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On the Radio: Effectiveness of the Viva Seguro Financial Education Program*

Catherine Rodríguez[♦], Fabio Sanchez[‡] and Sandra Zamora⁺

Abstract

Through a novel randomized control trial this paper estimates the impact of *Viva Seguro*, a financial education program that covers topics on risks and insurance management, on knowledge, attitudes and actual behavior. The program was broadcasted in two Colombian radio stations that have low and medium income households as target audience. Listeners from these radio stations comprise our treatment group. The control group is comprised by listeners from other two radio stations of similar characteristics and from the same broadcasting company. Using panel data information on both the treatment and the control group we find that giving financial education through such mass media channel has a positive impact on the knowledge of risks individuals face, the number of insurance they know exist and their perceived capability of understanding and handling insurance. No effect however is found on the knowledge of specific concepts of insurance, or their attitudes towards it, in savings behavior or the number of insurance bought. In general results show that delivering financial education through radio is a cost effective alternative in order to improve knowledge on insurance related concepts.

Key words: financial education, radio, insurance, randomized control trial (RCT)

JEL Code: I20, I25

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En la radio: Efectividad del Programa de Educación Financiera Viva Seguro

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Resumen

A través de un novedoso experimento aleatorio controlado este trabajo estima el impacto de Viva Seguro, un programa de educación financiera que cubre los temas de gestión de riesgos y seguros, en variables relacionadas con el conocimiento, las actitudes y el comportamiento real de los individuos que lo recibieron. El programa Viva Seguro fue transmitido en dos estaciones de radio en Colombia que tienen como público objetivo oyentes de familias de bajos y medianos ingresos. Los oyentes de estas estaciones de radio comprenden nuestro grupo de tratamiento. El grupo de control está compuesto por los oyentes de otras dos estaciones de radio de características similares y de la misma empresa de radiodifusión escogidos y encuestados en los mismos momentos que el grupo de tratamiento. A través del uso de información de datos panel sobre los grupos de tratamiento y de grupo control encontramos que dar educación financiera a través de la radio puede ser una estrategia efectiva para mejorar el conocimiento de individuos en estos temas. Específicamente, aquellos individuos que escucharon el programa de educación financiera a través de este medio de comunicación presentaron un impacto positivo en el conocimiento de los riesgos a los que se enfrentan, el número y tipos de seguro que conocen y en su capacidad de percepción de la comprensión y el manejo seguros. No hay efecto sin embargo en el conocimiento de los conceptos específicos de seguros, o sus actitudes hacia ellos, en el comportamiento del ahorro o el número del seguro comprado. Estos resultados son consistentes con la estructura del programa radial. Los resultados generales muestran que la entrega de la educación financiera a través de la radio es una alternativa rentable a fin de mejorar los conocimientos sobre los conceptos relacionados con los seguros.

Palabras clave: educación financiera, radio, seguros, experimento aleatorio controlado (RCT)

Codigo JEL : I20, I25

1. Introduction

Financial education is a subject whose interest in the academia and policy arenas has increased dramatically in the past decade. Several factors associated to this topic explain such an increase in interest. First, education is and always will be a fundamental factor of development and as a consequence research on how to successfully provide it to the population is necessary. In the special case of financial education this is particularly important given that it is now clear that the knowledge of these topics is very scarce in adult and young population across the world. Second, the availability, types, complexity and number of financial products such as credit cards, home loans, credit given by firms or small enterprise loans, insurance and micro-insurance have significantly increased. Moreover, many times these products are offered to low income and low educated clients who lack basic financial literacy concepts. This illiteracy impairs the increase in uptake and adequate usages of such products by low income clients. Finally, financial education programs that accompany some of these products have also increased around the world. In many cases they are even mandatory for financial firms and important amount of resources and time are devoted to them.

However, little is known about the cost effectiveness of financial education programs and whether they are indeed helping people acquire the financial capabilities needed in this modern world. Unfortunately there is little rigorous causal evidence that can help us discern such important questions. This is especially true for the specific case of financial education in insurance. Most of the studies available suffer from problems of selection bias and hence the results obtained from them are not necessarily causal. This has slowly changed. One example is the study by Gaurav et al. (2010) who through an experimental design evaluates the impact of a financial education program given to rural households in India. The financial education component was designed thorough two sessions of three hours each in which general personal lessons of financial management were given (savings, credit, debt management). Furthermore, given that the program was associated to the introduction of a rainfall insurance product in the region, it also included a specific session on the relevance on such product. Moreover simulations games were played with the attendants in order to explain how insurance mechanisms work and how valuable they can be. According to the authors the education component was very important and increased the demand for insurance in 5.3 percentage points.

This paper seeks to fill this gap in the literature by presenting the results of a novel randomized control trial conducted in Colombia in 2011 and 2012. We estimate the impact of a financial education radio program called “*Viva Seguro*” designed and implemented by the Insurance Association in Colombia (Federacion de Aseguradores Colombianos – FASECOLDA) and the foundation attached to it (Fundacion de Aseguradores Colombianos – FUNDASEG). The content and design of the program is based on the Global Financial Education Program from Microfinance Opportunities and Freedom from Hunger. However, it was modified to be suitable for airing in a radio station whose main audience is low and medium income households in Colombia. The radio program, which comprised 36 one hour daily episodes, seek to promote an increased awareness of the risks individuals are subject to, improve their knowledge on appropriate strategies to deal with them and increase their knowledge and attitudes towards insurance products.

