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Like Father Like Son: How Does Parents' Financial Behavior Affect Their Children's Financial Behavior?

This paper investigates the intergenerational influence on financial behavior. Using two national longitudinal studies: the 1979 National Longitudinal Survey Children and Young Adults (NLSCYA) and the 1979 National Longitudinal Survey (NLSY79), we link the financial behavior of 2,520 young adults back to their general self-control skill and their parents' financial behavior conducted during children's adolescence. We find evidence of intergenerational consistency in financial behavior between parents and their children. Results from the generalized structural equation model indicate that parents' financial behavior affects that of their children both directly and indirectly through general self-control skill development. Furthermore, the influence of parents is moderated by parent–child relationship. These findings highlight the importance of parental financial socialization. Its implications are discussed.

Parents are the primary socialization agents for their children. Individuals develop consumer skills, knowledge, and attitudes by interacting with their parents (Danes and Haberman 2007; Moschis 1987). Consequently, we have witnessed intergenerational consensus between parents and their children in risk and time preference (Brown and van der Pol 2015), brand loyalty (Childers and Rao 1992), and consumer behavior and beliefs (Moore-Shay and Jutz 1988). In this paper, we examine another domain of intergenerational influence—the degree to which financial behavior is passed down from parents to their children and how it occurs.

The actual degree of intergenerational influence on financial behavior and how it occurs has emerged as a topic of considerable importance. Recently, there is growing recognition of the indispensable role parents could play in preparing their children to be financially proficient. Clarke et al. (2005) pointed out that financial role transfer is taking place most often from parents in the home, rather than sources outside the home. Therefore, to combat the widespread financial illiteracy, financial socialization with parents could be an alternative and even cheaper way of financial

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education in comparison with traditional large-scale education programs (Bucciol and Veronesi 2014). If intergenerational influence on financial behavior is evidenced, the role of parents in financial education should be emphasized.

Reviewing the literature on parental financial socialization, we find that the majority of previous studies emphasized the impact of parents' general communication method or parenting style rather than the association between parents' and children's financial behavior. For example, studies have shown that parents' teaching, monitoring, parenting style, and parent–child interactions exert significant impact on children's financial behavior (Kim and Chatterjee 2013; Xiao et al. 2011; see Van Campenhout 2015 for a detailed review). Studies investigating the similarities between parents' financial behavior and that of their children are scarce (see e.g., Hibbert, Beutler, and Martin 2004; Norvilitis and MacLean 2010; Shim et al. 2010; Webley and Nyhus 2006). Furthermore, little is known about how parents' financial behavior is passed down to their children. In this paper, we explicitly examine how parents' financial behavior affects their children's behavior. Specifically, we contribute to the literature in the following aspects.

First, most previous studies were based on survey data on college students. Generalization drawn from the restricted sample could be limited. It is very likely that the educational, social and psychological status, and financial independence differ between young adults who attend college and those who do not, all of which are important determinants of financial behavior (Shim et al. 2010). One exception is Webley and Nyhus (2006) who used Dutch panel data on children aged 16–21. However, they only studied children who still lived with parents between the age of 16–21 years, which is not representative of children in that age group in general. We fill in the gap by adopting a national longitudinal survey dataset (the 1979 National Longitudinal Survey Children and Young Adults, hereafter, NLSCYA) on a representative sample of young adults in the United States at all levels of education background.

In addition, few studies systematically addressed why and how the intergenerational continuity in financial behavior occurs. Seeking an answer to this question requires highly rigorous dataset and method to examine the causal impact of parents' behavior on their children's behavior. Unfortunately, parents' and children's financial behavior were self-reported by children at the same time in most previous studies. As Norvilitis and MacLean (2010) pointed out, inferring causality from cross-sectional data is always problematic, especially so when the causal link could go either way or when reciprocal relationships exist. A study involving both

children and their parents with longitudinal design would help clarify the relationships and, therefore, explain the process in which parents pass down responsible financial behavior to their children (Norvilitis and MacLean 2010; Shim et al. 2010).

In light of these concerns, we establish a clear pathway in our study. First, parents' financial behavior observed by adolescents (aged 10–17) will have a direct impact on these children's financial behavior when they reach young adulthood (aged 18–25). Second, parents' financial behavior will also influence their children's development of general skills during adolescence, which exerts impact on financial behavior during young adulthood. This setup could reduce reciprocal relationships in investigating the causal impact of parents' financial behavior on their children's behavior. The longitudinal NLSCYA dataset provides information on respondents' financial behavior in young adulthood in 2012 and their general self-control skill back in adolescence. In addition, we are able to link children's data to their mothers' households provided by the other nationally representative longitudinal dataset (the 1979 National Longitudinal Survey, hereafter, NLSY79). Biological mothers of respondents in the NLSCYA reported detailed information about their households in the NLSY79, and we use information on their financial behavior in 2004 when their children were in adolescence. We find evidence of intergenerational consistency in financial behavior. Using a generalized structural equation model (GSEM), we find that parents' financial behavior affects young adults' behavior both directly and indirectly through their general self-control skill. In addition, parents' influence is moderated by parent–child relationship. In discussions, we further investigate how children's age, other forms of parental financial socialization, and financial education at school affect the influence of parents' financial behavior on their children's behavior.

LITERATURE REVIEW AND HYPOTHESES

Our study is grounded in two theories: *anticipatory socialization* and *financial socialization*. *Anticipatory socialization* refers to "implicit, often unconscious learning for roles which will be assumed sometime in the near future" (Ward 1974, 5). According to Hess and Torney (1967), children may acquire attitudes and values about adult roles which may have limited relevance for them, but are the basis for subsequent learning for specific behavior; they may acquire specific information that cannot be directly applied until later life; and they may also acquire general and specific skills which can be practiced in the immediate childhood situation and which will be called into play throughout life when appropriate occasions arise.

