


Gender differences in recollections of economic socialization, financial self-efficacy, and financial literacy

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Abstract

The OECD/INFE international surveys of adult financial literacy (OECD/INFE 2016, 2020) show gender differences in financial literacy in developed countries in Europe. In this study, we examine whether these differences can be explained by gender differences in parental economic socialization using the Dutch 2018 DHS household survey. We investigate whether respondents' recollection of economic socialization when young predict their adult economic behavior and self-assessed financial knowledge. The results from ordinal logit and logistic regressions and for nonlinear equations decompositions reveal gender differences in the recollection of economic socialization and in how socialization practices are related to economic behavior and self-assessed financial knowledge. Men have to a greater degree than women been socialized in terms of having paid work outside the home, while women more often than men report that their parents controlled their spending. Moreover, we find gender differences in how men and women benefitted from the same socialization practices.

KEYWORDS

economic socialization, financial literacy, financial self-efficacy, gender differences

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1 | INTRODUCTION

The purpose of this study is to investigate whether the relatively large gender differences in financial literacy observed in developed countries can be partly explained by gender differences in economic socialization. More specifically, we investigate whether there are gender differences in parental economic socialization and whether different aspects of economic socialization may have different effects on men's and women's financial literacy and financial behavior.

The OECD/INFE international surveys of adult financial literacy (OECD/INFE, 2016; OECD/INFE, 2020) as well as many other international studies (Klapper et al., 2015; Robson & Peetz, 2020) report large gender gaps in financial literacy across ages and geographic areas, with women consistently demonstrating a greater degree of financial illiteracy (Bucher-Koenen et al., 2017; Japelli, 2010; Lusardi & Mitchell, 2014; Nyhus & Refvik, 2016). Relatively large gender differences in financial literacy are even found in countries such as the Netherlands and Norway (OECD/INFE, 2016), which are both relatively gender equal in terms of access to education and to the labor market. These countries have high national scores on financial literacy (OECD/INFE, 2016; OECD/INFE, 2020), but such scores are mainly caused by high literacy among men. For example, the OECD/INFE, 2016 survey showed that 84% of men and 56% of women in Norway achieved the minimum target score on financial knowledge (OECD/INFE, 2016). The corresponding numbers for the Netherlands were 76% men and 51% women (OECD/INFE, 2016). Furthermore, research shows gender differences among adolescents (Lusardi & Mitchell, 2014), highlighting the fact that the gender gap persists despite shifts in society from traditional gender roles to more gender equality and that the differences are present at an early age. We therefore investigate whether the observed gender gaps among adults are shaped in childhood and may be explained, in part, by differences in parental economic socialization.

1.1 | Dimensions of financial literacy

The construct financial literacy is defined and operationalized in different ways. One definition states that financial literacy refers to peoples' ability to process economic information and make informed decisions about financial planning, wealth accumulation, pensions, and debt (Lusardi & Mitchell, 2014). As pointed out in the OECD (2020) report, financial literacy implies that a person needs *confidence* and the *ability to use* their financial knowledge, in addition to financial knowledge itself. Thus, financial literacy can be conceptualized as containing two human capital dimensions: (1) knowledge acquired through education and/or experience and (2) the ability and confidence to apply such knowledge (Huston, 2010).

It follows that measuring financial literacy becomes challenging since the two-dimensional definition requires a distinction between actual and perceived financial knowledge. While actual (or objective) knowledge (human capital dimension 1) may be measured by numeracy or problem-solving tasks such as the ability to "compute the cost of a good that sells at half price" (Japelli, 2010), the degree of confidence and ability to apply knowledge (human capital dimension 2) may be measured by a self-efficacy scale based on one or several statements/questions about confidence in one's own abilities. An example of a single item financial self-efficacy measure is "How confident do you feel about your ability to manage your own finances?" (Serido et al., 2013). Perceived financial knowledge, also called subjective knowledge (Shim et al., 2010), is typically measured through such self-assessments of one's own financial

knowledge (Allgood & Walstad, 2016; Nguyen et al., 2017). A challenge is that both the objective and subjective knowledge scores may, in turn, be affected by self-efficacy. For instance, previous mappings of financial literacy show that women are far more likely than men to rate themselves as having less financial knowledge on self-assessments (Lusardi & Mitchell, 2014) and to answer “do not know” to actual financial knowledge questions (Nyhus & Refvik, 2016). However, when the option “do not know” is unavailable, women often choose the correct answer, and their objective financial literacy score increases (Bucher-Koenen et al., 2021; Lusardi & Mitchell, 2008; Lusardi & Mitchell, 2014). Self-assessments of abilities may differ from self-assessments of knowledge (Rothwell & Wu, 2019), and neither measure financial self-efficacy per se. However, subjective knowledge is a measure indicating that financial literacy encompasses more than knowledge. Financial self-efficacy has become an important concept in connection to financial literacy research (Gudmunson & Danes, 2011), in terms of both financial knowledge and financial behavior (Bucher-Koenen et al., 2017; Robson & Peetz, 2020).

1.2 | Financial self-efficacy

Self-efficacy refers to a person's perceived capabilities to perform (Bandura, 1982; Bandura, 2000). Thus, *financial* self-efficacy could be understood as perceived capabilities specifically related to financial tasks. Self-efficacy develops through repeated experiences of the mastery of tasks (Bandura, 1982) and, through such experiences, may increasingly divert from actual capabilities. A weak sense of self-efficacy inhibits accomplishments, including accomplishments regarding further the development of self-efficacy (Schukajlow et al., 2019). Conversely, a strong sense of self-efficacy will typically enhance accomplishments. However, unrealistically strong self-efficacy (overconfidence) can be counterproductive, either because it results in insufficient effort to perform (Jones et al., 2005; Vancouver et al., 2001; Vancouver & Kendall, 2006) or because of excessive action based on an overestimation of positive outcomes (Barber & Odean, 2001).

Similar to self-efficacy, the “locus of control” construct refers to a person's generalized belief about the causal relationship between their behavior and its consequences (Rotter, 1966). A person who believes that their own effort influences events in their lives is said to have an internal locus of control. Conversely, a person who believes that external factors (such as luck) influence them is said to have an external locus of control. While locus of control is a stable and general skill, self-efficacy is normally thought of as specific to a particular trait (Cobb-Clark, 2015), such as financial self-efficacy. Furthermore, self-efficacy is multidimensional; it involves control and an affirmation of ability in addition to the belief itself (Bandura, 1997). Thus, self-efficacy is a more complex construct than locus of control, requiring either an experiment or a psychometric scale to measure it. Bandura argues that self-efficacy is not a global trait. However, some operate with a generalized self-efficacy construct (Miyoshi, 2012; Sherer et al., 1982). General self-efficacy is the aggregate of past performance, which may influence specific self-efficacy, implying in turn that general self-efficacy does not encompass an affirmation of ability.

