Revista de Contabilidade e Organizações

www.rco.usp.br

DOI: http://dx.doi.org/10.11606/issn.1982-6486.rco.2018.142534

Journal of Accounting and Organizations

www.rco.usp.br

The effect of family on the financial behaviors of adolescents in public schools

O efeito da família no comportamento financeiro de adolescentes em escolas públicas

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Keywords

Family in financial education.

Financial behavior.

Public education.

Abstract

The study analyzes the effect of family interaction on the financial behavior of adolescents in public schools. Financial education and its consequences on future adult behavior originate in childhood and adolescence. A questionnaire was applied to about 1,900 high school students from 14 public schools in the South of Brazil. The results indicate that the typical behavior of having no control of spending and the low propensity to saving are related to a weak discussion of this issue by the family. In general, the family disseminates initial financial knowledge or does so through daily experiences.

Palavras-chave

Família na educação financeira.

Comportamento financeiro.

Ensino público.

Resumo

O estudo analisa o efeito da interação da família no comportamento financeiro de adolescentes em escolas da rede pública de ensino. A educação financeira e suas consequências no comportamento futuro de adultos têm origem na infância e adolescência. Foi aplicado questionário em cerca de 1.900 alunos do ensino médio de 14 escolas públicas na região Sul do país. Os resultados indicam que o comportamento típico de falta de controle dos gastos e a baixa propensão à poupança estão relacionados com uma menor discussão do tema em família. De modo geral, a família exerce importante papel em disseminar o conhecimento financeiro inicial, ou este se dá em situações cotidianas.

Article Information

Received: January 22, 2018

Accepted: December 17, 2018

Published: December 24, 2018

Practical implications

Educators and public administrators responsible for public education policies may take interest on the results, which show low levels of financial education for adolescents in public school in Blumenau and its surrounding areas. For these adolescents, the family is the prevailing source of education for consumption and saving. However, even the families, mostly lower income ones, must be sensitized regarding these matters.

1 INTRODUCTION

In Brazil, financial education has not been a part of the school environment, or even the family one (Pires et al., 2013). At the same time, there was both a significant increase in the participation of adolescents in the media, and financial indebtedness (Fernandes & Candido, 2014). The easy access to credit, due to government incentive with reduced interest, the increase in the families' consumption, besides the eventual indebtedness of families are related to the level of financial education of parents and adolescents. This theme is gaining the spotlight internationally, and it is connected to the general formation of society.

Acknowledgements

We thank the support of the National Council of Scientific and Technological Development (CNPq) and of the Fritz Miller Foundation.

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The promotion of financial education starts in childhood, by going with parents to supermarkets and observing the exchange of money for goods, purchases, and services (Bowen, 2002; Denegri, Palavecinos, Ripoll & Yáñes, 1999; Shim, Barber, Card, Xiao & Serido, 2010; Bessa, Fermiano & Coria, 2014). Despite the financial education lasting throughout the whole life, the first lessons of cognitive development are kept in adult behaviors (Bowen, 2002). Adolescence is also a critical training moment for the management of financial resources. Adolescents do not appreciate saving (Alhabeeb, 1996), and, in this phase called "premature richness", superfluous spending induces a limited financial planning (O'Neill, 1992).

Among determining factors for the financial education throughout the formation of children, young people, and adolescents, there are socio-economic and demographic conditions of the young ones (Mandell & Klein, 2007), the role of schools (Savoia, Saito & Santana, 2007); Cole, Paulson & Shastry, 2015), but also the family's financial conditions (Lusardi, Mitchell & Curto, 2010; Clarke, Heaton, Israelsen & Eggett, 2005). Such determining factors could help in creating a saving culture and for the sensitization regarding the financial system. Specifically for the case of the family, financial values of adolescents and their parents are very similar (Pritchard and Myers, 1992). And these conditions affect, for example, the basic knowledge on interest rates, inflation, and risk diversity, as well as on the proper use of money (Lusardi, Mitchell and Curto, 2010). Other studies show that gender, age, professional experiences, and courses on themes related to good use of money also impact on the adolescents' financial literacy (an example is Chen and Volpe, 1998). Lastly, in the context of public schools, usually, low income families have greater difficulty in administrating their resources (Lusardi and Mitchell, 2011; Heckman and Grable, 2011; Potrich et al., 2015; Miotto and Parente, 2015).

The Brazilian government has developed initiatives for the inclusion of financial education in schools and for action along with the adult target audience. Among them, the National Strategy for Financial Education (ENEF - Estratégia Nacional de Educação Financeira), instituted by the Decree no. 7.397/2010. However, the actions are not fully applied on public schools. Not applying the actions makes room for analyzing the impact of family isolated on the financial education of adolescents.

The present research has selected the area of Blumenau, in Santa Catarina, where public schools do not insert financial subjects or themes in the school curriculum for young people. Thus, it isolates a probable effect of schools in developing the teenagers' financial understanding, by analyzing the effect of the family role and of interactions on the saving behavior of adolescents in these schools. Questionnaires were applied to 14 high schools in the region, reaching 1,937 young people aging from 14 to 20 years old. In the city of Blumenau, Silva, Dal Magro, Gorla and Nakamura (2017) have identified a low level of financial knowledge in a sample of around 4.600 students of 14 public high schools. This study now widens the analysis for cities surrounding this municipality, and, besides the low education level already detected, analyzes the role of family on the financial behavior of adolescents.