In addition, adolescence is considered a particularly important period of anticipatory socialization (Moore and Moschis 1979). Correspondingly, in our study of intergenerational influence on financial behavior, anticipatory socialization refers to learning from parents' financial behavior which may have limited relevance for adolescents, but serve as the basis for financial behavior in early adulthood. It also refers to the development of general skills such as self-control skill practiced during adolescence, which will be called back into play in their future financial decisions.

Financial socialization refers to "the process of acquiring and developing values, attitudes, standards, norms, knowledge, and behaviors that contribute to the financial viability and well-being of the individual" (Danes 1994, 128). Parents are taken as the primary financial socialization agents for their children (Grusec and Davidov 2007; Moschis 1985). For example, Shim et al. (2010) found that in predicting young adults' financial learning, attitude, and behavior, the role played by parents is substantially larger than the role played by work experience and high school education combined. Recent development in financial socialization process has identified various forms of parental financial socialization. For example, parents' social-economic status, financial monitoring, financial behavior and skills, their beliefs and values, and direct teaching could all exert impact on children's financial behavior (Kim and Chatterjee 2013; Shim et al. 2010). In addition, the interpersonal family relationship is considered a key variable in financial socialization process (Gudmunson and Danes 2011). However, a thorough investigation of the concurrent and interactive effects of all potential factors in the complex financial socialization model is hard, if not impossible. A simplified model is recommended (Shim et al. 2010).

In this paper, we take a partial view of financial socialization process by emphasizing the mechanism involved in the anticipatory financial socialization effect of parents' financial behavior on their children's behavior. We focus on financial socialization and general skill development during adolescence and their impacts on financial behavior during young adulthood. This way, we could setup a clear causal pathway and limit reciprocal relationships.

Direct Effect of Parents' Financial Behavior

Experiential Learning Theory emphasizes that observations, along with experience, conceptualizations and experimentations, are important components in the general learning process (Kolb 1984). Consumer socialization theory also suggests that children learn about finances through observation and modeling of their parents' behaviors (Bandura 1986; Kim,

LaTaillade, and Kim 2011; Moschis 1987). Consequently, it is expected that parents' financial behavior observed by children will directly influence children's financial practices as they gain financial independence in young adulthood.

Several previous studies have provided evidence that parents' financial behavior exerts significant influence on their children's behavior. For example, Shim et al. (2010) used a survey sample of first-year college students and confirmed the influence of parents' financial behavior on their children. Using data on graduate and undergraduate students, Hibbert, Beutler, and Martin (2004) also showed that what students experienced in their family of origin affects their financial strain directly and indirectly through behaviors such as debt avoidance and credit card misuse. Webley and Nyhus (2006) found a correlation between parents' behavior and children's saving behavior among Dutch young adults. However, as mentioned in the introduction, these studies were limited by sample restriction and did not explicitly address how the intergenerational transfer occurs with a clear pathway across time.

H1: Responsible financial behavior modeled by parents during adolescence will lead to responsible financial behavior in young adulthood.

Indirect Effect through Self-Control Skill

General skills adolescents acquire through financial socialization can determine financial practices during young adulthood. Self-control is an example. Self-control is the skill required for individuals to diligently follow their financial plan and successfully convert responsible financial intensions into responsible financial behaviors; without self-control, individuals will have difficulty enduring the challenges associated with achieving their financial goals (Tang, Baker, and Peter 2015). Previous studies have shown the positive relationship between self-control and financial behaviors like retirement planning, wise use of debt and credit, budgeting, and saving (Baumeister 2002; Howlett, Kees, and Kemp 2008).

We hypothesize that parents' responsible financial behavior could foster the development of self-control skill in their children, through which it indirectly affects young adults' financial behavior. Children witness skills demonstrated by parents in their daily actions (Danes and Haberman 2007). Parents who manage their finances responsibly will explicitly or implicitly provide opportunities for their children to recognize and develop self-control skill. For example, children of parents who do not overspend and pay off credit card balance every month are likely to observe a variety of behaviors involving budget planning and self-control from compulsory

purchase, and also witness the rewarding outcomes of such behaviors. When such general self-control skill is developed, it affects financial behavior at a fundamental level. To our knowledge, no study has examined the indirect effect of parents' financial behavior through their children's self-control skill development.

H2: Parents' financial behavior affects young adults' financial behavior indirectly through general self-control skill developed in adolescence.

Moderating Effect of Parent–Child Relationship

Gudmunson and Danes (2011) indicated that most of the financial socialization that takes place in the family has resulted from day-to-day family interaction, relationships, and implicit financial training. Previous literature also pointed out that the success of financial socialization in the family largely depends on the family relationship quality (Gudmunson and Danes 2011; Kim, LaTaillade, and Kim 2011). Therefore, we propose that the parent–child relationship moderates the effect of parents' financial behavior on their children's behavior:

H3a: Parents' financial behavior has a larger impact on young adults' financial behavior if parents have a closer relationship with their children.

H3b: Parents' financial behavior has a larger impact on adolescents' development of self-control skill if parents have a closer relationship with their children.

DATA

This study uses two longitudinal datasets designed and collected by the Bureau of Labor Statistics: the NLSY79 and the NLSCYA. The NLSY79 is a nationally representative sample of 12,686 American youth aged 14–22 when first interviewed in 1979. The same group of respondents has been followed annually through 1994 and biennially afterwards. It contains extensive information on respondents' demographic and socioeconomic characteristics among others. It also asks respondents about the financial behavior within their households.

In 1986, a separate survey (the NLSCYA) of all children born to the NLSY79 female respondents began. These children were born before or during the current survey round, and are estimated to represent over 95% of all children ever born to the NLSY79 cohort of women. The NLSCYA survey followed the same group of children on a biennial basis and collected children's demographic, socioeconomic, psychological, and

financial behavior information, as well as parent–child relationship from children's perspective.[1]

We adopt the following criteria in sample selection: (1) Children were aged 18–25 in 2012, so that they reached young adulthood when asked financial behavior questions in 2012, and were still adolescents (aged 10–17) in 2004 when their parents' financial behavior was observed; (2) The age when children were interviewed about their self-control skill was under 18, so as to minimize the impact of financial behavior on self-control skill. Then we merged children's data with data on the household of mother, and reached a sample of 2,520 respondents. There are 1,771 unique household clusters, and we will adjust standard error estimates to account for within household clustering of data.