There are gender differences in self-efficacy across domains, due to low confidence among women but also due to overconfidence among men. The latter typically seems to be the case in areas such as stock investment (Barber & Odean, 2001). Profound gender differences are also found in academic performance within science, technology, engineering, and mathematics (STEM). One particular study found that while girls on average scored better than or as well as boys in these subjects, their perceived self-efficacy was lower than for boys (Stoet &

Geary, 2018). Comparable results have been found for the effect of financial education on perceived and actual financial knowledge. Generally, financial education increases subjective knowledge and financial self-efficacy for both genders (Rothwell & Wu, 2019), but while financial education seems more effective at improving *actual* financial knowledge in females than in males (Lührmann et al., 2015), it seems more effective at improving financial self-efficacy in males than in females (Zhu, 2019). Arellano et al. (2018) found that students with high self-confidence performed considerably better than other students on a financial knowledge test and that such self-reported noncognitive skills account for parts of the gender gap in financial literacy.

1.3 | Financial socialization

Financial socialization can be defined as a lifelong process involving the acquisition of financial knowledge and skills, as well as the formation of attitudes and values (Grohmann et al., 2015; Lusardi et al., 2010). Studies show that financial education in high school can improve financial knowledge (Becchetti et al., 2013; Lührmann et al., 2015; Shim et al., 2010), at least among those groups who have lower levels of knowledge (Becchetti et al., 2013), and some report an increase in specific private economic behavior such as saving (Bernheim et al., 2001). Conversely, a meta-analysis reports that there is no evidence of an effect of formal financial training on financial behavior in general (Fernandes et al., 2014; Stolper & Walter, 2017) or on specific behaviors such as increased saving behavior (Lührmann et al., 2015). These inconsistent findings point to the possibility that channels other than formal education may be equally important in encouraging financial literacy and sound economic behavior.

Family financial socialization theory has provided important views about the uniqueness of the family as an arena for financial socialization (Gudmunson & Danes, 2011). Agnew et al. (2018) found that parental discussions about finances were more influential than discussions with friends in a study of 11- to 12-year-old children. Along the same lines, studies have found that individual experience and guidance from parents, rather than background or economic constraints, are the most important factors in obtaining the necessary economic socialization in welfare states such as Norway and the Netherlands (Webley & Nyhus, 2013). Close personal relationships and values such as trust and obligation are important factors in encouraging successful socialization, together with human agency and bidirectional relationships. Children not only passively receive input from family members but also actively interpret and respond to the stimuli they are exposed to (Gudmunson & Danes, 2011). Financial teaching at home can be either implicit (observations) or explicit (receiving deliberate instructions and direct participation/practice), and both have been found to improve financial attitudes, knowledge, and behavior in young adults. However, explicit learning seems particularly effective at shaping overt financial behavior (Jorgensen & Savla, 2010). Through extensive interviews of young adults, parents, and grandparents, LeBaron et al. (2018) identified three types of financial socialization methods (modeling, discussion, and experience) and four main socialization themes (financial planning, work ethics, money management, and sharing) employed to teach children about financial principles. The authors found that money management was the most common theme, and although discussion was the most common socialization strategy used, they concluded that experiential learning is also an important method. In comparison, studies of financial learning in school suggest that “hands-on” experience is particularly important to ensure a positive effect on lasting knowledge and skills (Batty et al., 2015).

Parental financial socialization has been found to have a substantial effect on children's financial knowledge (Grohmann et al., 2015; Shim et al., 2010), financial well-being (Shim et al., 2009; Utkarsh et al., 2020), and financial behavior later in life (Grinstein-Weiss et al., 2011; Webley & Nyhus, 2013). One study by Cho et al. (2012) examined the effect of financial socialization by parents on working-age adults' financial behavior. The authors found that parental influence was significantly associated with financial planning behavior in adulthood, such as having written goals regarding children's education or retirement. Financial prudence is found to reduce financial strain (Hibbert et al., 2004), and being taught how to budget and save improves financial literacy and financial behavior (Grohmann et al., 2015). Bucciol and Veronesi (2014) investigated which strategies were effective at teaching saving behavior. The authors found that parental teaching had a strong effect on saving attitudes and actual saved amounts. Giving advice in combination with giving an allowance and parental control over spending was found to be the most effective strategy. Receiving an allowance without it being contingent on chores had no significant effect on saving behavior. A study by Deenanath et al. (2019) indicates that only money earned outside the household has an impact on improved financial behavior, while pocket money given by parents negatively impacts subjective financial knowledge. Whether the pocket money was contingent on performing chores or not, in this particular study, was not reported. Other research findings further suggest that parents' one-sided financial help may have negative consequences for youths' self-efficacy and their transition into adulthood (Mortimer et al., 2016).

A few studies have also identified gender differences in financial parenting. Wilska and Lintonen (2016) investigated disposable income among Finnish teenagers in the period of 1983–2013. While the authors did not find a gender difference among 12-year-olds during the whole period, they found a persistent income gap among 14- and 16-year-olds in favor of the boys. The authors also found a gender income gap among 18-year-olds, but during the studied period, the gap narrowed. Another Finnish survey found that 10- to 12-year-old boys received a 20% higher weekly allowance than girls in the same age group, and among teenagers aged 15–19 years, boys earned 20% more from their occasional jobs (Lintonen et al., 2007). Danes and Haberman (2007) found that teenaged boys earned, spent and saved more than their female counterparts. Using data collected from high school students, the authors identified practices that support the notion that girls are trained to be financially dependent and to seek safety and security rather than risk. Brusdal and Berg (2010), on the other hand, did not find that Norwegian parents were gender biased with respect to financing their children's consumption. The exception was found for books, where parents seemed to spend more on books for girls.

Agnew and Cameron-Agnew (2015) found that females on average have their first financial discussion with their parents over 8 months later than boys. This supports the notion of a stereotypical societal expectation of men needing to be more financially literate than women, which may influence financial parenting at a relatively young age. Agnew and Cameron-Agnew also found that the age of a child when they have their first financial discussion with their parents predicts the child's financial literacy level at university but not their saving behavior. Agnew et al. (2018) found gender-based differences in the financial socialization of 11- and 12-year-old children. The authors found the saving behavior of these children to be influenced by attitudes toward money along with the presence of parents when spending, with a large same sex gender bias found for girls. Girls were found to be more than 200% more likely to say

that they save some of their pocket money when their mother is present than when no parent is present. A similar difference was not found for male children.

