DETERMINANTS OF FINANCIAL KNOWLEDGE AMONG ADOLESCENTS

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Abstract. The study measures the level of financial knowledge among the adolescents in Zimbabwe, with a particular focus on secondary school pupils. Financial knowledge is critical in providing lifelong skills and knowledge for handling personal finances beyond school. A sizeable amount of previous studies underscores the importance of financial knowledge in making sound financial decisions leading to financial growth and wealth accumulation. A descriptive cross-sectional research design was employed, with data being collected from Gweru district's ten secondary schools. The schools were spread across the three strata (secondary schools in low-density areas, secondary schools in high-density areas and secondary schools in rural areas). A self-administered questionnaire with 44 questions, adapted from the Jump$tart financial literacy survey, was employed to collect data and 763 students participated in the study. Results revealed that the average financial knowledge score was very low at 33.3%. The location of the school and student's learning mode were the important determinants of financial knowledge among respondents. Financial knowledge did not vary by gender. It was concluded that secondary school pupils are less knowledgeable about financial decision making and this will reduce their financial prosperity. Clearly, broader environmental factors such as school location and learning mode exerted the most important influence in the accumulation of financial knowledge. The study recommends that the Ministry of Education, Sport and Culture should consider introducing a compulsory subject at the Ordinary level of study so as to equip the students with the important skill in personal finance management.

JEL classification: A21, D11, D12, D14

Keywords: Financial literacy, youth, secondary school pupils, Zimbabwe

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1. Introduction

Although contemporary literature provides mixed evidence on the impact of financial literacy on the ultimate financial well-being of individuals, this study seeks to establish the level of financial handling preparedness of secondary school pupils assuming financial education is beneficial to individuals. This research follows the studies that assert that financial literacy education provides measurable benefits and that it is beneficial to provide financial education to secondary school students (Fox, Bartholomae, & Lee, 2005). This assertion is however in direct contrast to those arguing that financial education costs outweigh the potential benefits (Willis, 2008). This is especially so given that developed countries are placing more emphasis on financial literacy which should subsequently lead to more informed financial decisions (Beverly & Burkhalter, 2005; Sohn, Joo, Grable, Lee, & Kim, 2012; Xu & Zia, 2012).

Several scholars have defined financial literacy, although there is no universally accepted definition. However, the consensus seems to focus on the individual's ability to understand personal finance matters. For instance, Sohn et al. (2012:969) define financial literacy as "the knowledge and skills necessary to handle financial challenges and decisions in everyday life". Similarly, Huston (2010:306) defines financial literacy as "measuring how well an individual can understand and use personal finance-related information". In this definition, financial knowledge forms the integral part of financial literacy and may not be equivalent to financial literacy (Huston, 2010). Huston further asserts that in measuring financial literacy it is important to establish whether the person can also apply it correctly. As such, in this study these two views are encompassed in that knowledge is tested using qualitative aspects of the questionnaire while the application component is taken care of by the mini case problems and application questions.

The dearth of financial literacy literature on African countries is a major concern in this study. Furthermore, existing literature suggest that education is important in improving financial literacy among a country's population (Mandell & Klein, 2007). However no studies to test the proposition have been conducted in Zimbabwe. Zimbabwe has the highest literacy rate but characterized by high unemployment rates, in excess of 70%, low manufacturing capacity utilization, and the growing informal economy. In Zimbabwe, post-secondary school is limited to those with financial capabilities while employment opportunities are slim. As such, once students complete secondary education most of them always join the informal sector to earn income to sustain a living. Thus, financial literacy among secondary school going students is important in providing lifelong skills and knowledge of handling personal finances beyond school. The informal sector does not provide for regulatory savings schemes and retirement funds. Consequently, effective management of personal finances ensures that individuals participating in the informal sector contribute to national savings through the use of banks and other savings funnels. These funds could further be used for onward lending to other productive sectors of the economy.

