EMERGENCY FUND LEVELS OF HOUSEHOLDS

Dixie Porter Johnson[1] and Richard Widdows[2]
Purdue University, West Lafayette, Indiana

ABSTRACT

1977 and 1983 surveys of family finances are used to examine households' holdings of emergency funds. Analysis shows that most families had low levels of emergency funds. Data also show that families were less prepared in 1983 than in 1977 to face financial emergencies. Cross-tabulations of data with socio-demographic characteristics of families show how emergency funds varied among households.

INTRODUCTION

Households are vulnerable to financial crises as a result of events within the household and changes that occur in the economy. The importance of an adequate emergency fund to deal with these demands is stressed by financial advisors. And yet, little research has been done to determine actual emergency fund levels of households or the changes in those levels over time. The purpose of this paper is to measure emergency fund levels of households, compare the changes in emergency fund levels from 1977 to 1983, and identify those households most likely to be financially unprepared for emergencies.

REVIEW OF LITERATURE

Most financial advisors recommend that households have the equivalent of at least three months of living expenses available in the form of liquid assets in case of unexpected crises such as unemployment or illness. Household liquid assets comprise cash and assets which can be turned into cash at short notice. The degree of liquidity can vary from demand deposits and savings accounts to time deposits, mutual funds, stocks and bonds. The stock of these assets held at any time constitutes a household's emergency fund.

The concern of financial advisors over emergenc

funds is not misplaced. Duncan and Morgan, in a study of 5000 families over the period 1968-78, found "a remarkable amount of change occurring at all levels of the income distribution" (5, p. FE-46). The most important event accounting for changes in income distribution was fundamental disruption in family structure, such as divorce and death. Ability to maintain a strong presence in the workforce (keeping a job, maintaining a high level of work hours) was also significant. Smythe, in an earlier study using government survey data, identified unemployment and medical costs as the main source of risk to family economic wellbeing (13). Without emergency funds to fall back on, events such as these can seriously impair the welfare of households.

Despite the significance of emergency funds to the household, there are few studies available that address explicitly the level of emergency funds. Much of the analysis of household liquid assets has been concerned with flows of assets (savings rates, changes in net asset holdings) rather than stocks (2,4,8,9,5,16). In most cases, studies have set out to explain the average level of savings over a long period of time. While the accumulation of assets is important to stock levels, the factors affecting flows over time may not necessarily be synonymous with those that affect stock levels at some point in time.

Smythe (13) approached the question of levels of emergency funds indirectly through the analysis of safe levels for family credit commitments. How much credit a family can handle depends on the relationship between its income and daily needs. Smythe referred to the problem of maintaining an emergency fund. "Families planning to assume installment debt need to consider more than the relationship between income and expenditures. They need to consider the possibility of sudden changes in their financial situation and make provisions for handling such changes" (13, p. 168).

Families can meet these emergencies if they have enough liquid and investment assets to live for a time without sacrificing normal living standards. When deciding on a level for liquid assets, Smythe recommended taking into account future family size, income, expenditure and net worth, and points out that the weight given to these will depend on stage of life cycle and probability of unemployment. Rather than prescribe safe levels, Smythe presented data on families' emergency funds at four stages in the life cycle, and related these to the average time a family at that stage of the life cycle could expect to be out of work if unemployment occurred. Results showed that, on average, families at each stage of the life cycle

could have supported their current life style during the average unemployment period.

While Smythe's study remains the most comprehensive analysis available of emergency fund levels, other studies have examined related aspects of household liquid asset holdings and have provided useful insights into considerations which help determine levels of holdings. Lindqvist, in a study of determinants of household savings in 429 Swedish families, included a regression equation with stocks of liquid assets (bank funds) as the dependent variable (11). Results for this particular sample showed that standard socio-economic variables such as income, family size and stage of life cycle, were not significantly related to stock level, but that variables reflecting sociopsychological attributes of households, such as expectations and economic satisfaction, were significant. The opposite was true of flows of savings; suggesting that results of models pertaining to flows of liquid assets may not be directly applicable to stock levels.

While liquid assets are an emergency fund, some studies have stressed that considerations other than emergencies enter into the decision on the amount of liquid assets to hold. Smythe (13) pointed out that liquid assets can be used to take advantage of unexpected opportunities for gain.

