8635*	0.7797*
Other - size $ 4	-0.1429	0.0227	0.0054
Other - size 2 or 3	0.5836**	0.6808*	0.6366*
Save for emergencies	0.2163*	0.2487*	0.2462*
Risk tolerance	0.5607*	0.3706*	0.5311*
Income certainty	0.0861	-0.0275	-0.0263
North Central	-0.1274	-0.0944	-0.0930
South	-0.1653	-0.1005	-0.2122
West	0.0935	0.0403	-0.1480
Intercept	-5.4906*	-5.4117*	-5.8336*
Pseudo R^2	0.21 - 0.22	0.24 - 0.26	0.28-0.29

*statistically significant at .01 level

**statistically significant at .05 level

A separate Pseudo R^2 was calculated for each implicate, resulting in the range of values for each logit.

Endnotes

a. *If variable(s) indicating expected income changes (or proxies for such variables) existed, then the Chang, Hanna & Fan (1997) model would be an appropriate model choice for use with cross-sectional data.*

b. *Evidence from previous studies on household emergency funds suggests a positive relationship between age and the probability of meeting an adequacy guideline (Chang, 1995; Chang & Huston, 1995; DeVaney, 1995; Hanna & Wang, 1995). However, since many researchers have found a non-linear relationship between age and other financially related dependent variables the current analyses were re-run to account for the possibility of a non-linear effect for age. The results from these analyses suggest that no non-linear effect is present, thus age included in the analyses as a linear variable seems warranted.*

c. *For descriptive statistics, the sample was inflated to the US population (approximately 95 million households) using x42000. For the logistic analyses, the sample was weighted using weight=x42000*(number of households/sum of weights) in order*

to maintain a sample size of 3889 and account for a weighted representation of US households.

d. *For a description of the method used to calculate predicted probabilities of both the categorical and continuous variables, please refer to endnote a in Chang & Huston (1995).*

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