To this end, the unpredictable economic cycles (Jorgensen & Savla, 2010), family financial difficulties and its impact on the health of the family (Norvilitis, Szablicki, & Wilson, 2003), the need to possess financial knowledge and skills pertaining to financial management matters (Chen & Volpe, 1998) are some of the reasons for the growing need for research and education in the financial literacy

discourse. A recent study by the World Bank on financial literacy provided some insights on the levels of financial literacy in Southern Africa (Xu & Zia, 2012). However the study excluded Zimbabwe. Despite the socio-political and economic problems in Zimbabwe over the past decade, literacy rates among the youth aged between 15 and 24 years remain astonishingly high at 99% (The World Bank, 2013). The question that arises here is whether this high literacy rate culminates into high financial literacy rate in Zimbabwe. Furthermore, do secondary school pupils have sufficient financial knowledge and skills to handle financial challenges and decisions in everyday life? What influences financial knowledge among secondary school pupils – financial socialization, socio-economic status or demographic factors?

The rest of the paper is organized as follows; Section 2 provides a brief review of literature related to the study. Section 3 details the research methods employed to gather data for the study, together with an outline of data analyses employed. Section 5 presents discussions, and Section 6 provides conclusions and recommendations. The paper concludes by highlighting the limitations of the study and acknowledgements.

2. Literature Review

Financial literacy has received much attention from government agents, the private sector, multilateral organizations and educational institutions worldwide since the early 2000s. Most literature is focuses on developed countries where financial literacy is given attention from early childhood learning to adulthood. Literature on financial literacy point to financial literacy being fundamental to individuals' financial well-being (Meier & Sprenger, 2012). This finding is supported by surveys conducted by Lusardi and Mitchell (2007) and Bernanke (2006), who found that financial knowledge and financial outcomes were positively associated. However, Meier and Sprenger (2012:2) argue that despite the growing "importance of financial literacy, many individuals remain financially illiterate". Consequently, Meier and Sprenger (2012) concluded that the acquisition of financial information is an investment of which like any investment class some individuals may find unattractive. This conclusion helps explain why some individuals remain financial illiterate in this knowledge economy. Contemporary literature shows that financial literacy is still low everywhere although it is much lower in developing countries (Xu & Zia, 2012). In America, the average score from the Jump$tart survey among high school seniors was 48.3%. This score was a decline from the 1997 levels further pointing towards declining financial literacy levels (Jorgensen & Savla, 2010).

Different reasons have been put forward to improve financial literacy, especially among the adolescents. For instance, parents have a central role in promoting and encouraging positive and favorable attitudes about money to their children (Sohn et al., 2012). Thus, Sohn and colleagues assert that other factors that play an integral role in the level of financial knowledge among the youth are "financial socialization, financial experiences, money attitudes, and financial literacy…" pp. 978. This is further echoed by Lusardi et al (2010) who posit that knowledge acquired from parents who, in particular have college or university degrees help their children understand financial matters better than those whose parents or friends do not have college or university degrees. Lusardi and colleagues also appreciate that although cognitive ability plays an important role in financial literacy, education can improve financial literacy. The most important thing found in

the study by Lusardi and colleagues was that financial education is mainly beneficial if provided prior to individuals making financial decisions (Lusardi, Mitchell, & Curto, 2010). The provision of financial education prior to financial exposure suggests that incorporating financial education into secondary school curriculum is necessary in the preparation of the youth for post-secondary life. Attempts have been made to value the implementation of financial literacy in public high schools in Texas, and the model was unique to the state of Texas (Davis & Durband, 2008).

However, earlier studies disputed the role of parents in financial education. These studies argue that although children turn to their parents for financial knowledge, parents do not have such skills themselves (Lyons & Hunt, 2003; Moschis, 1985). Nevertheless, the consensus has been that both explicit and implicit teachings by parents help shape children's financial attitudes and behaviours (Jorgensen & Savla, 2010; Moschis, 1985). In the like manner, results from the Jump$tart survey show that motivation is the key factor in the development of financially literate students. As such teachers should be adequately trained to provide financially interactive personal finance lessons (Mandell & Klein, 2007).

In terms of personal financial behaviour, literature shows that there is no significant difference in the behaviour of high school students who did a course in financial literacy and those who did not (Mandell & Klein, 2009). Thus, with time individuals who did a financial literacy course "were no more financially literate than those who did not take the course" pp. 21. However, although the results were conclusive, they were based on a small sample of 79 students and as such the results may not be representative or generalized.

