Measuring Secondary School Teachers' Financial Literacy and Financial Self-Confidence

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Abstract

Financial illiteracy can be present among all groups of people, including educated individuals. However, if found among teachers it might be a problem, especially if those teachers are engaged in conducting financial education in their classrooms. Therefore, it is necessary to assess and monitor the financial literacy of secondary school teachers. Unfortunately, data suggests that many teachers lack financial knowledge gained through formal and informal educational experiences. This research explores the relationship of financial literacy and self-confidence using unique data from a sample of secondary school teachers in Croatia. Teachers confident in their financial knowledge and skills should be better equipped to teach that content. For this purpose, a questionnaire was designed; then, using a sample of teachers applied at the state assembly of teachers, they were distributed. Using factor analysis and linear regression modeling, the relationship between financial literacy and self-confidence was assessed. The results of conducted regression analysis showed that the self-confidence of secondary school teachers increases their financial literacy. This result is important in terms of educational policy since teachers might serve as an important channel of financial information for the students.

Index Terms— factor analysis, financial literacy, financial self-confidence, regression analysis, secondary school teachers.

I. INTRODUCTION

As financial education programmes continue to expand, interest has increased in measuring teachers' level of financial literacy and providing them quality financial education training. Teacher knowledge, abilities, and financial self-confidence are all important components of successful financial education. If teachers do not comprehend the material, do not feel confident to teach it, and/or do not completely appreciate the qualities and life experiences of individuals they educate, they cannot effectively engage their pupils or teach personal finance. This requires providing adequate financial assistance and training to teachers (Youth, Financial Literacy, and Learning 2012).

In a paper regarding financial literacy initiatives, Kiviat and Morduch (2012) stated that practitioners of financial literacy education must widen their perspective. Teachers' awareness of personal finance subject matter, available financial education resources, effective pedagogical approaches, and cultural and behavioral components of individual financial decisions may all benefit from quality professional development experiences.

According to Haynes and Chinadle (2007), in order to promote uptake of personal finance curricula, teachers must feel competent with the material and methodology, and teacher training is critical to this process. This issue was addressed at a 2012 OECD conference on financial education for youth, which urged its worldwide audience to "work with teachers and their associations to improve their confidence" and "incentivize participation in teacher training if necessary" (OECD 2012). Teachers'

professional development is also highlighted heavily in federal government proposals in the United States (Every American Financially Empowered 2012).

Unfortunately, several studies have found that teachers from a variety of disciplines lack the competence to provide financial education content and may benefit from financial education training (McCormick 2009). Teachers in the subject areas of business, consumer economics, mathematics, and social studies were given a 50-item questionnaire related to personal finance. While there were no significant variations in overall knowledge scores across the four groups, math teachers scored considerably higher on questions in the "money management" topic area. The findings of the survey revealed that all of the surveyed teachers indicated the need for the upgrade of their knowledge and skills (Lofrgren & Suzuki, 1979). Only a third of responders obtained a score of at least 70%, while only about 8% received a 80 % of the total. Way and Holden (2009) showed that teachers who had completed a college course on financial education themes were 50 % more likely than others to assess themselves as qualified to teach financial literacy subject matter. The majority of teachers said they were unqualified to apply the required standards and state's financial literacy curriculum requirements. They also felt underprepared in terms of both content and pedagogy, particularly in the more technical areas of risk management and insurance, as well as saving and investing.

Otter (2010) used a sample of 181 classroom teachers from two states in the United States to investigate teacher perceptions and knowledge about financial literacy education. He discovered teacher support for personal finance teaching and teacher motivation in enhancing their own financial literacy, similar to Way and Holden (2009). The average score for the 12 personal finance questions was 37.5 %, indicating a lack of understanding of personal finance topics.

Based on their research O'Neill & Hensley (2016) suggest that self-confidence is an important factor contributing to teacher's capacity to teach personal finances; as educators become more comfortable with a subject area and obtain valuable resource materials, they are more likely to teach a topic frequently and effectively.

However, self-confidence is not only important in terms of teachers' performance but in a much wider context. According to Andarsari & Ningtyas (2019), in order to be considered literate, individuals have to own the ability and self-confidence to implement decisions. Lusardi & Mitchell (2011) also claim that to financially perform well, knowledge is not enough, rather it should involve self-confidence to do something. Arellano, Tuesta & Camara (2014) show that individuals with higher levels of self-confidence score higher in financial literacy tests. Similarly, Asaad (2015) argues that financial self-confidence is a critical component influencing financial literacy and overall financial behavior. Individuals with a high degree of financial literacy and self-confidence are more likely to make sound financial decisions than those with a low level of financial literacy and self-confidence, according to his findings. Overconfidence, on the other hand, is harmful since it leads to an overestimation of one's own knowledge accuracy and an underestimation of the danger they confront. According to Bénabou & Tirole (2002) self-confidence can also increase motivation, converting it into a valuable asset for individuals with insufficient willpower.

Using factor analysis and regression modelling, the impact of self-confidence on financial literacy of secondary school teachers is assessed in this paper on a sample of Croatian secondary school teachers.

II. DATA AND METHODS

The data was collected from a purposive sample of teachers who participated at the State assembly of teachers organized by Croatian Education and Teacher Training Agency, in April 2022. The survey was conducted before the beginning of the online financial literacy workshop organized for secondary school teachers. All respondents voluntarily

participated at the workshop. The main purpose of the of the project was to increase the level of teachers' financial literacy. The questionnaire used to collect data was a three-part tool. The first part consisted of questions about financial literacy. The second part consisted of questions related the psychological and socio-economic factors and the last part consisted of questions on respondents' personal characteristics and their personal finance habits. A total of 706 respondents was gathered. The sample consists of 706 secondary school teachers.