Measures

Young Adults' Financial Behavior

Respondents were asked questions regarding their financial behavior in the NLSCYA in 2012. We select four measures reflecting young adults' financial behavior in debt management, cash flow management, saving, and credit management. These measures cover the core components of financial management by young adults. For example, Johnson and Sherraden (2007) listed significant debt, poor credit management, and lacking savings as main concerns about young people's financial well-being today.

Specifically, variable "poor debt management" indicates in the past 12 months, if the respondent or his or her spouse or partner conducted any poor debt management behaviors such as having an account sent to a collection agency, having something repossessed, getting a loan from a payday or other store-front lender, filing for bankruptcy, or foreclosing of a property. Created variable "poor debt management" has a value of one if a respondent or the spouse or the partner conducted any of the above-mentioned behavior in 2012, and zero otherwise. Similarly, variable "poor cash flow management" has a value of one if a respondent or his or her household conducted any of the following behavior: (1) having been late for more than 60 days on any types of payments including mortgage or rent, utility bills, credit card bills, car payment, other kinds of loans, or other bills during the last 12 months, or (2) faced some/quite a bit of/ a great deal of difficulty (versus no difficulty at all/ a little difficulty) in

1. The NLSY79 and the NLSCYA also include other information such as respondents' schooling, training, work experiences, health, dating, fertility and marital histories, household composition, and so on. See National Longitudinal Surveys website for more details: https://www.nlsinfo.org/content/getting-started/intro-to-the-nls.

paying bills during the past 12 months. Variable "saving" indicates over the past 12 months, if a respondent or his or her household had money left over at the end of each month, an indicator of saving source. Variable "owe money on credit cards" indicates if a respondent or his or her spouse or partner owed any money on credit cards. It is noted that only those who had credit cards on their own were asked about credit card debt, so that the impact of access to credit is reduced in credit card management measure.[2]

Parents' Financial Behavior

Mothers of the children in the NLSCYA were asked about their household financial practice in the NLSY79 dataset in 2004. We follow Perry and Morrris (2005) by creating a parental financial behavior score that summarizes parents' financial practices in various financial areas such as cash flow management, credit management, debt management, and investment. These financial areas are expected to cover the major financial management practices, and are widely used by other studies to measure individual's financial behavior (e.g., Hilgert, Hogarth, and Beverly 2003).

Specifically, respondents in the NLSY79 were asked if they or their spouses or partners held any liquid assets in a savings account, a checking account, or a money market account; owed the maximum amount allowed by the credit card company on any credit cards; missed payment or had been at least 2 months late in paying any of their bills; ever declared bankruptcy; or participated in stock markets by holding stocks or mutual funds. All these questions have a value of zero or one, and we add these values to obtain the parental financial behavior score ranged from 0 to 5. Scores on some questions were reversed so that a higher parental financial behavior score corresponds to a higher level of responsible financial behavior.

Adolescents' Self-Control Skill

We construct a measure of self-control from two survey questions: "I often get in a jam because I do things without thinking" and "I have to use a lot of self-control to keep out of trouble." These questions were asked among children aged 14–17 (mean = 16 years old) during 2004–2010 in the NLSCYA survey. When a respondent gave answers in multiple waves, we keep the one in the earliest wave to reduce the impact of financial behavior on self-control skill as such reciprocal effect is expected to

2. We describe the mapping of created variables and the original survey questions in the online Appendix Table S1, Supporting Information.

be smaller at an earlier age. It is also noted that answers to the two questions were stable through time. Over 90% of respondents did not change more than one category in their answers in various waves during 2004–2010. Scores on the two questions are reversed and added so that a high self-control skill score (ranged 0–6) indicates higher levels of self-control skill.

Parent–Child Relationship

Children were asked questions about parental monitoring and their emotional relationship with parents in the 2004 wave of the NLSCYA survey, the same year when their parents' financial behavior was reported in the NLSY79. These measures were used by the NLSCYA to measure parent–child interaction. In particular, children were asked to (1) score their closeness to their mother, father, or stepfather (if applicable) and (2) evaluate how often their mother, father, or stepfather knew whom they were with when they were not at home. We take the average of the scores given to the mother, father, and stepfather under each question, scale two measures to the same level (0–1) and create the "parent–child relationship" score (ranged 0–2) by adding the two measures. A higher "parent–child relationship" score indicates a closer relationship of a child with parents.

Covariates

Young adults' control variables include age, age square, gender, 2011 household annual income, dummy variable indicating if 2011 household income is positive, marital status, and education attainment, all from the 2012 wave of the NLSCYA. The mother's race measured in the 1979 wave of the NLSY79 was used to indicate the race of children. We also control for the age of mother in 2012, total income of household of mother in 2011, whether income of household of mother is positive in 2011, highest educational attainment of either child's mother or spouse or partner in mother's household in 2012, and whether mother lived with a spouse or partner in 2004.

Parents' general skill could affect both their own financial behavior and their children's financial behavior and general skill. In exploring the influence of parents' financial behavior on their children's behavior, we control for Pearlin Mastery scale taken by the mother in the 1992 NLSY79 survey as a proxy for parents' general skill. Pearlin Mastery Scale is a seven-item scale developed by Pearlin et al. (1981) to measure the extent to which individuals perceive themselves in control of forces

that significantly impact their lives.[3] Previous literature has shown that sense of control, a fundamental aspect of self-concept, correlates with a wide variety of behaviors, subsequent status attainment, future-oriented planning, and both mental and physical well-being, which are essential elements of quality of life (Abeles 1991; Lachman and Prenda Firth 2004; Lewis, Ross, and Mirowsky 1999). Pearlin Mastery scale, in particular, has been related to skill development process (Bacolod, Blum, and Strange 2010), prosocial and action coping strategies (Hobfoll et al. 1994), parental competence (Sadler, Anderson, and Sabatelli 2001), school performance and cognitive skill (Lewis, Ross, and Mirowsky 1999). Therefore, we use Pearlin Mastery score as an indicator of parents' general skill.

