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Savings Behavior and Financial Problems Among College Students:

The Role of Financial Literacy in Malaysia

COMPORTEMENT D'ÉPARGNE ET PROBLÈMES FINANCIERS CHEZ LES ÉTUDIANTS DE COLLÈGE:

LE RÔLE DE LA LITTÉRATIE FINANCIÈRE EN MALAISIE

Mohamad Fazli Sabri[1]

Maurice MacDonald[2]

Abstract: This study analyzes the relationship of savings behavior and financial problems to financial literacy among college students in Malaysia. Controlling for correlates of financial literacy, multivariate analysis of a sample obtained at 11 colleges and universities demonstrated that students who had higher financial knowledge test scores were more likely to report savings behavior and also reported fewer financial problems. The influence of childhood consumer experience and financial socialization agents on savings and financial problems was more mixed, indicating that financial experience before college may create bad habits or poor attitudes toward financial management that could be mitigated through financial education during college. Implications of these findings for targeting financial education on particular kinds of students are discussed.
Key words: Savings behavour; financial problems; financial literacy; college students

Resumé: Cette étude analyse la relation entre le comportement d'épargne et les problèmes financiers de la littératie financière des étudiants en Malaisie. Le contrôle des corrélats de la littératie financière et l'analyse multivariée d'un échantillon obtenu dans 11 collèges et universités ont démontré que les étudiants qui avaient des notes plus élevées dans le test de connaissances financières étaient plus susceptibles d'avoir un comportement d'épargne et avaient moins de problèmes financiers. L'influence de l'expérience consommatrice de l'enfance et des agents financiers de socialisation sur les épargnes et les problèmes financiers a été plus mitigé, ce qui indique que l'expérience

[1] Senior Lecturer, Department of Resource Management & Consumer Studies, Faculty of Human Ecology, University Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia. Email: fazli@putra.upm.edu.my.
[2] Professor/Director School of Family Studies and Human Services, 302 Justin Hall, College of Human Ecology, Kansas State University, Manhattan, KS 66506-1403, USA. Email: morey@ksu.edu
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financière avant le collège peut créer de mauvaises habitudes ou de mauvaises attitudes envers la gestion financière qui pourraient être atténuée grâce à l'éducation financière pendant les études collégiales. Les implications de ces découvertes pour cibler l'éducation financière sur des élèves de types particuliers sont discutées.

Mots-clés: comportement d'épargne; problèmes financiers; littératie financière; étudiants

INTRODUCTION

For a majority of college students, university attendance is the first time they have experienced financial independence without a parent's supervision. With the expansion of educational services in Malaysia, which tripled the number of college students in two recent decades (Economic Planning Unit, 2006) university or college students have become an important consumer market segment. However there has been limited research on financial behavior (e.g. savings and indebtedness) and problems among Malaysians, especially college students, since the concern over the role of young consumers is relatively new. Studies in the United States and other countries indicated that college students had plenty to spend but they also had low levels of financial literacy and tended to be impulse consumers (e.g., Danes, Huddleston, & Boyce, 1999). A similar situation exists in Malaysia. Sabri, MacDonald, Hira, and Masud (2010) established that Malaysian college students also had low levels of financial literacy, and that their literacy was related to their ethnicity, childhood consumer experience, and whether they attended private, versus public institutions. This study analyzes the relationship of financial practices (specifically savings behavior) and financial problems to financial literacy among college students in Malaysia. Understanding whether and how financial literacy may influence savings and specific kinds of financial problems will be useful in efforts to design more effective financial education programs to prepare young Malaysians to be effective personal financial managers when they enter the job market and start their own families. Although there are some studies of the influence of financial education on savings behavior (Bernheim, Garrett, & Maki, 2001; Peng, Bartholomae, Fox, & Cravener, 2007) that research has not examined the role of financial knowledge while in college, and most studies of financial problems of college students (e.g. Lyons, 2004) or of their financial practices (Lawrence, Cude, Lysons, Marks & Machtmes, 2006) have not linked those problems or practices to financial knowledge. Hence this study may be the first to connect college students' financial literacy directly to their savings behavior and financial problems. Demonstrating such a link and characterizing its importance relative to other influences during college could provide evidence for expanding campus financial education efforts. The specific objectives of this study are to identify and compare savings behavior and the financial problems experienced by students and to explore the influence of financial literacy on savings behavior and financial problems. The first general hypothesis for testing considers potential correlates of financial literacy and posits that those may also be related to savings behavior and financial problems. The second hypothesis considers whether, controlling for those correlates of financial literacy, financial literacy has its own independent influence on savings behavior and financial problems. That is:

Hypothesis 1: The following variables will predict effective savings behavior and fewer financial problems: gender, ethnicity, place of origin, parent's marital status and educational level, family income, childhood consumer experience, sibling rank, type of college, residence, funding from government loans, financial socialization, GPA, spending patterns, and financial literacy.

Hypothesis 2: Financial literacy will be related positively to effective savings behavior. Those who report greater financial problems will report low levels of financial literacy.

For brevity the primary focus will be on financial literacy, financial socialization, and childhood consumer experience, which were all expected to be indicators of financial knowledge advantages.

METHODOLOGY

Preliminary analysis to test for differences in savings behavior and financial problems included t-tests for variables measured in continuous units, and analysis of variance (Anova) for demographic characteristics and other categorical variables. Multiple regressions were obtained to determine which predictors had significant effects on savings behavior and problems. To test our second hypothesis, financial literacy was included as the predictor of savings behavior and financial problems to explore the influence of financial knowledge.

Sample. The study sample is comprised of students in public and private universities, and 11 universities were randomly selected for the study (six public and five private universities). For each university 350 students were selected randomly using the list of names obtained from each student affairs office. The number of distributed questionnaires to 11 universities was 3,850. A total of 2,519 completed and usable questionnaires were returned by the students producing a 65% response rate. Of the 2,519 students who responded to survey, 40.4% were male and 59.6% were female students. The ethnic composition was Malay (67.2%), Chinese (21.6%), Indian (5.0%) and others (6.1%). The mean age of the respondents was 20.9 years (SD=2.99). Regarding parental marital status, 55% of students reported that their parents were married and living together, 21% reported were divorced and 12% reported their parents were widow or widower. More than half of the students in our sample were not employed (59%). A majority of the students lived on campus. The average CGPA (cumulative grade point average) was 3.00 and majority of students were at second class level (72.4%). Most of the students identified themselves as single (98%); 2% were married.

Dependent Variables. Two dependent variables were used in separate regression models to answer the research questions related to savings behavior and financial problems. Three savings behavior items ("saving to achieve a goal", "saving until the end of the semester", and "saving for paying down debts") provided "Yes=1" and "No=0" coding to create a scale from zero to three as the dependent variable for effective saving behavior. The average score was 1.13, with standard deviation of 0.89. Alpha reliability for savings was 0.695. The ten financial problem questions were asked on a 5-point Likert scale from never (1) to everyday (5) and focused on problems as follows: uncertain about where money is spent; owe friend(s) money; spend more than can afford; borrow money to buy food; skip meals to save money; take money without permission from parents/others; upset when cannot buy things; shopping to relieve tension/stress; impulsive shopping, and lending money to friends. The range in total scores for financial problems was from a low of zero to a high of 48. The mean score on specific problem items varied from a high of 2.58 for "uncertain about where money is spent" to 1.15 for "take money without permission from parents or others". The average score was 19.75, with a standard deviation of 5.78. Alpha reliability for financial problems was 0.764.