Finally, gender differences have been found in household decisions (Sonnenberg, 2018). For instance, while men typically have financial control (final financial decisions), women may be in charge of money management (routine payments of bills, etc.) when the overall income is low, but men often take responsibility for both money management and financial control when the overall income is higher (Sonnenberg, 2018). This pattern persists despite demographic changes in labor market participation and an increase in the level of income for women. Regardless of the reasons for these gender differences, or whether these behavioral differences are real or perceived, they may be taught to and/or observed by the younger members of families, thereby sustaining gender stereotypical expectations and norms. Jorgensen and Savla (2010) found that although men and women may gain financial *attitudes* from parents in similar ways, they seem to gain financial *knowledge* and develop financial *behavior* differently.

To date, the focus of the research on the gender gap in financial literacy has been placed on illiteracy and on the difference in basic financial knowledge. The gender difference among those who are highly knowledgeable has, with a few exceptions (e.g., Robson & Peetz, 2020), been given little attention. Research on financial self-efficacy as one element of financial literacy has also been limited, particularly in association with performance on practical daily life tasks, as opposed to performance on knowledge tests. Furthermore, research on how people achieve financial literacy needs more attention (Lusardi & Mitchell, 2014). In line with family financial socialization theories and the idea of capacity-based learning (Gudmunson & Danes, 2011), and based on Bandura's social cognitive theory, we expect to find gender differences in financial socialization in the home to be a possible cause of the gender gap in financial literacy and that financial self-efficacy in particular is an important contributor to the gender gap in financial literacy in groups with a high score on financial literacy. Thus, we emphasize the second human capital dimension of financial literacy (Huston, 2010). We use data from a representative sample of the Dutch population and investigate whether there are (1) significant gender differences in the recollection of economic socialization in childhood and adolescence and (2) whether these differences are important determinants of gender differences in self-reported financial knowledge and present economic behavior.

2 | METHOD

2.1 | Dataset

In this study, we aim to explore whether there are gender differences in parents' economic socialization practices, which in turn may explain observed gender differences in financial behavior and financial literacy in adulthood. For this purpose, we used data from the Dutch 2018 DNB household survey,¹ which is a rich dataset including both economic and psychological variables. We used data from two of six questionnaire sections: questions collecting general information on the household and questions intended to explore economic psychological concepts. The initial sample consisted of 2508 individual respondents (1300 males and 1203 females with 5 missing cases). We excluded respondents older than 79 years and younger than 20 years to obtain the most relevant data on current economic knowledge and

TABLE 1 Sample characteristics

Variable	Frequency (percent)		
	Female	Male	Total
Highest level of education completed			
Primary education	24 (2.1)	16 (1.3)	40 (1.7)
Prevocational/Preuniversity	369 (32.4)	363 (30.6)	732 (31.5)
Vocational college	613 (53.9)	651 (54.8)	1264 (54.4)
University education	123 (10.8)	149 (12.6)	272 (11.7)
Other/special education	8 (0.7)	8 (0.7)	16 (0.7)
None	1 (0.1)		1 (<0.1)
Primary occupation			
Employed on a contractual basis	548 (48.2)	623 (52.5)	1171 (50.4)
Self-employed/owns business	59 (5.2)	71 (6)	130 (5.6)
Looking for a job	23 (2)	29 (2.5)	52 (2.2)
Student	64 (5.6)	42 (3.5)	106 (4.6)
Work in own home	135 (11.9)	9 (0.8)	144 (6.2)
Retired	170 (14.9)	328 (27.6)	498 (21.4)
Disabled	91 (8)	51 (4.3)	142 (6.1)
Unpaid/volunteer/other	48 (4.2)	34 (2.8)	82 (3.5)
Total household net income			
Less than 14,000 euros	125 (11)	81 (6.8)	206 (8.9)
Between 14,000 and 21,999 euros	163 (14.3)	136 (11.5)	299 (12.9)
Between 22,000 and 39,999 euros	418 (36.7)	470 (39.6)	888 (38.2)
40,000 euros and above	264 (23.2)	383 (32.3)	647 (27.8)
Missing	168 (14.8)	117 (9.9)	285 (12.3)
Household composition			
Living alone	332 (29.2)	301 (25.4)	633 (27.2)
Living with partner, no children	439 (38.6)	548 (46.2)	987 (42.5)
Living with partner, with children	271 (23.8)	278 (23.4)	549 (23.6)
Without partner, with children	64 (5.6)	27 (2.3)	91 (3.9)
Other	32 (2.8)	33 (2.8)	65 (2.8)
Accommodation			
Owner occupied property	739 (64.9)	879 (74.1)	1618 (69.6)
Rented/subrented property	398 (34.9)	307 (25.9)	705 (30.3)
Free accommodation	1 (0.1)	1 (0.1)	2 (0.1)
N	1138 (49)	1187 (51)	2325 (100)

behavior as well as on the recollection of economic socialization in childhood and adolescence. After excluding missing cases, the total number of cases was 2325 (1187 males and 1138 females). The sample characteristics are described in Table 1.

2.2 | Measures

Economic socialization is measured by four indicator variables on the recollection of one's own practical involvement in economic issues at ages 8–16 (*ALLOWANCE*, *CHORES*, *SPEND*, *JOB*) and two indicator variables on economic advice and teaching by parents/grandparents at ages 12–16 (*BUDGET*, *SAVE*). These variables are summarized in Table 2. The questions and response categories used to create the indicators are listed in Appendix Section A1 alongside the frequency distributions of answers from men and women.

Variables related to self-reported financial knowledge and economic behavior in adulthood are described in Table 3. Self-reported financial knowledge is measured by the question: *KNOW*: “How knowledgeable do you consider yourself with respect to financial matters?” (1 = not knowledgeable; 4 = very knowledgeable). Financial behavior in adulthood is measured by two questions: (1) *RESERVE*: “Do you put money aside for particular purposes (holidays, clothes, rent, etc.) to reserve separate amounts for different purposes by, for example, depositing money into separate bank accounts

TABLE 2 Summary of variables on economic socialization

Description of variables and categories ^a	Male	Female
<i>ALLOWANCE</i> (When you were between 8 and 12 years of age, did you receive an allowance from your parents?)		
(0) No	313 (26.4%)	346 (30.4%)
(1) Yes	874 (73.6%)	792 (69.6%)
<i>CHORES</i> (When you were between 8 and 12 years of age, did you do household chores?)		
(0) No/Rarely	743 (62.6%)	800 (70.3%)
(1) Yes	444 (37.4%)	338 (29.7%)
<i>SPEND</i> (When you were between 8 and 12 years of age, could you spend your money as you pleased?)		
(0) No/Rarely	474 (39.9%)	508 (44.6%)
(1) Yes	713 (60.1%)	630 (55.4%)
<i>JOB</i> (Did you have a job on the side [like a newspaper round, a job on Saturday et cetera] when you were between 12 and 16 years of age?)		
(0) None/One job	550 (46.3%)	621 (54.6%)
(1) More than one job	637 (53.7%)	517 (45.4%)
<i>BUDGET</i> (Did your [grand]parents try to teach you how to budget when you were between 12 and 16 years of age?)		
(0) No/Rarely	579 (48.8%)	483 (42.4%)
(1) Yes	608 (51.2%)	655 (57.6%)
<i>SAVE</i> (Did your [grand]parents stimulate you to save money between the age of 12 and 16 years of age?)		
(0) No/Rarely	495 (41.7%)	415 (36.5%)
(1) Yes	692 (58.3%)	723 (63.5%)
<i>N</i>	1187	1138

^aAppendix A1 provides a description of how these indicators were created from DHS Survey questions and response categories.