3. Methodology

The study employed a descriptive cross-sectional research design. The study was conducted during the month of September 2012. The Ethical Clearance to conduct this study was sought and granted by the Midlands provincial office of the Ministry of Education, Sports and Culture. The targeted population was all Form 4 students in the Gweru district. The data obtained from the Midlands provincial office of the Ministry of Education, Sports and Culture indicated that there were 3 751 Form 4 students in the Gweru district's 39 secondary schools in 2012. The stratified random sampling technique was employed to draw up the sample of schools to include in the study. The secondary schools in the Gweru district were firstly stratified into three strata (also known as sectors) as they are used by the Ministry of Education, Sport and Culture. The three sectors or strata were S1 (Secondary school in low-density urban areas), S2 (Secondary school in high-density urban areas) and S3 (Secondary school in rural areas).

A sample of 10 secondary schools was then randomly selected from these strata, in proportion to the total number of schools in each stratum. The final sample consists of three schools from stratum S1, two schools from stratum S2 and five schools from stratum S3. However, to maintain anonymity in the survey results, the names of sampled schools were withheld. All Form 4s in a randomly selected school would automatically be part of the sample. The resultant sample size was 987 students. This figure represented 20.98% of the study population and was above the 20% threshold that is usually suitable for generalizing findings in population sizes less than 5 000 (Gay, Mills, & Airasian, 2006).

A self-administered questionnaire with 44 questions was employed to collect data. This questionnaire was largely adapted from the Jump$tart financial literacy survey by Mandell (2008), although the questions had to be tailored to suit the Zimbabwean context. The questionnaire also incorporated some relevant socio-demographic characteristics of respondents to aid analysis. Eventually, 763 questionnaires were completed, giving a response rate of 96.95%. This response rate is as a result of high cooperation among the secondary schools sampled.

4. Data analysis

The questionnaires were captured in the STATA (Version 11.0) software after checking for completeness and consistency. Tabulations were used to show percentages and frequencies of respondents in each response category. Responses gathered were used to compute a financial literacy score for each respondent. These responses are analysed across selected socio-demographic characteristics of respondents such as gender, school classification, learning mode, location of school, race of respondent and age. The financial knowledge score was computed using the following formulae;

$$Financial\ Knowledge\ Score = \frac{Number\ of\ Correct\ responses}{Total\ Number\ of\ Financial\ Knowledge\ questions} * 100 \quad \ldots(\mathbf{1})$$

Descriptive statistics for financial knowledge scores such as mean, standard deviation, minimum and maximum values were them reported, and analysed against gender, school classification, race of respondent, learning mode and location of the school. A two-sample *t*-test with equal variances was further carried out to ascertain whether the observed differences in financial knowledge scores across gender, learning mode and location of the school was statistically significant. Furthermore, logistic regression analysis is employed to determine the relationship between financial knowledge and the selected socio-demographic characteristics of respondents. Financial knowledge scores are first categorized into two classes, those less than 50% (represented by 0) and those above 50% (represented by 1). Both bivariate and multivariate logistic regression analyses are conducted to ascertain the importance of the selected variables. This is done before and after controlling for the other variables affecting financial knowledge.

5. Findings and Discussions

Table 1 provides a summary of the socio-demographic characteristics of respondents.

Table 1. Summary of important respondents' socio-demographic characteristics

Socio-demographic characteristics	Frequency (Percentage)
Gender	
Male	375 (49.1)
Female	388 (50.9)
Race of Respondent	
White	14 (1.8)
Black	728 (95.4)
Indian	21 (2.8)
Learning Mode	
Boarder	242 (31.7)
Day Scholar	521 (68.3)
School Location	
Urban area	492 (64.5)
Rural area	271 (35.5)
School Classification	
Sector 1	317 (41.6)
Sector 2	173 (22.7)
Sector 3	273 (35.7)
Guardian Monthly Income	
Less than $500	298 (41.9)
$500-$1 000	146 (20.5)
$1 001-$2 000	81 (11.4)
$2 001-$4 000	75 (10.6)
Above $4 000	111 (15.6)
Guardian's Level of Education	
Did not complete "O" level	88 (11.9)
Completed "O" or "A" level	205 (27.6)
Completed Certificate or Diploma	137 (18.4)
University graduate	231 (31.1)
Don't know	82 (11.0)

The research sample was balanced across gender, with males and females constituting 49.1% and 50.9%, respectively. The majority of respondents (95.4%) were black. Whites and Indians constituted 1.8% and 2.8%, respectively. Slightly above two-thirds of the respondents (68.3%) were day scholars and 64.5% of the respondents were drawn from schools located in urban areas, with the difference drawn from rural schools in the Gweru district. Majority of respondents (62.5%) come from poor households where their guardians earn less than $1 001 per month. Only slightly below a sixth of the respondents (15.6%) indicated that their guardians earn monthly salaries above $4 000 per month. About 77.1% of respondents revealed that their guardians had at least completed 'O' level education, with 31.1% of them having graduated with a university degree.