Bryant (3) places the liquid assets holding decision in the broader context of the consumer's asset and debt portfolio. Liquid asset holdings are determined jointly with other asset and debt holdings in the portfolio equilibrium decision. Emergencies would then become a subset of events which necessitate an adjustment of the equilibrium portfolio. Empirical components of the study, which are based on the 1977-78 Michigan Survey of Consumer Finances, are concerned with adjustments of the portfolio. Findings show that, on Bryant's broad definition of liquid assets (savings, cash, stocks, bonds, mutual funds, money in investment clubs, certificates of deposit), average family holdings constituted the equivalent of almost a whole year's total family income.

In all of the above, the terms family and household have been used interchangably, following the practice of many studies of counting members of one household "nuclear" unit as family. Morgan's study of redistribution of income by families indicates that emergency funds may flow within and between families (12). Morgan's empirical work showed that 22% of the 5000 families studied had drawn $500 or more from other family's reserves of liquid assets. Further analysis of these flows showed them to be influenced by age patterns of heads of households, income and family size.

Data Sources and Methods

This paper analyses the extent of emergency fund reserves of households in 1977 and 1983, using data from the Michigan Survey Research Center's Survey of Consumer Finances for those years. Analysis of data from before and after the recent economic recession permits us to see if households are at greater risk now than previously.

The Michigan Surveys of Consumer Finances constitute data from personal interviews with large numbers of randomly selected households from throughout the United States. Questions were designed to yield detailed data about families' asset and debt levels, and to provide extensive socio-demographic data about respondents[1].

For the purposes of this study, emergency funds are defined as certain household liquid asset holdings. Three different measures of assets are used. The first, quick emergency fund (EF1), comprises assets which can very quickly be turned into cash. This category consists of checking and savings accounts for the 1977 data. Such a measure has been used by Hefferan (9) and Lindqvist (11). The 1983 EF1 category is expanded to include money market funds and accounts. The second measure, intermediate emergency fund (EF2), and adds to EF1 the value of certificates of deposit and savings certificates. The third measure is comprehensive emergency fund (EF3), and adds to EF2 the value of stocks and bonds which can be converted to supplement the more liquid assets should EF2 prove inadequate to meet needs. Such a measure was proposed by Fitzsimmons and Williams (7), and is used by Bryant (3) and Smythe (13).

It would also be possible to develop fuller measures of liquidity, which would allow for cash value of other portions of households' net worth. Measures of this nature have been proposed; examples of assets incorporated into the measures are durable goods (Hefferan (9)) and real estate (Strober (14), Foster (8)). Because this approach implies a sacrifice of living standards that contradicts the concept of emergency funds being discussed in this paper, no such measure is employed.

In some parts of the analysis, the measures of liquid assets are shown as percentages of total money household income (earned and unearned)

---

[1]Summaries of the general findings of the surveys appear in 1,6 and 10.
before taxes. This allows analysis of household

ability to maintain a standard of living based on all sources of income. When the measures of liquid assets (EF1, EF2 and EF3) are shown as percentages of total household income, these percentages are labeled EFP1, EFP2 and EFP3 respectively.

Finally, a problem in presenting material was that in the 1977 survey, data on income and financial assets were collected in discrete intervals, while 1983 data were in actual dollar amounts. 1977 data were therefore converted into dollars by using the midpoint of the relevant interval. The upper income level for 1977 was represented by median value of income from official data. The upper level for each category of assets was represented by its lower bound (e.g. $50,000 and over would be coded as $50,000). There were very few observations in these highest categories of financial assets.

FINDINGS

Table 1 shows the three measures of emergency funds for 1977 and 1983 in current dollars; Table 2 adjusts the figures to constant (1983) dollars. The mean value of EF1 dropped from $12,088 in 1977 to $5,555 in 1983 (Table 2); the median value declined from $2,507 to $1,000. The mean value of EF2 went from $14,910 to $9,346 per household. The EF3 measure declined from $23,912 to $16,783; the median value dropped from $3,066 to $1,150.

TABLE 1 Emergency Funds of Families in 1977 and 1983, Current Dollars.

Emergency Fund Measure	1977 Mean Median ($)		1983 Mean Median ($)	
EF1	7,377	1,530	5,555	1,000
EF2	9,099	1,583	9,346	1,000
EF3	14,593	1,871	16,783	1,150

TABLE 2 Emergency Funds Of Families In 1977 And 1983, Constant (1983) Dollars

Emergency Fund Measure	1977 Mean Median ($)		1983 Mean Median ($)	
EF1	12,088	2,507	5,555	1,000
EF2	14,910	2,594	9,346	1,000
EF3	23,912	3,066	16,783	1,150

Table 3 shows emergency funds as a percentage of annual pre-tax income. The mean EFP1 savings in 1977 was 58 percent, or equal to about seven months of pre-tax income, compared to 43.7 percent in 1983, or about five months pretax income. Median EFP1 holdings dropped from less than two months of income in 1977 (11 1/2%) to less than one month in 1983 (5.5%). Even on the comprehensive EFP3, the median family held an amount equivalent to only 16 percent of annual household income, pretax, as emergency funds (2 months) in 1977 and 7 percent (less than 1 month) in 1983.