TABLE 3 Summary of variables on financial self-efficacy and financial behavior in adulthood

Description of variables and categories	Male	Female
<i>KNOW</i> (How knowledgeable do you consider yourself with respect to financial matters?)		
(1) Not knowledgeable	131 (11.0%)	185 (16.3%)
(2) Somewhat knowledgeable	580 (48.9%)	667 (58.6%)
(3) Knowledgeable	398 (33.5%)	252 (22.1%)
(4) Very knowledgeable	78 (6.6%)	34 (3.0%)
<i>RESERVE</i> (Do you put money aside for specific reasons [e.g., holidays, purchase of clothing, rental payments, etc.] in order to reserve separate amounts for these purposes?)		
(1) No	690 (58.1%)	624 (54.8%)
(2) Yes, in separate bank accounts	400 (33.7%)	393 (34.5%)
(3) Yes, in separate envelopes or jars/boxes, or in other places inside your own house	37 (3.1%)	45 (4.0%)
(4) Yes, in some other way	60 (5.1%)	76 (6.7%)
<i>TRACK</i> (How well do you keep track of your (household) expenditures?)		
(1) I do not keep track of my expenditures	81 (6.8%)	69 (6.1%)
(2) I poorly keep track of my expenditures	98 (8.3%)	97 (8.5%)
(3) I somewhat keep track of my expenditures	385 (32.4%)	367 (32.2%)
(4) I keep good track of my expenditures	428 (36.1%)	417 (36.6%)
(5) I keep very good track of my expenditures	195 (16.4%)	188 (16.5%)
<i>N</i>	1187	1138

or putting money in separate envelopes or jars?” (1 = no; 2–4 = yes) and (2) *TRACK*: “How well do you keep track of your (household) expenditures?” (1 = I do not or poorly keep track; 2–5 = I keep track). Table 3 also includes the frequency distributions of the answers from men and women.

2.3 | Descriptive statistics

Upon exploring the demographic information (Table 1), we find that vocational college is the most common level of education among the respondents in our study. More women than men have primary education as their highest level of education, and more men than women have completed vocational college or university. However, we generally observe very small gender differences in education level. The most common type of primary occupation among the respondents is being employed. The largest gender difference in primary occupation is found for “work in own home,” where 11.9% of women and 0.8% of men report belonging to this group. Many respondents are also retired. The larger number of men compared to women in this group is conceivably related to the fact that women who have been homemakers do not retire but continue to report their status as homemakers. Concerning total household net income, we find that the largest group of people belongs to the 22,000–40,000 euro bracket. A larger percentage of women belong to the lower household income groups, and a larger percentage of men belong to the

higher household income groups. A considerably larger percentage of women live alone with their children than men, and more women than men live in rented houses or apartments.

2.4 | Predictors of self-assessed financial knowledge and economic behavior

We specify ordinal logit models to investigate possible gender differences in the effects of economic socialization in childhood on financial knowledge and behaviors in adulthood. In the ordinal logit model, the outcome \mathbf{y} is viewed as the discrete realizations of an unobservable (latent) continuous random variable \mathbf{y}^* . The categories are envisaged as contiguous intervals on the continuous scale. \mathbf{y}^* would satisfy a linear regression model, that is, $\mathbf{y}^* = \mathbf{x}'\boldsymbol{\beta} + \mathbf{u}$, where \mathbf{x} is a vector of independent variables, $\boldsymbol{\beta}$ is a vector of regression coefficients and \mathbf{u} is the error term. \mathbf{y} is assumed to arise from \mathbf{y}^* as follows: $\mathbf{y}_i = j$ if $\alpha_{j-1} \leq \mathbf{y}^* \leq \alpha_j$ for $j = 1, \dots, J$ ordered categories and $i = 1, \dots, N$ individuals. The α s denote unknown cut-points to be estimated, with $\alpha_0 = -\infty$ and $\alpha_J = \infty$.² In this study, the financial knowledge and behavior variables *KNOW* (“How knowledgeable do you consider yourself with respect to financial matters?”) and *TRACK* (“How well do you keep track of your (household) expenditures?”) have $J = 4$ and $J = 5$ ordered categories, respectively. The categories are described in Table 3. We separately include indicators of each of the six economic socialization variables on the right-hand side, that is, *ALLOWANCE*, *CHORES*, *SPEND*, *JOB*, *BUDGET*, and *SAVE* (see Table 2). For each regression, we control for all individual characteristics in Table 1 representing household income, education, occupation, household composition, and type of accommodation. Since our interest lies in establishing whether there are gender differences in the estimated coefficients, one approach is to specify a fully interacted model where one interacts the economic socialization variable with an indicator *FEMALE* that takes a value of one if an individual in the sample is female and zero if an individual is male. The coefficient on the interaction term represents the difference in the estimated coefficients of males and females. However, in an ordinal logit model that includes ancillary parameters, namely, the cut-points, such an approach requires that one considers that a series of separate ordinal logit regressions for the male and female subsamples will estimate the ancillary parameters separately, whereas in stacked models, they are estimated jointly and thereby constrained to be equal. Therefore, a correct use of this approach is not straightforward compared to, for example, linear regression. An equivalent approach and the one that we implement here, is to combine the parameter estimates from the separate subsample regressions and their associated covariance matrices into one parameter vector and simultaneous robust covariance matrix. Most modern statistical software packages have this capability, for example, as implemented by the *suest* command in Stata.³ This allows us to test cross-model hypotheses by means of Wald tests or through linear combinations of coefficients. For our purposes, the null hypotheses are that the differences between coefficients of males and females are equal to zero against the alternative hypotheses of inequality, or

$$H_0 : \hat{\beta}_{k \text{ FEMALE}} - \hat{\beta}_{k \text{ MALE}} = 0$$

$$H_1 : \hat{\beta}_{k \text{ FEMALE}} - \hat{\beta}_{k \text{ MALE}} \neq 0$$

for $k = 1, \dots, 6$ socialization indicators. For the outcome *RESERVE* in Table 3, which does not have an ordinal measurement scale, we collapse all affirmative categories into a single category

to generate a binary indicator *PUT* equal to one if an individual puts money aside and zero if the individual does not. We then define the probability model $p_i = \text{Prob}(PUT = 1)$ for $i = 1, \dots, N$ individuals. Estimation is done by logistic regression, where we have the same set of right-hand side variables as before and the procedure used to test for cross-model hypotheses is analogous.