The average financial knowledge score was 33.3% (SD=14.1). The median score was 31.3%, with minimum score of zero and a maximum score of 68.8%. The financial knowledge scores were very low among secondary school pupils in the Gweru district in Zimbabwe, with a maximum scores of only 68.8%. An average of 33.3% found in this study is quite low when compared to the financial knowledge

scores found in other countries, for instances, Jorgensen & Savla (2010) found an average knowledge score of 48.3% among high school seniors in America; while Chen & Volpe (1998) reported an average financial knowledge score of 53% among college students in America.

Financial knowledge scores appeared to vary by gender, school classification, race of respondent, learning mode and school location. Male respondents scored marginally lower than their female counterparts (32.8% versus 33.7%) and boarders scored fairly higher than their day scholar counterparts (36.4% versus 31.8%). Similarly, respondents drawn from schools in urban areas had higher average financial knowledge scores than those from rural schools (36% versus 28.3%). Other variations of average financial knowledge scores among respondents were observed across school classifications, with respondents from secondary schools in low-density urban areas scoring 40.2%, as compared to 28.5% scored by respondents from secondary school in high-density urban areas and 28.2% scored by those from secondary school in rural areas. Indian students had a higher average financial knowledge score of 36.3% (SD=12.9), as compared to financial knowledge scores of 28.6% (SD=15.3) for white students and 33.3% (SD=14.1) for black students. Table 2 summarises the financial knowledge scores of respondents across selected socio-demographic characteristics of respondents.

Table 2. Descriptive statistics of financial knowledge scores by selected socio-demographic characteristics of respondents

Socio-demographic variables	Financial knowledge Scores (%)	
	Mean	Standard deviation
Gender		
Male	32.8	13.7
Female	33.7	14.6
School Location		
Urban	36.0	14.4
Rural	28.3	12.1
School Classification		
Sector 1	40.2	14.0
Sector 2	28.5	11.8
Sector 3	28.2	12.2
Race of Respondent		
White	28.6	15.2
Black	33.3	14.1
Indian	36.3	12.9
Learning Mode		
Boarder	36.4	15.5
Day Scholar	31.8	13.2
Total	**33.3**	**14.1**

To test for the significance of the observed differences in financial knowledge scores across gender, mode of learning and location of a school, Two-sample t-tests were conducted. Results revealed that, although female students were observed to have a slightly higher average financial knowledge score than their male counterparts, the

differences across gender were not statistically significant. This result means that there is no statistically significant difference in financial knowledge scores by gender.

Across learning modes, the two sample t-test results revealed that the difference in financial knowledge scores between boarders and day scholars was statistically significant at 99% confidence level. This significant result means that boarders in the sample scored 4.7% higher in financial knowledge as compared to their day scholar counterparts. In other words, these results confirm that day scholars had lower financial knowledge than boarders. Similarly, the Two-sample t-test showed that the observed difference between respondents from urban schools and those from rural schools was worth noting and statistically significant at 99% confidence level. This enunciates that urban school respondents had, on average, 7.6% more financial knowledge scores than their counterparts from schools in rural areas. Table 3 summarises the Two-sample t-test results by gender, learning mode and school location.