Viva Seguro was aired in two famous radio stations in the country, in the cities of Bogota and Pereira respectively in late 2011. Before the program started to be broadcasted on air, we designed and carried out a contest in four different radio stations (the two treatment radio stations where the program aired and two additional control stations) in which people were motivated to participate and become eligible to win different awards by doing so. All those interested in the contest had to register themselves and answer a 30 minute questionnaire designed especially for the evaluation before the financial education program aired in the treatment radio stations. The final prize of the contest was delivered approximately six months after the last chapter of the education program was aired and in order to participate in it the contestants needed to answer a follow up survey. In total we were able to collect baseline and follow-up information on 430 individuals of which 225 listened to the program.

Results suggest that using mass media as a deliverable channel for financial education is effective in several aspects. In particular we find that listeners of the insurance radio program increased their knowledge on the type of risks they could be subject to; their perceived capacity in order to identify and deal with such risks; the number and type of insurance products they know. No impact however was found on specific knowledge of insurance concepts such as the premium, deductible or how and where to make a specific complaint. Similarly no effect on attitude towards insurance take-up or whether they save or not for emergency was found.

The use of mass media can be identified within the current trends in education in microinsurance. For example, in South Africa SAIA has a radio education program. Similarly in the CNSeg Brazil^[8] also makes use of a novel radial and videos to disseminate its educational material (Dror, Dalal, & Matul, 2010). In India the Microsegusos Academy (MIA)^[9] produces a Bollywood-style film which tells the story of a town where youths try to improve the quality of living of their fellow citizens through health insurance products. (MIA, 2010). However, to our knowledge, this is the first impact evaluation of such strategies that uses an RCT design and hence provides valuable information both for practitioners as well as for the academia.¹

The reminder of the paper is organized in seven additional sections. Section two describes the background and content of the radio program while section three describes the design of the experiment. Section four describes the estimation strategy and section five the data used in the paper. Section six presents the main results and finally section seven concludes.

2. Viva Seguro

Since the year 2008 FASECOLDA and FUNDASEG have been the leading promoters of the financial education on insurance in Colombia. The contents of the main text for financial education, “Risk management and insurance: protect your family’s future” was adapted from the Global Financial Education Program led by Microfinance Opportunities and Freedom from Hunger. To do so, several focus groups, quantitative surveys and pilot training were carried out. The final content seeks to provide specific knowledge and tools that should contribute low income individuals in five aspects: i) increase their awareness of risks; ii) improve their behavior against them; iii) increase their knowledge on insurance and improve their perceptions towards them with the intention that they can; iv) make better decisions and be more informed about risk management, and finally; v) improve their behavior against the risks and decrease their vulnerability to the occurrence of events unexpected to generate them severe financial shocks (FASECOLDA, 2011a).

¹ Tower and McGuinness (2011) study is very closely related to the one we present in this paper. In particular they evaluate how a financial education program broadcasted through a local radio in Kenya influence knowledge and attitudes towards risks and insurance. The results suggest that the radio program was effective in changing the level of knowledge but did not find any behavioral change. However, it is not based on an RCT design as the one implemented here.

Initially the content was delivered through workshops carried out by the National Instruction Service (SENA for its acronym in Spanish) to low income unemployed individuals who were beneficiaries of unemployment insurance. Having gained experience in such strategy and with the hope of increasing the reach of the financial education program FASECOLDA and FUNDASEG decided to design a special program to be delivered through radio stations. In order to do so, all available material was adapted with the support of FASECOLDA communications area, the directors of each specific area in FASECOLDA and the insurance companies themselves an appropriate content to be delivered through such a mass media channel was available. In particular, this new content included radio dramas, interviews with experts, interest notes, recommendations and interviews with the public. Such a varied content assured that FASECOLDA could offer a dynamic and entertaining program that offers useful information for consumers on risk management decision-making.

In total, *Viva Seguro* has 36 programs with an estimated duration of 41 minutes each. They are designed to be broadcasted daily for 7 weeks. The curriculum of the program, which is presented in the table 1, is divided into five key themes: (i) risks recognized and which one has happened to you?, how did they affect your Pocket? What were your responses and how effective were they?, (ii) financial instruments to deal with emergencies, (iii) types of insurance, (iv) know your policy and (v) protection to the consumer (FASECOLDA, 2011b). Table 2 explains in detail the general structure of each daily program. In addition, each episode of the program was designed to have a specific structure. In particular each episode was divided into 18 different segments that combined a review of previous episodes, brief talk of an expert, a soap opera of the subject of the day, interviews with listeners, daily contest and songs related to the topics talked about. The general structure of the programs is presented in detail in Table 2.

Table 1. Curriculum of the program "Viva Seguro "

No week	Central theme	Monday	Tuesday	Wednesday	Thursday	Friday
1	Risks recognized and which one has happened to you?, how can they affected your pocket?, how did you respond and how effective was the answer?	1. Introduction	2. Death	3. Sickness and invalidity	4. Unemployment	5. Personal accident and transit
2		6. Fire, earthquake, flood	7. Theft	8. Occupational accidents and diseases Prof.	9. Credit against emergencies	10. Saving for emergencies
3	Financial instruments to deal with emergencies.	11. The insurance. Introduction	12. Savings and insurance for emergencies	13. Operation and basic concepts	14. Operation and basic concepts	15. Life
4	Types of insurance	16. Funeral	17. Personal accident	18. Unemployment	19. Mandatory Car insurance (SOAT)	20. Fire and earthquake (home)
5		21. Theft	22. Occupational hazards	23. SMEs	24. Health insurance and its difference with the POS	25. Read your policy carefully. Additional benefits of insurance
6	Know your policy	26. Exclusions, periods of lack and other frequent features	27. Questions to ask your advisor	28. What defines the price of your insurance?	29. How to make a claim?	30. Rights of the insured
7	Protection to the consumer	31. Duties of the insured	32. How to submit a complaint?	33. The financial consumer advocate	34. What we learned?	35. What we learned?

