

There is no annuity puzzle in the DB system: annuity-
preferences and psychological factors in Israel.

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Abstract

Recent changes in the pension system made it possible to allow the members of the pension funds the freedom to choose their preferred savings withdrawals method. Contrary to theoretical papers on the subject of the optimal withdrawal method, pointing out that the optimal decision is to invest at least most of the savings in annuity withdrawals, empirical studies found that in practice, most retirees prefer a lump-sum withdrawal. This discrepancy is dubbed the "annuity puzzle". The current study examines the withdrawals preferences of the population of Israel and the psychological and demographic factors that affect them, focusing on the age effect: 297 members, 42-67 years old, that arrived in the public reception offices of the "Menora-Mivtachim" pension product management company, were examined. Unlike findings from other countries, most of the subjects preferred annuity withdrawals over the lump sum withdrawal. The level of confidence in the system was found to significantly affect the withdrawals method decision, with lower confidence associated with lump sum withdrawals preferences. In addition, it is apparent that high self-confidence is associated with a preference of the lump sum withdrawal. Finally, it was found that the older the subjects, the more they tend to choose annuity withdrawals. It was examined in a continuation study whether the annuity withdrawals preferences are associated with the attractive conversion factor in Israel. This hypothesis was refuted in the research that found out that subjects of the general population preferred the lump-sum over annuity withdrawals at the common conversion factor. We assume that the preference of the annuity withdrawals that was found in our study stems from the fact that pension savings in Israel are in practice directed mainly to annuity and subjects who are aware of that are interested in keeping the status-quo.

Introduction

Nobody knows the day of their death. While being an existential problem, it is also a practical one: suppose that you have an account of one million dollars at the age of 65. How to divide it? If you take your life expectancy [say 20 years at this age] and allocate each year 50,000 dollars, there is a good chance that you will be destitute later, if you live longer than 85 years. Conversely, if you take a longer horizon, there is a good chance that you will not have consumed as much as you could, leaving an unintended bequest. This conundrum is solved by an annuity: a payment system where you receive regular installment as long as you live. This is what happens with Social Security pension and traditional pension funds [DB]. In this fund, the insured and his employer pay into the pension throughout the working period, and the accumulated funds plus interest serve as the source for the annuities. But a person with a relatively big account can also convert her money into a stream of payments that are conditioned on his being alive. She gives the insurance company a big one time premium, and it will give her a monthly allowance as long as she lives. ["Immediate life annuity".] It thus insures her against the risk of living too long. Roughly speaking, the insurance company distributes the money left among the survivors – the annuity is a mechanism of bequest sharing.

To put numbers on this abstract notion, immediate life annuities have a relatively high payout rate. For example, a 65-year-old male currently can buy a \$100,000 annuity with a payout rate of 6.72 percent per year, according to New York Life insurance company. [Regular interest rates are less than half of it]. This rate has an actuarial component: the annuity allows the insureds to consume all their money without undesired bequest. However, very few people buy immediate annuities. In the US in 2012, sales totaled \$7.7, as compared with \$5.3 trillion investment in IRAs and workplace retirement plans. This is the well-known "annuity puzzle."

The importance of this phenomenon increased with the recent changes in the global pension market that transferred responsibility for pension management to the citizens, and increased flexibility regarding pension withdrawal options. In the United States, only 21% of defined contribution pension funds offered annuity products, and among the members of these funds, only 6% of individuals with the option to invest part of their savings in annuity products chose to do so (Schaus, 2005). Men aged 63–67 in the United States were found to have invested a mean of only 5% of their savings in annuity products, with a median investment of 0% (Poterba, 2003). Abstention from purchasing annuities was also observed in a natural experiment in the US Army. When the Army implemented a manpower reduction plan, it gave those discharged the choice of withdrawing compensation as either a lump sum or an annuity. Although the value of the annuity was 20% greater than that of the lump sum, most service people preferred to receive their compensation as a lump sum (Warner & Pleeter, 2001).

Theoretical economic analyses have demonstrated that annuitization of the entirety of a pension (Yaari, 1965) or its majority (Brown, 2007) maximizes personal welfare. Despite these findings, in countries where pension withdrawal options are flexible, demand for annuity products is quite low, and individuals tend to prefer a lump sum (Schaus, 2005).

Other studies took into consideration factors that may detract from the advantages of an annuity, such as scarcity of annuity products that satisfy the need for liquidity (Davidoff, Brown & Diamond, 2003) and for protection from inflation (Brown, Casey & Mitchell, 2007), the desire to leave an inheritance (Lockwood, 2012), selection bias causing individuals with low life expectancy to abstain from purchasing annuities (Warner & Pleeter, 2001), the role of the family unit as a substitute for annuity products (Spivak & Kotlikoff, 1979), and discouragement of the private market from offering annuity products by stipends received from social security (Dushi & Webb, 2004). While these studies suggest that the purchase of a whole life nominal annuity with the entirety of an individual's retirement savings is not necessarily an option always to be preferred, Brown (2007) shows that, even when

adjustments are made for the above factors, purchase of an annuity with most or all the retirement savings remains the optimum choice for most individuals.