RESULTS

Summary Statistics

Table 1 provides summary statistics on main variables. Results on young adults' financial behavior in 2012 indicate their financial management inefficiency, which is consistent with previous literature (Johnson and Sherraden 2007). A total of 13.03% of young adults displayed poor debt management practice such as bankruptcy declaration or foreclosing, which might have severe negative consequence on their long-term financial well-being; the percentage of respondents that conducted poor cash flow management behavior was 33.36%, and 60.95% of them managed to have money left over for saving in a typical month, although we do not know the saving rate. We also discover that a strikingly high percentage of respondents (59.24%) who held credit cards on their own owed money on credit cards. Other studies showed similar statistics. For example, Norvilitis, Szablicki, and Wilson (2003) reported that only 32% of the college students paid off their debts monthly.

In terms of parents' financial behavior, we found that 78.46% of the parents held liquid assets in 2004; a total of 12.36% of them owed the maximum amount allowed on credit cards and a non-negligible portion (22.50%) of them missed or were late for payments; up to 15.44% had

3. Respondents were asked how strongly they agree or disagree with each of the statements: "No way I can solve some of the problems I have"; "Sometimes I feel that I am being pushed around in life"; "I have little control over the things that happen to me"; "I can do just about anything I really set my mind to"; "I often feel helpless in dealing with the problems of life"; "What happens to me in the future mostly depends on me"; and "There is little I can do to change many of the important things in my life."

TABLE 1
Summary Statistics

	N	*Mean*	*SD*	Min	Max
Young adults' financial behavior in 2012					
Poor debt management	2,517	13.03%	.34	0	1
Poor cash flow management	2,512	33.36%	.47	0	1
Saving	2,479	60.95%	.49	0	1
Owing money on credit cards	785	59.24%	.49	0	1
Parents' financial behavior in 2004					
Parental financial behavior score	2,234	3.74	1.14	0	5
Had liquid assets	2,266	78.46%	.41	0	1
Owed max. credit card amount allowed	2,378	12.36%	.33	0	1
Missed payment or late in paying bills	2,400	22.50%	.42	0	1
Declared bankruptcy	2,403	15.44%	.36	0	1
Stock market participation	2,281	46.43%	.50	0	1
Adolescents' self-control skill	2,520	3.24	1.24	0	6
Parent–child relationship score	2,107	1.46	.46	0	2
Covariates					
Young adults					
Age in 2012	2,520	21.79	2.19	18	25
Male	2,520	50.40%	.50	0	1
Race					
Hispanic	2,520	20.52%	.40	0	1
Black	2,520	29.09%	.45	0	1
Other	2,520	50.40%	.50	0	1
Total household income in 2011	2,488	$14,691	$21,012	$0	$238,150
Married in 2012	2,520	7.94%	.27	0	1
Highest grade completed in 2012	2,520	13.06	1.92	6	20
Non-high school	2,520	13.37%	.34	0	1
High school	2,520	35.36%	.48	0	1
Some college	2,520	36.87%	.48	0	1
College	2,520	11.11%	.31	0	1
Graduate school	2,520	3.29%	.18	0	1
Parents					
Age of mother in 2012	2,331	51.01	2.14	47	56
Total income of household of mother 2011	2,276	$68,574	$69,667	$0	$616,125
Highest grade completed by mother or mother's spouse/partner in 2012	2,331	14.13	2.71	3	20
Non-high school	2,331	8.32%	.28	0	1
High school	2,331	29.52%	.46	0	1
Some college	2,331	26.98%	.44	0	1
College	2,331	18.79%	.39	0	1
Graduate school	2,331	16.39%	.37	0	1
Pearlin Mastery scale in 1992	2,461	22.00	3.22	10	28
Mother lived with spouse or partner in 2004	2,418	69.77%	.46	0	1

declared bankruptcy; and stock participation rate was as low as 46.43%. Overall, the parental financial behavior score has a mean of 3.74 of 5. As of adolescents' self-control skill, the average score is 3.24 of 6. The average parent–child relationship score is of 1.46 of 2.

The selected sample includes young adults aged 18–25 as of 2012. Males comprised 50.40% of the sample. The breakdown of ethnicities is: Hispanic (20.52%), Black (29.09%), and other (50.40%). The average household income earned in 2011 was low (mean: $14,691; median: $7,000) considering a portion of respondents were still in school or had just entered the workforce. In fact, 18.49% of the respondents had zero income in 2011. A total of 7.94% of respondents were married in 2012. As of 2012, the average grade completed by respondent was 13.06 (e.g., grades below 12 indicates non-high school graduate, grade 12 indicates high school graduate, grade 13 indicates first year in college, and etc.). A total of 35.36% of respondents finished high school and 14.40% of them completed college or graduate school. We also provided information on demographic and socioeconomic characteristics of the parents. On average, the mother of young adult respondents ranged from 47 to 56 years old in 2012. Their average household income was $68,574 (median: $52,000) in 2011 and 10.46% of their household had no income in 2011. A portion of 37.84% of parents completed high school or below, while 35.18% finished college or above. Pearlin Mastery scale had an average of 22 of 28. In 2004, 69.77% of mothers claimed that they lived with a spouse or partner.

It is noted that in the following analysis to investigate parental influence on their children's financial behavior, the sample size may change according to the valid responses for all study variables. Consequently, the properties of the selected sample may differ from the ones in Table 1. For example, in the selected sample used to study the impact of parents' financial behavior on young adults' debt management, cash flow management, and saving behaviors, respondents in general had higher educational attainment, and mothers of respondents were more likely to live with a spouse or partner in 2004 than the sample in Table 1. In addition, compared with results in Table 1, the selected sample to study credit card behavior had more married female respondents with older age, higher level of self-control skill, income, and educational attainment; there was a lower percentage of "black" and a higher percentage of "other" respondents; parents had better financial behavior, older age, higher income, and educational attainment and there was a higher percentage of mother living with spouse or partner in 2004. However, we will control for these covariates in

the regression, so the change in the sample will not affect the robustness of the following analysis.

