



The Effect of Behavioral Instruments on the Savings in Private Pension Plans: The Case of Turkey

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Abstract: In Turkey, significant changes have been made in the legislation of Individual Pension System (IPS) in 2012 (matching contribution system has been introduced) and 2016 (Automatic Enrollment System has been established). Thus, behavioral instruments which can be defined as libertarian paternalistic, such as default rules and framing, have begun to be used more effectively in IPS. When the progress in IPS between the years 2003-2021 is examined, it has been determined that behavioral instruments have a positive effect on the savings in the system, but these effects are small. It was concluded that the participants decided to continue or exit IPS with rational reasons. Participants who can benefit from full state subsidy in shorter time, have higher continuation rate and contribution amounts in the system. Participants exit the system when exits are optimal (such as after 36th months when they are entitled to benefit from the minimum state subsidy, and after the 5th year when entrance fees are no longer charged). With rational reasons like the real return of IPS being lower compared to alternative investment instruments and its fund management fees being high, the households in Turkey either do not prefer saving on IPS or see the IPS as a short-term saving instrument.

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1. Introduction

To complement the compulsory pension plans or replace them, many OECD countries make an effort to create or develop private pension plans. Countries that face the issues of both the increasing burden of social security on the public and the decrease in national savings, see the private pension plans as an opportunity to succeed in their social and economic goals. For this, they try to increase the number of participants in private pension plans and the amount of assets with the incentive mechanisms proposed by both the traditional economic incentive mechanisms and the behavioral savings theories. For example, automatic enrollment system has been established in the private pension plans of many countries¹.

Also in Turkey, to complement the social security system, increase individual welfare and contribute to the accumulation of long-term domestic funds, in 2001, the Individual Pension System has been established². At the beginning of the system, incentives in the form of tax deductions have been given to participants (and to the employers which pay contribution on their behalf). But the number of participants and the savings rate in the Individual Pension System remained at low rates. To increase participation in the

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system, significant regulations have been made in 2012 and 2016. In 2012, the incentives have been changed from tax deduction to matching contributions. In 2016, adding to the voluntary individual pension system (VIPS), the Automatic Enrollment System (AES), which uses the same infrastructure as VIPS, has been established. These regulations are crucial in their compatibility with the propositions of behavioral theory. The establishment of AES made the total assets in the Individual Pension System increase to some extent. While the growth rate in IPS, (VIPS and AES), between 2009 and 2019 was 30.2%, the rate between 2018 and 2019 was 37% (OECD, 2020)³. This growth rate is higher compared to OECD countries and other jurisdictions. But the ratio of assets made in private pension plans to GDP (2.9%), is still pretty below the OECD average (91.5%) (OECD, 2020)⁴. The automatic enrollment system, used as a behavioral policy instrument, did not increase pension savings as expected. The switch from tax deduction to matching contributions system in 2012 is also a vital regulation. Adding to being a traditional incentive mechanism, matching contributions have the characteristics of being a behavioral instrument thanks to its properties of giving the data about the amount of contribution by framing it and being understood with ease. But matching contributions did not increase the savings ratio in IPS as Özel and Yalçın (2013) and Eren and İleri (2015) foresaw in their simulations.