Owing to the difficulty of explaining this phenomenon under rational assumptions, the annuity puzzle is explained by recourse by theories and methodologies borrowed from behavioral economics (Brown, 2007). A number of scholars have examined the effects of various personal characteristics, among them psychological and socio-demographic factors (Agnew, Anderson, Gerlach & Szykman, 2008; Shu, Zeithammer & Payne, 2013), as well as varying perceptions relating specifically to pension withdrawal and the pension system in general (Brown, Kapteyn, Luttmer & Mitchell, 2013). The present study seeks to examine the annuity puzzle in Israel, and to identify the personal psychological and demographical factors that are relevant to it.

Nonetheless, demand for annuity products is meager. In Britain, for example, only 6% of households had purchased an annuity product on the open market (Inkmann, Lopes & Michaelides, 2011). In the United States, only 21% of defined contribution pension funds offered annuity products, and among the members of these funds, only 6% of individuals with the option to invest part of their savings in annuity products chose to do so (Schaus, 2005). Men aged 63–67 in the United States were found to have invested a mean of only 5% of their savings in annuity products, with a median investment of 0% (Poterba, 2003). Abstention from purchasing annuities was also observed in a natural experiment in the US Army. When the Army implemented a manpower reduction plan, it gave those discharged the choice of withdrawing compensation as either a lump sum or an annuity. Although the value of the annuity was 20% greater than that of the lump sum, most servicepeople preferred to receive their compensation as a lump sum (Warner & Pleeter, 2001).

Explanations of the Annuity Puzzle: Behavioral Psychological Factors

Decision-making with regard to retirement savings in general, and withdrawal of those savings in particular, is highly vulnerable to psychological biases resulting from the fact that

such decisions are characterized by a great degree of uncertainty. Such decisions require knowledge and understanding of a range of complex concepts, generally do not permit a learning process to take place, and have ultimate consequences that become manifest only after the fact.

The default option effect. (Beshears et al. 2009). Butler and Teppa (2007) found that in Switzerland for funds where the default option was withdrawal of the pension as an annuity, an average of 73% of members chose full annuitization, while 17% preferred partial annuitization. Conversely, at funds where a lump sum was the default option, an average of only 10% of savings was annuitized. Similar results were found in the public sector in the US: the majority of employees remained with the default option set by the government, regardless of whether this behavior was financially justified. Israel is a clear case of a country that encourages annuitization. In 2008, Amendment 3 to the Control of Financial Services Law became valid with the principal aim of encouraging retirement savings. Annuitization up to a ceiling was made the only option, incentivized by substantial taxation on lump-sum withdrawal. In addition to influences exerted by the manner in which retirement funds withdrawal is structured, withdrawal preferences are influenced by personal demographic and psychological factors. (Agnew et al, 2008; Shu et al, 2013).

Confidence in the financial system is particularly critical because familiarity with the various elements of the system is a complex matter that requires a degree of expertise (Giddens, 1990). The financially uneducated person tends to form a naïve index of confidence in the various financial systems reliant principally on emotions that these systems arouse and reflecting personal values and norms (Hyde, Dixon & Drover 2007). Gardner and Wadsworth (2004) showed that lack of confidence in companies managing retirement savings and in financial institutions in general was one of the most influential factors informing participants' preference to abstain from purchasing annuity products. Brown and Mitchell (2007) similarly

demonstrated that individuals preferred exchanging stipends for a one-time lump sum payment if they were inclined to assess that those stipends were likely to be reduced.

Financial literacy and numerical ability are associated with financial behavior in a number of areas, including the field of pensions (Lusardi, 2008). Studies of the relationship between an individual's degree of financial literacy and numerical ability, and a preference for annuitization over a lump sum have arrived at contradictory conclusions. Some studies found that the greater a participants' level of financial literacy, the more they preferred an annuity over a lump sum (Cappelletti, Guazzarotti, & Tommasino 2013; Brown, & Mitchell, 2007; Schreiber & Weber, 2013). Other studies, however, observed the opposite relation, which may be explained by a preference on the part of individuals with low levels of financial literacy to abstain from reinvesting their savings and to their lack of confidence in their ability to preserve their savings (Agnew & Szykman, 2011; Mottola & Utkus, 2007).

Self-confidence may influence decision-making with regard to the manner in which a person withdraws their pension. Payment of a lump sum means that the administration of the savings is transferred from the pension fund to the individual. For the individual to assent to such a development, they must believe themselves capable of appropriately managing these important funds. A high level of self-confidence may contribute to active retirement planning, and thus investment of resources in learning and understanding the pension problem and deep familiarity with impending choices and their consequences (Neukam & Hershey, 2003). Conversely, excessive confidence may result in imprudent decisions and unprofessional management of retirement savings (Kahneman, Odean, & Barber, 2005). Lown and Robb (2011) demonstrated that individuals who assessed their ability to manage their savings as "very good" tended prefer annuitization less than those who described their ability to manage their savings as merely "good", or worse.

Individual discounting rate. It is likely that individuals who tend to place greater weight on the present than on the future will tend to prefer a lump sum, as this option permits utilization of

savings in the immediate term, whereas the benefits of annuitization pertain to the long term, and indeed, Weber and Schreiber (2013) found that those with high present discount rates preferred a lump sum to annuitization.