Intergenerational Influence on Financial Behavior

Table 2 first shows the relationship between young adults' financial behavior in 2012 and their parents' overall financial behavior score and composing behaviors in 2004. It is clear that young adults' financial behavior is highly associated with their parents' behavior. "Like father like son"—parents with responsible financial behavior are more likely to have children who manage finances wisely when they reach young adulthood. For example, parental financial behavior score is negatively related to young adults' poor debt management, poor cash flow management, and owing money on credit cards; it is positively related to the saving behavior of young adults (all significant at $p < .001$).

In addition, we also find a significant correlation between adolescents' general self-control skill and their financial behavior in young adulthood except for credit card behavior. For example, those who demonstrated higher level of self-control skill during adolescence are less likely to be engaged in poor debt management practices in young adulthood. The correlation between self-control skill and credit behavior is negative, but insignificant. One reason could be that the sample on credit card behavior is restricted to those who owned credit cards by themselves. The sample size is much smaller for credit card behavior ($n = 785$) than other behavior samples (e.g., $n = 2{,}517$ for debt management behavior sample).

TABLE 2
Correlation Coefficients between Young Adults' Financial Behavior and Measures of Parents' Financial Behavior and Self-Control Skill

	Young Adults' Financial Behavior			
	Poor Debt Management	Poor Cash Flow Management	Saving	Owing Money on Credit Cards
Parents' financial behavior in 2004				
Parental financial behavior score	−.15****	−.20****	.22****	−.19****
Had liquid assets	−.12****	−.12****	.18****	−.06*
Owed max. credit card amount allowed	.04*	.04**	−.04*	.08**
Missed payment or late in paying bills	.06***	.11****	−.11****	.07**
Declared bankruptcy	.08****	.09****	−.04**	.11***
Stock market participation	−.10****	−.16****	.17****	−.17****
Adolescents' self-control skill	−.12****	−.12****	.13****	−.05

*$p < .10$, **$p < .05$, ***$p < .01$, ****$p < .001$.

Direct and Indirect Effects of Parents' Financial Behavior

We estimate the hypothesized path using a GSEM, which allows for binary response outcomes. Specifically, logit regressions were used to examine the impacts of parents' financial behavior and general skills on each of young adult's financial behavior. Alongside the coefficients (β) from logit regressions, we also report odds ratios, calculated as (e^{β}). It would help clarify the results, as odds ratios are interpreted as the change in the odds of predicted young adults' financial behavior for one unit change in the independent variable. An odds ratio >1 (<1) implies an increase (decrease) in the odds of financial behavior with one unit increase in the independent variables.

Results of the path model are shown in Table 3. It is noted that we control for each respondent young adult's age, age square, gender, race, marital status, income, whether income is positive, and educational attainment, as well as total income in mother's household, whether mother's household income is positive, parents' education, mother's age, mother's Pearlin Mastery scale, and whether the mother lived with a spouse or partner in 2004 in all regressions, although we do not report their coefficients in Table 3. First, it is found that parents' financial behavior has a direct effect on young adults' financial behavior. Higher parental financial behavior score predicts a lower chance of poor debt management ($p < .05$), poor cash flow management ($p < .01$), and owing money on credit cards ($p < .05$), and a higher chance of saving among young adults ($p < .01$). For example, the odds of young adults' saving behavior are increased by 16% with one unit increase in parental financial behavior.

In addition, parents' financial behavior could also affect young adults' financial behavior indirectly through general self-control skill. For example, in predicting poor debt management behavior, higher parental financial behavior score leads to a higher level of children's self-control skill (coefficient = .09, $p < .01$), which predicts lower probability of poor debt management (odds reduced by 18% with one unit increase in self-control skill score, $p < .01$). Similarly, parents' financial behavior indirectly affects young adults' probability of conducting poor cash flow management and saving through general self-control skill.[4]

We adopt the Karlson, Holm and Breen (2010, KHB) method to test the statistical significance of total, direct and indirect effects of parents'

4. The dependent variables in our models are binary, and covariance matrix is only available among continuous variables. Therefore, we only have Akaike information criterion (AIC) and Bayesian information criterion (BIC) measures to assess the relative fit of the models.

TABLE 3
GSEM Results

	Young Adults' Financial Behavior											
	Poor Debt Management			Poor Cash Flow Management			Saving			Owing Money on Credit Cards		
	Coef.	*SE*	Odds Ratio	Coef.	*SE*	Odds Ratio	Coef.	*SE*	Odds Ratio	Coef.	*SE*	Odds Ratio
Direct effect												
Parents' financial behavior →Young adults' financial behavior	−.15	.07	.86**	−.16	.05	.85***	.15	.05	1.16***	−.28	.11	.75**
Indirect effect via self-control skill												
Parents' financial behavior →Self-control skill	.09	.03***		.09	.03***		.09	.03***		.05	.06	
Self-control skill →Young adults' financial behavior	−.19	.06	.82***	−.14	.04	.87***	.13	.04	1.13***	−.06	.08	.94
n	2,008			2,005			1,987			655		
Log pseudolikelihood	−3821.56			−4350.78			−4336.25			−1414.03		
AIC	7715.12			8773.56			8744.49			2900.06		
BIC	7916.90			8975.28			8945.89			3061.50		

Note: AIC, Akaike information criterion; BIC, Bayesian information criterion.
**$p < .05$, ***$p < .01$.

