

# Financial Literacy and Financial Planning: Evidence from India

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## Abstract

In this study we report findings about financial literacy and financial planning behavior based on a financial advisory program in India. We evaluate survey responses to three standard questions previously used to measure financial literacy. We then break down the data across particular demographic and socioeconomic groups and compare responses. Finally, we examine the investment behavior, liability choice, risk tolerance and insurance usage of program participants. We find that the vast majority of respondents appear to be financially literate based on their answers to questions concerning interest rates (numeracy), inflation, and risk/diversification. However, we do find variation across demographic and socioeconomic groups. We are also able to obtain additional information about the financial tendencies of the program participants (including risk tolerance, investment preferences, investment goals, etc.) and to relate those tendencies to financial literacy.

Keywords: Financial Literacy, Financial Education, Household Finance, Consumer Behavior

JEL Classifications: D1, L8, R2

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## 1 Introduction

In recent years there has been growing concerns about the financial astuteness of consumers as research suggests they often make what appear to be welfare-reducing decisions. Many individuals do not hold a checking account (Hilgert, Hogarth, and Beverly, 2003); have large outstanding credit card balances when cheaper forms of credit are available (Gartner and Todd, 2005); accept payday loans with astronomical APRs even in the presence of other, cheaper, credit sources (Agarwal, Skiba, and Tobacman, 2009); sub-optimally choose credit contracts (Agarwal, Chomsisengphet, Liu and Souleles 2006); fail to refinance mortgages when it would be optimal to do so (Agarwal, Driscoll, and Laibson, 2006); and fail to plan for retirement, reaching it with little or no savings (Lusardi and Mitchell, 2006). A leading explanation for this behavior is that consumers are not financially literate—they lack sufficient information about financial concepts and instruments to make informed financial decisions. A growing literature has evaluated both the state of financial literacy and the effectiveness of financial education programs aimed at improving financial decision-making.<sup>1</sup> We add to that literature by reporting the findings of a survey concerning financial literacy and financial planning in India. Specifically, following Lusardi and Mitchell (2007), we ask consumers in India three basic questions about interest rates (numeracy), inflation, and risk diversification to evaluate their financial literacy and then observe their investments, insurance and liability management decisions.

In recent years the Indian government, particularly the Reserve Bank of India, has been aggressively working to increase the financial knowledge of the general population. The goal is similar to that set out by the OECD: ...to help consumers “develop the skills and confidence to

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<sup>1</sup> For example, see Agarwal, Driscoll, Gabaix, and Laibson, (2008 and 2009), Agarwal, Amromin, Ben-David, Chomsisengphet and Evanoff (2011, 2010, 2009), Lusardi (2004), Lusardi and Mitchell (2007a, 2007b), Lusardi, Mitchell and Curto (2009), and Mitchell (1988).

become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being” (OECD, 2005). The feeling is that India has a large population that does not have the rudimentary skills to make basic financial decisions. It has been estimated that only about five percent of Indian villages have a commercial bank branch. Similarly, over 40 percent of the adult population have no banking account; a number which grows to over 60 percent in rural areas (Thorat, 2007). These socioeconomic characteristics, combined with increasing complexity in financial markets, could lead to welfare reducing financial decisions.<sup>2</sup>

In response, the Reserve Bank of India has introduced Financial Literacy and Counseling Centers (FLCC) to provide consumers with the tools to make better credit choices (Reserve Bank of India, 2008). They have also targeted schoolchildren to cultivate financial literacy at an early stage via interactive websites (Reserve Bank of India, 2007).

We evaluate the financial literacy of a select group of Indians that participate in an on-line investment service provided by Yogi Financial Advisory Services. We evaluate their literacy and then relate the findings to their other investment activity. In the next section we briefly discuss the survey questions and the investment company used to collect the survey responses. In section 3 we discuss our empirical results. The final section concludes.

## **2. Review of the Literature on Financial Literacy**

Early studies to measure adult financial literacy were conducted during the 1990s on US data by private firms utilizing surveys that covered material specific to their corporate interests

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<sup>2</sup> Although it is difficult to quantify, international indices of the level of economic literacy find that the general Indian population scores relatively low in the analysis (Jappelli, 2009).

(Volpe, Chen, and Liu, 2006).<sup>3</sup> Similarly, early studies of the literacy of high school and college students asked relatively few questions and often sampled relatively few institutions. Perhaps the most useful early studies assessing overall financial literacy were those conducted on high school and college students. The Jump\$tart Financial Literacy Survey administered the same exam to randomly selected high school seniors every two years from 1997 to 2006. The exam included 31 questions on income, money management, saving and investment, and spending and credit and was intended to capture financial competence in a broad set of areas. Jump\$tart's findings were not encouraging: students scored an average of 57 percent in 1997 (with 60 percent being a passing score), and scores declined by several percentage points in subsequent years (2000-2006).

Chen and Volpe (1998) find similarly low rates of financial literacy among college students. In a sample of 13 public and private universities, the average respondent scored only 53 percent on a 36-question exam covering general financial knowledge. The sample included a high proportion of business majors, who scored higher than their peers in other fields of study that barely averaged 50 percent on the exam. Importantly, students scored highest on questions covering areas in which young people are likely to have some experience—for example, auto insurance and apartment leases—and lowest where they are likely to have the least experience—e.g., taxes, life-insurance, and investment. This suggests that financial experience could increase financial literacy.

Other research evaluates financial literacy among adults in more specific contexts. For instance, there is an extensive literature on the relationship between financial literacy and planning/saving for retirement. This literature yields two broad, but important findings. First, after controlling for a broad range of economic and demographic characteristics, more

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<sup>3</sup> This review draws heavily on the discussion of Agarwal, Amromin, Ben-David, Chomsisengphet and Evanoff (2011) who also provide a critique of this literature.

financially literate individuals are more likely to plan for retirement, and those who plan have greater net worth upon reaching retirement. Second, causation goes from literacy to planning to wealth.

Individuals accrue retirement assets both individually as well as through Social Security and employer-sponsored pensions. To figure out how much to save for retirement, individuals must know their expected dates of retirement, expected lifespan, and Social Security and/or pension entitlements. They must then take into account the expected rate of return on saving and the desired standard of living in retirement to determine the necessary savings rate. This planning process requires knowledge of Social Security and pension plan characteristics, as well as the ability to perform calculations involving compound interest and monthly accumulation. In practice, this can be a difficult process, as illustrated by Bernheim (1988), Mitchell (1988), and Gustman and Steinmeier (2005). Bernheim found that many adults do not know important features of their Social Security entitlements and pensions. Using the Social Security Retirement History Survey (RHS) he showed that adults nearing retirement did not report accurate estimates of expected Social Security benefits. He compared expected benefits to realized benefits, finding that predictions were generally unbiased, but relatively 'noisy'. Indeed, expected benefits accounted for only 60 percent of the variation in realized benefits. In addition, over half of the respondents were unable or unwilling to provide an estimate.

Mitchell (1988) examined employee knowledge of company pensions and found that many workers were unaware of important features of the plan. She compared pension characteristics reported by individuals from the Survey of Consumer Finances (SCF) to actual administrative data. Only half of employees who were required to contribute to their pensions reported doing so, and only half of those whose employers contributed realized that they did so. Over one-third

of respondents did not know about early retirement provisions and, among those who did, two-thirds described them inaccurately.

Gustman and Steinmeier (2005) confirm these findings using the 1992 Health and Retirement Survey (HRS), showing that a majority of those surveyed could not accurately report their Social Security or pension entitlements. Only 27 percent of respondents gave estimates within 25 percent of their actual Social Security entitlements. Interestingly, only 16 percent of respondents *with pensions* gave estimates within 25 percent of their actual pension entitlements. Perhaps most surprising, over 40 percent of respondents were unable to provide any estimate. Being educated, having higher income, and being white and male was associated with more accurate responses.