The present study seeks to examine withdrawal preferences in Israel, in real life situation – the sample is of real people who come to the pension fund’s offices and are about to decide on their pension plans. This is the first study on Israeli preferences. We wish to assess the demographic and psychological factors that influence demand for annuity products in the Israeli market. We investigate the following demographic factors: age, number of children, income level, and education. The psychological factors to be examined are: time preference, level of financial literacy and numerical literacy, level of self-confidence, and level of confidence in the financial system.

Survey 1

Method

The variables in the study were examined by means of an anonymous questionnaire exploring withdrawal preferences and factors informing them.

Participants

The study was conducted from December 2013, to February 2014, in the reception area of Menora Mivtachim, the largest pension product management company in Israel. The experimenters came to the reception area for 31 days, sampling a total of 297 fund members, who had come to conduct business concerning their retirement savings. The ages ranged 42–67 (median age = 59). The questionnaire was prepared in three versions, Hebrew, Russian and Arabic. A total of 203 participants completed the questionnaire in Hebrew, 76 completed the Russian version and 17 the Arabic one. To avoid interfering gender effects, and in recognition of the differences between the processes undergone by men and women in withdrawing retirement savings, only men were sampled. As a means of incentivizing fund members to

participate in the study, invest resources in completing the questionnaire, each participant who completed the questionnaire received a thermal cup as a gift in appreciation of his cooperation. The average time required to complete the questionnaire was approximately 15 minutes.

This study is unique in the method employed to collect data. Most prior studies of the annuity puzzle relied on widely distributed Internet-based questionnaires. In the present study, data were sampled in a location where the participants were making real-world decisions concerning their retirement savings, by experimenters who interacted individually with the participants and were available to explain the content of the questionnaire to them.

In studying preferences pertaining to withdrawal of retirement savings, it is important to administer a questionnaire face-to-face and in a situation resembling that in which decisions regarding retirement savings are made. The withdrawal of accrued retirement savings is a one-time event with significant psychological ramifications. It may be feared that participants asked through an Internet-based questionnaire about how they would prefer to withdraw retirement savings may fail to be emotionally and cognitively engaged, and risk giving superficial or even frivolous responses. Studies of the annuity puzzle utilizing Internet-based questionnaires may therefore be flawed. To counter these problems, we conducted our study in the reception area of the participants' pension funds management company, with appropriate props (table, poster). By so doing, we hope to have encourage the participants to answer our questions as an extension of their business in that locale and situation.

Questionnaire

The dependent variable in our study is the preferred form of retirement fund withdrawal, viz., annuitization or a lump sum. The preferred mean of pension withdrawal was measured using a process constructed by Schreiber & Weber (2013). First, we asked how they would prefer to withdraw their retirement savings (as a stipend received once per month beginning at the time of retirement, or as a one-time lump sum). They were then requested to allocate a given

sum they would wish to withdraw on a one-time, immediate payout basis (on a scale of 0% to 100% with increments of 10%) and receiving the remainder as an annuity, using the pension conversion factor commonly employed in Israel, viz., 200. This allocation was repeated for three sums to be considered as retirement funds —800,000 ILS, 1.1 million ILS, and 1.4 million ILS (1million ILS equal about 250,000 USD). To prevent an order effect, the amounts were presented to half of the participants in ascending order and to the other half in descending order. We then averaged the three percentages. And used this as a measure of the percent of savings that a participant preferred to receive as an immediate payout was obtained as an average of the results of the three tasks.

Independent variables were measured as follows:

Level of confidence in the system was measured using three questions. The first asked participants to indicate to what degree they believed that the Israeli pension system at present provided financial security during retirement. The second question requested them to indicate to what degree they believed that the Israeli pension system in the future would provide financial security during retirement. The third question asked them to indicate to what degree they considered the companies administering retirement funds to be dependable. Degrees of confidence was expressed on a scale of 1 to 5 (1-very low, 5-very high). The three values were then totaled, resulting a new measure in a scale of 3 to 15 with high internal consistency (cronbach's alpha of 0.8).

Self-confidence with regard to personal management of retirement savings was measured based on a Lown and Robb (2011). The participants were asked to grade their ability to personally manage their retirement savings by choosing one of five statements, ranging from *I have no ability whatsoever to manage my account on my own* to *I would be able to manage my account very well*. The responses were coded on a scale of 1 to 5, (1 representing the lowest degree of self-confidence).

Temporal preference was measured by presenting six hypothetical questions. Each question asked participants to choose which of two tax refunds they would prefer to receive, with one option to be paid soon and the other paid later with interest. This method has been used in a number of studies and a variety of contexts to assess payout scheme type (Harrison, Lau & Williams, 2002; Meier & Sprenger, 2013; Schreiber & Weber, 2013).

Level of financial literacy and *numerical ability* were measured using a financial literacy questionnaire based on the work of Lusardi and Mitchell, (2007), composed of five questions of varying difficulty that were translated and adapted by Leiser, Spivak and Carmel (2014). Participants were also asked the three questions of the Cognitive Reflection Test (CRT) (Frederick, 2005).

Reason for visiting the office of the pension fund company was identified by having each participant indicate their reason for being there. They checked the appropriate answer out of six: withdrawal of severance package, taking out a loan, receiving a stipend, changing investment plans, obtaining general information, and joining the fund. We derived a binary variable out of the answer, according to whether they were there to withdraw severance pay, as this reason is the principal option available to individuals who wish to withdraw some part of their retirement fund up front.