Table 4 presents the results of the regressions. We observe significant gender differences with respect to each of the socialization indicators *ALLOWANCE*, *CHORES*, *JOB*, *BUDGET*, and *SAVE* and the outcome *KNOW* (how knowledgeable respondents consider themselves with respect to financial matters). For each significant difference, the value of the coefficient of male respondents is larger than the corresponding female coefficient. For female respondents, there are no significant differences in self-assessed financial knowledge between those who indicate moderate to high levels of economic socialization and those who indicate low levels or no economic socialization. For male respondents, on the other hand, there are significant differences in self-assessed financial knowledge corresponding to four socialization variables: receiving an allowance, having more than one part-time job, being taught how to budget, and being encouraged to save when young. The results show that for respondents who received an allowance from parents between 8 and 12 years of age, the predicted probability of the lowest level of self-assessed financial knowledge (1 = not knowledgeable) is 0.111 whereas the probabilities for 2 = somewhat knowledgeable, 3 = knowledgeable and 4 = very knowledgeable correspond to 0.488, 0.335, and 0.066, respectively.⁴ For the other significant socialization indicators, the predicted probabilities of each of the outcome categories are similarly valued, with the two intermediate categories (2 = somewhat knowledgeable and 3 = knowledgeable) having the highest predicted probabilities. There are fewer differences between the levels of economic socialization and how well men and women keep track of expenses as adults, where *BUDGET* is the only significant indicator in the female subsample whereas *CHORES*, *JOB*, and *BUDGET* are significant in the male subsample. For male respondents, there are significant differences between those who had more than one job on the side between the ages 12–16 and those who did not in terms of keeping track of household expenditures. Here, the predicted probabilities for the three highest categories 3 = some tracking, 4 = good tracking, and 5 = very good tracking are valued at 0.325, 0.361 and 0.164 respectively, higher relative to 0.067 and 0.082 for the two lowest categories (1 = no tracking and 2 = poor tracking, respectively). *JOB* is the only socialization variable that is associated with gender differences in the outcome variable *TRACK*. There are no significant gender differences in terms of putting money aside in adulthood (*PUT*).

To quantify how much of the gap in the outcomes for males and females can be explained by differences in the socialization variables in Table 2 and individual characteristics in Table 1, we employ Fairlie's decomposition for a nonlinear equation (Fairlie, 1999).⁵ By denoting the outcome as Y , the row vector of right-hand side variables (including constant) as X and the column vector of coefficients from the regression as $\hat{\beta}$, the decomposition of the male/female gap for a nonlinear equation $Y = \Phi(X\hat{\beta})$ can be expressed as:

$$\bar{Y}^F - \bar{Y}^M = \left[\sum_{i=1}^{N^F} \frac{\Phi(X_i^F \hat{\beta}^F)}{N^F} - \sum_{i=1}^{N^M} \frac{\Phi(X_i^M \hat{\beta}^F)}{N^M} \right] + \left[\sum_{i=1}^{N^M} \frac{\Phi(X_i^M \hat{\beta}^F)}{N^M} - \sum_{i=1}^{N^M} \frac{\Phi(X_i^M \hat{\beta}^M)}{N^M} \right],$$

where the superscripts F and M represent female and male gender, respectively, N is the sample size, \bar{Y}^g is the average probability of the binary outcome of interest for gender $g \in \{F, M\}$ and $\Phi(\cdot)$ is the cumulative distribution function. In the expression on the right-hand side of the

TABLE 4 Ordinal logit and logistic regression results with tests of differences between coefficients from male and female subsamples

	KNOW			TRACK			PUT		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Female	Male	Difference	Female	Male	Difference	Female	Male	Difference
ALLOWANCE	-0.0175 (-0.13)	0.3847*** (2.87)	-0.4022** (-2.09)	-0.0894 (-0.71)	0.0003 (0.00)	-0.0897 (-0.51)	0.3024** (2.15)	0.2189 (1.50)	0.0835 (0.42)
CHORES	-0.2043 (-1.57)	0.1144 (0.99)	-0.3187* (-1.81)	-0.0543 (-0.45)	0.1844* (1.67)	-0.2387 (-1.49)	0.3439** (2.57)	0.1993 (1.59)	0.1446 (0.80)
SPEND	0.1037 (0.86)	0.0688 (0.60)	0.0349 (0.21)	-0.1086 (-0.96)	-0.0823 (-0.74)	-0.0263 (-0.17)	0.1165 (0.93)	0.0159 (0.13)	0.1006 (0.58)
JOB	0.0447 (0.37)	0.3922*** (3.43)	-0.3475** (-2.05)	-0.1287 (-1.15)	0.2919*** (2.67)	-0.4205*** (-2.76)	0.1587 (1.27)	0.3818*** (3.07)	-0.2231 (-1.30)
BUDGET	0.1571 (1.27)	0.4796*** (4.20)	-0.3225* (-1.92)	0.2666** (2.31)	0.2684** (2.47)	-0.0019 (-0.01)	0.0002 (0.00)	0.0305 (0.25)	-0.0303 (-0.17)
SAVE	0.0026 (0.02)	0.3925*** (3.38)	-0.3899** (-2.28)	0.0081 (0.07)	0.1587 (1.43)	-0.1505 (-0.94)	0.1157 (0.89)	-0.1310 (-1.04)	0.2467 (1.37)
N	1138	1187		1138	1187		1138	1187	

Note: Z-statistics are in parentheses. Standard errors are clustered at the household level in all regressions, as separate respondents residing in the same household took part in the survey. Coefficients in Columns 1, 2, 4 and 6 are from a series of ordinal logit regressions, whereas coefficients in Columns 3 and 5 are from a series of logistic regressions. All regressions include the individual characteristics in Table 1 representing household income, education, occupation, household composition and type of accommodation as controls. The differences between coefficient estimates from the male and female subsamples alongside their corresponding Z-statistics and significance levels are in Columns 4, 7 and 9. ***, **, * and * denote significance at the 1%, 5%, and 10% levels, respectively.