Source: FASECOLD A, 2011

Table 2. Structure of the radio program

No.	Section	Minutes	Seconds	Observations
1	Pre-recorded presentation	0	15	Song that identifies the program
2	Welcome	3	0	Reviewing general, previous episode and structure of the day
3	It can happen to you too	3	0	Three brief interviews
4	Commercial information	0	15	Commercial
5	We talk with the expert 1	6	0	Expert topic macro
6	Song 1	3	30	Related to the theme of the day
7	Secure notes	0	30	Notes curious did you know...?
8	SOAP Opera	3	0	On the topic of the day
9	Learn, participate and win	2	0	Contest of the week
10	Cases and things	3	0	Three brief interviews
11	Song 2	3	30	Related to the theme of the day
12	Commercial information	0	15	Commercial
13	We talk with the expert 2	6	0	Micro expert psychologist, anthropologist, academic
14	Live safe, quiet living,	1	30	Recommendations on the topic of the day
15	Are you safe? Write to us	0	30	Contacts
16	Song 3	3	30	Related to the theme of the day
17	Conclusion and parting	1	30	Conclusions. The following program presentation
18	Pre-recorded farewell	0	15	Song that identifies the program
	TOTAL TIME	41	30	

Source: FASECOLDA, 2011

3. Experimental Design

The basic idea of the experimental design for the evaluation of the impact of the radio program was simple.² We would have two radio stations in Bogota: one would broadcast the *Viva Seguro* Financial Education Program (treatment radio station) while the other one would not (control radio station) and hence would continue with its normal programming.

² The original idea of evaluating the impact of broadcasting the Financial Education Program came from FASECOLDA itself and the insurance companies associated to them. To do so, they obtained financial support from Microinsurance Innovation Facility and the Bill and Melinda Gates Foundation. The research team at Los Andes University and FASECOLDA then designed the evaluation strategy which we describe in this section.

The radio stations chose were Amor Estereo and La Cariñosa respectively. They are both radio stations of one of the biggest media groups in the country (RCN) which kindly agreed to participate in the experiment. The program was to be aired in the time slot of 10:00am to 11:00am every working day of the week in Amor Estereo.

In both radio stations a special contest would be promoted were different prizes were offered.³ The contest was simple: listeners that listen to the station (Amor Estereo or Cariñosa respectively) in a pre-established times (times at which program “Viva Seguro” would be aired in Amor Estereo) could compete in daily raffles of COP\$ 30.000 pesos (aprox US\$16) and a final jackpot of \$ 3.000.000 pesos (aprox US\$1621). In order to participate in such contests listeners were asked three things: i) register by calling a toll free number; ii) answering a 25 minute questionnaire (baseline questionnaire) and; iii) listen to a specific radio station in the specific hours were the *Viva Seguro* Financial Education Program was aired. Regarding the last requirement, after completing the questionnaire listeners who registered would be randomly assigned either to the treatment or the control radio station ad asked to listen to that specific radio station during the time in which Viva Seguro was going to be aired. Based on the estimated number of listeners in each radio station and the specific power calculation we estimated that a total of 3,200 listeners were needed.

The promotion of the contest and registration of the participants was conducted through Amor Stereo, La Cariñosa and Antena 2 (a third radio station of the group) between May 23rd and August 3rd 2011. Moreover, despite the incentives given we found out listeners were loyal to their own radio station, something which actually will serve important in the identification strategy. When the daily contest was made, tracking reports were made and interesting information emerged. In particular during the first days of the contest we found out that participants who had been changed from radio station had a higher percentage of incorrect responses (84.7%) compared with those who were not changed (56.3%). This difference was because of the people who were changed of radio stations only 22.4% were listening to the station assigned while those who were not changed the same percentage increase to 62.5%.

³ The contest in Bogota was also aired in a third radio station of the group: Antena 2.

The low number of enrollees, the low rate of collection of baseline information by telephone and effectiveness of randomization not to be described in detail below, led to make three decisions. First, was the extension of the radio experiment to the cities of Pereira and Barranquilla. Second, we eliminated the randomization of listeners across radio stations. Finally, daily prizes were increase to COP\$100.000 pesos (aprox US\$54) in these cities in order to increase the numbers of listeners finally registered. Registry of contestants in Pereira went from September 12ve to October 19th. For this city a total of 409 people registered. In Barranquilla registry of contestants was held from September 12 to October 12 and 119 people finally enrolled. The control and treatment stations in each city, as well as the registry and airing of the program are detailed in Table 3. Figure 1 shows the sequence for the experiment and evaluation. In the cities of Pereira and Barranquilla this survey will be conducted from June 2012.

Table 3. Registry and Airing of Viva Seguro

City	Registry	Airing of Viva Seguro	Time Frame of Viva Seguro	Treatment Radio Station	Control Radio Station
Bogotá	May 23, 2011 – August 3, 2011	August 8, 2011 - September 27, 2011	10:00 am - 11:00 am	Amor Stereo 1.340 AM - 96.3 FM	La Cariñosa 610 AM
Barranquilla	September 12, 2011 – October 19, 2011	October 24, 2011 – December 15, 2011	9:15 am - 10:00 am	El Sol 1.550 AM	Radio Uno 95.6 FM
Pereira	September 24, 2011 – October 12, 2011	October 24, 2011 – December 15, 2011	10:30am - 11:15am	La Cariñosa 1.210 AM	Radio Uno 94.7 FM

Figure 1. Sequence for the experiment



Table 4 presents the total number of individuals from which we have baseline and follow up information respectively after all the process above described was completed. As can be observed, unfortunately the level of attrition is big reaching to 35% in Bogota, 62% in Pereira and 80% in Barranquilla. Due to the huge attrition in this last city we decided to drop all information from it and hence the results presented in this paper only take into account the information gathered in Bogota and Pereira.