Demographic factors collected were age, number of children, monthly salary bracket, and education.

The questionnaire also included an assessment of whether retirement savings were perceived in terms of desires or in of needs. The measure obtained from this task contributed little to explaining withdrawal preferences, and will not be discussed further.

Results

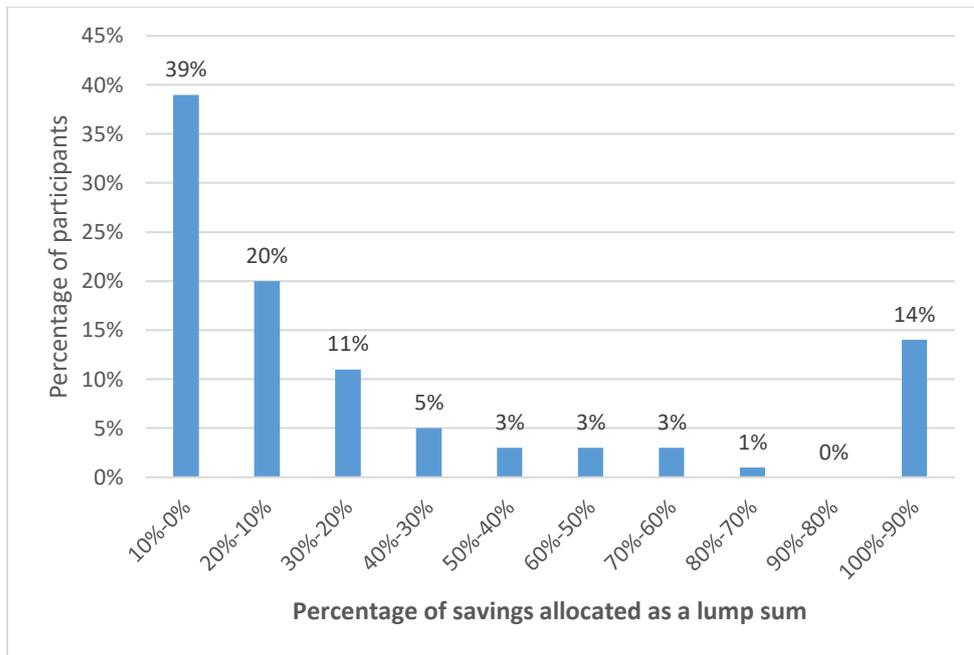
Withdrawal Preferences

Asked whether they would prefer to receive their pension investments as a fixed stipend throughout the remainder of their lives or as a one-time lump sum, 68% of participants

responded that they would prefer to receive their savings in the form of a fixed life annuity. When asked to allocate various sums between an immediate payout and a fixed life annuity, participants exhibited a marked preference in favor of annuitization rather than an immediate payout. Figure 1 shows the percentage of participants who selected each of the various withdrawal options when asked to allocate savings between an immediate payout and an annuity. Participants clearly prefer annuitization over an immediate payout, as expressed by the fact that participants allocated an average of 72% of their savings to a fixed annuity. The median participant preferred to withdraw 87% of his savings as an annuity, 78% of participants preferred to withdraw the bulk of their retirement savings as an annuity, and 39% of participants preferred to annuitize the entirety of their retirement savings. Nevertheless, a significant number of participants (14%) were observed who preferred to withdraw the entirety of their retirement savings as a lump sum. The majority of those with a preference for an immediate payout over an annuity preferred to abstain entirely from annuitization.

These findings are at variance with those of a range of studies performed in various parts of the world. In most studies where participants were asked to report their withdrawal preferences, an immediate payout was preferred. We also found that most participants who preferred most of their withdrawal up front wanted all of it in a lump sum.

Figure 1: Percentage of participants that selected each withdrawal option.



Factors Influencing Withdrawal Preferences

Factors with a bearing on pension withdrawal preferences were examined using two models. The first model examined the factors that affect the binary choice: receiving retirement savings as a lump sum versus investing them in a fixed life annuity. The model was estimated by logistic regression, with a preference for annuitization of retirement savings coded as 0, and a lump sum as 1. The second model was used to examine the factors influencing the average percentage of savings allocated to an immediate payout in the three tasks that had participants allocate retirement savings of varying amounts between an annuity and an immediate payout. This model was estimated by OLS.

Table 1 shows the results of the estimates for the two models. The variables found to be significant for the first model are degree of confidence in the system (with a significance level of 1%) and the reason for coming to the office of the insurance company (with a significance level of 10%). It was found that as the degree of confidence in the system decreased, as well as when participants had come with the purpose of withdrawing severance, they tended to exhibit a stronger preference in favor of receiving their savings as an immediate payout.

The variables found to be significant for the second model are degree of confidence in the system (5%), level of self-confidence (5%), and age (1%). High levels of confidence in the system and self-confidence were found to be associated with a preference for annuitization, while each additional year of age was found to correlate with a decrease of 1.14% in the proportion of retirement savings that the participant preferred to receive as an immediate payout.

The predictive value of the two models is modestly high. The logistic regression model classifies correctly 71% of cases, with 68% of participants reporting that they would prefer to annuitize their savings. The explained variance of the second model is minimal, as reflected by the low R^2 value (0.1). We are left to conclude that the personal characteristics studied reflect only a small part of the factors that influence withdrawal preferences.