Even when consumers do have information about their Social Security and pension entitlements, they still have trouble performing the calculations necessary to plan for retirement. Significantly, many adults cannot correctly answer questions requiring basic financial understanding. For instance, Lusardi and Mitchell (2006, 2007a) find that only 18 percent of 2004 HRS respondents thought that an account initially holding \$100 and earning 20 percent compound annual interest would hold more than \$200 after five years. In particular, many respondents thought the account would hold exactly \$200, suggesting they did not understand compounding. An easier interest rate question from a three-question financial literacy module in the 2004 HRS yielded more correct responses, but it did not require respondents to understand the difference between compound and simple interest. Lusardi and Mitchell (2007b) find that even in the Rand American Life Panel (ALP), a sample of educated and high-earning middle-aged adults, over a quarter of respondents could not accurately answer the more difficult HRS compound interest question.

Further research showed that familiarity with interest rates and compounding is only weakly related to age. Lusardi, Mitchell, and Curto (2009a) found that respondents in their twenties do

about as well as respondents in their fifties, with the same demographic characteristics predicting correct responses as in other studies. Less than one-third of young adults possess basic financial knowledge enabling them to make appropriate decision concerning interest rates, inflation and risk diversification. Lusardi, Mitchell, and Curto (2009b), using data from the 2008 Health and Retirement Study, found older Americans were also lacking in financial aptitude. The sample of Americans over 55 did not have “a rudimentary understanding of stock and bond prices, risk diversification, portfolio choice, and investment fees.” The authors argue that these findings have significant implications for public policy.

Studies also revealed other forms of financial illiteracy. Many consumers answered a ‘money illusion’ question incorrectly, suggesting they did not understand the consequences of inflation (Lusardi and Mitchell, 2006, 2007b). Nearly half of HRS respondents missed a ‘lottery division’ question, which amounted to a simple division problem (Lusardi and Mitchell, 2007a). In the HRS financial literacy module, only 52 percent of respondents said investing in a mutual fund was less risky than investing in a single company’s stock, indicating a misunderstanding of risk and portfolio diversification (Lusardi and Mitchell, 2006).

Additional examples of financial illiteracy are also found in mortgage markets. For example, many individuals who hold adjustable rate mortgages (ARMs) exhibit shocking ignorance of their mortgage terms. Bucks and Pence (2006) document this by comparing the distribution of household-reported mortgage characteristics in the Survey of Consumer Finances to distributions in three lender-reported datasets. They found that ARM borrowers could not provide basic information about their own loans.<sup>4</sup> When ARM borrowers did report their loan characteristics, they often got them wrong, typically underestimating their risks and potential liabilities. Agarwal, Amromin, Ben-David, Chomsisengphet and Evanoff (2009) corroborate this evidence

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<sup>4</sup> Thirty-five percent did not know the per-period cap on interest rate changes; 41 percent did not know the maximum interest rate allowed; and 20 percent did not know the initial interest rate.

with data from a mandatory loan counseling program for high-risk mortgage applicants in Chicago. According to a summary of counselor assessments of the program, the ‘overwhelming majority’ of ARM applicants were unaware that their interest rate was not fixed for the life of the mortgage.

In summary, the bulk of the financial literature suggests that many consumers are not financially literate. In the next session we take some of the methodology used in previous studies and apply it to a data sample from India.

### **3. Data and Survey**

The data for the empirical analysis were provided by InvestmentYogi Financial Advisory Services. The firm is based in Hyderabad, India and has information on customers who are interested in improving their personal finance decisions. The founder of the company, Mamtha Banerjee, describes InvestmentYogi as a personal finance portal that helps Indians manage their investments, taxes and finances by providing high quality content and tools including online financial planning, online tax preparation, online budgeting and mutual fund research. The company was the first to introduce online financial software in India.

One of the more important services provided is financial planning. The firm offers planning services via a web-based platform where the customer inputs his or her monthly income, demographic information, current investments, current liabilities, insurance policies, risk tolerance, and the financial goals they would like to achieve. In addition, at our request, Investment Yogi inserted three financial literacy questions on interest rates (numeracy), inflation, and risk and diversification into the platform’s data-gathering module. To avoid identifying individual clients, InvestmentYogi sanitized any identifying characteristics in the data and provided all remaining information.

The three questions were the same as those by Lusardi and Mitchell (2006) except for the units of currency used. More specifically, the questions were as follows:

- (1) Suppose you had Rs. 1000 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?
- (2) Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, would you be able to buy: More than today? Exactly the same? Less than today?
- (3) Do you think the following statement is true or false? Buying a single company stock usually provides a safer return than a stock mutual fund.

Basic information about the surveyed consumers is provided in Table 5. There are 1,694 customers interested in financial planning that took the survey. The vast majority of the participants were from India (97%) and were male (92%). The average level of education attained by the reporting participants is significantly higher than the general population of India with 45% having graduated college and 47% having done some post graduate work. While they did not provide information on all aspects of the investments questionnaire, they typically did provide information on the basic financial literacy question and we are able to relate their responses to their investment behavior.

We caution the reader to not draw overly broad conclusions from this survey. The sample is not random - these are the people who were seeking personal financial advice and used the internet portal of Investment Yogi. Hence, we would expect the people surveyed to be of higher socio-economic status and be able to use the internet. Consequently, our results are better suited to assessing the level of financial literacy in the subset of Indian population that shares socio-

economic characteristics of survey participants. However, we did conduct a small-scale survey of around 140 very low income people and asked them the same three questions. The results were not very different from the Investment Yogi sample.

#### **4. Empirical Findings**

##### **4.1 The Literacy Questions**

The answers to the three literacy questions are presented in Table 1. On the interest rate question, 81% correctly answered that they would have more than Rs.1020 if they left the money to grow. About 15% gave an incorrect answer, with 7% thinking they would have exactly Rs1020 and 8% thinking they would have less than Rs1020. 4% of participants responded that they did not know the answer to the question. The high number of correct responses is most likely related to the education level of most of the participants.

Responses to the inflation question are also shown in Table 1. 79% of participants correctly responded that they would have less purchasing power in the example where the inflation rate exceeded the savings rate. 6% thought they would have more purchasing power in the example and 4% thought it would be exactly the same. However, a full 10% of the sample indicated that they did not know the answer to the question. The high percentage of respondents that correctly answered the question most likely results from a history in India of non-trivial rates of inflation. Rates of 5-6% have not been uncommon in the recent past.

The results for the third question on risk diversification are presented in the bottom panel of Table 1. Again, some 79% of participants correctly answered the question. This high correct response rate may occur because the respondents, by expressing an interest in participating in the advisory services, have indicated an interest in investments. Nevertheless, 6% of participants thought a single company stock would provide a safer return than would a stock mutual fund.

Additionally, 3% indicated that they were sufficiently unsure that they would prefer not to answer the question and 12% admitted to not knowing the answer.

The performance of the survey participants on the three questions is summarized in Tables 2 and 4. Table 2 provides univariate tabulations of responses from the three panels of Table 1, while Table 4 aggregates performance on the three questions. For example, 60% of participants correctly answered all three questions. Turning to the other extreme, 5% of respondents provided no correct answers at all. A small number of individuals indicated they did not know the correct answer to any of the questions.

Table 3 provides Spearman Rank Correlations between the correct answers to the questions. The cross correlations are all positive and statistically significant. The correlation for the correct answers to the inflation and diversification question is somewhat higher than that between the correct answers for the inflation and interest question or for the interest and diversification question.

We can also analyze the responses on the basis of participant characteristics. Summarily, we find that the number of correct responses across age groups is remarkably stable. However, we do see significant differences across gender, as higher proportion of male respondents answered each of the the individual questions correctly. Males also were more likely to answer all three questions correctly (68% compared to 49%). There is also a greater tendency for married females (but not married males) to correctly answer each of the individual questions and to answer all three correctly. This is particularly pronounced in the share answering all three questions correctly (54% for married females and 33% for single females). Somewhat surprisingly, there is not a significant difference across income groups within our sample. This may result from the fact that the average program participant's income being considerably higher than that of the typical Indian citizen, as differences in financial literacy may be expected to diminish once a

certain income threshold is reached. With the exception of the risk question, the share of correct answers across education levels varied as expected; higher levels of education result in more correct answers.<sup>5</sup> For the risk question, the number of correct responses initially rises with education, but then falls off somewhat for participants having obtained a doctorate. Finally, we were also able to derive the level of ‘risk tolerance’ for program participants from their responses to the online questionnaire. We see that investors that classified themselves as aggressive were more likely to correctly answer each of the three individual questions (or all three questions) than were the less aggressive ‘balanced’ investors. Similarly the ‘balanced’ investors were more likely to correctly answer the questions than were conservative investors. Some of the differences are quite large. The higher an investors’ self-reported risk tolerance, the more likely they were to correctly answer the questions.