Generally, teaching children to be financially literate has been almost always the role of parents, but many of them do not have the skills and knowledge needed for that (Jorgensen & Sayla, 2010). Saving behavior is significant for the education (Lucci, Zerrenner, Verrone & Santos, 2006), specially for low income families, which, in order to save small amounts, need to access information and to develop skills that allow for a better handling of money (Cardozo, 2011). Also, besides the family, the social circle of these teenagers could help and hamper the process of financial education.

Formal schools could act as intervenor in the teaching process, enhancing the financial knowledge acquired in the family and the social circle for improving the financial literacy of adolescents. The results of this study point out that, in the lack of curricular formation, the development of a saving culture depends essentially on the role of family in the life of said adolescents, and on other social influences. Therefore, to reduce the effects of the lack of family action towards this matter, it is suggested to re-design the curriculum to include education for personal financial managements.

2 THE ROLE OF FAMILY ON FINANCIAL EDUCATION, RESPONSIBLE CONSUMPTION AND SAVING

According to the Organisation for Economic Co-operation and Development – OECD (2013), financial education is the process of improving the individuals' understanding of financial concepts and products. Through the information, instruction, and guidance, these individuals develop skills for administrating their financial resources (Branstein & Welch, 2002; Perry, 2008). The analysis of financial formation at a personal level (and not a professional one) depends on understanding how the decisions of families are affected by economic circumstances (Worthington, 2006). This personal financial knowledge is low in Brazil (Vieira, Bataglia & Serei, 2011), be it due to cultural and historical reasons of an inflated past (Vieira, Bataglia & Serei, 2011), or due to psychological factors that affect the decision of saving or consuming (Cardozo, 2011).

The low level of saving is caused by the lack of knowledge on personal finance, by resource restriction due to debts already created by the individual or the family, but also by the discomfort with the idea of investing and letting go of satisfying immediate desires. On the other hand, individuals with higher schooling levels would be less prone to sustain consumption patterns unsuitable to their income (Cardozo, 2011).

Schools could contribute to implementing a new financial culture, specially for teenagers who are in the phase of developing their skills (Robb, 2011). The financial education programs provide teenagers with a view of saving and improving financial decisions (Mandell, 2005). Schools should work with themes that help future citizens to know and manage their daily needs, however, themes as commerce, economy, taxes, and finances are not studied (Martins, 2004). This function would be exercised mainly by the public school network (Oehler & Werner, 2008; Bessa et al., 2014).

Parents also play an important role on their children's financial socialization (Jorgensen & Sayla, 2010; Lusardi et al., 2010). Table 1 presents a summary of previous studies portraying the role of family and other social factors as determining for the financial education. The role of family has been a prevailing factor for the formation of adolescents who are aware of investments, saving, consumption, and social security (financial education). The way the youth learns financial matters also varies and it is probable that it is a combination of intentional and non-intentional strategies used by the adults (Bowen, 2002). The behavior of parents when discussing financial issues with children and their orientation towards reasonable consumption and saving affect the financial behavior of their children in adulthood (Webley & Nyhus, 2006). Children learn finance through deliberate instruction, practice, and observation (Clarke et al., 2005). Even though some adolescents consider their parents to "know nothing", as they use to say, young ones recognize the financial skills of their parents (Bowen, 2002).

Besides the effect of schools and family, other effects on the financial behavior of adolescents are studied. For example, Chen and Volpe (1998, 2002) have diagnosed differences in the financial literacy according to gender, age, professional experiences and courses related to personal finance. Despite the effect of gender still not being a consensus, some studies have shown that females, in comparison, have lower financial education (Chen & Volpe, 1998, 2002; Mandell, 2008; Lusardi et al., 2010; Jang, Hahn & Park, 2014). Lastly, the socialization through the media (television, radio, magazines, etc.) and conversation to colleagues, professionals, and the working environment (Bowen, 2002) also contribute to the development of adolescents regarding finance.

Table 1. Studies on the role of family and other social aspects as determining for the financial education

Authors	Schooling levels	Sample and Age	Country	Contributions for Financial Education
Chen e Volpe (1998)	Higher Education	924	United States	Female university students, lower social classes, people younger than 30 year old, and with little professional experience have lower levels of financial education.
Eitel e Martin (2009)	Higher Education	204 Older than 17 years old	United States	Low financial education; and, despite recognizing this need, the individuals do not act to improve financial professionalization. The students' age and race were predictive factors for their financial education.
Lusardi (2007)	All levels	890 Older than 18 years old	United States	Women, black, and Hispanic people, and the ones with lower schooling lev-els had lower financial education levels, even for people with higher universi-ty education levels.
Shim et al. (2010)	Higher Education	2,098 15 to 18 years old	Hispanic, Asian / Asian-American / Native American	The family has a substantially more effective role on financial education compared to professional experience. Precocious financial socialization is related to financial learning and to effective financial behavior.
Kim e Chatterjee (2013)	All levels	628 17 to 21 years old	United States	Socialization experiences during childhood improve financial practices and the possession of goods of interviewed adults. The ones who had bank ac-counts and financial spending monitored by parents during childhood were more prone to have financial actives and more positive attitudes regarding personal finance in adulthood.
Bessa et al. (2014)	High school	830 10 to 15 years old	Brazil	The current generation (aging from 10 to 15 years old) lacks understanding on economy. The families are little involved in the process of economic socialization, and they have insufficient economic socialization in order to deal with current economic demands.
Cameron et al. (2014)	High school	335 15 to 18 years old	New Zealand	Financial education is lower among poorer students, who have lower gram-mar and math skills. The financial literacy starting in high school could be key for improving the population's financial decision-making.
Potrich, Vieira e Kirsch (2015)	All levels	1,067 Older than 18 years old	Brazil	Male individuals, with no dependents, higher schooling levels and family income have bigger capacity for deciding on investments, saving, and social security, which could reduce failure to pay and lead to better quality of life for the family.