Table 4. Number of Individuals

City	Number of individuals		Attrition (%)
	Base line	Follow-up	
Bogota	428	276	64.5
Pereira	409	154	37.7
Barranquilla	119	23	19.3

Source: baseline and follow up survey

4. Estimation Strategy

In principle, two facts make the evaluation of the impact of *Viva Seguro* Radio Program relatively straight forward. First, the decision of which radio station in each city of to air the program was random. All stations in both cities belong to the same communication group and are targeted to relatively similar audiences. In fact while in Bogota the control station was La Cariñosa, in Pereira this same radio station which presumably have very similar listeners as the ones in Bogota) was the treatment radio station. Second, the verification calls made for the raffles of the daily prizes gave us important evidence that listeners are relatively loyal to their radio stations they listen to. We found that even with important incentives, listeners did not change the radio station they normally hear. Let alone they will change it to listen to a specific program. These two points suggest that the empirical strategy in order to evaluate the impact of *Viva Seguro* is simple and straight forward.

However, things are not as straight forward as one can imagine. Several facts are behind this. First, even though the decision of in which radio station to air the program was random average characteristics of listeners between control and treatment radio stations

are not necessarily identical. Second, listening to the program is not random either. Perhaps some people who are usual listeners of the treatment radio stations are more interested in insurance were the ones who effectively listened to the complete program and perhaps these are the ones who learned the most. Perhaps also, those who think they know all concepts and will learn nothing new do not listen to it. These two alternative hypothesis could imply that the average characteristics of those who listened and those who did not are not necessarily comparable and hence any effect may be importantly biased.

In order to deal with these possibilities we undertake two different estimation strategies. First, to control for possible differences in socioeconomic characteristics of listeners and non-listeners of Viva Seguro we estimate a DID regression in which this is controlled for. In particular two estimations are carried out one in which we analyze the impact of listening to the program without any control, one in which we control for socioeconomic characteristics which we have in the survey and finally an individual fixed effect strategy. Hence, the main specification is described by the equation below:

$$Outcome_{i,c,t} = \alpha_0 + \alpha_1 PL_i + \alpha_2 T + \alpha_3 PL_i * T + \beta X_i + \varepsilon_{i,t} \quad (1)$$

Where $Outcome_{i,c,t}$ is the outcome of interest for individual i in city c and period t , PL_i represents a dummy variable equal to one if individual i reports listening to the Viva Seguro Radio program and zero otherwise. Similarly, T is a dummy variable equal to one in follow-up and zero in baseline. The matrix X_i contains individual's socioeconomic characteristics such as age, education, working status, average income and city of residence. Finally, $\varepsilon_{i,t}$ represent individual errors that are assumed to be iid. Under this strategy our coefficient of interest will of course be α_3 which represents the usual DID coefficient that gives the impact that listening to the Viva Seguro Financial Program on the radio has on each distinct outcome.

As can be observed, specification (1) controls for personal characteristics which can influence the effectiveness of the radio program and if not controlled for may bias the coefficient of interest. However, given that we have a panel data set, the specification can be improved by including in the regression fixed effects at the individual level. Under such strategy then the main specification will be:

$$Outcome_{i,c,t} = \gamma_0 + \gamma_1 T + \gamma_2 PL_i * T + \rho_i + \epsilon_{i,t} \quad (2)$$

Where ρ_i represents individual fixed effects. Under this strategy our coefficient of interest is γ_2 and as above it estimates the impact of listening to the financial education program listened on the radio on the outcome of interest.

The estimations resented on specifications (1) and (2) could in principle be unbiased if the experiment was absolutely clean and listening to the radio program was completely random or if any difference between treatment and control individuals are either observable or constant in time. However this might not be the case and hence an appropriate strategy needs to control for this. In particular in this paper we use an instrumental variable approach. The natural instrument in this case is of course whether in base line the listener informed that he usually listened to either the treatment or the control radio station. Hence, what the regression of such strategy will present is the Intention to treat impact. Specifically we estimate a first stage in which listening to the Viva Seguro Financial Education Program depends on the usual radio station the individuals normally listen to as is detailed in specification (3).

$$PL_i = \theta_0 + \theta_1 Original\ Radio\ Station_i + \theta_2 T + \vartheta X_{i,t} + \epsilon_{i,t} \quad (3)$$

In this specification is a dummy variable equal to one if individual i in baseline reported that he usually listens to the radio station in city c which broadcasted the Viva Seguro Financial Education Program and zero otherwise. It should be remembered that for the special case of Bogota, we randomized all individuals and instructed them to listen to a specific radio station when the baseline questionnaire was conducted. However, given that follow up calls made it clear that individuals did not change radio stations using that rule as an instrument will not be valid. The second stage will follow either specification (1) or (2) but using of course the estimated PL_i from specification (3).