Next, we study the financial planning behavior of the respondents. We have 1,694 customers interested in financial planning. Their individual planning goals range from a desire to buy or lease a car, save for retirement, fund a marriage for their children, buy a house, or provide education for their children or themselves. The goals are the most populated section of the data, with only 242 individuals not providing any goal information.

Apart from the goals, investments are the most reported information in the data with 1,309 customers reporting information and 4,787 investments to examine. We have information about the type of investment – debt, equity, gold, real estate – as well as information on the interest rate, amount invested and the initial value of the investment. Insurance information is less populated, with only about two thirds of participants reporting insurance this item. Despite that, we still have 1,085 individuals with insurance information and over 2,500 policies. Policies

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<sup>5</sup> Although the terminology is common in India, the education breakdown may not be familiar to the non-Indian reader. Graduate is similar to the US attainment of a high school education and post-graduate to a college degree. The doctorate degree is common terminology.

include not only life and health insurance, but money back, endowment and pension policies. For these we have information about premiums, maturity date, and the amount insured. Just over half of participants report having loans leaving information on 1,613 loans. Those who did report loans averaged 1.67 loans per planner. We have information about whether the loan was for personal use, home loan, or car loan, as well as the amount, interest rate and scheduled monthly payment amount.

Table 7 reports the summary statistics about the participants. The average age of participants is 33 with an average salary of Rs. 104,448 a month. Their average monthly expenses are Rs. 38,629. Since the data are very noisy with high standard deviations, it is more interesting to look at the median values. The median monthly salary is Rs. 46,000 and the median expenses are Rs. 18,252. While the median numbers are less than half of the means, the ratio of about 38% of monthly income going to cover monthly expenses is preserved. 92% of our sample is male and 76% are married. 43% of participants have no children and 37% has one child. 45% of participants have a graduate degree as their highest level of education and 47% have done postgraduate work. Only 2% of individuals in our sample have high school degree as their highest educational level, and 2% of planners have a doctorate. 54% of the sample self-identify as investors with a medium risk profile seeking a balanced growth rate of return, while 27% are considered high risk, aggressive growth individuals. The rest have conservative growth objectives and are not risk takers. Looking at the interaction between education and risk tolerance, we see slightly higher percentage of college graduates, 20%, as conservative growth than individuals with post-graduate education, 16%.

## **4.2 Investment Behavior.**

Table 8 reports the investment behavior of the participants. We break the summary statistics by risk tolerance (Panel A) and education level (Panel B). We see some interesting characteristics. The more risk tolerant a person, on average, the more investments that individual has – with aggressive risk individuals holding one more investment, on average, than conservative risk individuals. Restricting investment size to Rs.10,000,000 we see that the average amount invested is 31% larger for aggressive growth individuals than for conservative individuals. Viewing the ratio of total investments to income, we see that the median conservative individual has 0.9 months worth of salary in investments, while aggressive growth individuals have 2.4 months.

Not only do the number and size of investments differ across risk tolerance groups, but the composition of investments also differ. Each investment in the database is classified as debt, equity, gold, or real estate. While risky and conservative individuals have similar distributions of gold and real estate, risky individuals have 30.3% of their investments in equities as opposed to only 21.2% for conservative individuals. This results in debt comprising 55.0% and 65.2%, respectively, for risky and conservative investors. Without knowing more about the investments and assuming equity investments tend to be riskier than debt investments, this appears to be consistent with the self reporting of risk category.

Looking at an individual's educational attainment, we see that the number of investments increase with education, with the more highly educated individuals having lower shares of equities in their portfolios. While we don't see a strong relationship between education and interest rates in the weighted returns, the interest rates un-weighted by investment amount appear to show that higher educated individuals seek out investments with higher returns.

#### **4.3 Liability Behavior.**

Table 9 reports the liabilities held by the participants. Once again Panel A reports the liabilities by risk tolerance and Panel B reports the liabilities by education levels. We have 965 individuals that report having liabilities, with 16%, 60% and 27% being conservative, moderate, and aggressive in terms of risk tolerance. We see that the aggressive risk individuals appear to have more liabilities than their more conservative counterparts with the average aggressive risk individual holding 1.75 liabilities. Not only does the aggressive growth individual have a larger number of liabilities, but they also have a larger debt to income ratio. The median aggressive growth planner tends to have nearly 26 months worth of salary in outstanding liabilities, opposed to conservative and moderate planners that hold around 22 and 24 months worth of salary, respectively. However, looking at the monthly payments across the different risk group we see that the higher the risk tolerance, the larger the monthly payments compared to the outstanding balance. Despite higher risk tolerance individuals having higher monthly payments, we see the monthly payments as a fraction of income is slightly lower for the high risk and low risk individual (median: 34%) compared to the medium risk individual (median: 36%).

Liability behavior can also be examined as a function of educational differences. We see that individuals with college degrees tend to have fewer liabilities than those with graduate or post-graduate degrees. This holds true when looking at those that report any liabilities, as well as when you assume that those that did not report information on liabilities actually held no liabilities. Looking at the distribution of loans within each education group suggests that home loans are the most popular with all categories having more than 50% of loans in home loans. Respondents with doctorates have 59% of their loans in home loans. Those with post-graduate education have the highest concentration of car loans with 26% and the college graduates have the most personal loans as a share of all liabilities with 22%.

#### **4.4 Insurance Behavior.**

Table 10 reports the insurance behavior of the responders by risk tolerance (Panel A) and education levels (Panel B). Looking at insurance behavior by risk group, some rather odd results appear. We see that aggressive growth individuals tend to have the greatest number of insurance policies, with 2.61 policies on average. Balanced growth investors have 2.40 policies and conservative risk investors have 1.97 policies. Although higher risk individuals have more policies, they seem to find lower cost coverage. The median high risk individual has a 2.9% premium to insurance ratio, compared to 5.0% for balanced growth individuals and 6.0% for conservative growth individuals.

Looking at insurance behavior by educational attainment, we see that post-graduate planners have the fewest number of insurance policies compared to college graduates and planners with doctorate degrees. This result holds whether or not we assume that individuals that do not provide information about insurance actually have no coverage. We see that the median post-graduate educated individual has a lower premium to insured balance ratio compared to college and doctorate individuals, despite a similar distribution of policy types. Even stronger, post graduates have the least median premium payments and the mores coverage.

#### **4.5 Investment Goals.**

Finally, Table 11 reports the overall goals of the responders by risk tolerance (Panel A) and education levels (Panel B). Looking at the distribution of goals by risk tolerance we see that the number of goals increases with risk tolerance. For example, the median conservative and balanced planner has two goals and the aggressive growth planner has three. If we limit the analysis to only those reporting goals, we see the number of goals is 2.6, 2.8 and 3.1, respectively, for conservative, balanced, and aggressive growth planners. This distribution of

high risk tolerant individuals having more goals seems to be driven by them having more long term goals than their more risk adverse counterparts---with 30% of their goals being long term, opposed to 25% and 26% for conservative and balanced growth planners, respectively. While education is the most popular goal for all three risk tolerance groups, aggressive growth individuals have 25% of their goals associated with education, compared to 23% for conservative and balanced growth planners.

While the balanced growth individuals have a middle of the road number of goals (2.8), the average goal size is the lowest of the three risk groups with Rs. 4.6 million opposed to Rs. 5.2 and Rs. 6.0 million for aggressive and conservative growth planners, respectively. This means that balanced growth individuals plan to spend the least (Rs. 13.8 million), with aggressive growth individuals planning to spend the most (Rs. 16.3 million) and the conservative growth individuals planning to spend something in between the two extremes (Rs. 14.6 million).

