

High School Students and their Perception of Financial Institutions: An Empirical Study in Xalapa, Veracruz

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ABSTRACT

The purpose of this study is to analyze the perception of high school students from Xalapa, Veracruz, towards six variables related to financial education: savings, investments, pensions, credits, debts, expenses and budgets. For the field activity, we designed an instrument and applied it to 401 enrolled students at the moment of the survey. The data were analyzed through exploratory factor analysis. It is concluded that high school students have a positive perception of financial institutions and the products they offer.

KEYWORDS

Finance education, perception, financial practices

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Introduction

This research stems from a topic of global agenda, based on a report presented in the year 2010 by the G-20 group, where financial inclusion is defined as the access to formal financial services and a basic element for development, stability and progress of families. The World Bank, an active member on the matter, has contributed with different approaches and programs of financial education for low income population around the world. However, Miller (2012) points out that the World Bank aims to achieve a change through financial education on the client's behavior, instead of providing the necessary information.

On the theoretical studies, the seminal Works presented to the OECD on finances state that access to financial and economic education for citizens does

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not assure they can use it to full extend. Parkin, (2004); Bernanke and Frank (2007), argue that a misinformed citizen without basic knowledge of economy or finances cannot make a right decision about consumption, investment or expense, since the information and technical knowledge allows him/her to compare the benefits of each option. According to the OECD (2009), financial education involves a process in which investors and consumers get information on financial products, concepts and risks, enabling the development of skills and confidence to become more aware of the risks and financial opportunities and thus, improve the welfare of the population. Daily financial decisions are made which will impact to a greater or lesser extent the financial situation for the future (García-Santillán and Edel, 2006).

In Mexico, the G-20 proposed the increase of financial inclusion, identifying the barriers that prevent the access and use of attainable financial services, paying special attention to women and young people. From there, great efforts emerged, such as the “First Survey on Mexican Financial Culture”, in which many banks, institutions, government agencies and colleges participated; the aim was to identify the level of knowledge and perception of formal and informal financial products and services. The results show that nearly one out of five homes had a record of their expenses and a financial plan for the home, but the priority is to cover the most “immediate” needs (food, health and education) and saving is not a family habit.

Relevant papers about financial education are those by: King and Levine (1993); Levine, Loayza and Beck (2000); Parkin, (2004); Atkinson, McKay, Kempson and Collard. (2006); García-Santillán, Herrera-Santiago and Edel-Navarro (2006); Lusardi and Mitchell (2006, 2011); Gnan, Silgoner and Weber (2007); Hastings and Tejada Ashton, (2008); Mandell, (2008, 2009); Ruiz, (2011); Miller, (2012); Ramos (2012); Cueva, (2012); Moreno-Garcia, García-Santillán, and Munguia-Tiburcio, (2013); Garcia, Grifoni, Lopez and Mejia (2013); García-Santillán, Escalera-Chávez and Venegas-Martínez (2014). All agree on knowledge and information being essential for financial skills and decision taking.

Methods

From the background discussed above, raises the central question of the study: What is the set of latent variables to know what the perception of high school student is in terms of: Investment, Savings, Credit, Insurance and Pensions, Expenses and Budget? The aim is to identify the set of variables that forms a structure to understand the perception of students on Investment, Savings, Credit, Insurance and Pensions, Expenses and Budget. Also, it is sought to test the hypothesis:

H₀: There is no set of variables that form a structure to understand the perception of students on Investment, Savings, Credit, Insurance and Pensions, Expenses and Budget

H_a. There is a set of variables that form a structure to understand the perception of students on Investment, Savings, Credit, Insurance and Pensions, Expenses and Budget.

The study is a non-experimental design, since there is no manipulation of the variables. It has the shape of a cross-section as the data collection takes

place in a single moment for measuring, being these the days before the end of January-June 2015 of the school year. The study seeks to understand the perception to the dimensions of the Financial Education Variable which are: Investment (VI1), Pensions (VI2), Credit (VI3), saving (VI4) Debt (VI5), Expenses and Budgets (VI6).