TABLE 5 Nonlinear decompositions of gender gaps

	(1)	(2)	(3)
	<i>KNOWD</i>	<i>TRACKD</i>	<i>PUT</i>
Overall			
<i>Proportion (Female)</i>	0.401*** (28.13)	0.525*** (36.21)	0.418*** (29.18)
<i>Proportion (Male)</i>	0.251*** (19.48)	0.531*** (35.88)	0.452*** (30.58)
<i>Difference</i>	0.150*** (7.79)	−0.00551 (−0.27)	−0.0334 (−1.62)
<i>Explained</i>	0.0328*** (4.49)	0.00296 (0.36)	0.0102 (1.29)
Explained			
<i>ALLOWANCE</i>	0.00104 (1.01)	−0.00139 (−1.16)	0.00204 (1.43)
<i>CHORES</i>	−0.000483 (−0.34)	0.000799 (0.47)	0.00344* (1.79)
<i>SPEND</i>	0.000581 (0.60)	−0.00156 (−1.25)	−0.000576 (−0.50)
<i>JOB</i>	0.00422** (2.29)	0.000105 (0.06)	0.00433** (2.12)
<i>BUDGET</i>	−0.00210 (−1.45)	−0.00509** (−2.31)	0.000652 (0.41)
<i>SAVE</i>	−0.000231 (−0.21)	0.000528 (0.41)	0.000215 (0.16)
<i>Individual Characteristics</i>	0.0298*** (4.60)	0.00958 (1.19)	0.0000646 (0.01)
<i>N</i>	2322	2322	2322

Note: Z-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

equal sign, the first term in brackets represents the part of the gender gap that is due to group differences in the distributions of X , whereas the second term represents the part due to differences in the group processes determining levels of Y . The second term also captures the portion of the gender gap due to group differences in unmeasurable or unobserved endowments. To calculate the decomposition, we suppose that $\Phi(\cdot)$ is the cumulative distribution function from the logistic distribution. The decomposition equation will hold exactly for the logit model that includes a constant term because the average value of the outcome must equal the average value of the predicted probabilities in the sample (Fairlie, 2005). For each outcome, we specify a pooled logistic model that includes the six socialization variables (Table 2) and the individual characteristics (Table 1). Details on how the outcomes *KNOW* and *TRACK* are dichotomized are presented in Appendix A2. As all the individual characteristics are categorical in nature, the

specific decomposition results will depend on the selection of (omitted) base categories. We follow the approach proposed by Yun (2005) to compute the decomposition based on “normalized” effects, that is, effects expressed as deviation contrasts from the grand mean. This guarantees that the results are invariant to the selection of the reference categories (see Jann, 2008 for a detailed discussion). Table 5 summarizes the results of the decompositions.⁶

For decompositions of binary dependent variable models, the gaps represent differences in the proportions of the respective groups. The results show that the gender gaps corresponding to the *KNOW*, *TRACK* and *PUT* outcomes are valued at 0.15, -0.006 and -0.033 , respectively. Only the first difference is significant. Differences in the socialization variables and individual characteristics in the sample explain 22% of the gender gap corresponding to the outcome *KNOW*, and this is also significant.⁷ Regarding the breakdown of the socialization variables, only differences in the variable *JOB* are prominent in explaining the disparity. Specifically, if we equalized proportions of the variable *JOB* between men and women in the sample, we would expect the gender gap to decline by 0.442 percentage points. For the outcomes *TRACK* and *PUT*, while the gender gaps are not themselves significant, we observe that the socialization variables *BUDGET*, and *JOB* and *CHORES*, respectively, are prominent predictors of the explained component. The individual characteristics listed in Table 1 are significant in explaining the disparity only as it relates to the *KNOW* outcome.

3 | DISCUSSION AND CONCLUSION

The current study supports the notion that economic socialization in the family during childhood and adolescence is important for financial literacy and economic behavior in adulthood, in line with previous research (Deenanath et al., 2019; Grohmann et al., 2015; Shim et al., 2010; Webley & Nyhus, 2013). Furthermore, in line with Jorgensen and Savla (2010), we find support for relatively large gender differences in how financial knowledge and skills are obtained. In addition to observing differences in the economic socialization practices men and women report they were exposed to between the ages of 8 and 16, we identify gender differences in how they benefit from the same socialization practices. In sum, this study finds that gender differences in economic socialization partly explain observed gender differences in financial literacy and behavior in adulthood.

The gender difference found in the recollection of economic socialization is particularly related to practical tasks; seemingly, boys have been more socialized in terms of work, and more men than women report they had to do household chores and had one or more part-time jobs as youths. This indicates that boys may obtain more hands-on experience with earning and handling money, which is a type of learning. Batty et al. (2015) found efficient, long-lasting positive effects of financial education. It is also interesting to note that there are significant gender differences in the recollection of receiving an allowance and spending money without parental control. The fact that a significantly higher percentage of women than men reported that their parents decided on how they spent all or most of their money indicates that girls are more often controlled by their parents in terms of finances and spending (Danes & Haberman, 2007), which may in turn have a negative impact on their confidence in their own abilities.

The present study further sought to reveal whether the reported recollection of economic socialization practices predicts self-assessment of financial knowledge in adulthood. We found a significant gender gap. For men, recalling having a job, receiving an allowance, being taught how to budget, and being encouraged to save have a positive effect on their self-assessed

financial knowledge as adults. For women, none of the socialization practices were significant predictor of how knowledgeable they consider themselves. A plausible explanation for the lack of an effect of having a job for women could be related to effects of nonfamilial forces on socialization. If jobs have been available for both genders, there might be differences in the types of jobs typically offered to adolescent girls and boys where typical female jobs have not contributed to an increase in self-assessed financial knowledge to the same degree as typical male jobs have. As discussed in the introduction, to determine levels of financial self-efficacy, a more elaborate measure is needed. The gender differences observed in the outcome variables *KNOW* and *TRACK* do, however, suggest that socialization practices have a stronger effect on confidence in one's own financial knowledge and behavior for men than for women.

Additionally, concerning the two financial behavior variables, we find that the socialization practices had different impacts for men and women with respect to the tendency to keep track of expenses. While we find a positive association between having been taught budgeting in adolescence and keeping track of finances in adulthood for both genders, we find a positive effect of having had one or more part-time jobs and keeping track of expenses only for the male respondents. Receiving an allowance, having to do chores, and not being able to spend money as one pleased are found to be unrelated to the tendency to keep track of expenses in adulthood.

Regarding the tendency to put money aside for specific purposes, we find similar results for men and women. Having had part-time jobs, having done household chores, and having received an allowance during childhood/adolescents are positively related to reserving money for specific purposes in adulthood. Surprisingly, being taught how to budget when young and being encouraged to save are unrelated to the tendency to reserve money for specific purposes in adulthood.