TABLE 3 Emergency Funds as a Percentage of Annual Pre-Tax Income

Emergency Fund Measure	1977 Mean Median (%)		1983 Mean Median (%)	
EFP1	58.0	11.5	43.7	5.5
EFP2	71.1	12.3	60.7	6.1
EFP3	106.4	16.0	73.2	7.0

One way to assess the degree to which families were at risk is by looking at the average duration of unemployment in the two survey years. According to Bureau of Labor Statistics, Employment and Earnings series, the average period for which an unemployed household member was out of the workforce was 15.5 weeks in 1977 and 19.4 weeks in 1983. On the highly liquid EFP1 measure, 74 percent of families would have had insufficient funds to substitute for total household income if they had been unemployed in 1977, while 86 percent would have had insufficient funds in 1983. On the comprehensive EFP3 measure, the relevant numbers were 65 percent in 1977 and 77 percent in 1983.

Information from cumulative frequency distributions is summarized in Table 4. Even on the more comprehensive EFP3, 51 percent of families had less than two months' reserve in 1977, while 64 percent had less than two months' reserve in 1983. For EFP1, the figures were 58 percent in 1977 and 73 percent in 1983.

TABLE 4 Percentage of Families With Emergency Fund Levels Below Specified Equivalents of Annual Household Income, 1977 and 1983.

Emergency Fund Levels	Less Than 1 Month 1977 1983 (%)		Less Than 2 Months 1977 1983 (%)		Less Than 6 Months 1977 1983 (%)		Less Than 1 Year 1977 1983 (%)	
EFP1	44	59	58	73	79	89	89	96
EFP2	43	55	56	67	77	84	86	91
EFP3	40	53	51	64	71	81	82	88

The difference between mean and median emergency fund holdings of families cited in Table 3 and the fact that the distribution of holdings is skewed to the left can be construed as confirmation of previous findings, that income has a strong, direct relationship to emergency fund holdings. To pursue this further, cross-tabulations of emergency funds and income were calculated. Tables 5 and 6 summarize the results of this calculation for 1977; tables 7 and 8 for 1983. Data in these tables show the distribution of households who held certain levels of emergency funds by total annual household pre-tax income. The last row in each table indicates the percentage of families in the whole sample holding the identified level of emergency funds.

TABLE 5 Percentage of Families Holding Specified Amounts of EF1 By Annual Household Income in 1977 (1983 Dollars).

Annual Income ($)	Less Than $200 (%)	$200 to $999 (%)	$1,000 to $1,799 (%)	$1,800 to $9,999 (%)	$10,000 and over (%)
0 thru 9,000	53.7	19.3	5.4	15.4	6.3
9,001 - 15,500	33.8	25.9	9.3	20.0	11.0
15,501 - 26,600	19.5	24.6	13.8	26.2	15.9
26,601 - 45,000	7.3	15.4	12.1	42.6	22.5
More than 45,000	0.9	4.2	3.3	36.9	54.7
Percentage of All Families holding this amount of unds.	23.7	19.2	9.8	28.2	19.1

Chi-square = 611.5   d.f.=16
r=.49

TABLE 6 Percentage of Families Holding Specified Amounts of EF3 By Annual Household Income, 1977 (1983 Dollars).

Annual Income ($)	Less Than $200 (%)	$200 to $999 (%)	$1,000 to $1,799 (%)	$1,800 to $9,999 (%)	$10,000 and over (%)
0 thru 9,000	52.4	19.0	5.9	14.1	8.5
9,001 - 15,500	31.3	24.5	9.4	19.1	15.8
15,501 - 26,600	18.1	22.6	13.2	25.1	21.0
26,601 - 45,000	4.9	12.8	7.9	37.5	36.9
More than 45,000	0.6	2.2	2.2	23.3	71.7
Percentage of All Families holding this amount of funds.	22.5	17.7	8.6	24.7	26.5

Chi-square = 611.2   d.f.=16
r=.52

TABLE 7 Percentage of Families Holding Specified Amounts of EF1 by Annual Household Income, 1983.