The target population for this study is active students during the period January to June 2015 in the high schools of the region of Xalapa, the capital of Veracruz. The type of sample is probabilistic (random-simple-stratified) as it has the role of high schools in the regions selected for the study. The total population of 4,185 students, the calculation of the sample gives 352 cases, having surveyed 401 in total. The statistical procedure consisted of an exploratory factor analysis. To validate the relevance of the factor analysis, the Bartlett test of sphericity, with KMO, and Chi square goodness test of fit X^2 with significance $\alpha = 0.01$ is calculated. The decision criteria for the hypothesis test are: reject H_0 if $X^2 > X^2_T$, ($p < 0.01$).

Results and Discussion

The following table shows the descriptive statistics: mean standard deviation and the coefficient of variation in order to identify the variation of each of the instrument items.

Table 1. Descriptive Statistics

Ítem	Mean	Standar Deviation	N	Coefficient of variation CV=media/SD
INVES01	3.122200	1.008730	401	3.0951791
INVES02	3.039900	1.156890	401	2.6276483
INVES03	3.010000	1.017300	401	2.9588125
SAV06	3.246900	1.204740	401	2.6951043
SAV07	3.109700	1.130460	401	2.7508271
SAV08	3.007500	1.038000	401	2.8973988
SAV09	3.147100	1.142720	401	2.7540430
CREDI11	2.927700	1.239860	401	2.3613150
CREDI12	2.932700	1.047830	401	2.7988319
CREDI13	2.880300	1.027440	401	2.8033754
CREDI14	2.862800	1.021590	401	2.8022984
CREDI15	2.960100	1.097000	401	2.6983592
CREDI16	2.837900	1.158080	401	2.4505216
INSUR19	2.922700	1.147390	401	2.5472594
INSUR20	2.832900	0.994740	401	2.8478798
INSUR21	2.860300	1.005210	401	2.8454751
INSUR22	3.089800	1.121120	401	2.7559940
INSUR23	3.528700	1.358230	401	2.5980136
INSUR24	3.690800	1.331970	401	2.7709333
INSUR25	3.231900	1.163430	401	2.7779067
INSUR26	3.024900	1.111030	401	2.7226088
INSUR27	3.082300	1.147040	401	2.6871774
INSUR28	3.264300	1.401770	401	2.3286987
INSUR29	3.137200	1.057660	401	2.9661706
INSUR30	3.578600	1.365440	401	2.6208402

Source: own

Based on the results of Table 1, we can see that the item INVER01 presents the most variation and GASP28 item has less variation. To justify Factor Analysis as an appropriate technique to develop this empirical study, KMO calculation, the Bartlett test of Sphericity and X2 were applied (Table 2).

Table 2. KMO and Bartlett's test of sphericity

Kaiser-Meyer-Olkin Sampling Adequacy		0.907
Bartlett's Sphericity Test	Approximate Chi-squared	3189.513
	Df	300
	Sig.	.000

Source: own

The criteria provide that the low KMO (<0.5) indicates that the cross-correlation between the variables is not large and a Factorial Analysis would be impractical. However, a $KMO > 0.5$ value indicates a significant correlation level and therefore, the use of a Factor Analysis is convenient and useful. The result of 0.907 (reported in Table 7) and the value of X2 300 gl. 3189,513 ff. = 0.00 is enough to confirm the use of factor analysis evidence, and considering the decision criterion $X2c > X2T$, ($p < 0.01$) so there is significant evidence to reject H_0 .

Next is the procedure for the calculation of correlations, commonalities, measures of sampling adequacy for variable, saturations and explained variance (Table 3)