The share of private savings in Turkey's GDP is showing a constant downward trend since 2001⁵. Country Economic Memorandum (CEM), the focus group discussions made for World Bank, (Republic of Turkey Ministry of Development, 2014) and AVIVA's (2016) research on pension savings gap show that the households in Turkey do not save enough. The policymakers in Turkey continue working on new regulations on IPS to increase domestic private savings. As of May 2021, individuals under the age of 18 are granted entrance to VIPS⁶. In the 10th Development Plan Domestic Savings Specialization Commission Report (2014:67), some policy suggestions which have not yet been implemented (establishing a call center to answer questions about IPS, making arrangements to induce Turkish citizens living abroad, implementing the practice of workplace-based pension with automatic enrollment and redesign IPS by performing impact analyses) are listed. In the 10th Development Plan (2014), the goal of reducing the high administrative and fund management costs is set. The establishment of the Complementary Individual Pension System (CIPS) is brought up. Mentioned first in 2013 in the 10th Development Plan, the policy of establishing complementary pension system (integrated into IPS) (Republic of Turkey Ministry of Development, 2013:73)⁷, came up again in 2019. In the new Economy Program, in the listed precaution policies to ensure financial stability, it is stated that the complementary pension system will be established (Republic of Turkey Ministry of Treasury and Finance, 2019)⁸. There haven't been any official announcements on its contents and how it will be integrated into the Individual Pension System. But without any resources given, much data (a compulsory/voluntary mixed model will be implemented and employer and matching contributions will be made, etc.) is given in printed and visual media. During the period when this study has been written, new regulations⁹ have been made in the individual pension system. The most important of the new arrangements made in the Individual Pension System is that the state contribution is increased from 25 percent to 30 percent and that the participant can withdraw up to 50 percent of the savings amount without leaving the system¹⁰.

In this study, the effect of behavioral tools on household savings is examined in the case of IPS in Turkey. The whole study is based on two questions to be answered. The first is to what extent the behavioral instruments (especially matching contribution and automatic enrollment system) used in IPS in Turkey affect the number of participants and amount of assets. The second is whether the reason behind the savings in the system did not increase as expected¹¹ despite the behavioral regulations can be explained with rational reasons. Proving individuals' not choosing with rational reasons to make long-term savings in IPS, can show that new regulations in IPS are needed. Policymakers can use traditional economic incentive mechanisms such as reducing the administrative and fund management costs, ensuring employer contributions, tax deductions, and increasing matching contributions. Also, whether the behavioral regulations in IPS burden individuals, who give rational decisions or not, with welfare cost can also be partially determined. The probable positive/negative effects of the regulations in IPS in Turkey which can be counted as libertarian paternalist (automatic enrollment system, penalty for early withdrawal, matching contribution) on the individuals who make rational and irrational decisions can be shown. This study, which describes the behavioral tools used in IPS in Turkey and analyzes the effects of these tools on saving behavior with a positive

methodology, is expected to make an empirical contribution to the relevant literature. Also, based on the findings there are normative suggestions that can be guiding for policy makers in Turkey.

The remaining part of the paper is organized as follows: In the second chapter of the study, the neo-classical, institutional economics and behavioral savings theories are summarized. In this chapter, mostly the hypotheses of the behavioral theory can be connected to the properties of the IPS in Turkey. Also, the behavioral instruments, suggested by the behavioral theory in order to increase savings, are included. In the third section, the properties of VIPS and AES which are suitable according to the behavioral savings theory are listed. Also, the properties (according to the data given by printed and visual media) of the Complementary Individual Pension System (CIPS), which is yet to be implemented but laid before the public agenda, are also included. In the fourth chapter, the changes in the number of participants and the amount of assets for both AES and VIPS are examined. The fifth chapter is the conclusion.

2. Saving Theories

Saving behavior is in the area of interest of many disciplines. The contributions coming from the fields of psychology and sociology adding to the traditional economic analyses, ensured the enrichment of the theoretical literature of private pensions.

2.1. The Neo-Classical and Institutional Economics Saving Theories

In traditional economic analyses, the individuals' saving behaviors are explained according to the rational decision-making models. The most referred two saving theories are the permanent income (Friedman, 1957) and the life cycle hypotheses (Modigliani & Brumberg, 1954; Modigliani, 1990). The reason for savings in both hypotheses is making intertemporal consumption smoothing. Income is the main determinant in saving. As these models are unqualified in empirical researches, different models have also been created in time. In the precautionary saving model, risk aversion and uncertainty are two vital determinants (Pratt, 1964; Leland, 1968; Arrow, 1971). The liquidity constraints model asserts that the total saving will increase when the potential for going into debt is limited (Deaton, 1989). In the buffer stock model, the consumers make precautionary savings in order to protect their consumption from the unforeseen fluctuation in income. Impatient consumers and liquidity constraints are included in the model (Deaton, 1989; Carroll et al., 1992). These models not being able to fully explain the saving behaviors of individuals led the literature to evolve in a different direction. Models emerged which criticize rational decision-making models and focus on the social conditions and psychological specifications in which humans are in. Institutional saving theory is among these. Institutional economics theory asserts that as it is with all human behaviors (Gordon, 1980; Neale, 1987), institutions are determinative in saving behavior (Sharraden, 1991; Beverley & Sharraden, 1999; Barr & Sharraden, 2005). Beverly and Sharraden (1999) assert four basic factors which determine savings. These are institutionalized saving mechanisms, financial information and education, attractive incentives, and facilitations. The authors assert that the household savings can increase significantly especially with the low-income group having better accessibility to institutional saving mechanisms.