Independent Variables. Predictors of particular interest included childhood consumer experience, financial socialization, and financial literacy. Childhood consumer experience was measured by asking respondents when (at what age) they became involved in financial activities: received an allowance; own savings account; received money from work; discussed financial matters with parents; made decision on personal expenses; knowing family financial status; and made their own purchases. The "whether, and if so at what age" categories were coded as "Less than 7 years=5", "8-12 years=4", "13-15 years=3", "16-17 years=2", and "18 years and above=1", and "Never=0". Thus, higher scores indicate earlier childhood consumer experience and those who never had the experience were scored as zero. The mean score for consumer experience was 20.76. Financial socialization was measured by asking respondents how much socialization agents influenced their financial behaviors based on scale from zero (no influence) to eleven (high influence). Socialization agents include parents, peers, siblings, school, religion, and electronic or printed media, and the mean score was 48.13. Financial literacy was measured by testing for correct answers on 25 questions concerning for example financial goals, financial records, savings, investments, retirement, banking system, time value of money, wills, insurance, education loan, and general knowledge on personal finance (see Appendix). The mean test score was 11.77.

Table 1 describes additional control variables that were found to have significant influences on savings or financial problems, which were specified categorically (i.e. as dummy variable predictors) for qualitative characteristics.

Table 1: Measurement of Variables and Descriptive Statistics for Control Variables

Variables	Description	Percentage (%)
Control Variables		
Gender	Female = 1, otherwise 0	59.6
Ethnicity	Malay = 1, otherwise 0	67.2
	Chinese = 1, otherwise 0	21.6
	Indian = 1, otherwise 0	5.0
	Other (reference group)	6.1
Place of origin	Rural = 1, otherwise 0	51.3
Father's education level	Elementary = 1, otherwise 0	19.7
	Secondary = 1, otherwise 0	43.9
	College degree = 1, otherwise 0	43.9
	Graduate = 1, otherwise 0	28.2
	No formal education (reference)	2.5
Mother's education level	Elementary = 1, otherwise 0	23.5
	Secondary = 1, otherwise 0	48.4
	College degree = 1, otherwise 0	20.0
	Graduate = 1, otherwise 0	1.5
	No formal education (reference)	5.6
Sibling rank	Only child = 1, otherwise 0	3.5
	Younger child = 1, otherwise 0	19.0
	Middle child = 1, otherwise 0	48.9
	Eldest (reference group)	28.6
Type of college	Public university = 1, otherwise 0	60.7
Spending patterns	< 2items = 1, otherwise 0	12.7
	3-5 items = 1, otherwise 0	61.8
	> 6 items (reference group)	25.5

Note - Descriptive statistics shown for variables that had significant effects in the regression analysis (see Table 2). Other control variables for that analysis included family income, parent's marital status, student's GPA, student residence, and whether the student received a government educational loan.

Table 2: Predictors of Savings Behavior and Financial Problems: Multiple Regressions

Variables	Savings Behavior (N=1574)	Financial Problems (N=1560)
Predictors for Financial Knowledge		
Financial literacy test score	.076 (3.133)**	-.064 (-2.652)**
Financial socialization	N.S	.216 (9.037)***
Childhood consumer experience	.073 (2.974)**	.076 (3.096)**
Correlates of Financial Literacy		
Father elementary	N.S	.030 (.667)
Father secondary	N.S	.103 (1.831)

To be continued

Continued

Variables	**Savings Behavior** (N=1574)	**Financial Problems** (N=1560)
Father college degree	N.S	.132 (2.422)*
Father graduate	N.S	.138 (3.774)***
Mother elementary	N.S	-.103 (-2.258)*
Mother secondary	N.S	-.097 (-1.791)
Mother college degree	N.S	-.089 (-1.779)
Mother graduate	N.S	-.059 (-2.045)*
Rural area	N.S	.063 (2.425)*
Female	.056 (2.307)*	N.S
Malay ethnicity	.067 (1.421)	N.S
Chinese ethnicity	-.126 (-2.627)**	N.S
Indian ethnicity	-.023 (-.712)	N.S
Only child	.057 (2.280)*	.080 (3.239)***
Younger child	.026 (.902)	.065 (2.296)*
Middle child	.004 (.150)	.053 (1.853)
Public university	.020 (.716)	-.098 (-3.474)***
Spending patterns (3-5 item)	-.072 (-2.782)**	-.069 (-2.681)**
Spending patterns (< 2 item)	-.208 (-7.930)***	-.016 (-.605)
R2	.102	.113
Adjusted R2	.085	.095
F value	5.774***	6.382***

Note: **p<.05, **p<.01, ***p<.001.* Other (nonsignificant=N.S) predictors included family income, parents' marital status, GPA, student residence, and whether the student received a government educational loan.