Table 4. Correlation matrix anti-image

	INVER01	INVER02	INVER03	AHOR06	AHOR07	AHOR08	AHOR09	CREDI11	CREDI12	CREDI13	CREDI14	CREDI15	CREDI16	SEGUPE19	SEGUPE20	SEGUPE21	SEGUPE22	SEGUPE23	SEGUPE24	SEGUPE25	SEGUPE26	SEGUPE27	GASPRE28	GASPRE29	GASPRE30		
Covarianza anti-imagen	INVER01	.740	-.097	-.170	-.119	.012	.063	.038	.010	-.046	.071	.016	.020	-.010	.026	-.048	-.062	-.038	-.024	-.022	-.025	-.020	-.002	-.069	-.055	.040	
	INVER02	-.097	.725	-.151	.007	-.086	-.040	.009	.055	-.108	.012	-.053	-.050	.012	.021	.060	.057	.001	-.027	-.053	-.077	-.089	.055	.080	-.009	-.026	
	INVER03	-.170	-.151	.736	.051	-.037	-.077	-.013	-.014	.050	-.005	-.065	-.092	-.026	.002	-.014	-.019	.030	.069	-.056	.038	.026	-.063	.010	.012	-.048	
	AHOR06	-.119	.007	.051	.614	-.126	-.116	-.001	-.091	-.005	-.066	.018	-.006	-.001	-.027	-.023	.009	.033	-.012	-.022	.003	.010	-.034	-.033	.006	-.038	
	AHOR07	.012	-.086	-.037	-.126	.662	-.072	-.082	-.064	.007	-.060	.033	.032	-.011	-.050	.024	-.041	-.033	.037	-.016	-.027	.026	.019	-.094	.025	.025	
	AHOR08	.063	-.040	-.077	-.116	-.072	.641	-.022	-.035	-.087	.013	.018	-.055	-.039	-.029	-.027	-.039	.013	-.029	-.002	-.029	.002	-.056	-.050	.025	.028	
	AHOR09	.038	.009	-.013	-.001	-.082	-.022	.682	-.092	-.039	.050	-.098	-.067	-.057	-.054	-.017	.007	-.064	-.022	-.012	-.032	-.052	.041	.014	-.026	.018	
	CREDI11	.010	.055	-.014	-.091	-.064	-.035	-.092	.564	-.110	-.083	-.041	.009	-.001	.052	-.019	-.021	-.102	-.028	-.028	-.017	.062	-.002	-.044	.019	-.015	
	CREDI12	-.046	-.108	.050	-.005	.007	-.087	-.039	-.110	.649	-.106	-.079	-.005	-.042	.000	-.003	-.017	-.050	.018	.016	.025	.005	-.010	.009	.001	.002	
	CREDI13	.071	.012	-.005	-.066	-.060	.013	.050	-.083	-.106	.573	-.123	-.106	-.043	-.023	.021	.092	-.016	.017	-.006	-.039	-.025	-.012	.046	-.044	.009	
	CREDI14	.016	-.053	-.065	.018	.033	.018	-.098	-.041	-.079	-.123	.665	.003	-.056	-.028	-.069	-.049	.029	-.037	.053	.006	-.070	.005	-.021	.025	.006	
	CREDI15	.020	-.050	-.092	-.006	.032	-.055	-.067	.009	-.005	-.106	.003	.699	-.091	-.043	-.035	-.026	-.028	-.059	.038	.019	-.091	.066	-.014	-.038	.052	
	CREDI16	-.010	.012	-.026	-.001	-.011	-.039	-.057	-.001	-.042	-.043	-.056	-.091	.681	.060	-.134	-.032	-.072	-.005	.029	-.018	.032	-.028	.057	-.033	-.012	
	SEGUPE19	.026	.021	.002	-.027	-.050	-.029	-.054	.052	.000	-.023	-.028	-.043	.060	.665	-.077	-.100	-.066	.042	.011	-.085	.031	-.052	-.085	.029	-.011	
	SEGUPE20	-.048	.060	-.014	-.023	.024	-.027	-.017	-.019	-.003	.021	-.069	-.035	-.134	-.077	.622	.031	-.080	-.036	-.042	-.092	.011	-.065	.006	-.049	.024	
	SEGUPE21	-.062	.057	-.019	.009	-.041	-.039	.007	-.021	-.017	-.092	-.049	-.026	-.032	.100	-.031	.674	-.022	-.006	.005	.009	-.019	-.045	.074	-.072	-.035	
	SEGUPE22	-.038	.001	.030	.033	-.003	.013	-.064	-.102	-.050	-.016	.029	-.028	-.072	-.066	-.080	-.022	.618	.005	-.003	.046	-.058	-.101	-.059	-.022	.024	
	SEGUPE23	-.024	-.027	.069	-.012	-.034	-.029	-.022	-.028	.018	.017	-.037	-.059	-.005	-.042	.036	-.006	.005	.478	-.230	-.033	.054	-.019	-.016	-.004	-.094	
	SEGUPE24	-.022	-.053	-.056	-.022	.037	-.002	-.012	-.028	.016	-.006	.053	.038	.029	.011	-.042	-.005	-.003	-.230	.476	-.024	-.025	-.021	-.077	.020	-.044	
	SEGUPE25	-.025	-.077	.038	.003	-.016	-.029	-.032	-.017	.025	-.039	.006	.019	-.018	-.085	-.092	.009	.046	-.033	-.024	.681	-.111	-.067	.009	-.027	-.023	
	SEGUPE26	-.020	-.089	.026	.010	-.027	.002	-.052	.062	.005	-.025	-.070	-.091	.032	.031	.011	-.019	-.058	.054	-.025	-.111	.613	-.138	-.010	-.054	-.086	
	SEGUPE27	-.002	.055	-.063	-.034	.026	-.056	.041	-.002	-.010	-.012	.005	.066	-.028	-.052	-.065	-.045	-.019	-.019	-.021	-.067	-.138	.604	-.001	-.078	.010	