5. Data

Column 1 in Table 5 presents the basic socioeconomic characteristics of all the individuals' from which we have information on base line from the cities of Bogota and Pereira. As can be observed from the Table, most of the listeners who registered in the contest are women

Table 5. Descriptive Statistics

	Baseline			Follow-up (Non Attriters)			Differences Attriters non attriters		
	All	Treatment	Control	Differences	All	Treatment		Control	Differences
Gender	0.72 (0.445)	0.82 (0.379)	0.71 (0.045)	0.12***	0.69 (0.461)	0.82 (0.379)	0.65 (0.485)	0.20***	-0.068**
Age	48.35 (13.47)	48.74 (14.04)	48.01 (13.33)	1.72	49.22 (13.53)	49.74 (14.04)	48.94 (13.28)	0.79	1.98**
Education	8.56 (4.105)	8.23 (4.535)	8.64 (4.005)	-0.41	8.7 (4.246)	8.23 (4.538)	8.95 (4.068)	-0.72*	0.27
Income level									
\$0-\$139	0.36 (0.481)	0.36 (0.482)	0.36 (0.481)	0.00	0.034 (0.476)	0.36 (0.482)	0.33 (0.474)	0.02	-0.029
\$139-\$277	0.28 (0.449)	0.29 (0.457)	0.27 (0.448)	0.02	0.3 (0.459)	0.29 (0.457)	0.3 (0.460)	-0.1	0.04
\$277-\$416	0.21 (0.408)	0.22 (0.415)	0.21 (0.406)	0.01	0.19 (0.399)	0.22 (0.416)	0.18 (0.389)	0.03	-0.026
\$416-\$554	0.08 (0.273)	0.06 (0.250)	0.08 (0.278)	-0.02	0.09 (0.290)	0.06 (0.250)	0.1 (0.310)	-0.4	0.024
Above \$554	0.07 (0.252)	0.06 (0.238)	0.07 (0.255)	0	0.06 (0.243)	0.6 (0.238)	0.06 (0.246)	0	-0.011
Occupation									
Works	0.39 (0.489)	0.33 (0.473)	0.4 (0.492)	-0.07*	0.038 (0.487)	0.33 (0.473)	0.41 (0.493)	-0.08	-0.017
Household	0.37 (0.485)	0.44 (0.498)	0.36 (0.481)	0.08*	0.36 (0.481)	0.44 (0.498)	0.32 (0.468)	0.12**	-0.028
Other	0.23 (0.421)	0.23 (0.420)	0.23 (0.421)	0	0.25 (0.434)	0.22 (0.420)	0.26 (0.441)	-0.03	0.045

Source: Baseline and follow up survey. (***) $p < 0.01$, (**) $p < 0.05$, (*) $p < 0.1$ significance

(72%) with an average age of 48 years. As expected from the type of radio stations chosen in this experiment, most of the radio listeners have low levels of education. The average number of years of education reported is 8.5 which is equivalent to completing basic education but not high school. Moreover 85% of the individuals report as having a month average income of less than US\$416 dollars. In regards to occupations, 39% report that work, 37% report they are dedicated to household chores while the other 23% report they are either studying, are unemployed or have retired among others. Columns two and three of the same table present the same statistics but separating whether the individual belongs to the treatment or control group respectively (treatment here is based on the radio station they listened to when registering to the contest). Column 4 presents differences between treatment and control individuals in baseline. As can be observed there are no substantial differences between both groups. The treatment group is composed by a slightest larger percentage of women who of course is reflected in a larger percentage that declares are dedicated to household chores. Columns 5 through 8 presents the same four columns above described but only for individual which we have information from in the follow-up survey. As can be observed the differences between age and occupation we had from individuals in the baseline is maintained. However with this restricted sample there appears to be a marginal difference in the number of years of education individuals report. In this new group, individuals from the control group report a slightly higher number of years of education completed.

As detailed by Angrist and Pischke (2002) a high attrition rate does not necessarily impair the internal validity of a given experiment. The important fact is that there is no clear bias between those who attrite and those who do not. Table 5 presents the average differences between attriters and non attriters and reports whether such differences are or not significant. As can be observed, attrition does appear to be random. The only significant differences between attriters and not attriters are related to gender and age. Specifically attriters are in a larger proportion women and two years younger than non attriter individuals.

Regarding the data collected the survey had in total 49 questions divided in 5 sections related with knowledge in risk and insurance; attitude towards insurance; perceived capabilities of knowledge about insurance; change in behavior towards risk and insurance, and finally; socioeconomic characteristics. The first section seeks to find information of knowledge

and attitude towards risks they knew and could be subject to as well as concepts related to insurance products. Table 6 present the average number of risks each individual reported in treatment and control groups in baseline and follow up. As can be observed, on average individuals were able to correctly identify 1.5 risks with a standard deviation of 0.8. Almost 5% of all individuals were not able to identify any risk and the maximum number of risks mentioned by a listener was 7.

Tables 6 also presents the number of insurance products they knew existed and were able to correctly enumerate each one of them. On average, individuals correctly mentioned 1.6 different insurance products with a standard deviation of 1.29. In this case almost 10% of individuals did not know any insurance while the maximum number of correct type of insurance given was 17. Finally based on a total of 7 specific questions regarding knowledge of different concepts and characteristics of insurance products we constructed a total score for each individual as the sum of correct answers given. The summary statistics of these scores are also presented in Table 6. As can be observed the general knowledge of specific insurance products in this population is particularly low. On average, people correctly answered 2 questions. Moreover more than 10 of these individuals did not have any correct answer. In fact only one person had all seven questions correctly answered.