Looking at the distribution over education, we see that individuals with doctorates have fewer goals than graduate and post-graduates, but plan on spending the most of any education group. Looking at the distribution of goals, we see that as the education level increases, the fraction of education goals to total goals increases. Graduate planners have 22.9% of goals going to education, post-graduated has 24.5% and doctorate has 27.3%.<sup>6</sup>

#### **4.6 Financial Literacy and Financial Planning.**

We see that a vast majority of the respondents are financially literate – they answer the numeracy, inflation, and diversification questions correctly. However, we also observe that there are significant variations across demographic groups. For example, the young and the old tend to get more correct answers compared to the middle age group. Also, males tend to fare better than

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<sup>6</sup> This relationship holds when looking at median goal amounts opposed to number of goals

the females. Finally, responders with doctorate degrees tend to provide the most correct answers and responders with high school degrees tend to get them wrong more often.

Correlating the financial literacy questions with the risk profile (Figure 1) we see that responders with conservative growth plans tend to get the answers wrong more often than the responders with aggressive and balanced growth plans. The next four figures (Figure 2-5) correlate the response to the financial literacy questions to the investment goals, number of investments, number of insurance policies, and number of liabilities. We see that responders tend to answer the financial literacy questions correctly the more the number of goals, investments, insurance policies, and even liabilities they have. However, there is a non-linear pattern – when they have too many goals, investments, insurance policies, and liabilities they tend to get the answers incorrect.

Looking at risk tolerance by gender we see that men tend to be more oriented toward risk than females with 28% of males being categorized as aggressive growth and only 11% of females. This is mirrored on the conservative returns side with 18% of males being conservative compared to 36% of females. The women in the sample also appear to have more education, with 62% of women having more than a graduate education and only 48% of men having a similar degree. Contrasting salary with risk and education levels, we see that higher income individuals tend to be more educated and seek aggressive growth portfolios.

Looking at family size, there does not appear to be a strong correlation between education and number of dependents. However, looking at risk profiles we see that lower risk planners tend to have smaller families. The average number of dependents low risk planners is 1.16 opposed to 1.33 for aggressive planners.

Combining information about goals, investments, liabilities and insurance policies we can discern some patterns in the data. As the number of goals increases, we find an increase in the

number of financial instruments, i.e., an increase in the number of investments, liabilities and insurance policies, with investments showing the largest increase as the number of goals increase. Looking at the distribution of products as a function of the number of investments is also interesting. We find that aggressive growth individuals tend to have more insurance policies. This increase appears to be correlated with the increase in the number of investments, suggesting that the insurance policies may not be as conservative as they initially appear.

Finally, we analyze the probability of getting the answers to all three literacy questions correct, simultaneously controlling for a number of characteristics. Results from this analysis are presented in Table 12. Results from the second column control for the same factors as shown in column 1, and also account for the number of investment goals, insurance policies, investments, and liabilities. The results again suggest that the probability of getting all three literacy questions correct is lower for females and for investor that report a more conservative investment strategy. It also increases if an investor has a doctorate degree—a result that is not statistically significant once the number of goals, investments, liabilities and insurance policies are accounted for.

## **5. Conclusions**

We evaluate the financial literacy of a select group of residents in India that participate in an on-line investment service provided by Yogi Financial Advisory Services. The findings on financial literacy are further related to self-reported information on respondents' other investment activity. We find that the participants are generally financially literate based on their responses to the survey questions. We find a number of relationships between literacy and socioeconomic variables; notably: the probability of getting all the survey questions correct is higher for male respondents, and generally increases with education level and the aggressiveness of the investor.

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**Table 1: Response overview of Financial IQ Question**

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**Question 1:**

Suppose you had Rs. 1000 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?

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	Number of Households	% of Households
More Than Rs. 1020	1,389	81%
Exactly Rs. 1020	111	7%
Less Than Rs. 1020	132	8%
Do not Know	75	4%

**Question 2:**

Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, would you be able to buy:

---

	Number of Households	% of Households
More Than Today	103	6%
Exactly the Same	75	4%
Less than Today	1,354	79%
Do Not Know	168	10%
Did not Answer	7	0%

**Question 3:**

Do you think the following statement is true or false? Buying a single company stock usually provides a safer return than a stock mutual fund.

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	Number of Households	% of Households
TRUE	95	6%
FALSE	1,342	79%
Do Not Know	210	12%
Prefer Not to Answer	58	3%
Did not Answer	2	0%

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Table 2: Distribution of Responses to Financial Literacy Questions

	Responses			
	Correct	Incorrect	Did Not Know	No Response
Numeracy Question	81%	14.2%	4%	0.0%
Inflation Question	79%	10.4%	10%	0%
Stock Market Safety Question	79%	5.6%	16%	0.1%

Table 3: Spearman Rank Correlations

	Interest	Inflation	Diversification
Interest	1.00		
Inflation	0.26	1.00	
Diversification	0.18	0.37	1.00

p-values are (0.00) for each pairwise correlation

Table 4: Cross Tabulations

	Number of Households	% of Households
Correct Answers For:		
Inflation QUESTION only	36	2%
Interest QUESTION only	100	6%
Diversification QUESTION Only	54	3%
Interest and Inflation QUESTION ONLY	148	9%
Interest and Diversification QUESTION ONLY	118	7%
Inflation and Diversification QUESTION ONLY	148	9%
Interest and Inflation	1,171	69%
Interest and Diversification	1,141	67%
Inflation and Diversification	1,171	69%
All Three Questions	1,023	60%
No Correct Answers	81	5%
At least 1 do not Know	355	21%
All do not know	41	2%

**Table 5. General Demographic Information:**

	N	% of Sample		N	% of Sample
<b>Number of Observations:</b>	1694				
<b>Countries with more than one plan:</b>			<b>Education Level</b>		
India	1438	97.2%	High School	28	1.8%
United Arab Emirates	9	0.6%	Graduate	691	45.4%
Iraq	4	0.3%	Post Graduate	718	47.2%
Singapore	3	0.2%	Doctorate	34	2.2%
Afghanistan	2	0.1%	Other	50	3.3%
Bahrain	2	0.1%	<b>Risk Profile</b>		
Indonesia	2	0.1%	Low: Conservative	409	26.8%
Iceland	2	0.1%	Medium: Balanced	822	53.9%
Malaysia	2	0.1%	High: Aggressive Growth	293	19.2%
Oman	2	0.1%	<b>Married</b>		
United Kingdom	2	0.1%	Single	351	23.1%
United States	2	0.1%	Married	1158	76.3%
<b>Top 5 States:</b>			Other	9	0.6%
Maharashtra	372	25.6%	<b>Number of Children</b>		
Karnataka	241	16.6%	No children	615	43.1%
Andhra Pradesh	170	11.7%	One Child	527	36.9%
Tamil Nadu	140	9.6%	Two Children	270	18.9%
Delhi	90	6.2%	Three Children	13	0.9%
<b>Top 5 Cities:</b>			Four Children	3	0.2%
Bangalore	229	15.6%	<b>Gender</b>		
Mumbai	207	14.1%	Male	1399	91.8%
Hyderbad	119	8.1%	Female	125	8.2%
Pune	119	8.1%			
Chennai	118	8.1%			