The findings indicate that practical learning, as opposed to encouragement or advice, is a beneficial learning method. The current findings confirm earlier research suggesting the advantages of explicit, active, and experiential learning for a greater effect in shaping lasting financial knowledge and behavior (Batty et al., 2015; Gudmunson & Danes, 2011; Jorgensen & Savla, 2010; LeBaron et al., 2018). From the current study, we supplement current knowledge with data indicating a greater effect of experiential learning on self-assessed financial knowledge, especially for men. In fact, the current study shows that practical financial experience is more important for self-assessed knowledge than for achieving specific practical skills. For instance, recollection of being encouraged to save is found to be an important factor for self-assessed financial knowledge among men but not for keeping track of expenses or for putting money aside.

Previous studies show that earning money when young, especially outside the household, improves subsequent financial behavior (Deenanath et al., 2019). We find this relationship for behavior indicators keeping track of expenses and reserving money for specific purposes. In addition, we find that work experience in childhood/adolescence is favorable in terms of increasing self-assessed financial knowledge in adulthood, although this association was only found among males. Early experiences with paid work and being taught how to budget were the most prominent in explaining the gender gap in self-assessed financial knowledge. Dutch labor market data underline persisting gender inequalities. In 2017, women still entered the labor market later than men, and women worked part-time to a greater extent than men (Graven & Krishnan, 2018). Boys' early work experience, in combination with their subsequent greater labor market participation, may partly explain why Dutch men are found to be significantly more financially knowledgeable than Dutch women (OECD/INFE, 2016). As opposed to

receiving one-sided financial help such as an allowance (Mortimer et al., 2016), paid work appears to have a positive effect on mastery experience, which amplifies into adulthood. The work experience obtained in adolescent years appears to be an excellent means to reinforce the particular tasks at hand and perceived financial self-efficacy, adherent to the argument that noncognitive skills are necessary for financial autonomy (Otto & Serido, 2018). Such experience helps children and adolescents learn to trust that their skills and knowledge are sufficient for what they are about to perform. The absence of an effect among women underlines the suggested gender differences in how individuals obtain and benefit from these experiences (Jorgensen & Savla, 2010) and perhaps that financial self-efficacy itself needs to be taught. The different benefits of the same socialization practices identified here between men and women should be investigated in future research.

The results further indicate important gender differences yet to be discovered. Despite controlling for certain socialization practices that have been different for boys and girls, gender is still a significant predictor of self-assessed financial knowledge. Hence, there may be other important gender-related factors that are more important for the development of financial self-efficacy and economic behavior than those included in the present study.

The main weakness of this study lies in its use of the *KNOW* outcome variable as an indicator for financial self-efficacy. Although self-reported noncognitive skills have previously been shown to account for parts of the gender gap in financial literacy (Arellano et al., 2018), it is not clear whether there is a difference between perceived and actual financial knowledge (Lührmann et al., 2015) or whether self-assessed financial knowledge corresponds to financial self-efficacy. Second, we acknowledge that there may be inaccuracies in how the respondents *recalled* their parents' socialization practices. Recollection deficits may increase with age (Prull et al., 2006), and recollection may vary in accuracy depending on the type of socialization practice concerned. For instance, recollection of occasional advice and teaching could be less accurate than that of more practical socialization practices such as work and receiving money, which typically occur on a regular basis. This possible systematic variation in recollection should be taken into account when evaluating the results, although we do not expect there to be a gender bias in any recollection deficits that would explain the identified gender differences in reported socialization practices and their relationship with behavior in adulthood.

The most striking finding of this study is the clear gender difference in which socialization factors are effective, in addition to the impact of economic socialization practices on self-assessed financial knowledge compared to actual economic behavior. In line with other recent studies (Robson & Peetz, 2020), we found few gender differences in the more practical outcomes, such as putting money aside for particular purposes or keeping track of expenses. It is conceivable that financial self-efficacy is intertwined with all stages of economic socialization throughout childhood and adolescence and that financial self-efficacy starts to develop at an early age. We conclude that economic socialization matters for financial literacy by increasing financial self-efficacy and propose increased attention to the influence of explicit learning. In addition, the study supports the idea that *socializing* financial self-efficacy is as important as socializing financial knowledge, skills and behavior (Loke et al., 2015).

Further research on the origins of financial self-efficacy and its role in financial literacy is needed, where gender differences receive specific attention. Particularly, a question arises concerning the association between self-assessed financial knowledge and self-efficacy in *recollection*: Does financial self-efficacy also influence the recollection of financial socialization, as does it influence consequent views on one's own financial abilities? Regardless, self-efficacy appears to play an important role in the observed gender differences in financial literacy, and given the

substantial influence self-efficacy may have on, for instance, individual student performance (Arellano et al., 2018) or the advantage of increased financial knowledge on a societal level, further investigations of financial self-efficacy are warranted.

The results indicate that financial socialization outside school will continue to be important for the development of both financial literacy and financial self-efficacy. Receiving an allowance or having paid work outside the home gives children and adolescents experience that may foster their interest in learning about personal finance and give them self-confidence in their financial decisions. Informing parents about the importance of financial socialization at home and educating parents about efficient ways to teach their children about financial matters are possible strategies for improving parental financial socialization. The risk involved in investing in parental education to change socialization is that one might not reach parents most in need, possibly perpetuating socioeconomic differences in financial literacy that already exist. Targeting our educational system presents an advantage in reaching *all* adolescents, who in turn will be our next-generation parents. Financial education in school should aim to compensate for the differences created by the different socialization practices of parents, which may be challenging. A school is not able to give students money, but financial education should involve some practical experience or other teaching methods that will both spark interest in finance and strengthen financial self-efficacy. The results also provide support for arguments that financial education initiatives are likely to be more successful if they consider gender differences in the design and delivery of interventions, as suggested by Lusardi (2018) cited by Robson and Peetz (2020). Girls and boys react differently to the same socialization practices, and this should be taken into account when designing financial education curricula for young students. This is particularly important for financial education to succeed at reducing the gender gap in financial literacy.

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ENDNOTES

¹ A description of the panel and questionnaire is available at CenterData's website: <https://www.centerdata.nl/en/projects-by-centerdata/dnb-household-survey-dhs>.

² The cut-points are category boundaries in the distribution of y^* .

³ Refer to Page 15 of the Stata manual entry of *suest* for a discussion of the equivalence of this method and an interaction model and why this method should be preferred in the case of models with ancillary parameters, e.g., ordinal logit (see www.stata.com/manuals/rsuest.pdf; accessed 2nd March 2022).

⁴ If we define the linear prediction $S_i = x_{1i}\beta_1 + x_{2i}\beta_2 + \dots + x_{ki}\beta_k$, the ordinal logit predictions are the probability that $S_i + u_i$ lies between a pair of cut points, α_{j-1} and α_j . We have that $\Pr(S_i + u_i < \alpha) = \frac{1}{1+e^{S_i-\alpha}}$ and $\Pr(S_i + u_i > \alpha) = 1 - \frac{1}{1+e^{S_i-\alpha}}$ and $\Pr(\alpha_1 < S_i + u_i < \alpha_2) = \frac{1}{1+e^{S_i-\alpha_2}} - \frac{1}{1+e^{S_i-\alpha_1}}$.