The variables found to have a significant effect are as follows:

Confidence in the system: The sole factor found to be significant in both models is the individual's degree of confidence in the system. This result is unsurprising: it stands to reason that the greater an individual's confidence that the system will take good care of his savings, the more willing he will be to leave his money in it.

Table 1: Models for estimating pension withdrawal preferences.

	(1) Binary choice: annuity or a lump sum.	(2) Percentage of savings allocated as a lump-sum.
Estimation Method	Logistic regression	OLS regressions
Age	0.0296 (0.0247)	-1.139*** (0.394)
Salary	-0.00780 (0.110)	0.496 (1.547)
Education level	0.159 (0.145)	-0.880 (1.921)
Num of children	0.0336 (0.110)	0.108 (1.507)
Withdrawal of severance	0.582* (0.310)	4.434 (4.570)
Confidence in the system	-0.652*** (0.200)	-6.976** (2.871)
Level of self confidence	0.156 (0.126)	4.194** (1.788)
Financial literacy and numeracy	0.0295 (0.0976)	1.246 (1.460)
Temporal preference	-0.0278 (0.0789)	-0.661 (1.039)
Constant	1.679 (1.858)	101.7*** (29.80)
Num of obs	219	219
R-squared	-----	0.1
Correctly Classified	71%	-----

Notes: Robust standard errors in parentheses. ***, ** and * indicate significance on the 1%, 5% and 10%-level.

Coming to withdraw severance pay: It was found that when given a binary choice, participants who had come to to withdraw severance pay tended to exhibit a stronger preference for a lump sum over an annuity than those present for other reasons. The relation was found to be significant only in the model examining a binary choice, and only marginally ($P = 0.065$). This is surprising, as withdrawing severance pay is in fact a withdrawal of retirement savings as an

immediate payout. It may be that the discrepancy manifested because some participants came to withdraw severance due to circumstances that compelled them to do so, contrary to their fundamental preferences. Alternately, the disparity may have resulted from the distinction in Israel between severance pay and provident fund contributions. The participants may have perceived the severance component—available for withdrawal as cash under specific conditions such as losing one's job—as distinct from retirement savings per se, which are to be paid only upon retirement. Participants who came to withdraw severance may not have linked their withdrawal as affecting retirement funding, and seen themselves as withdrawing that part of their savings that was designated for withdrawal at the moment.

Level of self-confidence: High levels of self-confidence were found to be associated with a preference for an immediate payout. The link between high levels of self-confidence and withdrawal preferences was found to be significant in the model examining the percentage of savings that participants preferred to receive as an immediate payout.

Age: As the age of participants increased, they were more likely to prefer an annuity to an immediate payout.

Although several significant variables were found to relate to withdrawal preferences, they have little predictive value. All of the models used in previous studies, which sought to identify the personal characteristics that influence withdrawal preferences, explained only a small portion of the variance, with each of the models having an R^2 value lower than 0.1. A number of variables not found to be significant in the present study were found to be significant in previous studies. All told, it appears that the influence of personal characteristics and character traits on the pension withdrawal decision is limited.

Sampling Effect for Different Age Groups

Our sampling process was not truly random, as we addressed the people who attended the pension product management reception, which resulted in sampling differences between subjects in different ages. Indeed, 30% of the subjects (90 subjects) were of age 65-67,

compared to 8% of the relevant ages (42-67) in the entire Israeli population. The subjects of the different age groups also had different personal characteristics as shown at table 2. The older participants were more educated and fewer of them came to withdraw their severance pay. Furthermore, among the entire population the average earning at age 42-64 is higher than at age 65-67, however there were no significant earning differences between the research age groups. Finally there was an indication that the older subjects were more financially liberated than the younger, contrary to world-wide findings which shows that younger are usually more liberated (Lusardi & Mitchell, 2011).

Table 2: Personal Characteristics differed by age groups

Age Group	Reserch Population		General Population	
	65-67	42-64	65-67	42-64
Education				
Elementary	11%	12%	16%	16%
High school	23%	42%	30%	35%
Diploma	22%	19%	17%	17%
BA	18%	15%	18%	16%
Graduate	23%	12%	19%	15%
Chi squared	0.017		0.388	
Earning¹				
0-2000 ns	6%	6%	45%	22%
2000-4000ns	16%	11%	8%	6%
4000-6000ns	23%	25%	12%	14%
6000-8000ns	22%	20%	7%	14%
8000-10000 ns	23%	18%	7%	10%
More than 10000 ns	10%	19%	20%	34%
Chi squared	0.414		0.0001	

¹ The earning data of the general population regard the net wage, while the study participants were asked about gross wage.

Financial literacy correct answers				
0	14%	24%		
1	36%	32%		
2	18%	19%		
3	9%	13%		
4	19%	10%		
5	4%	3%		
Chi squared	0.131			
Came to withdraw severance package	36%	48%		
Chi squared	0.054			

Source: Central Bureau of Statistics (Israel) "The 2012 household expenditure survey".

Survey 2: A footnote to Survey 1

The most important and surprising finding of Survey 1 is that there is no annuity puzzle. One possible explanation of this phenomenon is that annuitization is preferred over an immediate payout simply because the conversion factor used by Israeli pension funds is perceived as attractive, so that purchasing an annuity is viewed as a financially profitable transaction. To test this hypothesis, a follow-up study was conducted to determine which conversion factor is perceived by Israelis as fair. Not surprisingly, the results of this survey rule out this explanation.