2.2. Behavioral Saving Theory

The behavioral approach criticizes traditional economics' homo-economicus assumption and bases this criticism on humans being psychological and sociological beings. It claims that individuals cannot make rational decisions as they have limited cognitive abilities (Simon, 1959) and are intuitive thinkers (Kahneman & Tversky, 1982; Kahneman, 2011). Also, even if they know what is rational for them, they may make conflicting choices with their long-term interests because of their limited self-control. Limited self-control can come in several different forms such as present bias, overoptimism, and status quo bias, and can cause wrong decisions. When individuals make intertemporal decisions, they value today's consumption much more than future consumption (Laibson, 1997). They can evaluate risk probabilities overly optimistic (Weinstein, 1980). They generally choose to stay with what has been presented to them in the beginning or with the choice they already have. Even if costs of switching are negligible, decision-makers tend to stay in

the status quo (Samuelson & Zeckhauser, 1988). In behavioral literature, the status quo bias is attributed to several reasons. The first is the behavior of “loss aversion”. According to the prospect theory, people value losses over gains (Kahneman & Tversky, 1979). Another reason for status quo bias is the regret of mistakes which Ritoy and Baron (1990) name as the omission/commission bias. When people make a mistake that is caused by their actions, they regret it much more than the mistakes they have made because of their omission (inaction). That is why they prefer to stay in the status quo. The third reason is procrastination. Tversky and Shafir (1992) assert that people experience a conflict when they evaluate the benefits and costs of various options. It becomes harder to decide when all options have vital advantages and disadvantages. This conflict causes the behavior of procrastination.

Limited rationality and limited self-control show themselves vividly when it comes to saving decisions with points such as the future having high risk and uncertainty, the need for complex calculations in order to decide for the optimal saving instruments and the amount of savings, and the difficulty of reducing consumption in the current period. Individuals may not choose the optimal amount of savings or a suitable savings plan and may continuously procrastinate entering into a savings plan (Thaler, 1994). Behavioral economists suggest libertarian paternalist practices as a solution for these problems, which can increase the welfare of limited rational agents significantly, without burdening the rational agents with any cost or burdening them with small cost (Camerer et al., 2003; Sunstein & Thaler, 2003; Thaler & Sunstein, 2018). Changing default rules and default options, providing data and reframing it, social norms, promises, and goal setting are all included in libertarian paternalist practices which can be used to increase savings.

Default rules can be practiced in the form of making automatic enrollment in a savings plan possible. In automatic enrollment, the employers or public sector incorporate employees (without the employees' willingness) into a savings plan. While default options are the determination of the contribution rate and investment options in the savings plan by the employer (this can be the public sector or a retirement insurance company). Neither automatic enrollment nor default plans include constraints. Individuals in a savings plan can terminate the plan or change the contents of the plan whenever they want. Automatic enrollment can ensure the entrance of individuals into savings plans who do not enter in any plans because of their status quo bias. Thaler and Benartzi (2004) also claim, some individuals will automatically continue to stay in the savings plan they entered. Madrian and Shea (2001) have shown that the automatic enrollment system and default options have been highly effective on personal savings. It has shown that most of the employees enrolled automatically into a savings plan by the employer have continued to be in the same plan and the contribution rate and investment option set by the employer haven't been changed at all. Choi et al., (2002) have analyzed the changes in the saving decisions of the employees of several large companies which have made changes in the design of their retirement plans. They have found out that the decisions (automatic enrollment and default plans) of the employers have been truly effective on the saving decisions of the employees. Chetty (2014) asserted that the automatic enrollment system has been increasing total savings more than the retirement savings incentives based on subsidies such as tax deductions. Subsidies encourage individuals who are already saving and when these individuals channel their savings into subsidized savings instruments, the subsidies effect will show up. Passive individuals who do not save are not affected by subventions. The automatic enrollment system ensures these people to save.