	GASPRE28	-.069	.080	.010	-.033	.019	-.050	.014	-.044	.009	.046	.021	-.014	.057	-.085	.006	.074	-.059	-.016	-.077	.009	-.010	-.001	.475	-.045	-.207	
	GASPRE29	-.055	-.009	.012	.006	-.094	.025	-.026	.019	.001	-.044	.025	-.038	-.033	.029	-.049	-.072	-.022	.004	.020	-.027	-.054	-.078	-.045	.670	-.084	
	GASPRE30	-.040	-.026	-.048	-.038	.025	-.028	.018	-.015	.002	.009	.006	.052	-.012	-.011	.024	-.035	.024	-.094	-.044	-.023	-.086	.010	-.207	-.084	.470	
	Correlación anti-imagen	INVER01	.859^a	-.132	-.230	-.176	.018	.092	.054	.015	-.066	.108	.023	.028	-.013	.037	-.071	-.088	-.056	-.041	-.037	-.035	-.030	-.003	-.117	-.078	.068
		INVER02	-.132	.812^a	-.207	.010	-.124	-.058	.013	.085	-.157	.018	-.076	-.070	.018	.031	.089	.081	.001	-.046	-.090	-.110	-.133	.083	.137	-.013	-.045
		INVER03	-.230	-.207	.845^a	.077	-.053	-.112	-.019	-.022	.072	-.008	-.093	-.129	-.036	.003	-.021	-.027	.045	.116	-.095	.054	.039	-.094	.016	.017	-.081
		AHOR06	-.176	.010	.077	.928^a	-.197	-.186	-.001	-.154	-.007	-.112	-.028	-.009	-.002	-.042	-.037	.013	.053	-.023	-.041	.004	.016	-.056	-.060	.009	-.072
		AHOR07	.018	-.124	-.053	-.197	.921^a	-.110	-.122	-.104	.011	-.098	.049	.046	-.017	-.076	.037	-.062	-.005	-.061	.066	-.024	-.043	.040	.034	-.141	.044
AHOR08		.092	-.058	-.112	-.186	-.110	.940^a	-.034	-.058	-.134	.021	.027	-.082	-.059	-.045	-.042	-.059	.021	-.052	-.003	-.044	.003	-.090	-.091	.038	.052	
AHOR09		.054	.013	-.019	-.001	-.122	-.034	.936^a	-.148	-.059	.080	-.145	-.098	-.084	-.080	-.026	.011	-.099	-.038	-.021	-.048	-.081	.063	.025	-.038	.032	
CREDI11		.015	.085	-.022	-.154	-.104	-.058	-.148	.925^a	-.182	-.146	-.067	.015	-.002	.085	-.032	-.035	-.173	-.054	-.054	-.027	.105	-.003	-.084	.031	-.029	
CREDI12		-.066	-.157	.072	-.007	.011	-.134	-.059	-.182	.923^a	-.174	-.120	-.007	-.064	.001	-.004	-.025	-.080	.033	.029	.037	.007	-.016	.017	.002	.003	
CREDI13		.108	.018	-.008	-.112	-.098	.021	.080	-.146	-.174	.909^a	-.199	-.168	-.069	-.037	.035	-.147	-.027	.032	.011	-.062	-.042	-.021	.089	.071	.018	
CREDI14		.023	-.076	-.093	.028	.049	.027	-.145	-.067	-.120	-.199	.918^a	.005	-.084	-.043	-.107	-.074	.045	-.066	.094	.009	-.110	.008	-.038	.038	.010	
CREDI15		-.028	-.070	-.129	-.009	.046	-.082	-.098	.015	-.007	-.168	.005	.909^a	-.132	-.062	-.054	-.037	-.043	-.102	.066	.028	-.138	.101	-.025	-.055	.090	
CREDI16		-.013	.018	-.036	-.002	-.017	-.059	-.084	-.002	-.064	-.069	-.084	-.132	.921^a	.089	-.206	-.047	-.111	-.010	.050	-.026	.049	-.044	.100	-.050	-.021	
SEGUPE19		.037	.031	.003	-.042	-.076	-.045	-.080	.085	.001	-.037	-.043	-.062	.089	.929^a	-.120	-.150	-.103	-.074	.020	-.127	.049	-.083	-.151	.043	-.020	
SEGUPE20		-.071	.089	-.021	-.037	.037	-.042	-.026	-.032	-.004	.035	-.107	-.054	-.206	-.120	.929^a	-.047	-.129	.066	-.077	-.141	.017	-.106	.011	-.076	.044	
SEGUPE21		-.088	.081	-.027	.013	-.062	-.059	.011	-.035	-.025	-.147	-.074	-.037	-.047	-.150	-.047	.940^a	-.034	-.010	-.009	.014	-.029	-.070	.130	-.107	-.063	
SEGUPE22		-.056	.001	.045	.053	-.005	.021	-.099	-.173	-.080	-.027	.045	-.043	-.111	-.103	-.129	-.034	.933^a	.009	.006	.070	.095	.165	-.108	-.034	.045	
SEGUPE23		-.041	-.046	.116	-.023	-.061	-.052	-.038	-.054	.033	.032	-.066	-.102	-.010	-.074	.066	-.010	.009	.859^a	-.482	-.058	.101	-.035	-.033	.006	-.198	
SEGUPE24		-.037	-.090	-.095	-.041	.066	-.003	-.021	-.054	.029	-.011	.094	.066	.050	.020	-.077	-.009	-.006	-.482	.859^a	-.042	-.047	-.039	-.162	.036	-.094	
SEGUPE25		-.035	-.110	.054	.004	-.024	-.044	-.048	-.027	.037	-.062	.009	.028	-.026	-.127	-.141	.014	.070	-.058	-.042	.940^a	-.172	-.105	.016	-.041	-.041	
SEGUPE26		-.030	-.133	.039	.016	-.043	.003																				