Method

An Internet-based questionnaire was distributed to 98 undergrads aged 21–31. The questionnaire (see Appendix 3) described the case of an individual who had saved 1.1 million NIS over the course of his working career. After reading the description of the case, participants were asked to estimate what would be a fair stipend for the person in question to receive. According to the conversion factor used by Israeli pension funds, a person of this description would be entitled to purchase a monthly annuity of 5,500 NIS with his retirement

savings. Participants were further asked what they would recommend doing if it were possible to choose between (a) to receive the savings as a lump sum (of 1.1 million NIS) or (b) to purchase an annuity with a conversion factor guaranteeing a monthly stipend of 3,000 NIS, 4,500 NIS, 5,500 NIS, or 8,000 NIS.

Results

Table 3 presents descriptive statistics concerning a fair stipend, as estimated by participants, for a capital sum of 1.1 million NIS. The null hypothesis that the participants would estimate the fair value of an annuity as equal to or less than 5,500 NIS was rejected by a *t-test* at a significance level of 0.01. In the task that had participants recommend either purchasing an annuity or retaining the lump sum given various conversion factors, it was found that, given the conversion factor conventionally used in Israel (200)² which guarantees lifetime monthly payouts of 5,500 NIS, 55% of the respondents preferred a lump sum to annuitization (as opposed to the 32% of participants who had preferred a lump sum in the initial study). Figure 2 shows the percentage of participants who preferred annuitization over a lump sum given the various conversion factors.

Table 3: What is judged as fair stipend, for a capital sum of 1.1 million NIS

Variable	Num of obs	Median	Average	STD
Fair stipend	64	6,500	6,530	3,289

It follows that the public views the conversion factor used in Israel as unattractive, and that other motives must be considered in attempting to explain the preference for annuitization over an immediate payout expressed by most participants in the main study.

² The conversion factor is the one used in pension funds for a male, married and at the end of his working career – this is exactly the background story in the questionnaire here.

Figure 2: Percentage of respondents preferred a lump sum to annuitization.



Discussion

The present study examined pension withdrawal preferences in Israel and the factors influencing them, by running two statistical models. It was found that withdrawal preferences in Israel differ from those documented in other countries, as expressed by the tendency to prefer annuitization over receipt of a lump sum. The only factor that was significant in both models examined is the individual's degree of confidence in the system, an indication of the great importance of public confidence and expectations concerning the pension system. Some additional factors were weakly associated with withdrawal preferences: the reason for coming to the office of the insurance company, level of self-confidence, and age.

Strikingly, the overall withdrawal preference revealed in the present study were at odds with those found in previous studies. This study identified a clear preference for annuitization over a lump sum, in marked distinction to the minimal demand for annuity products found in many

studies of the annuity puzzle (for example: Schreiber & Weber, 2013; Agnew et al. 2008). We consider potential reasons for this disparity.

The follow-up study found that participants belonging to the general population, in a situation far removed from decisions pertaining to retirement savings, tended to prefer a lump sum over annuitization, and estimated that a fair conversion factor would be higher than that used in Israel. Withdrawal preferences identified in the main study thus appear not to have resulted from the conversion factor used in Israel.

The disparity may be a consequence of special characteristics of the study participants that is not necessarily shared with the general population in Israel. This explanation appears unlikely: a substantial proportion of participants had come in order to withdraw severance, so that the study sample might reasonably be expected to be *more* likely than the general population to prefer a lump sum to annuitization. Note also that the majority of participants who had come to withdraw severance also tended to prefer annuitization over a lump sum.

The surprising finding may be due to the operation of a deep-seated default option. Pensions in the form of annuities is what our respondents are familiar and comfortable with. The DB pension world did not speak in terms of accumulated money, but rather in accumulated rights – percentage of salary in the pension. This holds for most people, though not for the 13 percent of the population who mistrust the system and want all their money now. The most important variable that explains the preference for annuities is the trust in the system. Now, the DC pension has an entirely different philosophy: it is based on accumulation of money by the individual that at the time of retirement is converted into annuities. Thus, the DC revolution placed the individual and their decisions at the center, and in so doing changed the basic default from annuities to lump-sums. Incidentally, the standard DB pension in Israel has

an option of withdrawing 25% of the first five years as a lump-sum – though very few people take advantage of it.³

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³ Brown et al. (2007) find in a questionnaire that about two thirds of their HRS sample would like to withdraw half of their social security income in cash. This stands in contrast to our findings. Maybe that the key difference is the trust in the system.

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Appendix 1

Table 3: Survey 1 summary statistics.

