The Survey of Financial Literacy in Shanghai

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Abstract: *The worldwide pension reform has increasingly transferred pension responsibilities to individuals, individual needs reasonable consumption, savings and investment to make informed inter-temporal decision. Global survey found that financial literacy is uneven, which is a significant factor of the pension plan and pension saving. This paper does an analysis and summary about the empirical study of the residents' financial literacy , investigating on Residents' financial literacy status in Shanghai City, and conduct a descriptive analysis of the financial literacy of residents, put forward a policy recommendations of strengthening financial education.*

Keywords: *financial literacy, retirement planning, path analysis*

1. INTRODUCTION

Financial Literacy is a new hot spot for Financial Research in recent years. It refers to that people make use of the financial knowledge and skills he mastered to make informed decisions for one's financial well-being of a lifetime. In recent years, financial literacy has attracted the attention of many countries, such as the United States, Britain, Russia, Germany, Italy, Mexico, Sweden, the Netherlands, Japan, India and other countries, financial experts have carried out research on financial literacy, analyzing and summarizing the path and mechanism that financial literacy acts on retirement planning ,and have found some laws and phenomenon ,then proposed financial education initiatives to improve people's financial literacy. Both the three-pillar pension model the World Bank initiated and the five-pillar pension model initiated by ILO, have stressed the impact of individual financial decision making and planning in the pension planning. Modigliani's life cycle hypothesis of consumption and saving theory, first assume that consumers are rational, reasonable ,and they can make reasonable use of their own income to consume; consumers need to have good financial literacy to pursue utility maximization in the life cycle, to make good intertemporal decisions. This paper mainly discusses the potential mechanism of how financial literacy affects pension planning, by analyzing the national financial literacy survey research, summarize the path financial literacy affect personal pension plan, and finally put forward some policy recommendations to strengthen national financial literacy education.

2. OVERVIEW

In the global marketplace which is full of risks and increasing competition, people need to make informed decisions to protect against unknown risks. Meanwhile, the increase in life expectancy and the declining of birth rate, increased the burden of social endowment insurance system and enterprise annuity system, pension reform is emerging from the original benefit defined system (DB) to a cost defined system (DC), this transformation will transfer retire responsibility from the nation and corporate to the individual, individuals should take on responsibility for more savings, investment and rational consumption, and are responsible for one's own pension problem. This requires people to master more financial knowledge and certain financial skills to serve a lifetime financial well-being. However, according to a survey on the OECD countries, although the degree of the development of financial markets and types of pensions differ in different countries and regions, financial illiteracy phenomenon is widespread.

Early studies of financial literacy theory started from two studies of economics professor B.Douglas Bernheim inStanford University (1995,1998). In his study of relation between public

policy and economic growth in tax(1995) ,found that in the face of increasingly complex financial products, American families do not realize the household's financial vulnerability; B.Douglas Bernheim (1998) carried out research about the lack of financial literacy , financial education and the relationship between retirement savings. In 1998, the U.S. private nonprofit organization Jump $ tart Coalition launched the first survey for 12th grade in high school graduates ,results were surprising, only 10.2% of high school graduates were able to correctly answer the 75% financial question. Financial Literacy Survey results are more worrisome in 2002,causing the attention of the United States Congress.

In order to evaluate the financial literacy of Americans, A. Lusardi and O. S. Mitchell followed four core principles in the design of the problems.(1) Simplicity. We aimed to measure basic financial concepts, akin to the notions of the abc's of finance.(2) Relevance. Questions had to relate to concepts pertinent to people's day-to-day financial decisions over the life-cycle; moreover, they had to capture general rather than context-specific ideas.(3) Brevity. Fewrepresentative surveys can devote much time to financial literacy topics, and so the number of questions had to be kept to a minimum in order to secure widespread adoption (4) Capacity to differentiate. We needed questions that can differentiate between financial knowledge levels, so as tocompare people in terms of their scores on a common set ofquestions.