Source: Designed by the authors.

3 METHODOLOGICAL PROCEDURES AND DATA

A questionnaire was applied in loco in 14 public schools of the Blumenau region in the South of Brazil, which currently covers around 4,600 students in high school and technical schools. In these region's cities, public schools do not insert disciplines or themes of personal finance in the school curriculum for teenagers. Thus, the choice for this specific region allows to isolate a probable effect of school on the adolescents' development of financial understanding, and to observe only the effect of the family role on financial education and on the teenagers' behavior for saving.

The researchers had the formal access to the direction of the schools with the support of the Secretary of State of Regional Development of Blumenau (SDR/GERED-Blumenau). Throughout the second semester of 2015, 1,937 answers were obtained from students aging from 14 to 20 years old (response rate of 41%). The response rate reflects the fact that classes that did not answer to the research were having tests or were in the process of recovering contents.

The questionnaire is composed by characterization questions, such as gender; schooling level; age; income; and household, and 9 (nine) questions related to the role played by the family, saving behavior, and the adolescent's financial knowledge. The questions, which can be seen in Table 2, have category scales, which seemed adequate to the kind of answering people and the context of the research. In all 6 dimensions, the highest categories used in each question of the scale mean a stronger presence of families.

First, the role played by the family was captured by 6 questions, which deal with the need for justifying the use of money for the family (accountability), the level of dialogue when deciding on a purchase for the family (dialogue), the frequency at which parents talk about money (frequency), the financial subjects that are discussed along with the family (subject), if the family is among the means used by the adolescent to acquire knowledge (reference), and the decision on what to do with the money (autonomy). The behavior or tendency to save was shown by the objective with which the adolescents administrate their own resources (objective) and by their saving profile (profile). Lastly, it was questioned what the adolescents think on their self-declared level of financial knowledge (knowledge). The research tool was previously validated in a class with 30 high school students.

For the result analysis, descriptive statistics and the factorial analysis were used to determine the weight of the questions of each group. Later on, it was possible to stablish the variable for measuring the role of family and the saving behavior. After that clusters and an average test were used to capture the role of family on the saving behavior. Lastly, average difference tests were designed to determine the existence of differences between the role of family and saving behaviors; between gender and saving behaviors; and between gender and the financial knowledge.

As it is observed in Table 2, the respondents are divided into two age groups (14 to 16 years old, and 17 to 20 years old), with 52% of females, and with a family income between R$ 0.79 and R$ 2.36 thousand per month. It is interesting to note that 90.55% of the interviewees lives with their parents, and a small percentage lives with other family members or alone. This condition sets the potential for analyzing the role of low income families on the financial education of adolescents (Lusardi & Mitchell, 2011; Heckman & Grable, 2011; Lizote & Verdinelli, 2014; Potrich et al., 2015; Miotto & Parente, 2015).

Table 2. Descriptive statistics of the characterization of interviewees

Characterization of Interviewees				
Gender				
Male 46.62%		Female 52.14%		Does not want to inform 1.24%
Schooling level				
1st Year 29.74%		2nd Year 42.90%		3rd Year 27.36%
Age				
Younger than 14 0.31%	14 to 16 years old 54.67%	17 to 20 years old 44.50%	Older than 20 0.52%	
Income in thousands of R$				
Up to 0.78	0.78 to 2.3	2.3 to 3.9	3.9 a 5.5	More than 5.5
8.72%	42.13%	27.52%	13.11%	8.52%
Household				
Lives with Parents		Lives with other family members		Alone
90.55%		6.20%		3.25%

Source: Designed by the authors.

The adolescents' interaction with the families has not usually covered subjects involving financial knowledge. Regardless of how they earn money, by living with parents, there is some degree of dependence of these teenagers in relation to their parents.

Table 3 presents the distribution of responding adolescents among the many questions of the applied questionnaire. Almost 40% of the students in the sample do not explain or justify to their parents how they use their money, only 23% declared being obliged to render account on how they use the money. At least half of the students seem to have their opinions taken into account when the family decides on purchasing a product for the family, but that does not necessarily mean the use of financial knowledge, but only a higher interaction on the use of family resources. In these families, talking about money varies from a regular conversation up to the complete lack of any talk (23% of the cases). This same situation was observed by Mori and Lewis (2001), in which only 32% of the parents were concerned with talking and guiding their children regarding financial education. However, another point that draws the attention is that in 21% of the cases, the subject is approached daily, which may not be a matter of education, but to render accounts of a budget dedicated to certain issues, which are the adolescents' responsibility or concern their daily subsistence.

The most approached financial subject in the family environment is focused on consumerism and the reasonable use of money (spending issues), which, somehow, are connected to saving. Another part is dedicated to studies and career, or possibilities of future income. However, the subject involving (long term) investments is little discussed, which can also be related to the low schooling levels of the parents and to the low family income observed for most respondents

The prevailing source of learning on financial themes is the family (45%). It is important to remind that, in this region, schools do not offer specific activities or disciplines dealing with financial education in the curriculum, which may explain the low presence of schools as a source (9%). However, even the interactions with colleagues outside the classroom are not significant, given the low influence of friends (2.5%). On the other hand, they indicate that daily life situations and experiences (25%) matter. Most of them makes decisions by themselves, or sharing internally with the family (or spouse), demonstrating a strong influence of the family when they wish to or can share the decision.