Table 3. Two-sample t-test results for financial knowledge scores by selected socio-demographic characteristics of respondents

Group	Number of Observations	Mean	Standard deviation	Confidence Interval 95%	t-statistic
Gender					
Male	375	32.8	13.7	31.4 - 34.2	-0.91
Female	388	33.7	14.6	32.3 – 35.2	
Learning Mode					
Boarder	242	36.4	15.6	34.5 – 38.4	4.29*
Day scholar	521	31.8	13.2	30.6 – 32.9	
School Location					
Rural	492	36.0	14.4	34.7 – 37.2	7.38*
Urban	271	28.3	12.1	26.9 – 29.8	
Combined	**763**	**33.3**	**14.1**	**32.3 – 34.3**	

Degrees of freedom = 761
* P < 0.01

Results from bivariate and multivariate regression analysis revealed the importance of gender, location of a school and learning mode of pupils as important predictors of financial knowledge among secondary school pupils. However, it was also found that the race of respondents was not important in explaining financial knowledge scores of students both before and after controlling for other variables. In particular, results revealed that female students were 78% (in the bivariate model) and 71% (in the multivariate model) more likely to score above 50% in financial knowledge than their male counterparts. With odds ratios of 0.19 (in the bivariate model) and 0.20 (in the multivariate model), the results show that respondents from schools located in rural areas were 81% and 80%, respectively, less likely to score financial knowledge scores above 50%. Similarly, day scholars were shown to be less likely to score above 50% in financial knowledge as shown by odds ratios of 0.41 and 0.44 in the bivariate and multivariate models, respectively. The race of students was not statistically significant in explaining financial knowledge scores among the respondents. Table 4 presents a full set of logistic regression results.

Table 4. Bivariate and multivariate logistic regression results by selected socio-demographic characteristics of respondents

Predictor Variables	Bivariate Model	Multivariate Model
Gender		
Male	1.00¨	1.00¨
Female	1.78 (1.21-2.62)***	1.71 (1.14-2.56)***
Location of School		
Urban area	1.00¨	1.00¨
Rural area	0.19 (0.11-0.33)***	0.20 (0.11-0.34)***
Learning mode		
Border	1.00¨	1.00¨
Day scholar	0.41 (0.28-0.60)***	0.44 (0.30-0.66)***
Race of Respondent		
White	1.00¨	1.00¨
Black	1.23 (0.27-5.57)	0.65 (0.14-3.16)
Other	1.88 (0.31-11.37)	0.90 (0.13-5.86)

*The reference category is identifiable by an odds ratio of 1.00¨ and ***P < 0.01. Figures in parenthesis are the 95% confidence interval values, and those outside are the odds ratios.*

6. Conclusions and recommendations

The study concludes that secondary school pupils are less knowledgeable about financial decision making, and this will reduce their financial prosperity. Such low levels of financial knowledge are quite worrying and a cause for great concern, given the fact that Zimbabwe boast of one of the highest literacy levels in the world, yet there is such limited in financial knowledge. It is, therefore, recommended that the Ministry of Education, Sport and Culture should consider reviewing its curriculum, with the ultimate goal of introducing a compulsory subject at Ordinary level so as to equip the students with the important skill in personal finance management. Alternatively, personal finance issues can be incorporated into the existing subjects that are compulsory for all pupils, such as Commerce or Principles of Accounting. There is growing consensus that such skills are a prerequisite for sound personal financial decision making, which is intertwined with financial success. High financial literacy levels are also good for the financial stability of any economy as they reduce economic ills such as indebtedness and the lack of a savings culture.

It is also concluded that broader environmental factors such as school location and learning mode exerted the most important influence on the accumulation of financial knowledge. These two factors were found to be statistically significant in explaining the variations in financial knowledge among the pupils in the sample. On the other hand, personal factors such as gender had limited influence on financial knowledge among secondary school pupils in the Gweru district. These results underscore that financial knowledge among secondary school students could be enhanced through the targeting of environmental factors as opposed to personal factors. The targeting of environmental factors is a vital starting point about finding ways of improving financial knowledge among the country's citizen. The importance of the environmental factors seems to reiterate the importance of the person's immediate

environmental factors in molding one's future, as opposed to factors within an individual. In this regard, institutions such as schools should play a leading role in empowering their students with the prerequisite financial knowledge.

7. Limitations

The study relies on results obtained through self-administered questionnaires. Although the use of self-administered questionnaires elicit higher rates of personal information than face to face interviews do (Fenton et al., 2001), the limitations of self-administered questionnaires (including the inability to probe for further clarifications or details, less control over how the questionnaire is completed and limited power of observations) should be noted. The other limitation of the study relates to the generalizability of the results. It is important to note that generalization of the results to the entire country could be misleading as the sample is not representative to all secondary school pupils in Zimbabwe.

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