Three questions to measure financial literacy:

(1) Suppose you had $100 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?

A More than $102

B Exactly $102

C Less than $102

D Do not know

Refuse to answer

(2) Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?

A More than today

B Exactly the same

C Less than today

D Do not know

E Refuse to answer

(3) Please tell me whether this statement is true or false.'Buying a single company's stock usually provides a saferreturn than a stock mutual fund?.

A True

B False

C Do not know

D Refuse to answer

Inevitable errors exist in the measurement of financial literacy, on the one hand, respondents may randomly guess the answer, on the other hand, respondents may misunderstand the problem. To assess potential problems, Lusardi and Mitchell (2009) and Van Rooijetal (2011) randomly interviewed two groups respondents by changing the wording of the same question, results showed that the way problems were raised will affect the correct rate, some people do not know the answer, that is, the respondents do not understand some financial concepts. The exclusion of possible measurement errors and statistical errors, we can get a relatively accurate assessment about financial literacy.

After the United States, Lusardi and Mitchell (2011c) launched an investigation of the overview of financial literacy in Japan, Italy, Germany, Russia, the Netherlands, Sweden, New Zealand and other countries, making use of these three questions. The findings caused the OECD

organization's attention, soon financial literacy survey were carried out in Australia (Agnew, Bateman, and Thorp 2012; Bateman, Ebling, Geweke, Louviere, Satchell, and Thorp 2013), France (Arrondel, Debbich, and Savignac 2012) Mexico and Chile (Cole, Sampson, and Zia 2011), India andIndonesia (Cole, Sampson, and Zia 2011) and othercountries, the findings in these countries showed results of financial literacy survey in 8 countries.

Table1. *Summary of results of national financial literacy survey*

Age	hump-shaped, youth and older groups with low levels of financial literacy
Gender	in general, financial literacy level of female is lower than that of men, but in Germany, almost no gender differences
Educational	people with higher levels of education and who come into contact with finance courses have higher financial literacy level
Occupation	financial related occupations, and the self-employed have higher financial literacy
Region	generally people of more economically developed areas have higher financial literacy levels than other regions
Selfe-valuation	there are deviations between selfevaluation and the actual measured value
Nation	relate to the economy, social background and so on
Family	vulnerable to be affected by parents' investment savings behavior.

Graph1: The contrast of the rate of all questions correct and all questions wrong

Elsa Forner(2011,Italy) found that the majority of residents lack the understanding of basic financial concepts, such as interest rates and inflation. Men, highly educated persons and residents of north central have a higher financial literacy;Tabea Bucher-Koenen,etc. (2011,Germany) used the SAVE survey data to examine the financial literacy of its inhabitants, found that women, lower level of education and those living in eastern Germany people lack basic financial literacy; Shizuka Sekita (2011,Japan) found that women, young people and low-income earners and low education level are less likely to give the correct answer on issues related to financial literacy through questionnaire, which are consistent with the results obtained in other studies; Annamaria Lusardi, etc. (2011,U.S.) used the new national financial capability of the people to study financial literacy, a financial literacy among young people, women and especially the low-educated people is very low. In addition, Hispanics and African-American gain the lowest score; Leora Klapper, etc. (2011,Russia) found that in such an ancient country, there is a big gap between different areas, financial literacy and private pension plans have a significant positive correlation; Robn Alessie, etc. (2011Netherlands) made use of the results of two survey before and after the financial crisis, found that people's financial literacy level have not been improved between 2005 and 2010, while the 2010 report shows that there is a significant increase in the retirement planning , financial literacy has a positive impact on retirement planning.