<u>Variable</u>	<u>Num of Obs</u>	<u>Mean</u>	<u>Median</u>	<u>std. Error</u>
Preferred form of retirement fund withdrawal				
Dichotomic choice between annuity and a lump-sum (0-annuity, 1-lump sum)	297	32%	----	47%
Percent of savings that a participant preferred to receive as a lump-sum.	297	28%	13%	34%
Demographics				
Age	297	59	60	6.3
Income(1-5)*	275	3.84	4	1.46
Education(1-5)**	292	2.87	1.27	3
Number of children	276	2.9	3	1.36
Percent of subjects who came for severance package withdrawal	280	45%	-	50%
Psychological factors				
Level of confidence in the system	269	8.24	8	2.87
Self-confidence mesure	286	2.94	3	1.27
Num of correct answers in the financial literacy questionnaire	297	1.72	1	1.42
Number of correct answers in the crt test	297	0.33	0.67	0
Temporal preference mesure	286	8.12	8	2.1

*Income level was coded as follows: 1= income of 0-2,000 NIS, 2= 2,001-4,000 NIS, 3= 4,001-6,000 NIS, 4= 6,001-8,000 NIS, 5= 8,001-10,000 NIS, 6= more than 10,000 ns.

** Education level was coded as follows: 1=elementaty school, 2=secondary school, 3=diploma, 4=B.A 5=M.A or Phd.

Appendix 2 – Main questionnaire

- Age: _____
- Marital status: Single / Married / Divorced / Widowed.
- Number of children: _____

Please circle:

- What is your monthly gross salary?
(0-2000 nis / 2001-4000 nis / 4001-6000 nis / 6001-8000 nis / 8001-10000 nis / More /

Refuses to answer)

- What is the highest educational qualification that you have completed
(Elementary / high school / Diploma / BA / Graduate)
- How you would estimate your ability to manage your pension savings all by yourself?

(I can not manage my account myself / I would be having a hard time to do so /

I'm able to do so medioceraly / I'm able to do it well / I'm able to manage my account very well)

- Why did you come today to "Menora-Mivtachim"?
(Withdrawl of severance package / Receiving a loan / Receiving a pension / Investment track changes / For general information / enrollment freelance or employee)

- If you came to withdraw - your severance package, what portion of the total available amount you would like to withdraw?

(The entire amount/ part of the amount / not sure / I Came for a different purpose / I do not want to answer)

- The reason why my pension savings are managed by "Menora-Mivtachim" is:

(Due to the choice of the organization where I work or worked in the past / by my own choice / I do not know)

- To what extent do you believe that the Israeli pension system **currently** provides financial security at retirement?

(Not at all / Slightly / Moderately / Much / Very much)

- To what extent do you believe that the Israeli pension system **in the future** will provide financial security at retirement?

(Not at all / Slightly / Moderately / Much / Very much)

- Please specify from one to five how much you perceive the companies managing the pension as fair? (1 very unfair, very fair 5)

Very unfair

1

2

3

Very fair

4

5

Part 1:

Suppose you were given a choice between two options for withdrawing your retirement funds:

1- Withdrawal of a lifetime monthly guaranteed annuity starting at retirement.

2- Withdrawal of the pension savings as a lump sum which will be transferred to your bank account in at once.

Which of these two options would you prefer (please check)?

Option 1: an annuity

[] Option 2: a lump-sum

Assume that during your working years you accumulated pension savings of 1.4 million ns. Suppose you could decide on the balance between the amount that will be allocated as a fixed monthly life-annuity, and the size of the amount to be received as a lump sum, how would you divide the amount between the two options? Please select the preferred option:

	The lump-sum withdrawal	Monthly annuity
1.	None	₪ 7,000
2.	₪ 140,000	₪ 6,300
3.	₪ 280,000	₪ 5,600
4.	₪ 420,000	₪ 4,900
5.	₪ 560,000	₪ 4,200
6.	₪ 700,000	₪ 3,500
7.	₪ 840,000	₪ 2,800
8.	₪ 980,000	₪ 2,100
9.	₪ 1,112,000	₪ 1,400
10.	₪ 1,260,000	₪ 700
11.	₪ 1,400,000	None

• Assume that during your working years you accumulated pension savings of 1.1 million ns. Suppose you could decide on the balance between the amount that will be allocated as a fixed monthly life-annuity, and the size of the amount to be received as a lump sum,

how would you divide the amount between the two options? Please select the preferred option:

	The lump-sum withdrawal	Monthly annuity
1.	None	₪ 5,500
2.	₪ 110,000	₪ 4,950
3.	₪ 220,000	₪ 4,400
4.	₪ 330,000	₪ 3,850
5.	₪ 440,000	₪ 3,300
6.	₪ 550,000	₪ 2,750
7.	₪ 660,000	₪ 2,200
8.	₪ 770,000	₪ 1,650
9.	₪ 880,000	₪ 1,100
10.	₪ 990,000	₪ 550
11.	₪ 1,100,000	None ₪

Assume that during your working years you accumulated pension savings of 800 thousand ₪. Suppose you could decide on the balance between the amount that will be allocated as a fixed monthly life-annuity, and the size of the amount to be received as a lump sum, how would you divide the amount between the two options? Please select the preferred option:

	The lump-sum withdrawal	Monthly annuity
1.	None	₪ 4,000
2.	₪ 80,000	₪ 3,600
3.	₪ 160,000	₪ 3,200
4.	₪ 240,000	₪ 2800
5.	₪ 320,000	₪ 2,400
6.	₪ 400,000	₪ 2,000
7.	₪ 480,000	₪ 1,600
8.	₪ 560,000	₪ 1,200
9.	₪ 640,000	₪ 800
10.	₪ 720,000	₪ 400
11.	₪ 800,000	None