Table 3. Descriptive statistics on the role of family and interactions on financial education

Questions	Questions of financial education according to the role of family and interactions						
Accountability	Responsibility of rendering accounts of the use of money for parents and or spouse:						
	(1) I don't have to explain how I use the money 39.44%	(2) I have to explain only when I need to ask for money 20.65%	(3) I have to explain when costs are high 16.73%	(4) I have to explain the use of money 23.18%			
Dialogue	Dialogue when deciding to buy a product for the family I usually:						
	(1) My opinion is not asked by my parents and/or spouse 33.97	(2) Even when asked for it, I don't give my opinion 5.11%	(3) When they ask, I give my opinion. but it isn't considered 6.45%	(4) When asked, I give my opinion and it is considered 54.47%			
Frequency	How often do you talk to your parents about money?						
	(1) I don't usually do 23.23%	(2) Spontaneous dialogue 29.79%	(3) Regular dialogue 26.23%	(4) Daily dialogue 20.75%			
Subject	Which financial subject is more discussed with your parents (or family):						
	(1) We usually don't talk about money 11.09%	(2) About consumption (spending) 14.14%	(3) About studies and career (income) 29.48%	(4) About resonable use (planning) 34.85%	(5) About investments (long term) 10.43%		
References	If you have any financial knowledge. how did you acquire it?						
	(1) I don't have any knowledge 5.01%	(2) TV. internet and newspaper 8.11%	(3) Work or courses 5.11%	(4) School 9.09%	(5) Daily life practice 24.73%	(6) Friends and collegues 2,58%	(7) Family and relatives 45,38%

Table 3. Descriptive statistics on the role of family and interactions on financial education (continue)

Questions	Questions of financial education according to the role of family and interactions				
	How do I decide what to do with my money?				
Autonomy	(1) I don't receive money 3.82%	(2) I decide by myself 56.07%	(3) Talking to other people 3.46%	(4) Talking to parents or spouse 33.56%	(5) My parents decide how I should spend it 3.10%
	Regarding the way of administrating my financial resources, I usually:				
Objective	(1) I don't usually save money 27.16%	(2) Saving part of it. but without future plans 15.85%	(3) Saving it to spend as planned 37.89%	(4) Saving and investing part of my savings 19.10%	
	Regarding my financial profile, I consider myself:				
Profile	(1) Careless. I don't have control on how I spend 6.35%	(2) Spender. I spend almost everything 22.72%	(3) Conservative. I don't risk to earn more 10.33%	(4) Cautious. I only spend if I need to 41.77%	(5) Saving. I avoid spending my savings 18.84%
	How high do you consider you level of financial knowledge to be:				
Knowledge	(1) Bad 5.63%	(2) Regular 33.14%	(3) Good 45.07%	(4) Very good 10.64%	(5) Excellent 5.52%

Source: Designed by the authors.

Note: Questions and dimensions: Role of Family and Interactions: accountability, dialogue, frequency, subject, references, autonomy. Saving behavior: Objective and Profile. Self-declared financial knowledge: knowledge.

Regarding consumption and saving habits, about 30% of responding adolescents declared not being preoccupied with saving. Among the ones who do save, most of them have a certain planning, but do not relate it with a search for investments, which shows a financial knowledge and behavior restricted to spending and to budget balance, but not to financially applying resources. This lack of investment strategy, for Halfeld (2006), is caused by the incapacity for personal financial management, which prevents individuals to accumulate values and good in long term. The low levels of saving is related to a low financial awareness (Bessa et al., 2014, Lusardi and Mitchell, 2007, Fernandes and Candido, 2014). About half of them declared being conservative or cautious, and do not see themselves as a "saving" profile.

Regarding the students' perception on how much they know on the subject, only 15% declared having very good financial knowledge. Even with the tendency of self-declared answers increasing the chances of indicating the highest points in the scales, 40% of them declared having satisfactory or bad knowledge. The adolescents somehow recognize they still do not have an adequate financial knowledge to make decisions involving personal finances on their daily lives, a moment that highlights the need for help in decision-making.

6 RESULTS DISCUSSION

To test the influence of the role of family in the saving behavior of adolescents, a cluster analysis was performed (Table 4), using the 6 dimensions captured for the role of family (Accountability, Dialogue, Frequency, References, and Autonomy.

Table 4. Cluster analysis of the influence of the role of family on financial education

	Group 1 n = 592 Moderate family influence			Group 2 n = 704 Higher family influence			Group 3 n = 641 No family influence		
	Average	Median	S.D.	Average	Median	S.D.	Average	Median	S.D.
Accountability	1.755	1.0	0.958	3.108	3.0	1.055	1.724	1.0	0.974
Dialogue	3.042	4.0	1.323	3.156	4.0	1.269	2.215	1.0	1.375
Frequency	2.872	3.0	0.901	2.886	3.0	0.941	1.569	1.0	0.734
Subject	3.786	4.0	0.826	3.584	4.0	0.877	2.218	2.0	1.027
References	4.606	5.0	1.880	6.079	7.0	1.485	5.076	5.0	1.991
Autonomy	2.318	2.0	0.802	3.585	4.0	0.896	2.264	2.0	0.849
Total	**3.063**	**3.167**	**0.427**	**3.733**	**3.667**	**0.387**	**2.511**	**2.667**	**0.514**

Source: Designed by the authors.

Group 2, created by the cluster analysis, is composed by the adolescents who have higher family influence on their financial education. This group is highlighted by the habit/need for rendering account of what they spend, having the family as a reference for discussing the subject, and for a lower autonomy in spending (they usually talk to their parents before spending). However, groups 1 and 2 are similar regarding the dialogue (dialogue, frequency of dialogue, and subject approached).