3. FINANCIAL LITERACY SURVEY IN SHANGHAI

In order to measure our national financial literacy objectively and accurately, according to the foreign scholars and research institutions to define and experience of financial literacy, investigation will investigate financial literacy from three categories: financial knowledge level, behavioral finance, investment and financing ability characteristics. There are mutual connection and mutual influence among the three categories, multi angle together constitute the residents' financial literacy. With reference to the Lusardi (2008) and others on American national financial literacy survey design problem, we design 5 assessment of financial literacy problems, including stock and interest rate, inflation rate, complex relationship, risk dispersing, the time value of money, stock concept. These questions simple, belonging to the basic financial knowledge. Finance behavior characteristics mainly inspects risk preference, income evaluation, endowment burden of the residents. Investment and financing ability mainly inspects investment reference information, financing way, insurance buying of the residents.

3.1 The Basic Description

The object of this investigation is the residents in the Shanghai City, taking a random survey questionnaire. The survey sample is total of 400 copies, eliminate invalid answered questionnaire, finally get 300 effective questionnaires, the sample pass rate is 75%. The investigation objects is shown in table 2.

Table 2. *The basic description of sample*

categories	The sub categories	Frequency	Percentage
	18-25 years old	98	32.67%
	25-35 years old	104	34.67%
age	35-45 years old	37	12.33%
	45-55 years old	25	8.33%
	Above 55 years old	36	12.00%
occupation	Country institutions	36	12.00%
	Professional and technical personnel	45	15.00%
	Office, management personnel	77	25.67%
	Financial related personnel	21	7.00%
	Self employed workers	21	7.00%
	Production, transportation industry	24	8.00%
	Student	60	20.00%
	Retirement	16	5.33%
gender	male	170	56.67%
	female	130	43.33%
education	The junior high school and below	53	17.67%
	High school or college	72	24.00%
	Bachelor's degree	132	44.00%
	Master	39	13.00%
	Doctor's degree and above	4	1.33%
income	3000RMB	80	26.67%
	3000-6000RMB	116	38.67%
	6000-10000RMB	65	21.67%
	10000-15000RMB	18	6.00%
	15000-20000RMB	10	3.33%
	Above20000RMB	11	3.67%

(1) the age distribution

Figure 1 shows the number of different age stages in the survey sample and accounted for the distribution ratio: 18-25 years old accounted for 32.67%, 25-35 years old accounted for 34.67%, 36-45 years old accounted for 12.33%, 46-55 years of age accounted for 8.33%, 55 years of age accounted for 12%.
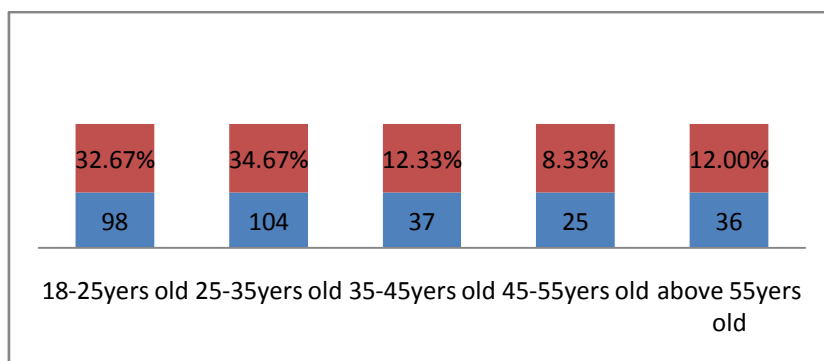