TABLE 4
Total, Direct, and Indirect Effects (via Self-Control Skill) of Parents' Financial Behavior on Young Adults' Financial Behavior

	Young Adults' Financial Behavior							
	Poor Debt Management		Poor Cash Flow Management		Saving		Owing Money on Credit Cards	
	Coef.	*SE*	Coef.	*SE*	Coef.	*SE*	Coef.	*SE*
Total	−.17	.07**	−.17	.05***	.16	.05***	−.29	.11**
Direct	−.15	.07**	−.16	.05***	.15	.05***	−.28	.11**
Indirect	−.02	.01**	−.01	.01**	.01	.01**	−.003	.01

**$p < .05$, ***$p < .01$.

financial behavior on their children's behavior. The standard method to decompose total effects into direct and indirect effects does not work well in nonlinear models such as logit regressions. It is because a rescaling of nonlinear model would arise and the mediator variable alters the coefficient of independent variable on dependent variable (Kohler, Karlson, and Holm 2011). Among various solutions to deal with this issue, the KHB method has been shown to be as good as or better than other methods to investigate the mediation effect in nonlinear method (Karlson, Holm, and Breen 2010). The results in Table 4 show that parents' financial behavior has significant direct and indirect effects on young adults' financial behavior except that the indirect effect on young adults' credit card behavior is insignificant. For example, responsible financial behavior among parents leads to lower chance of poor debt management among children both directly (direct effect coefficient = −.15, $p < .05$), and indirectly through general self-control skill (indirect effect coefficient = −.02, $p < .05$). Therefore H1 is supported; H2 is supported except for credit card behavior among young adults.

Moderation by Parent–Child Relationship

We test for the moderating effect of parent–child relationship on the link between parents' and young adults' financial behavior, and on the link between parents' financial behavior and adolescents' general self-control skill development. Specifically, based on the baseline model in Table 3, we add an interaction term between parental financial behavior score and parent–child relationship score to both the direct path (parents' financial behavior predicts young adults' financial behavior) and the indirect path (parents' financial behavior predicts young adults' financial behavior

through self-control skill). We lose some observations, as some respondents did not participate to answer the question regarding parent–child relationship.

The regression coefficients and odds ratios are shown in Table 5, and coefficients on controls are not reported. Results indicate that the parent–child relationship moderates the impact of parents' financial behavior on self-control skill except for credit card behavior. For example, in investigating "poor debt management" behavior, parents' financial behavior has a stronger impact on adolescents' self-control skill development if parents and children are closer. The moderating effect has a coefficient of .13, and is statistically significant at $p < .05$. However, parent–child relationship does not significantly affect the direct effect of parents' financial behavior on children's behavior. Therefore, H3b is partially supported.

DISCUSSION

Parental Financial Socialization and Children's Age

Our data include children aged 10–17 in 2004 when their parents' financial behavior was measured, and we explore how parents' financial behavior influences their children's financial behavior and self-control development. In this section, we first investigate if parental influence varies at different children's ages. Specifically, we create an interaction term between parental financial behavior score and children's age. Then based on the baseline model in Table 3, we add the interaction term to both the direct path (parents' financial behavior predicts young adults' financial behavior) and the indirect path (parents' financial behavior predicts young adults' financial behavior through self-control skill). As shown in Table 6, none of the interaction effects is significant in the direct path except for credit card behavior. For children with younger age when observing their parents' financial behavior, their credit card behavior in young adulthood is better with more responsible parents' behavior. However, children's age does not significantly affect the link between parents' financial behavior and other young adults' financial behaviors. Neither does it significantly affect the relationship between parents' financial behavior and adolescents' self-control skill development.

We would like to highlight that the limitation of the data does not allow us to study parental financial socialization before 10 years old. However, our results should not be taken to mean that parental influence only takes during adolescence. In fact, children could start to develop general skills at a very young age (Drever et al. 2015; Whitebread and Bingham 2013) and parental financial socialization could also begin as early as before

TABLE 5
GSEM Results with Moderating Effects of Parent–Child Relationship

	Young Adults' Financial Behavior											
	Poor Debt Management			Poor Cash Flow Management			Saving			Owing Money on Credit Cards		
	Coef.	*SE*	Odds Ratio	Coef.	*SE*	Odds Ratio	Coef.	*SE*	Odds Ratio	Coef.	*SE*	Odds Ratio
Direct effect												
Parents' financial behavior →Young adults' financial behavior	−.18	.07	.83**	−.19	.06	.82***	.17	.06	1.18***	−.29	.12	.75**
Parents' financial behavior * relationship →Young adults' financial behavior	−.16	.13	.85	−.10	.11	.90	.17	.10	1.18*	−.27	.24	.77
Indirect effect via self-control skill												
Parents' financial behavior →Self-control skill	.09	.03***		.09	.03***		.10	.03***		.06	.06	
Parents' financial behavior * relationship →Self-control skill	.13	.06**		.13	.06**		.14	.06**		.15	.11	
Self-control skill →Young adults' financial behavior	−.18	.06	.84***	−.11	.05	.90**	.09	.05	1.10**	−.06	.08	.94
n	1,752			1,749			1,735			622		
Log pseudolikelihood	−3333.96			−3780.96			−3772.90			−1330.10		
AIC	6747.92			7641.92			7625.80			2740.20		
BIC	6966.66			7860.59			7844.15			2917.52		

Note: AIC, Akaike information criterion; BIC, Bayesian information criterion.
*$p < .10$, **$p < .05$, ***$p < .01$.