Regarding to attitude towards insurance and insurance products individuals were asked if they felt they were able to understand the concepts of insurance products, whether they had enough money to save for emergencies, if insurance was not needed if no one was sick and finally if they thought were well prepared against resin. We constructed a composite index of these four questions with a mean of 0.51. Section three of the survey inquired about capabilities or how able the individual thought he was in identifying the risks he was subject to, choose the correct insurance product, understand all concepts related to insurance and adopt a correct strategy against risks. Based on the answers individuals gave we also constructed a total score whose summary statistics are presented in the same table. Finally, section four was dedicated to questions regarding change in behavior. Specifically, we asked individuals whether they saved for emergencies, the number and type of insurance products they have (only asked in baseline survey) and those they bought in the previous six months (only asked in follow-up questions), and if they were interested in buying and insurance. These are also presented in Table 6.

Table 6. Descriptive Statistics

	<i>Follow-up (Non Attriters)</i>			
	All	Treatment	Control	Difference
Number of risks	1.57 (0.789)	1.72 (0.778)	1.49 (0.785)	0.23***
Number of Insurance they Know	1.73 (1.153)	1.72 (1.122)	1.73 (1.171)	-0.005
Average level of Knowledge of insurance concepts	2.15 (1.452)	1.98 (1.539)	2.25 (1.397)	-0.27*
Attitude towards insurance	0.55 (0.340)	0.55 (0.147)	0.55 (0.136)	0.00
Perceived Capabilities and knowledge of insurance	0.63 (0.221)	0.66 (0.224)	0.61 (0.218)	0.05**
Save	0.29 (0.452)	0.23 (0.420)	0.32 (0.466)	-0.091**
Save for emergencies	0.05 (0.220)	0.04 (0.197)	0.06 (0.232)	-0.017
Number of New insurance bought in the last 6 months	0.23 (0.471)	0.22 (0.447)	0.23 (0.484)	0.00
Interest in buying insurance	0.27 (0.455)	0.31 (0.462)	0.25 (0.436)	0.053

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ significance

Source: Baseline and follow up survey. Information for individuals in both baseline and follow-up is reported

7. Results

a. DID

Table 7 presents the results obtained after estimating specifications (1) and (2) above described having as dependent variable the number of risk individuals answered they could be subject to. The first column includes only the treatment and time variables as well as its interaction term to obtain the usual DID estimator. The second model includes personal socioeconomic characteristics to control for possible differences between radio listeners. Model 3 incorporates into the estimation the individual fixed effects which of course imply that all individual characteristics (including the treatment dummy) are dropped from the regression. As can be observed, throughout all models our coefficient of interest is positive and significant. Moreover, it is very stable across the three models. From this

Table 7. DID - Number of risk they know

<i>Dependent variable: number of risk they know</i>	<i>Models</i>		
	(1)	(2)	(3)
Listened to Viva Seguro	-0.0251 (0.0759)	-0.0017 (0.0796)	
Follow up	-0.112 (0.0776)	-0.110 (0.0774)	-0.112 (0.0777)
Listened to Viva Seguro * Follow up	0.410*** (0.107)	0.416*** (0.107)	0.410*** (0.107)
Bogotá		0.0796 (0.0637)	
Age		0.0008 (0.0021)	
Education		0.0012 (0.0073)	
Gender		0.120* (0.0663)	
Works		-0.0588 (0.0712)	
Household		-0.0412 (0.0757)	
Income level			
	\$0-\$139	0.0033 (0.0898)	
	\$139-\$277	-0.178** (0.0907)	
	\$277-\$416	-0.0169 (0.0922)	
Constant	1.483*** (0.0549)	1.381*** (0.197)	1.470*** (0.0379)
Observations	860	858	860
R-squared	0.033	0.050	0.041
Number of individuals			430

*Standard errors in parentheses. (***) p<0.01, ** p<0.05, * p<0.1 significance)*

table our preferred estimation is the fixed effect estimation and it implies that by listening to the financial education program individuals increase their knowledge of the number of risks they could be subject to in 0.4. This is an important effect and amounts to 0.5 standard deviations.

The three alternative models were estimated for all our variables of interest presented in Table 6. The coefficients associated with the difference in difference estimation in each of these regressions are presented in Table 8. As can be observed, the effects of listening to Viva Seguro are evident in two other distinct aspects. Listening to the radio program increased the number and type of insurance they are able to correctly identify and their perceived capabilities and knowledge about risks and insurance. These effects are important and amount to 0.6 and 0.34 standard deviations. As can be observed however, no effect was found for the other variables of interest. In particular there appears to be no effect on knowledge of specific concepts related with insurance such as the premium, deductible or how and where to make a specific complaint. The same is true with respect to attitudes towards risks or insurance. Finally, no effect of actual behavior is found either. Listeners of Viva Seguro do not increase savings, savings for emergencies, bought additional insurance not are willing to buy one.

b. Heterogeneous impacts

It is interesting to know whether the effects found in the previous section differ according to some particular characteristics of individuals. In order to answer this question, models with heterogeneous effects are estimated. Specifically, we investigate if there is any differential impact according to income level, gender and number of chapters of the program which were listened by the individual. However, significant results were obtained only when we differentiated according to the level of education of the individual and the number of chapters listened by them. Therefore, we can say that the program impacts of *Viva Seguro* do not differ depending on the gender or the age of the individual.