Figure 1. *Age distribution*

(2)the gender distribution. As shown in Figure 2, the statistical sample of 170 males, the proportion is 56.67%, women 130 people, accounted is 43.33%, the men and women in each half.
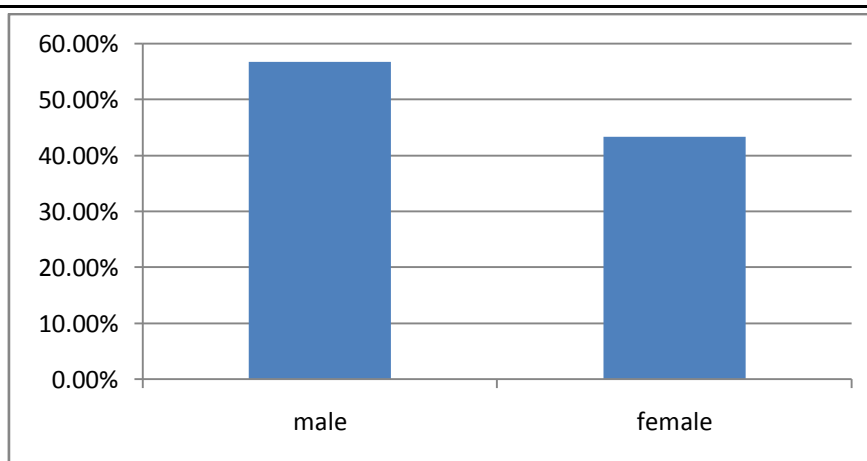
Figure 2. *Gender distribution*

(3) The occupation distribution

According to the occupation, the investigate object is divided into eight categories: state organs, institutions practitioners accounted for about 12%, professional and technical staff accounted for about 15%, office, office personnel and the management staff accounted for about 25.67%, the financial industry practitioners accounted for about 7%, the self-employed accounted for about 7%, production and transportation industry practitioners about 8%, retired personnel accounted for 5.33%, the students as the object of measurement of important financial literacy accounted for 20%. The number of samples and sample ratio as shown in figure 3.
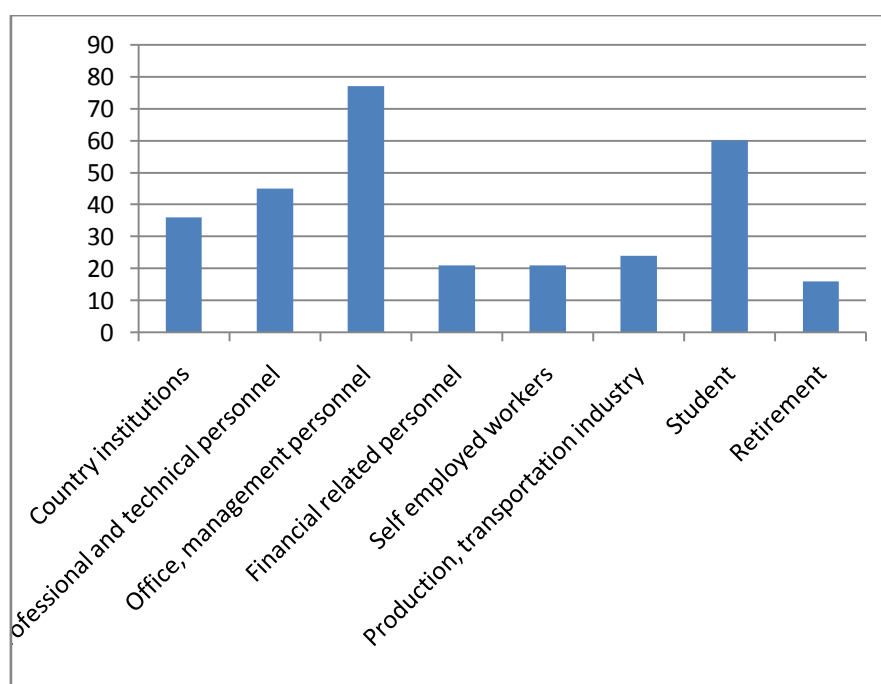