⁵ This technique applies to logit and probit models. Methods for decomposition of ordinal models that allow for determination of the percentage contribution of individual variables (separately) are not well-developed

compared to methods for continuous and binary outcomes. Therefore, we opt to dichotomize the ordered outcomes for purposes of the decompositions.

⁶ We only show coefficients corresponding to the explained component to focus on the extent to which the socialization variables explain gender gaps in outcomes.

⁷ This is computed by dividing the *Explained* coefficient by the *Difference* coefficient, i.e., $0.0328/0.15 = 22\%$.

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APPENDIX A

A.1 | Construction of economic socialization indicators from DHS survey questions

The economic socialization indicators in Table 2 were constructed from DHS survey questions about the recollection of the respondent's own practical involvement in economic issues at ages 8–16 and about economic advice and teaching by parents/grandparents at ages 12–16. The questions and response categories alongside the frequency distributions of answers from men and women are presented in Table A1. The indicator *ALLOWANCE* was constructed by merging responses (1)–(3) of Q1 into a “yes” category as these responses indicate that the respondent received an allowance from parents between 8 and 12 years of age. The indicator *CHORES* was constructed by merging responses (1)–(2) of Q2 into a “yes” category and (3)–(5) into a “no/ rarely” category as the former responses indicate that the respondent did household chores between 8 and 12 years of age whereas the latter, for the most part, indicate that the respondent did not. The indicator *SPEND* was constructed by merging responses (3)–(5) of Q3 into a “yes” category and (1)–(2) into a “no/ rarely” category as the former indicate moderate to large degree of autonomy on how the respondent could spend their money between 8 and 12 years of age. The indicator *JOB* was constructed by merging responses (1)–(2) of Q4 into a “more than one job” category as these responses indicate that the respondent had more than one job on the side between 12 and 16 years of age. The indicator *BUDGET* was constructed by merging responses (1)–(2) of Q5 into a “yes” category as these responses indicate that the respondent was provided some or significant advice and practical guidance on budgeting by parents/grandparents between 12 and 16 years of age. The indicator *SAVE* was constructed by merging responses (1)–(2) of Q6 into a “yes” category as these responses indicate that the respondent was encouraged to save to a moderate to large degree by parents/grandparents between 12 and 16 years of age.

TABLE A1 Questions on economic socialization

Questions and response categories	Male	Female
Q1: When you were between 8 and 12 years of age, did you receive an allowance from your parents?		
(1) Yes	644 (54.3%)	580 (51.0%)
(2) Yes, but a few times I did not	78 (6.6%)	78 (6.9%)
(3) Sometimes	152 (12.8%)	134 (11.8%)
(4) No	313 (26.4%)	346 (30.4%)

(Continues)

TABLE A1 (Continued)

Questions and response categories	Male	Female
Q2: When you were between 8 and 12 years of age, did you do household chores?		
(1) Often	136 (11.5%)	96 (8.4%)
(2) Sometimes	308 (25.9%)	242 (21.3%)
(3) On few occasions	200 (16.8%)	191 (16.8%)
(4) Hardly ever	205 (17.3%)	197 (17.3%)
(5) Never	338 (28.5%)	412 (36.2%)
Q3: When you were between 8 and 12 years of age, could you spend your money as you pleased?		
(1) My parents decided how I spent all my money	241 (20.3%)	286 (25.1%)
(2) My parents decided on how I spent most of my money	233 (19.6%)	222 (29.5%)
(3) I decided on how to spend part of my money, but my parents decided on the rest	239 (20.1%)	251 (22.1%)
(4) For the most part, I could decide on how I spent my money	308 (25.9%)	232 (20.4%)
(5) I could completely decide on how I spent my money	166 (14.0%)	147 (12.9%)
Q4: Did you have a job on the side (like a newspaper round, a job on Saturday et cetera) when you were between 12 and 16 years of age?		
(1) I had many jobs on the side at that time	202 (17.0%)	155 (13.6%)
(2) I had a few jobs on the side at that time	435 (36.6%)	362 (31.8%)
(3) I had one job on the side at that time	255 (21.5%)	283 (24.9%)
(4) I did not have a job on the side at that time	295 (24.9%)	338 (29.7%)
Q5: Did your (grand)parents try to teach you how to budget when you were between 12 and 16 years of age?		
(1) Yes, they gave me advice and practical help	256 (21.6%)	316 (27.8%)
(2) Yes, they gave me some advice and practical help	352 (29.7%)	339 (29.8%)
(3) Yes, but very little	308 (25.9%)	258 (22.7%)
(4) No	271 (22.8%)	225 (19.8%)
Q6: Did your (grand)parents stimulate you to save money between the age of 12 and 16 years of age?		
(1) Yes, they emphasized the necessity of saving	279 (23.5%)	337 (29.6%)
(2) Yes, they told me how important saving is	413 (34.8%)	386 (33.9%)
(3) Yes, but very little	288 (24.3%)	224 (19.7%)
(4) No, not at all	207 (17.4%)	191 (16.8%)
<i>N</i>	1187	1138

A.2 | A2: Dichotomizing ordinal variables on financial self-efficacy and financial behavior in adulthood

As noted in footnote #5, methods for decomposition of ordinal models that allow for determination of the percentage contribution of individual variables are not well-developed relative to methods for continuous and binary outcomes. Therefore, we opt to dichotomize the outcomes

TABLE A2 Summary of indicators on financial self-efficacy and financial behavior in adulthood

Description of indicators and categories	Male	Female
<i>KNOWD</i> (How knowledgeable do you consider yourself with respect to financial matters?)		
(0) Not knowledgeable	711 (59.9%)	852 (74.9%)
(1) Very knowledgeable	476 (40.1%)	286 (25.1%)
<i>TRACKD</i> (How well do you keep track of your (household) expenditures?)		
(0) Not well	564 (47.5%)	533 (46.8%)
(1) Very well	623 (52.5%)	605 (53.2%)
<i>N</i>	1187	1138

KNOW and *TRACK* in Table 3 for purposes of the decompositions. The indicator *KNOWD* (*KNOW Dummy*) was constructed by merging responses (3)–(4) into one category as these responses indicate that the respondent considered themselves to have a high level of knowledge with respect to financial matters. The indicator *TRACKD* (*TRACK Dummy*) was constructed by merging responses (4)–(5) into one category as these responses indicate that the respondent considered themselves to keep good track of their expenditures. The indicators alongside the frequency distributions of answers from men and women are presented in Table A2.