of the entire factor loads that each reagent has. Table 5 shows the commonalities of each item, and then analyze the criterion of own value >1 , and obtain the percentage of the total variance that these components account for the phenomenon being studied.

Table 5. Commonalities (proportion of variance)

Ítem	Extraction
INVES01	.395
INVES02	.647
INVES03	.510
SAV06	.481
SAV07	.416
SAV08	.432
SAV09	.374
CREDI11	.595
CREDI12	.474
CREDI13	.516
CREDI14	.387
CREDI15	.357
CREDI16	.429
INSUR19	.397
INSUR20	.504
INSUR21	.390
INSUR22	.460
INSUR23	.613
INSUR24	.632
INSUR25	.384
INSUR26	.491
INSUR27	.536
INSUR28	.650
INSUR29	.406
INSUR30	.633

Extraction method: Analysis of main components

The values shown in Table 5 called Commonalities; represent the variance explained by the common factors and these will vary between 0 and 1; zero values indicate that factors explain the variable in short and 1 fully explains the variability of the factors. Factor analysis with Varimax rotation with Kaiser Normalization obtains 4 components. Table 6 shows that is the first component, which has the highest burden of items (8), second (5), third (4) and fourth (3).

In the total explained variance, the factors obtained explaining a 48,444% of the total variability of the items. It can be seen that the component that most explains the variance with 15.261% is the first. Now we can see how each of the remaining three components contribute to the explanation of variance: the second (5 items) 13.062%, third (4 items) 12,877% and fourth (3 items) 7.245%.

Table 6. Matrix component rotated

Items	Component			
	1	2	3	4
CREDI11	.681			
CREDI12	.660			
CREDI13	.651			
SAV07	.578			
SAV08	.554			
SAV09	.539			
SAV06	.518			
CREDI14	.504			
INSUR27		.670		
INSUR20		.644		
INSUR26		.574		
INSUR22		.542		
INSUR29		.535		
INSUR28			.776	
INSUR24			.758	
INSUR30			.748	
INSUR23			.740	
INVES02				.771
INVES03				.674
INVES01				.526

Extraction method: Analysis of main components. Rotation method: Varimax with Kaiser normalization.

a. The rotation has converged in 7 interactions.