Annual Income ($)	Less Than $200 (%)	$200 to $999 (%)	$1,000 to $1,799 (%)	$1,800 to $9,999 (%)	$10,000 and over (%)
0 thru 9,000	56.3	23.3	5.9	11.9	2.6
9,001 - 15,500	35.1	26.9	9.8	20.0	8.2
15,501 - 26,600	18.7	28.6	13.3	29.6	9.9
26,601 - 45,000	7.3	19.9	14.9	42.3	15.6
More than 45,000	1.8	6.0	8.7	36.8	46.7
Percentage of All Families holding this amount of funds.	25.8	22.5	10.8	27.4	13.5

Chi-square = 983.5   d.f.=16
r=.52

TABLE 8 Percentage of Families Holding Specified Amounts of EF3 by Annual Household Income, 1983.

Annual Income ($)	Less Than $200 (%)	$200 to $999 (%)	$1,000 to $1,799 (%)	$1,800 to $9,999 (%)	$10,000 and over (%)
0 thru 9,000	56.6	21.2	6.0	10.8	5.3
9,001 - 15,500	34.6	24.0	7.7	17.9	15.8
15,501 - 26,600	17.8	25.8	10.6	27.9	17.8
26,601 - 45,000	6.2	15.7	12.5	39.2	26.5
More than 45,000	1.3	3.0	4.7	22.6	68.4
Percentage of All Families holding this amount of funds.	25.9	19.7	8.7	23.7	22.1

Chi-square = 987.8   d.f.=16
r=.54

The strong relationship between income and emergency fund measures was confirmed by significant values of chi-square and pearson correlation coefficients. Looking across the columns of the tables, it is evident that at the lower end of the income distribution, there is a concentration of people with low holdings of emergency funds, while at the upper end of the distribution, households have higher holdings.

Tables 9 and 10 summarize findings of a cross-tabulation of emergency fund levels by stages of the life cycle. The definition of life-cycle stages adopted here is that used by Smythe: Young Family (head under 35 years), Growing Family (head 35-54 years), Contracting Family (head 55-64 years) and Retired Family (head 65 years and over). Data are presented for the quick (EFP1) and comprehensive (EFP3) measures of emergency funds. In each case, families in the young family stage of the life cycle showed greatest concentration of emergency funds in the "less than two months' reserve" category. These families were thus most at financial risk. The concentration of families moves from the lower levels of emergency funds to higher levels as families move through the life cycle. Families in the last stage of the life cycle showed lowest concentration in the high risk category. The significant relationship between life cycle and emergency fund levels is shown by high values of chi-square. The Pearson correlation coefficients were in the 0.33 to 0.40 range.

TABLE 9 Percentage of Families With Specified Levels of EFP1
By Stage of Life Cycle, 1977 and 1983.

Life Cycle Stage	Less Than 2 months		2 to 4 months		4 to 6 months		6 months to 1 year		Over 1 year	
	1977	1983	1977	1983	1977	1983	1977	1983	1977	1983
	(%)		(%)		(%)		(%)		(%)	
Young	75.9	84.2	13.5	9.4	3.6	2.6	4.8	2.9	2.2	1.0
Growing	53.6	75.8	17.0	11.8	10.7	5.0	10.4	4.9	8.4	2.5
Contracting	43.1	60.4	11.0	18.0	11.7	7.5	16.9	8.3	17.2	5.8
Retired	32.4	49.1	10.8	11.2	6.3	8.5	15.3	15.0	35.2	16.1

1977 Chi-sq.= 374.6 d.f.=12 r=.40
1983 Chi-sq.= 357.7 d.f.=12 r=.33

TABLE 10 Percentage of Families With Specified Levels of
EFP3 by Stage of Life Cycle, 1977 and 1983.

Life Cycle Stage	Less Than 2 months		2 to 4 months		4 to 6 months		6 months to 1 year		Over 1 year	
	1977	1983	1977	1983	1977	1983	1977	1983	1977	1983
	(%)		(%)		(%)		(%)		(%)	
Young	70.1	78.1	12.3	10.4	5.4	3.9	7.2	4.9	5.0	2.7
Growing	44.8	65.2	16.1	12.1	9.8	7.9	12.3	7.7	17.0	7.2
Contracting	35.0	47.3	9.8	12.7	6.8	8.1	18.4	12.3	30.1	19.6
Retired	31.7	41.4	8.6	6.7	5.3	3.3	10.3	11.1	44.3	37.5

1977 Chi-sq.=310.3 d.f.=12 r=.37
1983 Chi-sq.=453.2 d.f.=12 r=.37

SUMMARY AND CONCLUSIONS

Analysis of the 1977 and 1983 Surveys of Consumer Finances revealed that many families have low emergency fund levels. Indeed, the majority of families had insufficient funds to cover normal total household income for the average time a household could expect to be out of work, should that event occur.