Financial self-confidence scale was adapted from Meuter et al. (2005) measure of self-efficacy, with reported Chronbach Alpha indicators of 0.94 and 0.96 for use of the scale. Meuter et al. (2005) also tested a measurement model containing all of their constructs and indicators. The factor loadings were reported to be significant and evidence of discriminant validity was provided for each construct using two different tests (confidence interval, variance extracted). The so-called ""big five" financial literacy questions created by Lusardi and Mitchell (2011) have been used to test consumers' knowledge and skills about inflation, compound interest, diversification, and stock and bond ownership. For every question, correct answer brought 1 point, while incorrect answer brought zero points. The financial literacy is modelled as a linear combination of the answers to questions.

Regarding financial self-confidence, the answers are formed as 5 point Likert-type scale. The principal component analysis is applied to variables formed from items shown in Table 1. In line with Field (2011) and Tabachnick and Fidell (2007) principal component analysis is used to solve multicollinearity problem by combining collinear variables related to self-confidence into one or more factors. Most of the information on variability of original data is related to first component, whereas the least refers to the last component. After conducting principal component analysis, the linear regression model is estimated, with financial literacy as the dependent variable and self-confidence as the independent variable, what is explained in detailed in next section.

III. RESULTS AND DISCUSSION

Prior to conducting principal component analysis, the correlation of items related to financial self-confidence is assessed in Table 1. Since all items are positively correlated with and coefficients are significant, principal component analysis is conducted.

Table 1: *Correlation matrix of self-confidence items*

Correlation (p-value)	SC1	SC2	SC3	SC4	SC5
SC1	1				
SC2	0.75* (0.0)	1			
SC3	0.6* (0.0)	0.56* (0.0)	1		
SC4	-0.35* (0.0)	-0.37* (0.00)	-0.29* (0.0)	1	
SC5	0.51* (0.0)	0.56* (0.0)	0.52* (0.0)	0.25* (0.0)	1

(Source: Authors' calculation using SPSS 19)
Note: * denotes significance of correlation coefficient at 5% level (p<0.05)

The eigenvalues related to each component are shown in Table 2, pointing to the variance explained by each component.

After extraction, the first component explains 59.073% of total variance and each additional component is associated to low percentage of variance explained. The eigenvalue of first component is higher than one and therefore one component which comprises financial self-confidence is retained.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (see Kaiser, 1970) calculated using SPSS 19 software equals 0.811, while Bartlett's test of sperchity Chi-Square statistic equals 1360.551 with p-value equal to 0.000. Kaiser (1974) proposes values lower than 0.5 as hardly acceptable, between 0.5 and 0.7 as mediocre, between 0.7 and 0.8 as

good and values between 0.8 and 0.9 as great, while values higher than 0.9 are considered superb (Hutcheson and Sofroniou, 1999). Thus, KMO suggests that there exists considerable correlation among items.

Table 2: Total variance explained (Source: Authors' calculation using SPSS 19)

Component	Initial eigenvalues		Extraction Sums of Squared Loadings
	Total	Cumulative % of variance	Total
1	2.954	59.073	2.954
2	0.807	75.211	
3	0.526	85.736	
4	0.467	95.078	
5	0.246	100.000	

The extracted component related to financial self-confidence used further in linear regression modelling as independent variable, while financial literacy is used as the dependent variable. The impact of financial self-confidence (FSC) on financial literacy (FL) pricing is assessed using simple regression model. The following linear regression equation is estimated, with corresponding t-values in brackets:

$$FL = 3.105 + 0.373 FSC.$$
$$(69.635) \quad (8.365) \tag{1}$$

The estimated model indicates financial self-confidence of secondary school teachers has positive statistically significant impact on their financial literacy, what is in line with previous relevant research. The R-square of the model equals 0,09, what is quite low. However, this is expected due to the fact that financial self-confidence is not expected to be the only determinant of financial literacy. Nevertheless, in this research the aim is to analyse solely the impact of financial self-confidence on financial literacy, without including other possible determinants.

The model residuals' diagnostics is also provided. The White heteroskedasticity test F-statistic calculated using EViews 9 equals 0.1633, with corresponding p-value of 0.6863, what shows that the null hypothesis of homoskedasticity cannot be rejected at any reasonable significance level. Regarding the residual autocorrelation test, the Breusch-Godfrey Serial Correlation LM Test is applied using EViews 9. The F-statistic equals 0.3057, with corresponding p-value of 0.7637, indicating that the autocorrelation of residuals is not present. Therefore, the estimated model is appropriate.

IV. CONCLUSION

The paper explored secondary school teachers' financial literacy and self-confidence in Croatia. According to previous relevant research, higher financial self-confidence of teachers should increase their financial literacy, what makes them more prepared for teaching. Using the data from a purposive sample of teachers who participated at the State assembly of teachers in April 2022, the regression model is estimated to assess the impact of teachers' financial self-confidence on their financial literacy. The results of the empirical study revealed that secondary school teachers' financial literacy has a positive statistically significant impact on their financial self-confidence. This finding is noteworthy for creators of educational policy, since teachers are a valuable source of financial knowledge for students. The main limitation of the paper is that authors analyzed specifically the impact of financial self-confidence on financial literacy, although financial literacy is affected also by other determinants. Further research should include additional possible determinants of financial literacy.

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