While for these groups, there is a frequent dialogue about consumption and income, for group 3, even though the family is the reference for the subject, the dialogue is rare or never happens. In group 3, the family is virtually lacking on the theme and, since it is the main reference, it is possible to say that these adolescents may be lacking any source of financial education. In group 2, besides the presence of dialogue and accountability, the discussion on spending is more frequent (less autonomy).

Through the average test (Table 5), the level of saving was compared among individuals from group 2 (higher family influence) and the other individuals (groups 1 and 3, moderate or no family influence). Additional ANOVA tests among the groups are shown in the Appendix.

The presence of family on financial education is related both to the objective perceived by the adolescents when saving and the profile they associate themselves with. Profiles that are more prone to saving (saving resources) and dialoguing consumption profiles are seen, but the presence of family is not enough to stimulate saving with the intention of applying and obtaining financial income. This limitation may be related to the source of education itself, parents who have lower purchase power may be reproducing their own objectives for saving, which leads to a limitation that could be overcome by the work of formal disciplines at school.

Table 5. Saving behavior due to the influence of family

	Family influence	Average	Median	S.D.	T. test Sig.	Mann Whitney test
Objective (Saving)	0	2.425	3.000	1.0898	0.022*	0.001*
	1	2.602	3.000	1.0659		
Profile (Saving)	0	3.328	4.000	1.2631	0.000*	0.000*
	1	3.635	4.000	1.0782		

Source: Designed by the authors.

Note: 0 – sample of respondents characterized, according to the cluster analysis, as having moderate or no family influence on financial education (group 1 and group 3); 1 – sample of respondents characterized by a higher family influence on financial education. * significance level of 5%.

Many tables of comparative distribution per gender, age, schooling level, and whether the adolescents live with their parents are presented in the Appendix, the differences found or subtle or none.

It is observed a higher frequency of conversation with parents about money in the case of girls, as well as the need to explain the use of money. However, girls listen more to their parents regarding careers (income) and the reasonable use of money (spent), while boys tend to question their families more concerning investments (long term). Girls usually acquire knowledge on general financial education with their families and relatives, while boys also listen to friends, their work environment, and the media. Thus, family seems to be more present in the financial education of girls. They tend to save and invest their income; however, they dialogue. The differences between genders regarding objectives and the profile are very fragile in the samples compared by the median (Mann-Whitney Test).

Table 6. Saving behavior, Financial knowledge and the adolescents' gender

	Gender	Average	Median	S.D.	T. test Sig.	MannWhitney Test
Objective (Saving)	0	2.478	3.000	1.059	0.038*	0.562
	1	2.499	3.000	1.106		
Profile (Saving)	0	3.483	4.000	1.188	0.032*	0.201
	1	3.401	4.000	1.224		
Knowledge	0	2.805	3.000	0.9451	0.282	0.128
	1	2.745	3.000	0.8825		

Source: Designed by the authors.

Note: 0 – male; 1 – female. * significance level of 5%.

While regarding the knowledge the average difference disappears, indicating that, overall, adolescents, regardless of gender, have a similar perception regarding what they know of the subject. As aforementioned, they declare themselves as having limited general knowledge.

Other effects that can be observed in the Appendix are age and schooling levels. The age of the adolescents may explain a more careless behavior in relation to the obligation of rendering accounts of what they spend to their parents or spouses, as well as a lower frequency of talks to parents about what will be done with the money. Regarding the school grade, the students' progression in high school leads families to trust them more to deal with different financial themes. Therefore, in the initial years, families discuss with teenagers about consumption, and later on, with their progression in education, start dealing with investments, and, in the third grade, discuss studies and career, given that this is an important moment for the teenagers' professional choice. Lastly, adolescents living with their parents have more interactions to them, evincing the effect of family structure and formation on this matter.

7 CONCLUDING REMARKS

The analyzed area is composed by schools that do not deal with financial education in their curriculum, and by a low levels of adolescent financial education. The students have been acquiring financial knowledge along with their parents and relatives, and not at school. However, the dialogue in the family environment about this subject is usually restricted to saving and consumption.

This research's results suggest that, in the lack of a curricular formation, the development of a saving culture may depend essentially on the role of family on the life of the adolescent, and on other social influences (Jorgensen and Sayla, 2010; Lusardi et al., 2010; Shim et al., 2010). In the analyzed sample, in the prevalence of family as the source of financial guidance, the adolescents' level of knowledge and saving profile are restrict, which suggest the need for action at schools. In this study, only 9% of adolescents considered the school to be the source of their financial knowledge. These results indicate the need for reflecting on the obligation of financial education in the basic education curriculum (which is being discussed in the Brazilian national congress). The National Strategy for Financial Education (ENEF), initiated in 2010, has not been fully adopted, given its voluntary character. The program's recommendations, if fully adopted, could favor the interaction between school math and the financial education in the classroom (Hofmann and Moro, 2013).

An issue not approached in the article is the parents' level and quality of financial education. As demonstrated in literature, the adolescents' values regarding saving and use of money are similar to their parents' (Pritchard and Myers, 1992; Bowen, 2002). Thus, the parents' financial education may shape the kind of knowledge spread, the examples at home, and the advices and recommendations given. If the financial knowledge is also acquired from parents, it may be particularly beneficial to involve parents and relatives with limited academic formation or who are not financially experienced in ENEF actions.

Lastly, the effects of gender, age, and grade were also discussed. Despite the gender differences on financial behavior not being as striking as the ones in the studies by Chen and Volpe (1998), Chen and Volpe (2002), Mandell (2008), Lusardi et al. (2010), and Jang, Hahn and Park (2014), the effects of age and grade can be useful for designing formal financial education programs at schools.