Data also showed families, on the average, to be less prepared for financial emergencies in 1983 than in 1977. In constant 1983 dollars, the mean of quick emergency funds (EF1) was $12,088 in 1977, and $5,555 in 1983. An intermediate emergency fund reserve (EF2), which added the value of C.D.s to the quick fund, had mean values of $14,910 in 1977 and $9,346 in 1983. The comprehensive emergency fund measure (EF3) had means of

$23,912 in 1977 and $16,783 in 1983. Median levels were much lower.

The reasons for the decline in emergency fund levels between 1977 and 1983 may be varied. Inflation and unemployment during the recession undoubtedly were responsible for the depletion of some families' financial reserves. These may also have been a relocation of portions of reserve funds to other assets not measured in this analysis, namely durable goods, real estate, and Individual Retirement Accounts.

Whatever the reason for the decline in emergency fund reserves, the data show most families to be even less prepared for financial emergencies now (1983) than earlier (1977). A prolonged improvement in the economy would give families an opportunity to rebuild financial reserves. But opportunity alone is not enough. Young families need to be educated about the importance of an adequate emergency fund. Families of all ages who find their financial reserves depleted and not rebuilding very rapidly can benefit from assistance with money management. Unexpected financial emergencies, whether generated from inside or outside the family, will always be a part of family life. And so will the need for emergency reserves.

References

1. Avery, R.B., G.E. Elliehausen, G.B. Canner and T.A. Gustafson, "Survey of Consumer Finances, 1983". Federal Reserve Bulletin, September 1984, pp. 679-92.

2. Boskin, M.J., "Taxation, Saving, and the Rate of Interest." Journal of Political Economy, Vol. 86 (2), 1978, pp. S3-S27.

3. Bryant, W.K., "Assets and Debts in a Consumer Portfolio" (Unpublished manuscript). Cornell University 1984.

4. Cox, D., "The Decline in Personal Savings". Federal Reserve Bank of New York Quarterly, Spring 1981, pp. 25-32.

5. Duncan, G.J. and J.N. Morgan, "An Overview of Family Economic Mobility". 1983 Agricultural Outlook Conference, Session #13, November 1982.

6. Durkin, T.A. and G.E. Elliehausen, "1977 Consumer Credit Survey". Board of Governors of the Federal Reserve System, December 1978.

7. Fitzsimmons, C. and F. Williams, "The Family Economy and Management of Resources", Edwards Brothers, Michigan, 1973.

8. Foster, A.C., "Wives' Earnings as a Factor in Family Net Worth Accumulation". Monthly Labor Review, January, 1981, pp. 54-57.

9. Hefferan, C., "Savings Behavior in Multiple Earner Families", Proceedings of the 25th Annual Conference of the American Council on Consumer Interest, 1979.

10. Katona, G., L. Mandell and J. Schmiedeskamp. "1970 Survey of Consumer Finances." University of Michigan, Institute for Social Research, Survey Research Center, 1971.

11. Lindqvist, A., "A Note on Determinants of Household Saving Behavior". Journal of Economic Psychology, Vol. 1, 1981, pp.39-57.

12. Morgan, J.M., "The Redistribution of Income by Families and Institutions and Emergency Help Patterns", in G.S. Duncan and J.N. Morgan, "Five Thousand Families - Patterns of Economic Progress; Vol. X, Analyses of the First Thirteen Years of the Panel Study of Income Dynamics". University of Michigan, Institute for Social Research, Survey Research Center, 1983.

13. Smythe, K.D., "An Approach to Determining Safe Levels for Family Credit Commitments". Journal of Consumer Affairs, Vol. 2 (2), 1968, pp. 167-81.

14. Strober, M.H., "Wives' Labor Force Behavior and Family Consumption Patterns". American Economic Review, Vol. 67 (1), 1977, pp. 410-17.

15. Summers, L.H., "Capital Taxation and Accumulation in a Life Cycle Growth Model", American Economic Review, Vol. 71 (4), 1981, pp. 533-44.

16. Walker, R.A., "Wife's Hours of Market Work Related to Family Saving Behavior". Ph.D. Thesis, Purdue University, 1978.