RESULTS

Preliminary descriptive analysis revealed that more than half of the respondents did not save any money when they received their scholarship or education loan. More than half of the students used their money for shopping. About 45% of them spent all their money before the end of the semester; 17% of students gave some money to their family, and 13% used their money to repay debts. Results from Anovas for differences in savings behavior with respect to financial literacy, financial socialization, and childhood consumer experience demonstrated that there were significant differences. Those students with higher financial knowledge were more likely to engage in savings behavior, while those students with greater influence from socialization agents and late exposure in their childhood consumer experience were less likely to engage in savings behavior. Statistically significant bivariate results also revealed that students who had late exposure in their childhood consumer experience, or who reported greater influence from socialization agents were significantly less likely to report financial problems. However the regression analysis, which controlled for student demographics and other characteristics, provided some different findings about the relationships of financial knowledge indicators to students' financial practices. After sample reductions due to missing data, there were 1574 cases for regression analysis of saving behavior, and 1560 cases for regression analysis of financial problems.

Multivariate Predictors of Savings Behavior

The hypothesized regression model (See Table 2) was significant, explaining 10.2 % of the total variance in savings behavior *(R^2 =.102, F=5.774, p<. 001)*. Financial literacy had a positive, significant effect on savings behavior. This result suggests that participants who have greater knowledge on personal finance tend to engage in effective financial behavior (i.e. savings behavior). The results also revealed that those students who had earlier childhood consumer experience were more likely to engage in effective financial behavior. The two variables that had the largest significant effects (Beta coefficients) were consumer spending patterns (i.e. number of consumer products) and Chinese ethnicity. Students' spending patterns were associated with less savings behavior. Students with fewer spending patterns (i.e. less than 2 items) were more likely not to engage in effective financial behavior. Female students were more likely to engage in savings behavior than male students. Ethnicity were found to be a strong predictor of savings behavior with a negative coefficient indicating that Chinese students were substantially less likely to have effective financial behavior than the reference category (ethnicity other than Malay, Chinese, or Indian). The study of U.S. college students' financial practices by Lawrence, Cude, Lyons, Marks, and Machtmes (2006) also found that ethnicity was a significant predictor of college students' financially fitness scores and the significant variables explained 8.0% of the variance. This is somewhat similar to the present study.

Multivariate Predictors of Financial Problems

The regression model was significant in explaining 11.3% of the total variance in financial problems *($R^2 = .113, F=6.382, p<. 001$)*. The two variables that had the largest significant effects were father's education, and financial socialization. It was surprising to find that father's education is associated with more financial problems. The results also revealed that those students who more financially socialized had more financial problems, as did those who had earlier childhood consumer experience. However financial literacy had a negative, significant effect on financial problems. Students from public universities were less likely to have financial problems, as were students from rural areas. Students who reported that they have more consumer products tend to have less financial problems. However, when savings behavior was included as a predictor (results not shown) that variable was also significant for reduced reports of financial problems.

DISCUSSION AND IMPLICATIONS

As expected (but not previously demonstrated) financial literacy was associated with better savings behavior and financial literacy was also negatively related to financial problems among Malaysian college students. Those who had greater savings behavior were also less likely to have financial problems. Students who had more and earlier childhood consumer experience reported more savings behavior but they also reported more financial problems. Financial socialization was also associated with more financial problems, but financial socialization did not predict savings. Thus considering the three indicators of financial knowledge, financial literacy clearly had the most positive influence for financial management because it had the desired effects for both savings and financial problems. Financial literacy may also have an indirect effect on financial problems because it is associated with more savings while savings decreases financial problems.