Part 2:

Assume that you could withdraw some of your pension savings at retirement. Please mark from 1 to 6 how much it is likely that you will use some of the money for the following purposes (1 Indicates that it is very unlikely, and 6 indicates that it is very likely):

	How likely is it that you will spend your pension savings over that:					
	Very unlikely					Very likely
I would like to upgrade something (e.g. to replace my car with a new one, renovate my house or buy new home appliances)	1	2	3	4	5	6
Purchase a long-term care insurance and/or a long term health insurance	1	2	3	4	5	6

Do something special for myself to celebrate the retirement (e.g. to travel abroad)	1	2	3	4	5	6
Invest the money or repay old debts	1	2	3	4	5	6
Allow myself to keep enjoying the things I used to do before retirement (e.g to eat out, buy good food for Shabbat, spoil the grandchildren or go out drinking with friends)	1	2	3	4	5	6
Open savings plans for my children or grandchildren.	1	2	3	4	5	6

Part 3:

The purpose of the next part is to explore your personal preferences, so there are no 'right' or "wrong" answers. Please answer the following 6 questions.

A. Suppose you deserve an immediate tax refund of 10,000 ns. Alternatively, you have the option to receive a higher refund of 10,300 NIS which will be paid in 10 months. Circle the type of return you'd prefer.

1. An immediate refund of 10,000 ns.
2. A deferred refund of 10,300 NIS in 10 months.

B. Assume the options are:

1. An immediate refund of 10,000 ns.
2. A deferred refund of 11,000 NIS in 10 months

C. Assume the options are:

1. An immediate refund of 10,000 ns.
2. A deferred refund of **13,000** NIS in 10 months

Assume now that you can get the refund either in 18 months or in 28 months.

The refund that will be received in 18 months would be of 10,000 ns. Alternatively

you have the option to get a refund of **10,300** NIS that will be received in 28 months. Circle the type of refund you'd prefer.

1. A deferred refund of **10,000** NIS in 18 months
2. A deferred refund of **10,300** NIS in 28 months

B. Assume the options are:

1. A deferred refund of 10,000 NIS in 18 months
2. A deferred refund of 11,000 NIS in 28 months

C. Assume the options are:

1. A deferred refund of 10,000 NIS in 18 months
2. A deferred refund of 13,000 NIS in 28 months

Part 4:

Please circle the correct answer to each of the following 6 questions, or mark "do not know".

Q1: Assume a friend inherits €10,000 today and his sibling inherits €10,000 3 years from now. Who is richer because of the inheritance?

1. My friend.
2. His sibling.
3. They are equally rich.
4. Do not know.

Q2: Suppose you had €100 in a savings account and the interest rate was 4% per year. After 10 years, how much do you think you would have in the account if you left the money to grow?

1. Less than 140 ns.
2. Exactly 140 ns.
3. More than 140 ns.
4. Do not know.

Q3: Which of the following statements is correct?

1. Once one invests in a mutual fund, one cannot withdraw the money in the first year.
2. Mutual funds can invest in several assets, for example invest in both stocks and bonds
3. Mutual funds pay a guaranteed rate of return which depends on their past performance.
4. Do not know.

Q4: Buying a company stock usually provides a safer return than a stock mutual fund. True or false:

1. True.
2. False.
3. Do not know.

Q5: The main reason for the purchase of insurance is:

1. Provide high investment returns for myself.
2. Improve your standard of living by filing false claims.
3. Protect you against loss occurred recently.
4. Prevent you from absorbing catastrophic loss.
5. Do not know.

Part 5:

Please solve the following three riddles:

A bottle and a cork cost 1.10 NIS in total. The bottle costs 1.00 NIS more than the cork. How much does the cork cost?

_____ Ag

If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?

_____ Minutes

In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

_____ Days

Appendix 3 - Survey 2 questionnaire

1. Yossi is the head of an average Israeli family: he is married, has three children, and had been working for 35 years, earning an average salary of 10,000 NIS per month. Throughout his working years Yossi made full contributions for both pension and severance pay (as required by the mandatory pension law). At the age of 65, upon retirement, Yossi has managed to accumulate pension savings of **1,100,000** NIS (including severance package). What do you think is the fair monthly pension Yossi deserves for his savings?

2. If Yossi could choose between withdrawing his pension savings at once as a lump sum of **1,100,000** NIS, and receiving a monthly life-annuity of 3,000 NIS, what would you advise him to do?

- a. Pull his savings as a lump-sum.
- b. Pull his savings as a monthly annuity.

3. If Yossi could choose between withdrawing the pension savings at once, as a lump sum of **1,100,000** NIS, or receive a monthly annuity of 4,500 NIS, what would you advise him to do?

- a. Pull his savings as a lump-sum.
- b. Pull his savings as annuity

4. If Yossi could choose between withdrawing the pension savings at once, as a lump sum of **1,100,000** NIS, or receive a monthly annuity of 5,500 NIS, what would you advise him to do?

- a. Pull his savings as a lump-sum.
- b. Pull his savings as annuity

5. If Yossi could choose between withdrawing the pension savings at once, as a lump sum of **1,100,000** NIS, or receive a monthly annuity of 8,000 NIS, what would you advise him to do?

- a. Pull his savings as a lump-sum.
- b. Pull his savings as annuity