Table 6: Financial Literacy and Socioeconomic Variables

	Number of Observations	Relative Frequency	Interest Correct	DNK	Inflation Correct	DNK	Risk Correct	DNK	Overall 3 Corr.	1+ DNK
<i>Age</i>										
25 and younger	41	5.5%	82.9%	2.4%	85.4%	7.3%	82.9%	14.6%	68.3%	17.1%
25-30	240	32.1%	83.3%	3.8%	81.3%	8.8%	81.7%	12.5%	65.8%	17.1%
30-35	254	34.0%	83.9%	4.3%	83.9%	7.5%	79.9%	15.0%	64.2%	18.1%
35-40	122	16.3%	83.6%	4.1%	85.2%	7.4%	86.1%	8.2%	71.3%	11.5%
older than 40	90	12.0%	82.2%	4.4%	91.1%	4.4%	84.4%	11.1%	71.1%	14.4%
<i>Gender</i>										
Male	692	92.6%	84.1%	3.9%	84.7%	7.2%	83.5%	11.6%	68.4%	15.3%
Female	55	7.4%	74.5%	5.5%	78.2%	10.9%	65.5%	25.5%	49.1%	27.3%
<i>Marital Status</i>										
Male										
Married	65	30.7%	82.9%	4.6%	84.2%	7.9%	83.2%	11.8%	67.4%	15.7%
Single	143	67.5%	88.8%	1.4%	86.0%	4.9%	84.6%	10.5%	71.3%	14.0%
Other	4	1.9%	75.0%	0.0%	100.0%	0.0%	75.0%	25.0%	75.0%	25.0%
Female										
Married	39	70.9%	82.1%	5.1%	79.5%	10.3%	69.2%	23.1%	53.8%	25.6%
Single	15	27.3%	53.3%	6.7%	73.3%	13.3%	53.3%	33.3%	33.3%	33.3%
Other	1	1.8%	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%	100.0%	0.0%
<i>Education</i>										
Completed High School	18	2.4%	66.7%	11.1%	61.1%	5.6%	50.0%	33.3%	44.4%	33.3%
Graduate	324	43.4%	83.3%	4.3%	81.8%	9.6%	78.1%	17.0%	63.3%	21.6%
Post Graduate	364	48.7%	84.1%	3.3%	86.8%	5.8%	87.9%	7.7%	70.6%	11.0%
Doctorate	18	2.4%	94.4%	0.0%	94.4%	0.0%	83.3%	5.6%	83.3%	5.6%
Other	23	3.1%	78.3%	8.7%	87.0%	13.0%	73.9%	17.4%	65.2%	17.4%
<i>Income</i>										
1st quartile	166	25.4%	84.3%	6.0%	78.9%	10.2%	74.7%	16.3%	63.9%	19.3%
2nd quartile	180	27.5%	80.6%	3.9%	82.8%	8.9%	85.6%	11.1%	63.3%	16.7%
3rd quartile	156	23.9%	84.0%	3.8%	91.0%	3.8%	86.5%	10.9%	74.4%	12.8%
4th quartile	152	23.2%	84.9%	2.0%	86.2%	7.2%	86.8%	9.9%	70.4%	14.5%
<i>Risk Tolerance</i>										
Aggressive	204	27.3%	85.3%	2.9%	91.7%	4.4%	89.7%	7.8%	76.0%	10.3%
Balanced	389	52.1%	85.3%	3.1%	87.7%	5.7%	86.9%	8.5%	70.7%	12.6%
Conservative	154	20.6%	76.0%	7.8%	65.6%	16.2%	60.4%	29.2%	45.5%	33.1%

Table 7: Overview of Financial Position

	Number of Observations	Average	Standard Deviation	Median	Sum
Net Salary	1524	104,448	281,779	46,000	159,178,499
Total Expenses	1524	38,629	578,085	18,252	58,870,602
Number of Goals	1452	2.79	2.10	2	4,047
Total amount Required for Goals	1446	14,848,900	33,827,939	7,000,000	21,471,509,034
Number of Insurance Policies	1085	2.36	1.97	2	2,556
Premium Amount	1083	308,590	8,104,782	35,000	334,202,992
Sum Assured	1083	29,609,674	890,178,042	800,000	32,067,276,807
Number of Investments	1309	3.66	2.47	3	4,787
Investment Amount	1307	511,068,575	18,442,268,614	110,000	667,966,627,659
Investment Current Value	1305	71,251,632	2,460,572,951	525,000	92,983,380,197
Number of Liabilities	965	1.67	0.98	1	1,613
Total Amount of Liabilities	965	3,530,881	25,360,878	1,475,040	3,407,300,201
Total Monthly Payments (EMI)	965	35,214	66,946	20,319	33,981,620

**Table 8: Investment Behavior***Panel A: By Risk Tolerance*

	Number of Observations	Average	Standard Deviation	Median
<b>Number of Investments</b>				
Aggressive	346	4.18	2.53	4
Balanced	690	3.71	2.48	3
Conservative	203	2.84	2.23	2
<b>Interest Rate</b>				
Aggressive	346	1.48	2.72	0
Balanced	687	1.69	2.99	0
Conservative	203	1.28	2.47	0
<b>Investment Amount</b>				
Aggressive	346	938,756	1,887,741	161,000
Balanced	690	791,083	1,793,717	95,000
Conservative	203	718,577	1,702,916	50,000
<b>By Investment Type</b>				
<b>Debt</b>				
Aggressive	317	2.3	1.66	2
Balanced	628	2.21	1.68	2
Conservative	185	1.85	1.43	1
<b>Equity</b>				
Aggressive	273	1.27	0.83	1
Balanced	461	0.99	0.86	1
Conservative	85	0.6	0.79	0
<b>Gold</b>				
Aggressive	46	0.14	0.35	0
Balanced	91	0.14	0.36	0
Conservative	10	0.05	0.22	0
<b>Real Estate</b>				
Aggressive	121	0.46	0.73	0
Balanced	203	0.36	0.64	0
Conservative	43	0.29	0.62	0

**Table 8: Investment Behavior**

Panel B: By Education Level

		Number Observations	of Average	Standard Deviation	Median
<b>Number of Investments</b>					
	Graduate	563	3.64	2.49	3
	Post-Graduate	590	3.78	2.46	3
	Doctorate	32	4	2.65	4
<b>Interest Rate</b>					
	Graduate	563	1.44	2.74	0
	Post-Graduate	587	1.69	2.92	0
	Doctorate	32	1.5	2.85	0
<b>Investment Amount</b>					
	Graduate	563	758,573	1,619,549	105,000
	Post-Graduate	590	848,653	1,902,286	95,000
	Doctorate	32	975,764	1,907,507	258,500
<b>By Investment Type</b>					
<b>Debt</b>					
	Graduate	509	2.12	1.64	2
	Post-Graduate	543	2.23	1.62	2
	Doctorate	28	2.53	2.12	3
<b>Equity</b>					
	Graduate	375	1.01	0.85	1
	Post-Graduate	397	1.02	0.88	1
	Doctorate	20	0.91	0.82	1
<b>Gold</b>					
	Graduate	63	0.11	0.32	0
	Post-Graduate	75	0.13	0.35	0
	Doctorate	5	0.16	0.37	0
<b>Real Estate</b>					
	Graduate	164	0.37	0.67	0
	Post-Graduate	177	0.38	0.66	0
	Doctorate	11	0.41	0.61	0

**Table 9: Liability Behavior***Panel A: By Risk Tolerance*

	Number of Observations	Average	Standard Deviation	Median
<b>Number of Liabilities</b>				
Aggressive	256	1.75	1.04	1
Balanced	527	1.66	0.94	1
Conservative	153	1.67	1.05	1
<b>Outstanding Amount</b>				
Aggressive	256	2,930,744	3,402,490	1,776,472
Balanced	527	2,720,239	4,454,509	1,573,040
Conservative	153	7,819,613	62,992,420	1,000,000
<b>Monthly Payment Amount</b>				
Aggressive	256	38,809	61,368	23,573
Balanced	527	33,964	49,442	21,000
Conservative	153	37,167	116,241	17,459
<b>Average Rate</b>				
Aggressive	256	10.25	2.51	10.50
Balanced	527	33.62	367.20	10.50
Conservative	153	17.47	77.63	10.25
<b>By Liability Type</b>				
<b>Personal Loans</b>				
Aggressive	61	0.32	0.67	0
Balanced	138	0.34	0.64	0
Conservative	42	0.34	0.62	0
<b>Personal Loans Monthly Payments</b>				
Aggressive	61	19,994	77,193	8,500
Balanced	138	11,027	11,800	8,000
Conservative	42	40,306	136,103	8,243
<b>Home Loans</b>				
Aggressive	200	0.95	0.66	1
Balanced	407	0.91	0.62	1
Conservative	115	0.90	0.68	1

Home Loan Monthly Payments

Aggressive	200	38,465	51,159	27,900
Balanced	407	36,305	51,916	23,383
Conservative	115	29,509	92,352	19,000
Car Loans				
Aggressive	102	0.45	0.61	0
Balanced	207	0.41	0.52	0
Conservative	54	0.41	0.60	0
Car Loans Monthly Payments				
Aggressive	102	10,024	9,858	7293
Balanced	207	7,628	8,913	5,715
Conservative	54	10,928	24,489	6,364

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**Table 9: Liability Behavior***Panel b: By Education*