Table 7. Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	% Cumulative	Total	% of Variance	% Cumulative
1	7.363	29.453	29.453	3.815	15.261	15.261
2	2.227	8.908	38.360	3.265	13.062	28.322
3	1.331	5.323	43.683	3.219	12.877	41.199
4	1.190	4.761	48.444	1.811	7.245	48.444

Extraction method: Analysis of main components.

The interpretation of the factors explaining the student's perception towards the topics of financial education, specifically for financial institutions and products they offer, are:

Factor I: The first factor measures the student's perception towards credit and savings and is explained by the reagents: CREDI11 (.681), CREDI12 (.660), CREDI13 (.651), AHOR07 (.578), AHOR08 (.554), AHOR09 (.539), AHOR06 (.518), CREDI14 (.504). It is clear that student perceived favorably how accessible it is to get a credit in financial institutions and believe that they meet the requirements applying for financial institutions in granting personal loans, credit cards, mortgages, car loans, all this is very accessible and easy.

In terms of savings, they perceive that banks have adapted to the needs of the client and that the information they provide is clear and accurate. Likewise, they consider that the requirements to open a savings account are very accessible, as well as to obtain a credit for SME or microcredit. The former

means that financial institutions have succeeded in offering attainable products to the public in general and specifically for mid-senior level students. The perception is also good in credit, which is a fundamental step for their inclusion to financial services and products.

Factor II: This second factor measures the student's perception towards insurance and pensions as well as spending and budget, and is explained by the reagents: SEGUPEN27 (.670), SEGUPEN20 (.644), SEGUPEN26 (.574), SEGUPEN22 (.542), GASPRES29 (.535). The students perceive positively the information provided by pension institutions like Afores, considering that it is clear and accurate, also the information of the fees clear.

Also, students have had closer ties with insurers and apparently have had some experience to test their coverage needs. This might be due to car, medical or other insurance and a logical explanation could be that educational institutions have hired some insurance for students to cover major medical expenses and therefore, an insurance company could have explained the operation to the students. Let's also recall that the issue of insurance and pensions has already been included in social security matters in the curricula of high school and if the student receives pension products favorably, he/she is more likely to manage their productive years as necessary to shore up its social security to a favorable scenario for future withdrawal from job.

Factor III: This third factor extracted variance to explain the student's perception towards expenses and budgets, as well as insurance and pensions, which is explained by the reagents: GASPRES28 (.776), SEGUPEN24 (.758), GASPRES30 (.748), SEGUPEN23 (.740) this factor is a very important fact to note, and it is precisely that students perceive as important and useful to have a budget to manage their resources. They are also aware that having life and health insurance is very important; hence it is also important to manage their expenses, allowing them to keep their finances healthy.

Factor IV: The fourth factor measures the student's perception towards aspects of investment and is explained by the reagents: INVER02 (.771), INVER03 (.674), INVER01 (.526). In the latter factor we are able to extract the variance of some indicators related to the variable investments. While it is true that the student's perception towards investment is acceptable, this should be taken with caution since the concept involves more specialized knowledge. Thus, the student apparently believes that investment products and services offered adapt to their needs.

Conclusion

In conclusion, we believe that most of the students who responded to the survey are likely to take favorable decisions on investments, savings, credit, insurance and pensions, spending and budget, then, the opportunity remains open as an invitation to do everything conducive to join efforts with all the involved parties towards financial education.