Providing and framing information is to convey it with ease and in an understandable and salient way and with emphasis on important information. The traditional economic understanding claims that imperfect information causes market failures and economic agents should be provided with as much data as possible. However, behavioral economics claim that an information overload will overwhelm cognitive capacity and thus increase the influence of intuitional thought (Kahneman, 2011) and cause procrastination behavior because of the experience of conflict (Tversky & Shafir, 1992). Simple and comprehensible information can ease making decisions on how much saving should be made and which savings plan should be chosen. Salient and framed information raise awareness on savings and can solve the overoptimism problem. Bernheim and Rangel (2005) claim that the advice given by professionals can increase the savings of individuals by creating a sense of confidence. Fajnzylber and Reyes (2015) assert that when personalized and simplified information

about their pension income are given to the participants of the pension system, they can make better saving decisions and the savings will increase significantly.

Social norms can be examined in two categories: descriptive norms and injunctive norms. Descriptive norms show what is typical and normal whereas injunctive norms show morally recognized rules (Cialdini et al., 1990). Both descriptive and injunctive norms affect individuals' behaviors. Descriptive norms' effects are on knowledge. Many people thinking and acting the same give us the knowledge on how we should think and act. We can stumble upon descriptive social norms in the behavioral savings literature mostly as peer effect. Individuals who observe that their peers making more savings will increase their savings. The injunctive norms' effects show up as social pressure. If we value others' opinions on us, to prevent being excluded from the society or to be accepted, we act in terms of others' expectations (Thaler & Sunstein, 2018). If other people around us think that saving is a virtuous act, we save more as to be accepted. Bernheim and Rangel (2005) claim that imbuing individuals with the idea that saving is a virtuous act will evoke intrinsic motivation. The authors also assert that workplace based savings incentive practices will cause peer influence and thus create saving awareness and saving competition. Duflo and Saez (2002)'s experimental study has shown that peer influence can be effective in enrolling in a pension plan¹². Bailey et al., (2004) have shown that both descriptive and injunctive norms have a significant effect on saving decisions. In their experimental study, data on how much others are saving is given to a group of employees. To another group, data composed of professional advice on how much should be saved is given. Both social norms had an increasing effect on saving rates. Mugerma et al., (2014) have shown that when employees choose a retirement savings plan, they act according to the decisions of their colleagues (this is seen more between the ones who belong to the same ethnicity) rather than performance criteria. Some studies claim that peer influence can have the opposite effect. Beshears et al., (2015) landed up with the conclusion that upside social comparisons can have discouraging effects and reduce retirement savings.

Commitment devices are written or verbal promises made to change behaviors. Most of the time, this promises is connected to a goal (reference point). For example, a person can promise to save 5 or 10% of their income or increase their saving rate simultaneously with the increase in the income. Promises are effective devices in filling the gap between intentions and actions and avert hyperbolic discounting (Laibson et al., 1998). Promises are also connected to injunctive social norms. To meet the expectations, individuals try to reach the goal they have promised. Benartzi and Thaler (2013), Thaler and Benartzi (2004), claim that the automatic increase option is highly effective in increasing retirement savings. The retirement plan, "Save More Tomorrow (SMarT)", Thaler and Benartzi (2004) have designed has shown that promise devices increase saving rates significantly. Performed for the first time in 1998 in a workplace-based retirement plan, the results of the program have shown that the participants got their saving rates almost quadrupled.