	Number of Observations	Average	Standard Deviation	Median
<b>Number of Liabilities</b>				
Graduate	416	1.7	1.0	1
Post-Graduate	457	1.7	1.0	1
Doctorate	21	1.4	0.7	1
<b>Outstanding Amount</b>				
Graduate	416	2,390,040	4,281,190	1321575
Post-Graduate	457	3,086,991	4,678,524	1854400
Doctorate	21	4,865,680	8,952,301	980000
<b>Monthly Payment Amount</b>				
Graduate	416	32,070	62,522	19000
Post-Graduate	457	37,340	65,264	25000
Doctorate	21	54,514	89,654	10500
<b>Average Rate</b>				
Graduate	416	16.5	73.3	10.5
Post-Graduate	457	33.7	392.9	10.5
Doctorate	21	14.0	18.1	10.5
<b>By Liability Type</b>				
<b>Personal Loans</b>				
Graduate	115	0.37	0.70	0
Post-Graduate	112	0.31	0.61	0
Doctorate	3	0.14	0.36	0
<b>Personal Loans Monthly Payments</b>				
Graduate	115	14,931	55,769	8,000
Post-Graduate	112	16,926	57,787	8,500
Doctorate	3	8,079	6,490	9,850
<b>Home Loans</b>				
Graduate	318	0.90	0.64	1
Post-Graduate	360	0.95	0.65	1
Doctorate	15	0.81	0.60	1

**Home Loan Monthly Payments**

Graduate	318	32,272	55,687	21,000
Post-Graduate	360	37,569	63,080	26,464
Doctorate	15	67,412	96,252	30,000

**Car Loans**

Graduate	156	0.41	0.57	0
Post-Graduate	188	0.44	0.56	0
Doctorate	6	0.33	0.58	0

**Car Loans Monthly Payments**

Graduate	156	8,587	16,804	5,392
Post-Graduate	188	8,689	8,065	7,000
Doctorate	6	18,230	15,605	11,590

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**Table 10: Insurance Behavior***Panel A: By Risk Tolerance*

		Number of Observations	Average	Standard Deviation	Median
<b>Number of Policies</b>					
	Aggressive	298	2.61	2.08	2.00
	Balanced	567	2.40	2.04	2.00
	Conservative	171	1.98	1.60	1.00
<b>Premium Amount</b>					
	Aggressive	298	66,849	198,882	35,000
	Balanced	566	63,775	81,900	37,715
	Conservative	171	1,616,299	20,394,769	30,000
<b>Assured Amount</b>					
	Aggressive	298	3,060,510	12,224,984	1,200,000
	Balanced	566	1,784,113	2,677,474	760,000
	Conservative	171	175,835,695	2,240,016,049	500,000
<b>By Insurance Type</b>					
<b>Endowment</b>					
	Aggressive	98	0.49	1.10	0.00
	Balanced	198	0.55	1.14	0.00
	Conservative	49	0.40	0.75	0.00
<b>Health</b>					
	Aggressive	25	0.09	0.32	0.00
	Balanced	39	0.07	0.28	0.00
	Conservative	11	0.08	0.31	0.00
<b>Money Back</b>					
	Aggressive	99	0.46	0.78	0.00
	Balanced	168	0.40	0.72	0.00
	Conservative	52	0.36	0.61	0.00
<b>Pension</b>					
	Aggressive	27	0.09	0.30	0.00
	Balanced	55	0.11	0.38	0.00
	Conservative	18	0.12	0.39	0.00
<b>Term</b>					
	Aggressive	126	0.59	0.85	0.00
	Balanced	181	0.44	0.75	0.00
	Conservative	43	0.47	1.09	0.00
<b>Unit</b>					
	Aggressive	116	0.57	0.90	0.00
	Balanced	193	0.47	0.77	0.00
	Conservative	38	0.30	0.68	0.00

**Unit Pension**

Aggressive	23	0.09	0.33	0.00
Balanced	52	0.12	0.42	0.00
Conservative	4	0.02	0.15	0.00

**Life**

Aggressive	42	0.19	0.54	0.00
Balanced	72	0.18	0.55	0.00
Conservative	24	0.18	0.49	0.00

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**Table 10: Insurance Behavior***Panel B: By Education*

	Number of Observations	Average	Standard Deviation	Median
<b>Number of Policies</b>				
Graduate	478	2.42	2.09	2.00
Post-Graduate	487	2.41	1.95	2.00
Doctorate	27	2.07	1.36	2.00
<b>Premium Amount</b>				
Graduate	478	63,030	97,310	36,000
Post-Graduate	486	65,490	162,209	35,632
Doctorate	27	62,439	79,119	40,000
<b>Assured Amount</b>				
Graduate	478	63,686,332	1,339,759,464	655,000
Post-Graduate	486	1,998,149	2,727,808	900,000
Doctorate	27	2,606,708	3,345,207	850,000
<b>By Insurance Type</b>				
<b>Endowment</b>				
Graduate	159	0.53	1.13	0.00
Post-Graduate	162	0.51	1.06	0.00
Doctorate	11	0.52	0.70	0.00
<b>Health</b>				
Graduate	35	0.08	0.31	0.00
Post-Graduate	35	0.08	0.28	0.00
Doctorate	2	0.11	0.42	0.00
<b>Money Back</b>				
Graduate	154	0.42	0.69	0.00
Post-Graduate	149	0.43	0.78	0.00
Doctorate	3	0.11	0.32	0.00
<b>Pension</b>				
Graduate	47	0.11	0.38	0.00
Post-Graduate	48	0.11	0.34	0.00
Doctorate	4	0.19	0.48	0.00

<b>Term</b>					
	Graduate	150	0.47	0.87	0.00
	Post-Graduate	177	0.51	0.82	0.00
	Doctorate	12	0.63	0.84	0.00
<b>Unit</b>					
	Graduate	163	0.50	0.86	0.00
	Post-Graduate	167	0.47	0.77	0.00
	Doctorate	6	0.26	0.53	0.00
<b>Unit Pension</b>					
	Graduate	37	0.10	0.41	0.00
	Post-Graduate	39	0.09	0.34	0.00
	Doctorate	2	0.07	0.27	0.00
<b>Life</b>					
	Graduate	62	0.16	0.45	0.00
	Post-Graduate	66	0.18	0.52	0.00
	Doctorate	2	0.19	0.68	0.00

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**Table 11: Goal Behavior***Panel A: By Risk Tolerance*

		Number of Observations	Average	Standard Deviation	Median
<b>Number of Goals</b>					
	Aggressive	372		3.12	2.41
	Balanced	738		2.80	1.83
	Conservative	223		2.57	2.48
<b>Amount Required</b>					
	Aggressive	372	16,344,093	28,937,366	9,875,000
	Balanced	738	13,819,991	27,096,435	7,000,000
	Conservative	223	15,476,208	52,229,936	4,701,515
<b>Percent Achievable</b>					
	Aggressive	372	37%	43%	0%
	Balanced	738	33%	43%	0%
	Conservative	223	31%	43%	0%
<b>By Goal Type</b>					
<b>Short Term</b>	Aggressive	183	0.73	0.89	0.00
	Balanced	395	0.75	0.85	1.00
	Conservative	124	0.79	0.87	1.00
<b>Mid Term</b>	Aggressive	274	1.44	1.63	1.00
	Balanced	507	1.30	1.33	1.00
	Conservative	130	1.13	1.50	1.00
<b>Long Term</b>	Aggressive	204	0.95	1.13	1.00
	Balanced	363	0.74	0.92	0.00
	Conservative	84	0.65	1.09	0.00
<b>Car</b>	Aggressive	115	0.32	0.49	0.00
	Balanced	254	0.36	0.51	0.00
	Conservative	68	0.33	0.53	0.00
<b>Education</b>	Aggressive	213	0.78	1.12	1.00
	Balanced	360	0.64	0.85	0.00
	Conservative	84	0.60	1.24	0.00
<b>House</b>	Aggressive	210	0.60	0.58	1.00
	Balanced	404	0.56	0.53	1.00
	Conservative	119	0.61	0.76	1.00
<b>Retirement</b>	Aggressive	235	0.65	0.51	1.00
	Balanced	417	0.58	0.53	1.00
	Conservative	106	0.50	0.54	0.00
<b>Marriage</b>	Aggressive	137	0.44	0.65	0.00
	Balanced	241	0.38	0.60	0.00
	Conservative	41	0.21	0.47	0.00