To differentiate the impact of *Viva Seguro* according to the level of education three dummy variables were created. The first, called Primary, takes the value of one if the individual has attained only a primary level of education (or lower) and zero otherwise. The second, called secondary, takes the value of one if the individual reports a level of secondary education and zero otherwise. The third, college, takes the value of

Table 8. DID

<i>Dependent variable</i>	<i>Models</i>		
	(1)	(2)	(3)
Number of risks	0.410*** (0.107)	0.416*** (0.107)	0.410*** (0.107)
Number of Insurance they Know	0.783*** (0.184)	0.782*** (0.179)	0.783*** (0.169)
Average level of Knowledge of insurance concepts	0.140 (0.197)	0.127 (0.183)	0.140 (0.159)
Attitude towards insurance	0.0142 (0.0196)	0.0143 (0.0193)	0.0142 (0.0181)
Perceived Capabilities and knowledge of insurance	0.0776*** (0.0300)	0.0749*** (0.0287)	0.0776*** (0.0247)
Save	-0.0214 (0.0625)	-0.0220 (0.0577)	-0.0214 (0.0491)
Save for emergencies	-0.00846 (0.0314)	-0.00474 (0.0310)	-0.00846 (0.0302)
Number of New insurance bought in the last 6 months	-0.0191 (0.0390)	-0.0235 (0.0386)	-0.0191 (0.0390)
Interest in buying insurance	0.0250 (0.0568)	0.0247 (0.0563)	0.0250 (0.0490)

*Standard errors in parentheses. (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ significance)*

one if the individual reports a level of technical or higher college education and zero otherwise . To avoid perfect multicollinearity problems we included the interaction between listening to Viva Segura and only two of these dummies: primary and secondary. Thus, the interpretation of the coefficient of difference in difference in this case is the impact of hearing Viva Seguro for individuals with technical or higher education; while the impact on individuals with other educational levels is obtained by adding the respective coefficient with the interaction of interest.

Indeed, the results presented in Table 9 indicate that for people who only reached primary or lower levels of education (which in turn account for 33 % of the sample) the number of risks that they can identify after listening to the program amounts to

Table 9. Heterogeneous Impacts – Level of Education

<i>Variable dependiente</i>	No. de riesgos a los que está expuesto	No. de seguros que conoce	Conocimiento promedio	Actitud	Capacidad	Ahorra	Ahorra para emergencias	No. de seguros comprados	Interés en comprar seguros
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Listened to Viva Seguro * Follow up	0.0213 (0.162)	0.255 (0.259)	0.255 (0.240)	-0.00426 (0.0274)	0.0170 (0.0376)	-0.128* (0.074)	0.0213 (0.0457)	0.255*** (0.0628)	0.0851 (0.0742)
Listened to Viva Seguro * Follow up *primary	0.441** (0.204)	0.295 (0.326)	-0.293 (0.302)	0.0389 (0.0345)	0.0299 (0.0473)	0.0902 (0.093)	-0.0338 (0.0576)	-0.0928 (0.0791)	0.0649 (0.0935)
Listened to Viva Seguro * Follow up *secondary	0.275 (0.197)	-0.0921 (0.315)	-0.194 (0.292)	0.0249 (0.0333)	0.0279 (0.0457)	0.148 (0.090)	-0.0519 (0.0556)	-0.0614 (0.0764)	-0.0341 (0.0903)
Constante	1.44*** (0.0330)	1.67*** (0.053)	2.138*** (0.0490)	0.54*** (0.0056)	0.621*** (0.00767)	0.30*** (0.015)	0.0593*** (0.00932)	0.0512*** (0.0128)	0.21*** (0.0151)
Observaciones	860	860	860	860	860	860	860	860	860
R-cuadrado	0.047	0.022	0.003	0.009	0.013	0.008	0.003	0.101	0.021
Número de individuos	430	430	430	430	430	430	430	430	430

*Errores estándar en paréntesis. (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ significancia)*

0.55 standard deviations higher than those who did not listened to it. At the same time, the impact of listening to Viva Seguro disappears for those with secondary and higher education. It is worth noting that the effect on the number of insurance mentioned disappears , which can be explained by the smaller number of individuals in each category. Finally, people with a level of technical or higher education are buying more insurance products after having heard the Viva Seguro program. This same coefficient associated with people with primary or secondary levels of education is negative but not significant. This indicates that in principle the effect is smaller for this population, however the coefficients is not statistically different form zero. We also find, as can be observed on the Table 9, positive impact of Listening to Viva Seguro on the radio on the individual's attitude. However, since it is the only specification in which this effect occurs, the results should be interpreted with caution.

Similarly, three dummies which indicate the number of chapters each individual reported to listen to were created, all of which can be interpreted as a level of treatment intensity. The first dummy identified individuals who had listened to a number of chapters equal to or greater than the average in the sample; the second identified those who had heard a number of chapters above the median and the third finally identified those individuals who had heard the most number of chapters (the 25th percentile or higher 30 or more chapters). The results for the first two measures did not yield significant results, however for the third case statistically significant differences were found and are shown in Table 10. In particular, among those who heard thirty or more sections of the program the number of risks individuals could identify is higher. In this case, the effect of the program is equivalent to 0.6 standard deviations. The results regarding the number of insurance known also indicate that the effect on the population with greater exposure to treatment was 0.34 standard deviations lower than the effect reported in previous specifications (0.57 standard deviations) . As in the previous case, positive impacts on the purchase of additional insurance and the desire to purchase additional insurance for those who heard the program the most were found. Again, these results should be analyzed with caution as they do not occur regularly in all other specifications.