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How to cite this article

Dal Magro, C. B.; Gorla, M. C.; Silva, T. P. da; & Hein, N. (2018). The effect of Family on the financial behaviors of adolescents in public schools. *Revista de Contabilidade e Organizações*, 12:e142534. DOI: http://dx.doi.org/10.11606/issn.1982-6486.rco.2018.142534

APPENDIX A

Table 7. Gender and the influence of family on financial education

Accountability - Responsibility in rendering accounts of the use of money for parents or spouse							
Gender	(1)	(2)	(3)	(4)			
Male	41.7%	17.7%	17.9%	22.6%			
Female	37.1%	23.1%	15.8%	24.0%			
Not informed	50.0%	29.2%	8.3%	12.5%			
Dialogue - Dialogue when deciding to buy a product for the family, usually:							
Gender	(1)	(2)	(3)	(4)			
Male	32.3%	6.9%	8.4%	52.4%			
Female	35.7%	3.3%	4.6%	56.4%			
Not informed	33.3%	12.5%	16.7%	37.5%			
Frequency- At which frequency do you talk to your parents about money?							
Gender	(1)	(2)	(3)	(4)			
Male	28.2%	25.6%	28.6%	17.6%			
Female	18.6%	33.6%	24.1%	23.8%			
Not informed	29.2%	25.0%	29.2%	16.7%			
Subject - Which financial subject is the most questioned in the family:							
Gender	(1)	(2)	(3)	(4)	(5)		
Male	12.7%	14.4%	25.5%	35.5%	11.8%		
Female	9.4%	14.1%	33.0%	34.3%	9.3%		
Not informed	20.8%	8.3%	33.3%	33.3%	4.2%		
References- If you have any financial knowledge, how did you acquire it?							
Gender	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Male	5.5%	9.7%	4.4%	9.0%	23.5%	4.4%	43.4%
Female	4.6%	6.6%	5.7%	9.2%	25.4%	0.9%	47.5%
Not informed	4.2%	8.3%	4.2%	8.3%	41.7%	4.2%	29.2%
Autonomy - How do I decide what to do with my money?							
Gender	(1)	(2)	(3)	(4)	(5)		
Male	2.5%	59.8%	4.3%	30.6%	2.8%		
Female	4.9%	52.4%	2.8%	36.6%	3.4%		
Not informed	8.3%	70.8%	0.0%	16.7%	4.2%		

Source: Designed by the authors

Table 8. Schooling levels and the influence of family on financial education

Accountability - Responsibility in rendering accounts of the use of money for parents or spouse:							
Schooling level	(1)	(2)	(3)	(4)			
1st Year	34.0%	23.3%	17.2%	25.5%			
2nd Year	40.1%	19.7%	16.4%	23.8%			
3rd Year	44.3%	19.2%	16.8%	19.6%			
Dialogue - Dialogue when deciding to buy a product for the family, usually:							
Schooling level	(1)	(2)	(3)	(4)			
1st Year	34.9%	7.5%	6.8%	50.9%			
2nd Year	34.4%	4.5%	6.9%	54.3%			
3rd Year	32.8%	3.4%	5.7%	58.1%			
Frequency- At which frequency do you talk to your parents about money?							
Schooling level	(1)	(2)	(3)	(4)			
1st Year	30.4%	26.2%	23.3%	20.1%			
2nd Year	19.4%	29.8%	28.6%	22.1%			
3rd Year	21.5%	33.4%	25.7%	19.4%			
Subject - Which financial subject is the most questioned in the family:							
Schooling level	(1)	(2)	(3)	(4)	(5)		
1st Year	14.6%	14.6%	26.9%	35.4%	8.5%		
2nd Year	9.0%	14.2%	29.8%	36.3%	10.6%		
3rd Year	10.6%	13.6%	31.7%	31.9%	12.3%		
References- If you have any financial knowledge, how did you acquire it?							
Schooling level	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1st Year	7.1%	8.3%	3.6%	7.5%	24.3%	2.8%	46.4%
2nd Year	4.9%	7.1%	5.1%	10.1%	22.3%	2.8%	47.8%
3rd Year	2.8%	9.4%	6.8%	9.2%	29.1%	2.1%	40.6%
Autonomy - How do I decide what to do with my money?							
Schooling level	(1)	(2)	(3)	(4)	(5)		
1st Year	4.2%	55.0%	4.7%	31.8%	4.3%		
2nd Year	4.3%	56.1%	2.8%	33.9%	2.9%		
3rd Year	2.6%	57.2%	3.2%	34.9%	2.1%		

Source: Designed by the authors.

Table 9. Age older than the grade and the role of family on financial education

Accountability - Responsibility in rendering accounts of the use of money for parents or spouse:							
Age older than the grade	(1)	(2)	(3)	(4)			
Yes	46.1%	15.4%	15.4%	23.0%			
No	37.9%	21.9%	17.0%	23.2%			
Dialogue - Dialogue when deciding to buy a product for the family, usually:							
Age older than the grade	(1)	(2)	(3)	(4)			
Yes	35.0%	7.9%	6.8%	50.4%			
No	33.9%	4.4%	6.4%	55.2%			
Frequency- At which frequency do you talk to your parents about money?							
Age older than the grade	(1)	(2)	(3)	(4)			
Yes	25.7%	22.8%	27.6%	23.8%			
No	22.6%	31.4%	25.9%	20.1%			
Subject - Which financial subject is the most questioned in the family:							
Age older than the grade	(1)	(2)	(3)	(4)	(5)		
Yes	11.7%	14.1%	26.8%	34.7%	12.7%		
No	11.0%	14.2%	30.1%	34.9%	9.9%		
References- If you have any financial knowledge, how did you acquire it?							
Age older than the grade	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Yes	4.5%	8.2%	5.2%	9.1%	25.3%	2.4%	45.4%
No	7.3%	7.6%	4.9%	9.2%	22.5%	3.3%	45.3%
Autonomy - How do I decide what to do with my money?							
Age older than the grade	(1)	(2)	(3)	(4)	(5)		
Yes	4.0%	56.1%	3.3%	33.9%	2.8%		
No	3.0%	56.1%	4.3%	32.2%	4.3%		

Source: Designed by the authors.