<b>Holiday</b>	Aggressive	59	0.16	0.39	0.00
	Balanced	96	0.14	0.39	0.00
	Conservative	36	0.20	0.54	0.00
<b>Other</b>	Aggressive	48	0.16	0.48	0.00
	Balanced	78	0.12	0.39	0.00
	Conservative	18	0.09	0.30	0.00
<b>Spouse Retirement</b>	Aggressive	3	0.01	0.09	0.00
	Balanced	6	0.01	0.11	0.00
	Conservative	7	0.04	0.21	0.00

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**Table 11: Goal Behavior***Panel B: By Education*

		Number of Observations	Average	Standard Deviation	Median
<b>Number of Goals</b>					
	Graduate	612	2.79	2.13	2.00
	Post-Graduate	626	2.96	2.20	3.00
	Doctorate	29	2.66	1.54	3.00
<b>Amount Required</b>					
	Graduate	612	14,974,909	34,094,764	7,000,000
	Post-Graduate	626	13,817,867	21,082,075	7,900,758
	Doctorate	29	34,529,134	122,049,562	8,500,000
<b>Percent Achievable</b>					
	Graduate	612	32%	43%	0%
	Post-Graduate	626	36%	43%	0%
	Doctorate	29	47%	46%	40%
<b>By Goal Type</b>					
<b>Short Term</b>	Graduate	321	0.75	0.86	1.00
	Post-Graduate	331	0.75	0.86	1.00
	Doctorate	12	0.55	0.78	0.00
<b>Mid Term</b>	Graduate	410	1.25	1.39	1.00
	Post-Graduate	437	1.41	1.56	1.00
	Doctorate	22	1.34	0.97	1.00
<b>Long Term</b>	Graduate	290	0.79	1.07	0.00
	Post-Graduate	318	0.80	0.99	1.00
	Doctorate	15	0.76	0.87	1.00
<b>Car</b>	Graduate	200	0.34	0.51	0.00
	Post-Graduate	211	0.35	0.51	0.00
	Doctorate	7	0.24	0.44	0.00
<b>Education</b>	Graduate	286	0.64	0.98	0.00
	Post-Graduate	329	0.72	1.07	1.00
	Doctorate	18	0.72	0.65	1.00
<b>House</b>	Graduate	311	0.54	0.62	1.00
	Post-Graduate	371	0.62	0.55	1.00
	Doctorate	12	0.41	0.50	0.00

<b>Retirement</b>	Graduate	356	0.60	0.53	1.00
	Post-Graduate	349	0.58	0.53	1.00
	Doctorate	19	0.66	0.48	1.00
<b>Marriage</b>	Graduate	182	0.34	0.57	0.00
	Post-Graduate	209	0.40	0.63	0.00
	Doctorate	12	0.48	0.63	0.00
<b>Holiday</b>	Graduate	94	0.17	0.45	0.00
	Post-Graduate	88	0.15	0.40	0.00
	Doctorate	2	0.07	0.26	0.00
<b>Other</b>	Graduate	67	0.13	0.43	0.00
	Post-Graduate	65	0.12	0.39	0.00
	Doctorate	2	0.07	0.26	0.00
<b>Spouse Retirement</b>	Graduate	7	0.01	0.13	0.00
	Post-Graduate	6	0.01	0.12	0.00
	Doctorate	0	0.00	0.00	0.00

Table 12: Linearized probability of getting all 3 Financial IQ Questions correct

	All Three Correct	All Three Correct
Female	-0.141** (0.040)	-0.141** (0.040)
Married	-0.028 (0.615)	-0.036 (0.518)
Has Children	-0.022 (0.640)	-0.045 (0.347)
Aggressive Risk	0.065 (0.112)	0.050 (0.220)
Conservative Risk	--0.200*** (0.000)	-0.156*** (0.001)
Less than 25	0.137 (0.135)	0.135 (0.140)
Between 25 and 30	0.023 (0.629)	0.031 (0.521)
Between 35 and 40	0.069 (0.187)	0.043 (0.424)
Older than 40	0.080 (0.169)	0.081 (0.170)
Doctorate	0.221** (0.050)	0.165 (0.144)
Post Graduate	0.066* (0.075)	0.057 (0.125)
High School	-0.080 (0.528)	-0.090 (0.476)
Other Education	0.054 (0.588)	0.089 (0.370)
Binaries for the number of Goals	no	yes
Insurance Policies	no	yes
Investments	no	yes
Liabilities	no	yes
<b>Constant</b>	0.670*** (0.00)	0.618*** (0.00)
Observations	694	694
R-squared	0.066	0.116

p-values in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Figure 1: Correct Responses by Risk Profile