TABLE 6
GSEM Results (Interaction with Age)

	Young Adults' Financial Behavior											
	Poor Debt Management			Poor Cash Flow Management			Saving			Owing Money on Credit Cards		
	Coef.	*SE*	Odds Ratio	Coef.	*SE*	Odds Ratio	Coef.	*SE*	Odds Ratio	Coef.	*SE*	Odds Ratio
Direct effect												
Parents' financial behavior →Young adults' financial behavior	−.13	.07	.88*	−.16	.05	.85***	.15	.05	1.16***	−.41	.11	.66****
Parents' financial behavior * age →Young adults' financial behavior	−.02	.03	.98	−.004	.02	1.00	−.03	.02	.97	.17	.05	1.19***
Indirect effect via self-control skill												
Parents' financial behavior →Self-control skill	.09	.03***		.09	.03***		.09	.03***		.05	.06	
Parents' financial behavior * age →Self-control skill	−.01	.01		−.02	.01		−.01	.01		−.01	.02	
Self-control skill →Young adults' financial behavior	−.20	.06	.82***	−.14	.04	.87***	.12	.04	1.13***	−.06	.08	.94
n	2,008			2,005			1,987			655		
Log pseudolikelihood	−3820.38			−4349.72			−4334.48			−1407.72		
AIC	7716.77			8775.43			8744.95			2891.44		
BIC	7929.75			8988.36			8957.54			3061.85		

Note: AIC, Akaike information criterion; BIC, Bayesian information criterion.
*$p < .10$, **$p < .05$, ***$p < .01$.

children start school (Drever et al. 2015; McNeal and Yeh 1993). It is possible that the parental influence observed in our sample is the result of parental financial socialization at earlier stage if parents' financial behavior and children's self-control skill are stable through time. Although such possibility will not affect our conclusion on parental financial socialization, it would be a productive avenue of future inquiry to extend the study to earlier ages and investigate at which stage parental financial socialization would influence children's behavior most.

Other Forms of Financial Socialization

Previous literature has shown that financial socialization could take implicit forms through observations as well as explicit forms such as purposeful instruction and practice (Clarke et al. 2005; Gudmunson and Danes 2011; Rettig and Mortenson 1986). In previous sections, we focus on parental financial socialization through observing parents' financial behavior, as implicit forms of financial socialization, such as observation, have been proven more common than purposeful efforts (Gudmunson and Danes 2011). In this section, we add the other important form of financial socialization to the model and investigate its impact on our main results. In particular, experience or learning by doing is another key component in Experiential Learning Theory (Kolb 1984). Previous literature has also shown that early experience with money such as receiving spending money from parents and making purchase decisions could significantly affect children's financial knowledge and behaviors (Friedline 2015; Friedline, Elliott, and Chowa 2013; Marshall and Marguder 1960). Therefore, we check the impact of children's practice opportunity here.

Specifically, during 1988–2004, children were asked who usually made the decisions about how to spend their money. We created a dummy variable "practice," which has a value of one if the respondent (child) indicated that he or she had the practice opportunity to make the decision, and zero otherwise. Totally, there were 2,195 respondents answering the question at least once during 1988–2004 and a high percent (84.69%) of them indicated that they had the practice opportunity to decide how to spend their money. Based on the baseline model in Table 3, we add an additional direct path (practice opportunity predicts young adults' financial behavior) and indirect path (practice opportunity predicts young adults' financial behavior through self-control skill). As some respondents did not participate to answer the question about their practice opportunity, we have fewer observations when "practice" is added to the model. Comparing results in Table 7 with those in Table 3, the only change in parents' financial

TABLE 7
GSEM Results (with Practice Opportunity)

	Young Adults' Financial Behavior											
	Poor Debt Management			Poor Cash Flow Management			Saving			Owing Money on Credit Cards		
	Coef.	*SE*	Odds Ratio	Coef.	*SE*	Odds Ratio	Coef.	*SE*	Odds Ratio	Coef.	*SE*	Odds Ratio
Direct effect												
Parents' financial behavior →Young adults' financial behavior	−.13	.07	.88*	−.17	.06	.85***	.16	.06	1.18***	−.31	.12	.73***
Practice opportunity →Young adults' financial behavior	−.33	.21	.72	−.09	.15	.91	.24	.14	1.26	.21	.36	1.23
Indirect effect via self-control skill												
Parents' financial behavior →Self-control skill	.09	.03***		.09	.03***		.09	.03***		.02	.06	
Practice opportunity →Self-control skill	.32	.08****		.31	.08****		.31	.08****		.53	.16***	
Self-control skill →Young adults' financial behavior	−.17	.06	.85***	−.14	.05	.87***	.10	.04	1.10**	−.12	.08	.89
n	1,814			1,811			1,795			618		
Log pseudolikelihood	−3469.64			−3934.09			−3924.92			−1326.74		
AIC	7015.27			7944.17			7925.85			2729.48		
BIC	7224.40			8153.24			8134.57			2897.68		

Note: AIC, Akaike information criterion; BIC, Bayesian information criterion.
*$p < .10$, **$p < .05$, ***$p < .01$, ****$p < .001$.

behavior effects on their children's behavior after controlling for children's practice opportunity is that the direct effect of parents' financial behavior on young adult's debt management behavior is only significant at $p = .07$. In addition, having practice opportunity does not directly affect young adults' financial behavior, but it does indirectly affect certain financial behaviors such as debt and cash flow management.

We confirm that parents' financial behavior still exerts significant influence on their children's behavior when considering the other form of financial socialization—children's practice opportunity. However, purposeful practice could take other forms besides deciding how to spend money. We invite future study to incorporate other measures of purposeful practice and other forms of financial socialization such as parents' teaching methods, financial monitoring and support, and their beliefs and values, and explore their interactive effects.

Parental Financial Socialization and Financial Education at School

The educational system at school has always been considered as the major source of financial learning. To better understand the role parental financial socialization plays in financial education, we now add the measure on financial education at school into the model.

The NLSCYA dataset interviewed students who attended college about their field of study. We consider a respondent had "financial education at school" if the respondent indicated that he or she had taken finance-related studies at college such as "business management," "business" or "economics." A total of 1,752 respondents answered the question and 19.01% of them had a value of one for dummy variable "financial education at school."[5] Based on the baseline model in Table 3, we add the other direct path (financial education at school predicts young adults' financial behavior). It is not added to the indirect path as college majors are not expected to predict general self-control skill, developed during adolescence, before children enter college in our model. As the analysis only includes those who attended college, the number of observations is lower. As shown in Table 8, the direct effect of parents' financial behavior on their children's behavior remains significant except for credit card behavior. Parents' financial behavior directly affects their children's credit card behavior at $p = .06$

5. The total number of respondents answering the question on field of study at college (1,752) is higher than the number of respondents having educational degree of "some college," "college," and "graduate school" shown in Table 1. It is because those who had completed "high school" degree, but was attending college could also be interviewed about their college major before they obtained degree from college.