Why literacy has more positive financial management influences than experience or socialization deserves some speculation. College students with more experience and socialization may have developed bad habits and poor attitudes from those influences as well as gaining some foundational knowledge for better financial management, which could explain the mixed effects of those influences on savings and financial problems. Additionally one can speculate about whether students from wealthy families might have had more and earlier consumer experience and greater financial socialization, so that those who scored higher on those predictors might also be able to rely more on their parents to assist them after graduation. Although the regression models included family income, that variable may not be measured well, and its correlation with wealth is unknown. Still, the clearly positive influence of financial literacy demonstrates that financial knowledge promotes better financial management whether or not students can afford to indulge themselves during the college years. By implication, providing financial education during college could mitigate the effects of bad financial habits and attitudes that were acquired before college. That is, financial education may benefit all kinds of students, including more affluent students who might otherwise be presumed to be more financially savvy and less in need of that kind of education. Similarly the finding that public college students have fewer financial problems indicates that private college students need more financial education. As one might expect, in Malaysia private college students are more affluent (Joseph, 2008). Those private college students are also much more likely to be Chinese (Joseph, 2008) than for public colleges and thus save less (recall the result that Chinese ethnicity is negatively related to saving). It was not expected that ethnicity would be as important as it is for predicting savings, nor that the effect for Chinese ethnicity is negative because Chinese students in Malaysia have been found to know more about educational loans (Abu Bakar, Masud, & Md. Jusoh, 2006), and they were also found to have higher mathematical achievement (Ismail & Awang, 2008).

Although affluent (and not so affluent) college students and their families can afford (or choose) to postpone better financial management practices, those private decisions have public consequences for Malaysia's continued economic development. To avoid foolish investments and bubbles, the findings from this study would recommend that Malaysian universities and colleges should experiment with workshops and classes to educate students about personal financial management and planning. Some particulars about targeting that education to student sub-populations were discussed by Sabri, MacDonald, Hira, and Masud (2010) in their detailed analysis of financial literacy among Malaysian college students, which recommended more attention to financial socialization by Chinese parents, that college educators should focus special attention to students who live on campus, and increased efforts to motivate more affluent students to become financially literate. By demonstrating the strong linkage between financial literacy and better financial management (and that the effects of pre-college consumer experience and financial socialization are mixed), this study could be used to make the case that the college years are the last, best chance for formal education to have salutary effects for lifetime financial management among Malaysia's future leaders.

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APPENDIX

Financial Literacy Test True-False Questions		
Statement		
	True	**False**
1. Buying goods on credit will reduce purchasing power in future		
2. The increase of the price of goods will reduce buying power		
3. Balance sheet shows your financial status		
4. Credit card holder can spend without limit		
5. We overspend when using savings to buy daily necessities		
6. The value of money can double after 10 years		
7. Savings is extra income after deducted expenses		
8. Interest will influence the future value of savings		
9. Income statement shows income and the expenses of a family in a specific period		
10. Will is unnecessary for a family		
11. Buying insurance is the best investment		
12. Savings account interest exceeds fixed deposit interest		
13. Life insurance protects policy holder from financial burden		
14. The longer the education loan is due the greater cost of financing it		
15. Unregistered business needs to pay income tax		
16. Owning a credit card will increase one's purchasing power		
17. One can spend more than 20% of their monthly income for installments		
18. Using credit card to get cash has the lowest finance charge		
19. All types of investments are profitable		
20. We can borrow to invest		
21. Motorcyclist do not need insurance		
22. Employment Provident Fund (EPF)* contribution are sufficient for retirement		
23. All Muslims must pay zakat**		
24. In Malaysia we only have a conventional banking system		
25. Family needs to save three months income for emergencies		

Notes: * The Malaysian Employees Provident Fund (EPF) Act of 1991 grants employees retirement benefits that are managed via a body that is intended to manage their savings;
**Paying a small percentage of one's surplus wealth to charity for poor and needy Muslims.