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References

- Atkinson, A., S. McKay, E. Kempson y S. Collard. (2006). Levels of Financial Capability in the UK: Results of a Baseline Survey. Londres: Autoridad de Servicios Financieros. Universidad de Bristol.
- Bernanke, S. B. y H. R. Frank (2007). Microeconomía. España: *Mc-Graw-Hill*.
- Cueva, S. (2012). Inclusión financiera: aproximaciones teóricas y prácticas. *Banco Central de Ecuador*.
- Demirgüç-Kunt, A. y Maksimovic, V. (1998). Law, Finance, and Firm Growth. *Journal of Finance* 53 (6): 2107–37
- G-20 (2010). Principles for Innovative Financial Inclusion. *Global Partnership for Financial Inclusion Toronto*. Retrieved from: <http://www.aff-global.org/sites/default/files/afi%20g20%20principles.pdf>
- García, N., Grifoni, A., Lopez, J.C. and Mejía, D., (2013), “Financial Education in Latin America and the Caribbean: Rationale, Overview and Way Forward”, OECD Working Papers on Finance, Insurance and Private Pensions, No.33, OECD Publishing.
- García-Santillán, A., Escalera-Chávez, M., and Venegas-Martínez, F. (2014) Matemáticas financieras, utilización de tecnología y procesos de enseñanza. Como percibe el alumno esta trilogía? *Revista Observatorio Calasanz*, 4(11).
- García-Santillán, Herrera-Santiago y Edel-Navarro (2006). Decisiones Financieras y la Administración del Riesgo desde el enfoque del aprendizaje. *Contribuciones a la Economía*. ISSN 16968360.
- Gnan, E., M. Silgoner and B. Weber, (2007). Economic and financial education: Concepts, goals and measurement. Viena: *Monetary Policy & the Economy*, Q3/07.
- Hastings, J. y Tejada Ashton, L. (2008). Financial Literacy, Information, and Demand Elasticity: Survey and Experimental Evidence from Mexico. *Documento de trabajo de la Oficina Nacional de Investigaciones Económicas no. 14538, Oficina Nacional de Investigaciones Económicas, Cambridge, MA*.
- King, R.G. y Levine, R. (1993). Finance and Growth: Schumpeter might be right. *Journal of Economics*, 108 (3).
- Levine, R., Loayza, N., Beck, T. (2000). Financial intermediation and growth: causality and causes. *Journal of Monetary Economics* 46(2000), 31-77.
- Lusardi, A. y Mitchell, O. (2006). Financial literacy and retirement preparedness: Evidences and implications for financial education. *Business Economics, National Association for Business Economics*. 35-44.
- Lusardi, A. (2008). Household Saving Behavior: The Role of Financial Literacy, Information, and Financial Education Programs. *Business Economics, National Association for Business Economics*.
- Lusardi, A. (2010). Financial Literacy among the Young: Evidence and Implications for Consumer Policy. Retrieved from: http://www.dartmouth.edu/~alusardi/Papers/Financial_literacy_young.pdf
- Lusardi, A. y Mitchell, O. (2011). Financial Literacy and Planning: Implications for Retirement Wellbeing. *Business Economics, National Association for Business Economics*. Working Paper 17078. Retrieved from: <http://www.nber.org/papers/w17078>.
- Mandell, L. (2008). The financial literacy of young american adults. *Jumpstart coalitions survey*. Retrieved from: <http://www.jumpstart.org/assets/files/2008SurveyBook.pdf>.

- Mandell, L. (2009). The impact of financial literacy education on subsequent financial behavior. *Association for Financial Counseling and Planning Education*. Retrieved from: http://6aa7f5c4a9901a3e1a1682793cd11f5a6b732d29.gripelements.com/pdf/lewis_mandell_linda_schmid_klein.pdf.
- Miller, M. H. (2012), Financial Markets and Economic Growth. *Journal of Applied Corporate Finance*, 24: 8–13.
- Moreno-Garcia, E., García-Santillán, A., y Munguia-Tiburcio, J.P. (2013). Some aspects about financial knowledge of undergraduate students. *International Journal of Management and Sustainability*. 2(4).
- Organization for Economic Cooperation and Development, OECD (2005). Recommendation on Principles and Good Practices for Financial Education and Awareness. Retrieved from: <http://www.oecd.org/finance/financial-education/35108560.pdf>.
- OECD (Organization for Economic Cooperation and Development) (2009). Improving Financial Literacy. 2005-2010.
- Parkin, M. (2004). Economía. México: *Pearson /AddisonWesley*.
- Ramos, H. (2012). Inclusión financiera: aproximaciones teóricas y prácticas. *Banco Central de Ecuador*. Retrieved from: http://www.afiglobal.org/sites/default/files/publications/Libro%20Seminario_Varios%20Autores.pdf.
- Ruiz, R., H., (2011). Conceptos sobre educación financiera. México: *Observatorio de la economía latinoamericana*, no.144, Retrieved from: <http://www.eumed.net/cursecon/ecolat/mx/2011/hrr.htm>.
- The World Bank, (2014). Global financial development report. International Bank for Reconstruction and Development, Washington D.C. Retrieved from: <https://openknowledge.worldbank.org/bitstream/handle/10986/16238/9780821399859.pdf?sequence=4>.