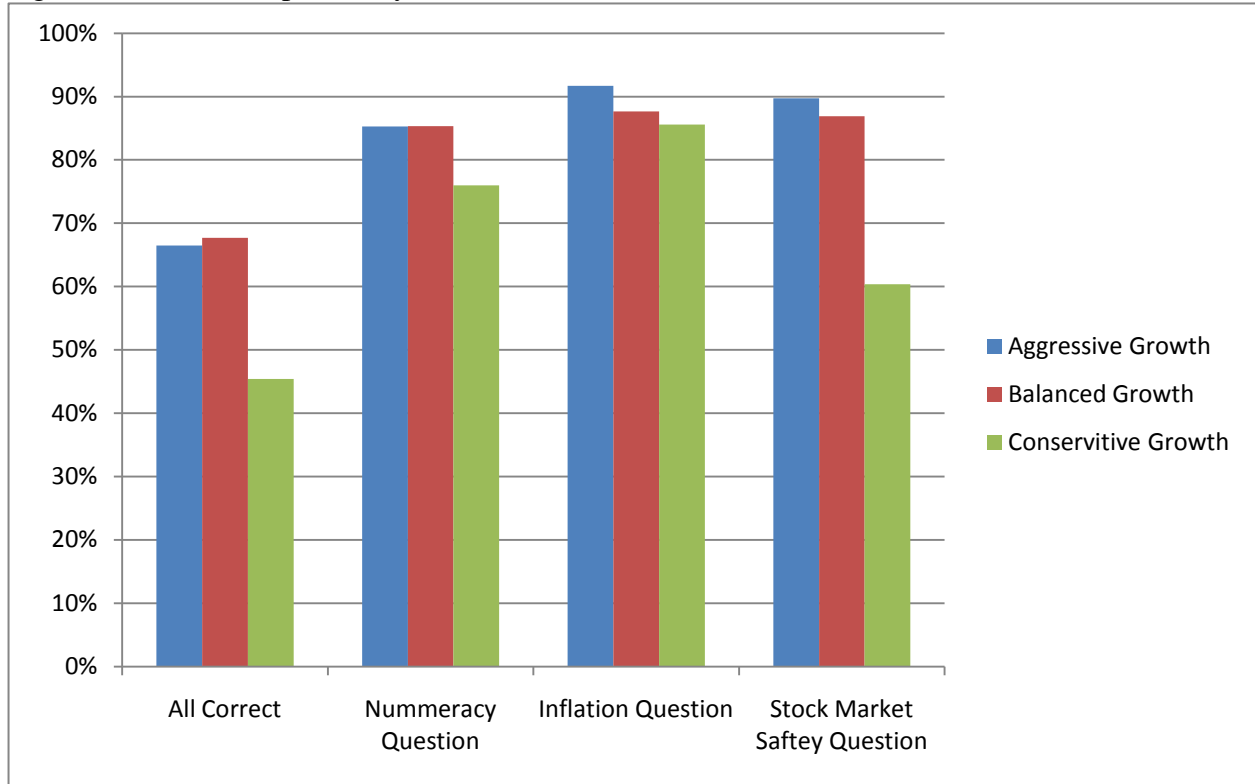


Figure 2: Correct Response by Number of Goals

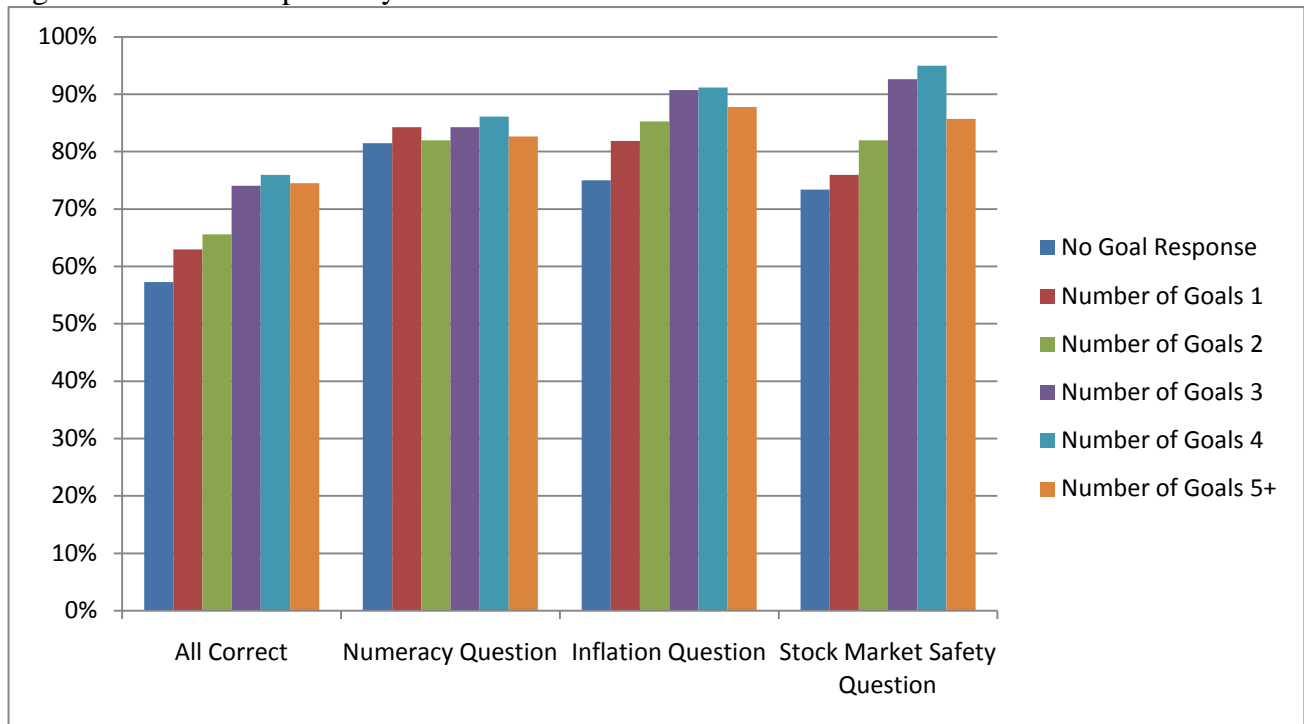


Figure 3: Correct Response by Number of Investments

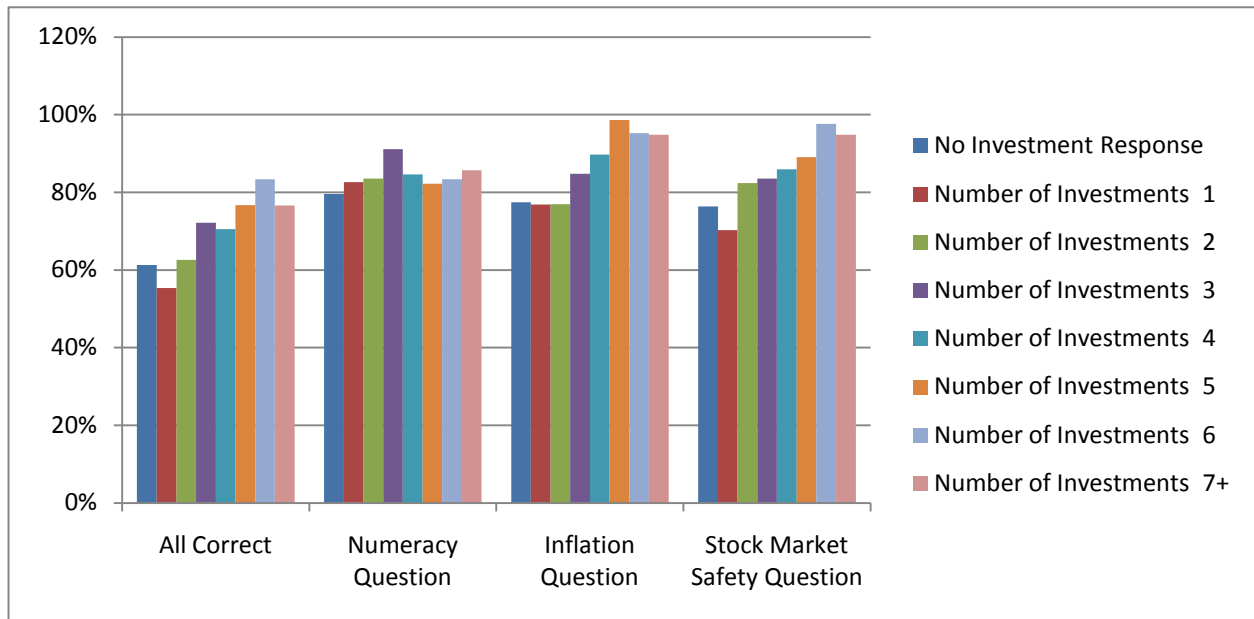


Figure 4: Correct Response by Number of Insurance Policies

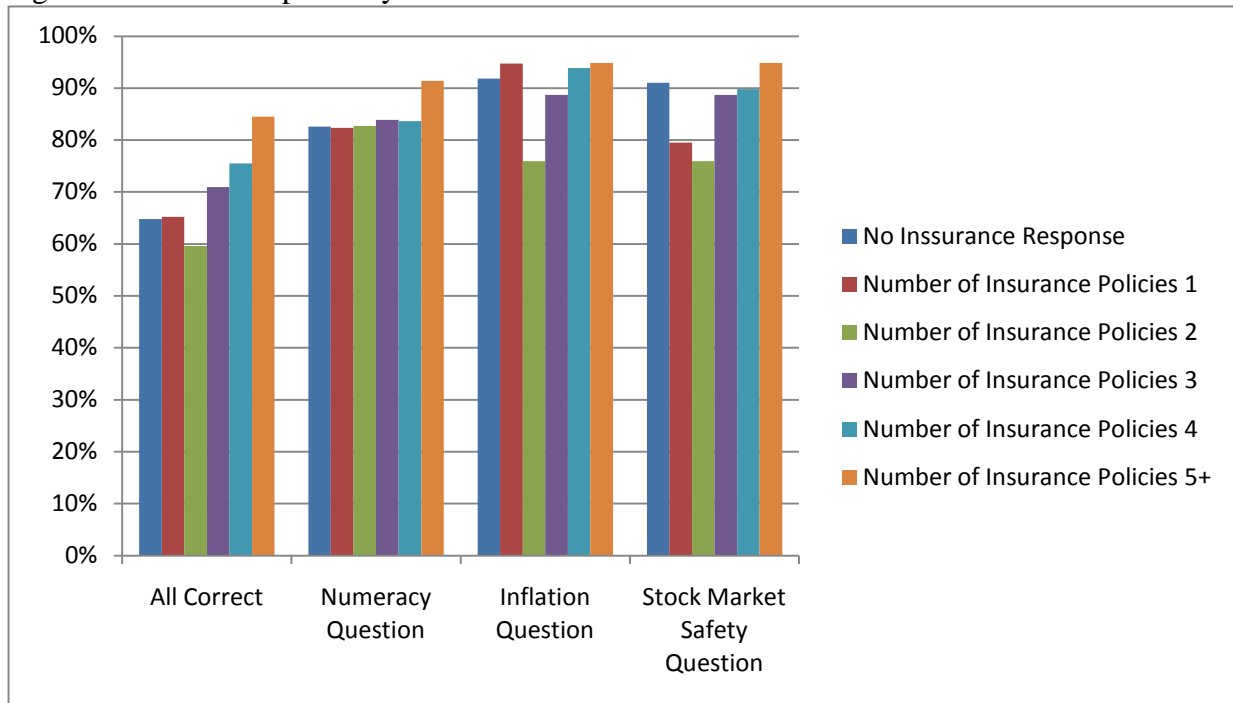


Figure 5: Correct Response by Number of Liabilities