Table 10. Age and the influence of family on financial education

Accountability - Responsibility in rendering accounts of the use of money for parents or spouse:

Age	(1)	(2)	(3)	(4)
Younger than 14	33.3%	66.7%	0%	0%
From 14 to 16	34.6%	22.9%	17.6%	25.0%
From 17 to 20	45.5%	17.7%	15.7%	21.1%
Older than 20	40.0%	10.0%	30.0%	20.0%

Dialogue - Dialogue when deciding to buy a product for the family, usually:

Age	(1)	(2)	(3)	(4)
Younger than 14	50.0%	0%	16.7%	33.3%
From 14 to 16	34.5%	5.0%	6.9%	53.6%
From 17 to 20	33.5%	5.1%	5.8%	55.6%
Older than 20	40.0%	10.0%	20.0%	30.0%

Frequency- At which frequency do you talk to your parents about money?

Age	(1)	(2)	(3)	(4)
Younger than 14	33.3%	16.7%	16.7%	33.3%
From 14 to 16	23.3%	30.7%	25.8%	20.2%
From 17 to 20	22.7%	28.9%	26.8%	21.6%
Older than 20	50.0%	10.0%	30.0%	10.0%

Subject - Which financial subject is the most questioned in the family:

Age	(1)	(2)	(3)	(4)	(5)
Younger than 14	33.3%	0%	50.0%	16.7%	0%
From 14 to 16	11.0%	14.4%	29.3%	36.7%	8.7%
From 17 to 20	11.3%	14.0%	29.6%	32.5%	12.6%
Older than 20	0%	10.0%	30.0%	50.0%	10.0%

References - If you have any financial knowledge, how did you acquire it?

Age	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Younger than 14	0.0%	16.7%	16.7%	16.7%	33.3%	0.0%	16.7%
From 14 to 16	5.2%	7.7%	4.3%	8.8%	23.1%	2.7%	48.1%
From 17 to 20	4.9%	8.4%	6.0%	9.4%	26.6%	2.4%	42.3%
Older than 20	0.0%	20.0%	0.0%	10.0%	30.0%	0.0%	40.0%

Autonomy - How do I decide what to do with my money?

Age	(1)	(2)	(3)	(4)	(5)
Younger than 14	16.7%	66.7%	0.0%	16.7%	0.0%
From 14 to 16	4.7%	55.3%	3.2%	33.7%	3.0%
From 17 to 20	2.7%	57.0%	3.8%	33.3%	3.2%
Older than 20	0.0%	50.0%	0.0%	50.0%	0.0%

Source: Designed by the authors.

Table 11. Living with the parents and the influence of family on financial education

Accountability - Responsibility in rendering accounts of the use of money for parents or spouse:							
Living with parents	(1)	(2)	(3)	(4)			
Yes	38.4%	21.0%	16.9%	23.6%			
No	49.2%	16.9%	14.8%	19.1%			
Dialogue - Dialogue when deciding to buy a product for the family, usually:							
Living with parents	(1)	(2)	(3)	(4)			
Yes	33.8%	4.8%	6.6%	54.8%			
No	37.2%	7.7%	5.5%	49.7%			
Frequency- At which frequency do you talk to your parents about money?							
Living with parents	(1)	(2)	(3)	(4)			
Yes	21.9%	30.0%	26.8%	21.2%			
No	35.5%	26.8%	20.8%	16.9%			
Subject - Which financial subject is the most questioned in the family:							
Living with parents	(1)	(2)	(3)	(4)	(5)		
Yes	10.5%	13.8%	29.6%	35.7%	10.3%		
No	16.4%	17.5%	28.4%	26.2%	11.5%		
References- If you have any financial knowledge, how did you acquire it?							
Living with parents	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Yes	5.0%	8.3%	5.2%	8.9%	23.9%	2.3%	46.4%
No	5.5%	6.6%	4.4%	10.9%	32.2%	4.9%	35.5%
Autonomy - How do I decide what to do with my money?							
Living with parents	(1)	(2)	(3)	(4)	(5)		
Yes	3.5%	56.4%	3.4%	33.4%	3.2%		
No	6.6%	52.5%	3.8%	35.0%	2.2%		

Source: Designed by the authors.

Table 12. Gender and the behavior for saving and financial knowledge

Objective - Regarding the way of administrating my financial resources, I usually:					
Gender	(1)	(2)	(3)	(4)	
Male	25.8%	18.4%	38.0%	17.8%	
Female	28.1%	13.8%	38.0%	20.1%	
Not informed	37.5%	8.3%	29.2%	25.0%	
Profile - Regarding my financial profile, I consider myself:					
Gender	(1)	(2)	(3)	(4)	(5)
Male	5.9%	20.3%	13.7%	40.0%	20.2%
Female	6.5%	25.0%	7.4%	43.3%	17.8%
Not informed	16.7%	20.8%	12.5%	37.5%	12.5%
Knowledge - How high do you consider your level of financial knowledge to be:					
Gender	(1)	(2)	(3)	(4)	(5)
Male	6.4%	30.7%	45.2%	11.4%	6.3%
Female	4.9%	35.6%	45.1%	9.9%	4.5%
Not informed	8.3%	20.8%	37.5%	12.5%	20.8%

Source: Designed by the authors.