TABLE 8
GSEM Results (with Financial Education at School)

	Young Adults' Financial Behavior											
	Poor Debt Management			Poor Cash Flow Management			Saving			Owing Money on Credit Cards		
	Coef	*SE*	Odds Ratio	Coef	*SE*	Odds Ratio	Coef	*SE*	Odds Ratio	Coef	*SE*	Odds Ratio
Direct effect												
Parents' financial behavior →Young adults' financial behavior	−.18	.09	.83**	−.23	.07	.80****	.19	.07	1.21***	−.24	.13	.78*
Financial education at school →Young adults' financial behavior	−.004	.24	1.00	−.17	.16	.84	.25	.16	1.29	.04	.23	1.04
Indirect effect via self-control skill												
Parents' financial behavior →Self-control skill	.09	.03***		.09	.03***		.10	.03***		.06	.06	
Self-control skill →Young adults' financial behavior	−.19	.07	.83***	−.10	.05	.90**	.12	.05	1.13**	−.11	.09	.89
n	1,438			1,438			1,428			556		
Log pseudolikelihood	−2717.32			−3096.65			−3107.88			−1196.06		
AIC	5508.63			6267.30			6289.76			2466.13		
BIC	5703.66			6462.33			6484.53			2626.00		

Note: AIC, Akaike information criterion; BIC, Bayesian information criterion.
*$p < .10$, **$p < .05$, ***$p < .01$, ****$p < .001$.

after controlling for financial education at college. However, the direct effect of financial education is not significant ($p > .10$ for all types of behavior). This result is consistent with previous study showing that parents play a larger role than work experience and high school education combined in predicting young adults' financial learning, attitude, and behavior (Shim et al. 2010).

However, it is noted that due to limitations of the data, we only measure children's education in college and the sample is restricted to those who attended college. As pointed out in the introduction, the social, demographic, and financial status differs between young adults who attend college and those who do not. In fact, compared with sample characteristics shown in Table 1, there were more female respondents who were older in age and had higher level of self-control skill, income, and educational attainment in the selected sample of college students; a higher (lower) percentage of college students belonged to "other" ("Black") race category; their parents had better financial behavior, older age, higher income, educational attainment, and Pearlin Mastery score and there was a higher percentage of mother living with a spouse or partner in 2004. Although results using the selected sample further confirm the role played by parental financial socialization in predicting young adult's financial behavior, it would be helpful to further test our model with financial education at earlier ages when more rigorous data are available.

CONCLUSIONS

In the transition process to financial independence, young adults face unprecedented complexity in today's financial environment. Financial decisions made in early life can have significant long-term economic and societal effects (Montoya and Scott 2013). Unfortunately, financial illiteracy is widespread among young people (Lusardi, Mitchell, and Curto 2010; Manton et al. 2006); its significant economic impact has received increasing public policy concerns. In the national campaign to improve financial literacy, the main focus has been on financial education at school targeted at adolescents or younger children. The implementation of financial education programs at school, however, raises cost-benefit consideration (Bucciol and Veronesi 2014), and the outcomes of such programs are inconclusive (Danes, Huddleston-Cases, and Boyce 1999; Mandell 2009). It motivates us to investigate the other channel through which adolescents can learn about finances and be prepared for the financial practices in later life—parental financial socialization.

Using two unique longitudinal datasets on a representative sample of young adults and their parents, we link young adults' financial behavior back to their parents' financial behavior and their general self-control skill during adolescence. The longitudinal design allows us to setup a clear causal pathway to study how parents' financial behavior is passed down to their children. We first confirm the strong intergenerational agreement in financial behavior: parents demonstrating responsible financial behavior are more likely to have children with good financial behavior. We then use a generalized structural equation model to test for hypothesis and find evidence that parents' financial behavior affects young adults' financial behavior both directly and indirectly through general self-control skill development during adolescence. The influence of parents is moderated by parent–child relationship.

These findings have important implications for policymakers, finance educators, and government agencies in their efforts to promote responsible financial behavior among young people. Our results confirm the intergenerational influence on financial behavior and highlight the importance to promote responsible financial behavior not only among children but also among their parents. As parents demonstrating responsible financial behavior are more likely to have children with good financial behavior, more policy support for family-based interventions and parental involvement should be encouraged in school program design. In particular, Van Campenhout (2015) provided a comprehensive review and guideline regarding how to involve parents in financial education programs. He summarized that parental involvement could take the form of homework or home activities with parents, financial communication at home, parental participation in school banking or saving programs, and workshops for parents. For example, a parent guide for family discussions on financial issues, and financial activities which parents and children can do together are explicitly included in *Financial Fitness for Life* (FFFL) curriculum; *The National Strategy for Financial Education* (*ENEF*) *financial education project* in Brazil not only encourages parental involvement and role modeling in children's financial education, but also provides financial literacy workshop for parents to improve their behavior. Such programs have documented positive effects on children's financial literacy improvement (See Van Campenhout 2015 for details and more examples).

Our results also indicate that the intermediate outcomes in financial socialization process could also include skills or ability in general instead of being specific to financial matters. For example, the self-control skill examined in our study is not only restricted to financial practices. Therefore, in assisting young people to obtain financial prudence, it might be

more effective to help them develop skills in a broader sense. Such skills could serve as the fundamental basis for financial behaviors as well as other kinds of human behaviors, thus having more significant long-term impact. Last, we highlight that quality family relationship is crucial in financial socialization. While making efforts to promote financial responsibility and general skill development among children, parents should not neglect parent–child relationship building at the same time.

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Table S1 Survey Questions on Main Variables

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