It is asserted that to increase saving rates, aside from the aforementioned behavioral instruments, urgent rewards such as early withdrawal penalties and tax deductions can also be performed to solve the limited self-control problem. Practices like these can help people control themselves and reduce hyperbolic discounting (Thaler, 1994; Mulliniathan & Thaler, 2000; Bernheim & Rangel, 2005). Venti and Wise (1986), Venti and Wise (1990), Joulfaian and Richardson (2001) have proven that tax postponing and saving limits have positive effects on savings.

3. The Characteristics of IPS in Turkey

Since 1950, the mandatory social security system is based on the regime of "pay as you go"¹³. The implementation of individual pension system based on voluntariness was carried into practice in 2003. IPS in Turkey has been established, as it is mentioned in the related law, to provide long-term resources to the economy by increasing domestic savings and providing extra income to the participants in their retirement. There are two different individual pension system in Turkey: voluntary individual pension system (VIPS) and automatic enrollment system (AES). In AES, the infrastructure of VIPS is used and similar rules are applied. However, there is no connection between the contracts of VIPS and AES. One can have both VIPS and AES contracts but transferring savings between the two is not possible. There are features that separate AES from VIPS.

The main characteristics of VIPS are below:

- In the beginning, to encourage enrollment into the system, tax deduction has been applied (until 2013)¹⁴.
- After they have retired, the participants can withdraw the whole or a part of their savings and extra profits. They can also create a plan of repayment in the form of retirement salary payments.
- Before they retire, participants can withdraw their savings and terminate the plan. But in an instance of termination, income tax deduction (deduction of withholding) is applied from the income amount that is acquired for payments made to the participants¹⁵.
- In 2013, a transition to the matching contribution system (state subsidy) has been made. The matching contribution is 25% of the contribution regardless of the participant's taxpayer status (With the new regulation, the state contribution has been increased to 30%). The matching contribution one participant can get in a year cannot exceed 25% of that year's gross minimum wage¹⁶ After staying in the system for at least three years, the earning rate of the matching contribution is 15%, then after staying for at least six years, the rate goes up to 35%, after ten years it is 60% and in the case of retirement, death or disability, it is 100%.
- Instead of the saving amount, which is subject to deduction of withholding and identified as security income in terminating IPSs since 2013, regulations have been made to apply deduction of withholding only from the amount of income. With the regulations, the upper limit of the contributions, which are paid to IPSs by the employers on behalf of their employees and can be subjected to deductions in identifying the tax base, which is 10% of the gross income has been increased to 15%.
- A break can be given in contribution payments and they can be continued in any wanted term (With the new regulation, the participant will be able to make partial payments up to 50% of the savings amount, excluding the amount in the state contribution account, without leaving the system).

The main characteristics of AES are below:

AES has got the same aforementioned attributes as VIPS. Its differences from the VIPS are listed thus:

- Starting from 2017, employers have to include all suitable employees into AES¹⁷.
- The employers transfer the amount that is equal to a minimum of 3% of the insurable earnings of the employees (Turkish citizens or who have blue cards) who are younger than 45 (With the new regulation, employees over the age of 45 can be included in the automatic enrollment system upon request).
- The contribution rate can be increased by notifying the employer and the increased contribution rate can be decreased as long as it is within the minimum amount limit.
- While in the AES 25% of the contribution that is paid matching contribution is paid to the participant, also a 1000 TRY starter matching contribution is given if the participant stays in the system.
- The ones who choose to use their retirement as retirement salary payment for at least ten years can take matching contributions equal to 5 percent of their savings.
- Employees have the right to withdraw two months after participating in AES. After two months, it is possible to terminate the plan whenever it is wanted. If AES is terminated by ending all certificates, one cannot benefit from the 1000 TRY extra matching contribution.
- In the case of the employee in AES who change their job, there are differences in whether they will return to AES or not¹⁸.