Figure 3. *Occupation distribution*

(4) Education degree distribution

As shown in Figure 4: according to the education level, dividing the investigation object into five classess, junior high school and below education accounted for 17. 67%, the high school or college education accounted for 24%, accounting for 44% of the undergraduate education, master degree and doctoral degree accounted for 13%, the number of only 4 people, accounts for 1,33%. In addition to the number of doctoral degree less number, other qualifications are suitable for investigation and analysis.
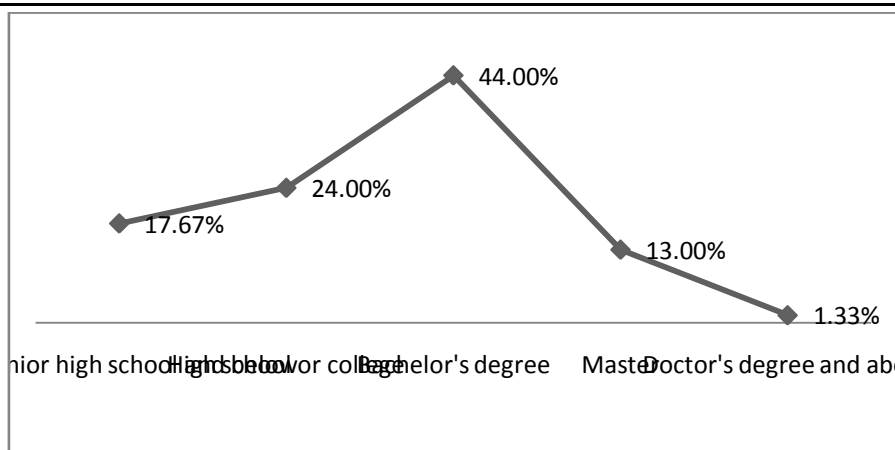
Figure 4. *Education degree distribution*

(5) Income level

In order to investigate income and household wealth level of residents, we conducted a survey on the residents' income level. As shown in Figure 5: in the survey on a monthly income of 3000 yuan, accounting for 27%, 3000-6000 yuan accounted for 39%, accounted for 22% of 6000-10000 yuan, 10000-15000 yuan 15000-20000 yuan accounted for 6%, accounted for about 3%, 20000 yuan of above 3%.
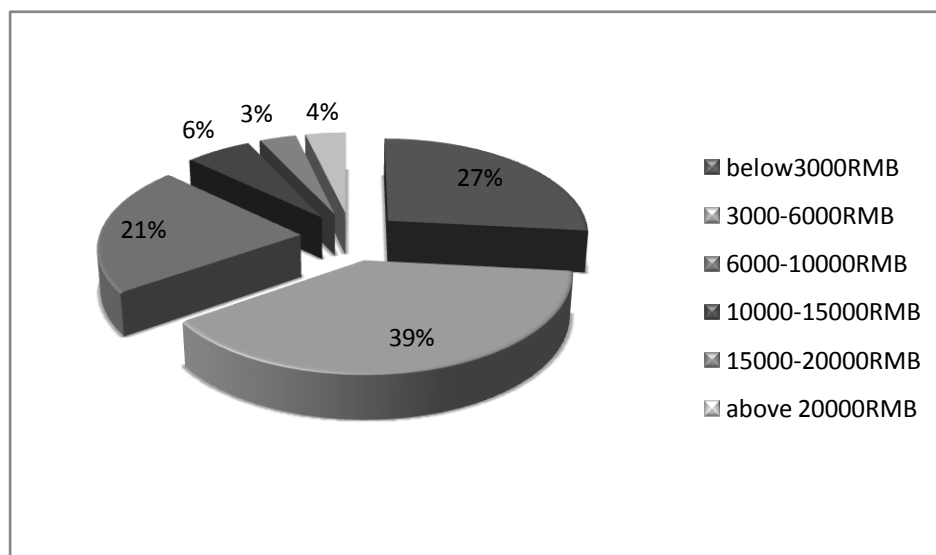