Table 10 Heterogeneous Impacts – number of listened chapters

<i>Variable dependiente</i>	No. de riesgos a los que está expuesto	No. de seguros que conoce	Conocimiento promedio	Actitud	Capacidad	Ahorro para emergencias	No. de seguros comprados	Interés en comprar seguros
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(9)							
Listened to Viva Seguro * Follow up	0.214** (0.0896)	0.175 (0.143)	0.0325 (0.133)	0.0148 (0.015)	0.0300 (0.0207)	0.078* (0.041)	-0.0260 (0.0252)	0.188*** (0.0347)
Listened to Viva Seguro * Follow up* Listened to more than 30 chapters	0.265* (0.159)	0.458* (0.254)	0.108 (0.236)	0.0180 (0.027)	0.0309 (0.0369)	0.14** (0.075)	0.0401 (0.0449)	0.0283 (0.0618)
Constante	1.443*** (0.0331)	* (0.0527)	2.138*** (0.0490)	0.54*** (0.006)	0.621*** (0.00765)	0.3*** (0.015)	0.0593*** (0.00931)	0.0512*** (0.0128)
Observaciones	860	860	860	860	860	860	860	860
R-cuadrado	0.042	0.024	0.001	0.007	0.014	0.012	0.003	0.018
Número de individuos	430	430	430	430	430	430	430	430

*Errores estándar en paréntesis. (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ significancia)*

c. Robustness check – IV

As noted in section four it may be the case that our coefficient of interest is biased because of people who did not attrite or due to simple differences between listeners in the control and treatment radio stations respectively. In order to control for such possibility we implement an instrumental variables approach where the instrument used is the radio station each individual was listening when they subscribed to the contest. That is what we estimate in this particular case it's then the impact on the intended to treat.

Table 11 presents the first stage results for all regressions under two distinct methodologies: standard OLS regressions and fixed effects estimations. Moreover, the table also presents the Weak Identification Test (Kleibergen-paap rk Wald F statistic) and an endogeneity test to see whether this methodology was indeed necessary. As expected, the predictive power of this variable is important. Listeners who were normal listeners of those radio stations in which the Viva Seguro Financial Education Program aired had a higher probability of listening to the aforementioned program. Moreover, in no case the F statistic is lower than 84 suggesting that in the second stage we will not suffer from weak identification bias problems.

Table 11 First Stage

<i>Dependent variable: Listened to Viva Seguro</i>	<i>Models</i>	
	Ivreg	XT- Ivreg
Original Radio Station that listened at baseline	0.367*** (0.036)	0.425*** (0.046)
F – statistic	105.13	84.25
Individual controls	Yes	No
Fixed effects	No	Yes
Observations	858	860
R-squared	0.4743	0.6017
Number of individuals		430

*Standard errors in parentheses. (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ significance)*

Table 12 presents the coefficient of interest obtained in the second stage for all our outcomes of interest. As can be observed the main results obtained through standard OLS and fixed effects regressions are maintained. It is clear that Viva Seguro was able to have a positive impact on the knowledge of people regarding the number and type of risks they are subject to, the number and types of insurances products available in the market and their perceived capabilities in handling risks and knowledge about insurance. Moreover, the results suggest that there was indeed some type of biases and that these were actually reducing our coefficient of interest. The impact on each of these outcomes is important and in our preferred strategy (instrumented fixed effects estimation) amounts to 1.12, 0.85 and 0.5 standard deviations respectively. Again however no effect was found on knowledge of specific concepts related with insurance, attitudes towards risks or insurance nor actual or desired behavior.

At this point a small analysis on the interpretation of such results is important. If one analyze the structure of Viva Seguro and the topics treated in each of their 36 chapters the results found in this evaluation seem reasonable. Of the 36 chapters

Table 12. Second Stage

<i>Dependent variable</i>	<i>Models</i>	
	Ivreg	XT- Ivreg
Number of risks	0.674*** (0.238)	0.907*** (0.271)
Number of Insurance they Know	0.804** (0.397)	1.157*** (0.417)
Average level of Knowledge of insurance concepts	0.0748 (0.404)	0.120 (0.391)
Attitude towards insurance	0.0360 (0.0426)	0.0241 (0.0446)
Perceived Capabilities and knowledge of insurance	0.171*** (0.0639)	0.112* (0.0610)
Number of New insurance bought in the last 6 months	-0.0146 (0.0853)	0.00728 (0.0961)
Interest in buying insurance	0.0197 (0.125)	0.0913 (0.121)

*Standard errors in parentheses. (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ significance)*

that the program had almost 47% of them are dedicated to explaining to the listener the types of risks they are subject to and the type and number of insurance that exists. Hence it's not strange that these are precisely the areas in which an impact was found (the questions regarding capabilities are most of them related to these specific topics too). On the contrary only 20% of the chapters were dedicated to specific concepts related with insurance or the duties, rights and complaints possibilities the insured agent has. Results suggest that if the other outcome variables are to be impacted additional chapters on such topics should be included.

7. Conclusions

This paper presents the results of a novel experiment that estimates the effectiveness of broadcasted financial education programs. Specifically, we estimate how listening on the radio to the Viva Seguro Financial Education Program could impact several outcomes of interest. Results suggest that Viva Seguro was able to have a positive impact on the knowledge of people regarding the number and type of risks they are subject to, the number and types of insurances products available in the market and their perceived capabilities in handling risks and knowledge about insurance. This effect is stronger for less educated people and for those who listened to a higher number of chapters. However, no effect was found on knowledge of specific concepts related with insurance, attitudes towards risks or insurance nor actual or desired behavior. Given the structure of the Viva Seguro program and that almost 50% of the chapters were dedicated to the first two topics the results here found are the expected ones. Moreover, the results are robust to an alternative instrumental variable methodology that could take into account and control for any non-observable that could be biasing the results.

It is important to mention the cost-effectiveness of this program. Comparing these results with those from other financial education programs delivered through different channels gives a clear policy recommendation. Broadcasting financial education programs on the radio is effective in changing the knowledge of people if sufficient time is dedicated to the topic one wants to educate on. Changing behavior, as is the case with most financial education programs however is much more difficult. In this particular case the evidence suggest that listening to specialized programs on the radio will not change it.

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