Table 13. Schooling levels and the behavior for saving and financial knowledge

Objective - Regarding the way of administrating my financial resources, I usually:					
Schooling level	(1)	(2)	(3)	(4)	
1st Year	30.9%	17.7%	31.8%	19.6%	
2nd Year	24.5%	17.3%	40.2%	17.9%	
3rd Year	27.2%	11.5%	40.9%	20.4%	
Profile - Regarding my financial profile, I consider myself:					
Schooling level	(1)	(2)	(3)	(4)	(5)
1st Year	7.5%	27.6%	12.5%	36.1%	16.3%
2nd Year	5.8%	20.8%	9.3%	45.1%	19.0%
3rd Year	6.0%	20.4%	10.0%	42.3%	21.3%
Knowledge - How high do you consider your level of financial knowledge to be:					
Schooling level	(1)	(2)	(3)	(4)	(5)
1st Year	5.2%	36.8%	41.8%	8.9%	7.3%
2nd Year	5.2%	33.6%	45.8%	10.0%	5.4%
3rd Year	6.8%	28.5%	47.4%	13.6%	3.8%

Source: Designed by the authors.

Table 14. Age older than the grade and the behavior for saving and financial knowledge

Objective - Regarding the way of administrating my financial resources, I usually:					
Age older than the grade	(1)	(2)	(3)	(4)	
Yes	28.2%	16.8%	35.5%	19.5%	
No	26.9%	15.6%	38.5%	19.0%	
Profile - Regarding my financial profile, I consider myself:					
Age older than the grade	(1)	(2)	(3)	(4)	(5)
Yes	4.9%	24.7%	10.3%	40.1%	20.1%
No	6.7%	22.3%	10.5%	42.0%	18.6%
Knowledge - How high do you consider your level of financial knowledge to be:					
Age older than the grade	(1)	(2)	(3)	(4)	(5)
Yes	6.5%	33.1%	45.8%	9.2%	5.4%
No	5.4%	33.2%	44.9%	11.0%	5.5%

Source: Designed by the authors.

Table 15. Age and the behavior for saving and financial knowledge

Objective - Regarding the way of administrating my financial resources, I usually:					
Age	(1)	(2)	(3)	(4)	
Younger than 14	0%	0%	66.7%	33.3%	
From 14 to 16	26.8%	17.9%	36.9%	18.3%	
From 17 to 20	27.8%	13.3%	39.0%	19.8%	
Older than 20	20.0%	20.0%	30.0%	30.0%	
Profile - Regarding my financial profile, I consider myself:					
Age	(1)	(2)	(3)	(4)	(5)
Younger than 14	33.3%	16.7%	33.3%	16.7%	0%
From 14 to 16	6.9%	23.1%	10.6%	42.2%	17.2%
From 17 to 20	5.5%	22.2%	10.0%	41.3%	21.1%
Older than 20	10.0%	30.0%	20.0%	30.0%	10.0%
Knowledge - How high do you consider your level of financial knowledge to be:					
Age	(1)	(2)	(3)	(4)	(5)
Younger than 14	0%	16.7%	33.3%	16.7%	33.3%
From 14 to 16	4.8%	35.3%	44.0%	9.5%	6.3%
From 17 to 20	6.7%	30.5%	46.5%	11.9%	4.3%
Older than 20	0%	40.0%	40.0%	10.0%	10.0%

Source: Designed by the authors.

Table 16. Living with parents and the behavior for saving and financial knowledge

Objective - Regarding the way of administrating my financial resources, I usually:					
Living with parents	(1)	(2)	(3)	(4)	
Yes	27.1%	16.4%	37.8%	18.6%	
No	27.3%	10.4%	38.8%	23.5%	
Profile - Regarding my financial profile, I consider myself:					
Living with parents	(1)	(2)	(3)	(4)	(5)
Yes	6.4%	23.1%	10.5%	41.4%	18.6%
No	6.0%	19.1%	9.3%	44.3%	21.3%
Knowledge - How high do you consider your level of financial knowledge to be:					
Living with parents	(1)	(2)	(3)	(4)	(5)
Yes	5.4%	33.5%	45.2%	10.7%	5.2%
No	7.7%	30.1%	44.3%	9.8%	8.2%

Source: Designed by the authors.

Table 17. ANOVA average difference test for the adolescents' behavior for saving among the clusters determining the influence of the family on financial education

Dependent variable	(I) Cluster	(J) Cluster	Average difference (I-J)	Standard error	Sig.
Objective	1	2	-0.0972	0.0602	0.240
		3	0.1541*	0.0615	0.033*
	2	1	0.0972	0.0602	0.240
		3	0.2513*	0.0589	0.000*
	3	1	-0.1541*	0.0615	0.033*
		2	-0.2513*	0.0589	0.000*
Profile	1	2	-0.1941*	0.0667	0.010*
		3	0.2178*	0.0682	0.004*
	2	1	0.1941*	0.0667	0.010*
		3	0.4119*	0.0653	0.000*
	3	1	-0.2178*	0.0682	0.004*
		2	-0.4119*	0.0653	0.000*

Source: Designed by the authors.