Figure 5. *Income level*

3.2 Financial literacy level in Shanghai

We determine the level of financial literacy according to the correct answer rate in questionnaire of 5 financial literacy questions, and financial literacy level is divided into 5 levels, the lowest level1. The highest level 5. The calculated level of financial literacy level of the residents in this survey of Shanghai city is 2.55, has not yet reached the pass level, this reflects the financial literacy level of the residents is not high. Not only that, the basic financial knowledge score of the sample standard deviation is 1.59, individual scores the greater volatility, this indicates that there is significant difference between the residents of China's personal financial knowledge level. In addition, the skewness value is -0.145, close to 0, but slightly to the left, indicating that the residents' financial knowledge level was almost symmetrically distributed on both sides of the average score. The 5 problems are closely related with the daily life, the residents should be familiar with, but the findings is worrisome. In statistics, the problem of inflation' correct answer rate reached 63.67%, is the highest. since 2006, China's sustained inflation and media reports have let the residents of the concept is not strange. The correct answer rate on stock concept only is 41%. Questions Investigation of residents' ability of calculation correct rate is 45%, which shows that residents' master degree of the compound concept of is not high, the basic calculation

ability of residents were not strong. Risk the correct answer rate is 55.67%, the problem of time value correct answer rate is 50.67%.
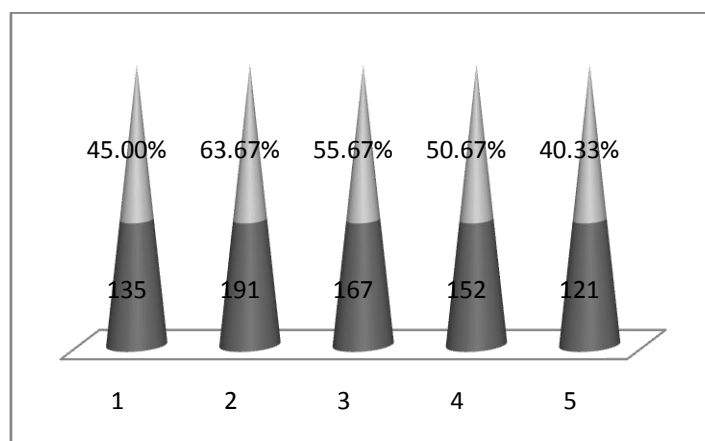

Figure 6. *The correct rate of questions*

Table 3. *The assessment results of Financial literacy level*

	N	mean	Standard deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Standard error	Statistic	Standard error
Computing ability	300	0.45	0.498	0.248	0.202	0.141	-1.972	0.281
Risk dispersion	300	0.64	0.482	0.232	-0.571	0.141	-1.685	0.281
value of time	300	0.56	0.498	0.248	-0.229	0.141	-1.961	0.281
Concept of stock	300	0.51	0.501	0.251	-0.027	0.141	-2.013	0.281
The comprehensive score	300	0.4	0.491	0.241	0.396	0.141	-1.856	0.281
Effevtive N	300	2.55	1.59	2.529	-0.145	0.141	-1.036	0.281

Following the America later, Lusardi and Mitchell (2011c) using the three issues on the financial literacy status in Japan, Italy, Germany, Russia, Holland, Sweden, New Zealand and other countries. The results of the investigation caused the OECD organization's attention, quickly investigate financial literacy in Australia (Agnew, Bateman, and Thorp 2012; Bateman, Ebling, Geweke, Louviere, Satchell, and Thorp 2013), France (Arrondel, Debbich, and Savignac 2012), Mexico and Chile (Cole, Sampson, and, Zia 2011) India and Indonesia (Cole, Sampson, and, Zia 2011) and other countries, the results of the survey in these countries has shown consistency
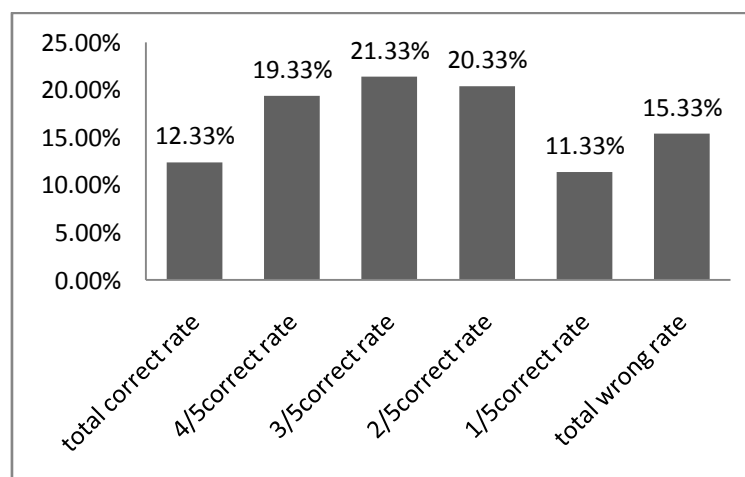

Figure 7. *Shanghai Residents' financial literacy problem the cumulative rate of correct answers*
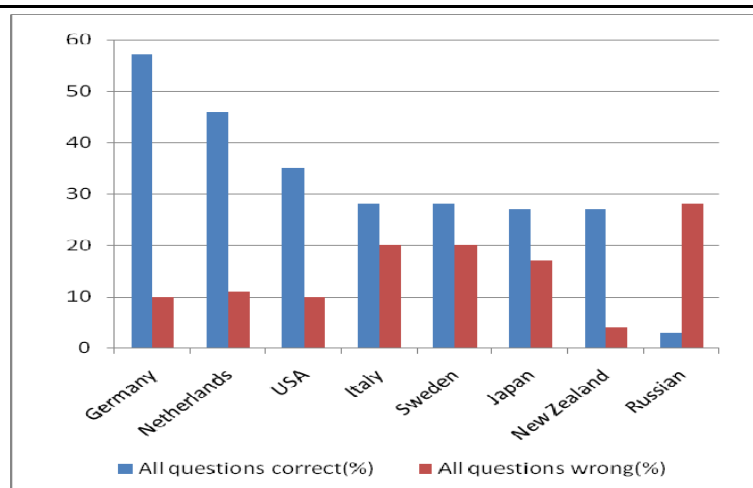
Figure 8. *The contrast of the rate of all questions correct and all questions wrong*

Figure7 and figure 8 show that the rate of correct answer to the question of financial literacy is low, the highest rate is Germany (57%), in the United States ,the rate is only 35%, while in Russia all wrong rate is more than the all correct rate. In our survey, the all correct rate of answering all of financial literacy question is 12.33% ,and the total error rate is 15.33%, total error rate counter ultra all correct rate, compared with other countries, the level of financial literacy of our residents is relatively low. Such findings indicate that low levels of financial literacy. Financial literacy in the gap between different countries is larger, related to the degree of development of the financial market in the world, the degree of economic development and the overall quality of people.

4. CONCLUSION AND IMPLICATION

The results of global survey show that the level of financial literacy is generally low, clear differences among different groups, influenced by the level of education, professional environment, regional environment, national environment and family background and other factors. In addition, the residents do not have an objective assessment of their financial literacy skills. In China, the problem of aging population is increasingly prominent, the number of elderly population in the next 40 years will increase by rapid speed and will reach a peak in 2050-2055, the elderly dependency ratio increases, the entire social security system and the individuals are facing huge pension pressure; China's pension system relies on long-term state financial subsidies, with the aggravation of an aging population and retirement tide comes, the government can not fund a huge irreparable gap; basic pension insurance, company supplementary pension insurance, individual savings pension insurance are our three pillars of the pension system, in which the basic endowment insurance is the support in our country, The development of the three pillars is extremely uneven, is not conducive to the stable development of the social security system, we must strengthen the enterprise supplementary pension insurance and personal savings the development of pension insurance. At present, the study of the relationship between financial literacy and retirement planning is still marginal in China, we learn from foreign experience and explore on the financial literacy research in China, obtain basic financial literacy information and presents financial education initiatives for different groups to improve residents' financial literacy and actively promote the development of private pension plans.

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