The main characteristics of Complementary Individual Pension System are below¹⁹:

- It is planned to create a mixed system in which private sector employees enter complementary individual pension system (CIPS) mandatorily.
- In this mixed system, premiums will be paid in two different formulas. According to the first formula, employers will transfer the amount equal to 3% of their employees' 30-day gross wage. (The employers will deduct this premium from the provisions equal to the 30-day gross wage's 8.33%, which they designate for the termination indemnity. The employees will continue to have their right to take the 5.33% termination indemnity). The participants can choose the option to pay premium according to the second formula if they want to. According to the second formula, premium payment is equal to 6% of the employee's 30-day gross wage. 4% of this premium will be transferred by the employer to the system (and it will again be deducted from the provisions of termination indemnity). There will be a 0.5% deduction from the employee. A 1% matching contribution will be made. An additional 0.5% matching contribution will be made through tax deduction.
- The employees will have the right to retire after they are older than 60.
- The ones who retired from CIPS can take 25% of their total savings as a whole. The rest will be paid as monthly as retirement pension.
- The ones who are not retired yet can demand 10% of their savings for once in cases such as marriage, being out of a job, first housing purchase, and fatal disease.

VIPS' and AES' Attributes Suitable According to the Suggestions of Behavioral Theory:

Many attributes of Individual Pension System in Turkey are suitable to the suggestions of behavioral theory:

In VIPS and AES;

- Default plan selections can increase the enrollment of individuals, who have limited cognitive abilities, experience conflict between options, and procrastinate, into IPS. IPS can ease calculations as it is a source that can be followed separately from other savings and is focused on retirement.
- Early withdrawal penalties can decrease the hyperbolic discounting problem.
- Transitioning into the 25% matching contribution system makes it easier to understand state subsidies.
- IPS in itself is an institutionalized saving instrument and it is possible to take professional advice in choosing a savings plan.
- Many promotions and advertisements have been made in national media after the transition into matching contribution system in IPS. With these promotions, framed information have been presented.
- In AES, enrollment is made based on the workplace. Also in VIPS, entrance can be made based on the workplace and on the group. Agreements like these can create peer influence. Competition on saving can show up among group members (colleagues).

In AES;

- It provides the entrance of individuals who plan to participate in a retirement plan but procrastinate their entrance because of underestimation of the future and inertia and/or the conflict experienced between the options.
- 1000 TRY extra support contribution that is given once in the entrance into the system, if the right of withdrawal has not been used, is an urgent, simple, and easy to understand reward.

4. Progress in IPS in Turkey

Under this title, the progress in IPS will be evaluated in two different categories of VIPS and AES²⁰.

4.1. Progress in AES

AES can be entered since 2017. From 2017 to the early days of 2021, a total of 26,524,315 certificates started in AES²¹. While 27.84% of the certificates (7,758,600 certificates) are in force, 72.16 percent (20,105,579) have been ended. There are several different reasons for ending the certificates. Certificates have been ended with the following reasons: 48.52% from withdrawals, 15.28% from leaving the system, 4.11% from intercompany transfers, 2.76 from quitting the job, and 1.33% from account mergers²².

Although AES has been active for 4.5 years, number of contracts in force in the system is close to the number of contracts in VIPS (8,343,235 contracts) that has been in effect for 18 years. 54.38 percent of the paid contributions (10.2 billion TRY) belong to the certificates in force whereas 45.62 percent (8.5 billion TRY) belong to ended certificates²³.

Automatic enrollment systems can increase the savings of individuals who want to enter a savings plan but procrastinate because of inertia. A significant rate of employees who enter the individual pension system through AES, 36%²⁴, did not leave the system at their request since 2021. Also, as it can be seen in Table 1, 81.75% of the employees who have contracts in force did not have any VIPS contracts before AES. Thanks to AES, a major part of employees got into the individual pension system for the first time. The ones who do not have VIPS contracts when enrolling AES have higher continuation rates. While 32.1% of the participants who did not have a VIPS contract while enrolling into AES continued with AES, and 24.3% of the participants who did have a VIPS contract while enrolling into AES continued with AES.

Table 1. Whether the Employees Had VIPS Contracts When They Entered AES
(Any time before AES)

	Entered VIPS Before AES	Did Not Enter VIPS Before AES	All Employees Who Entered AES
Number of Certificates	6,179,517	21,684,662	27,864,179
Entered AES (Number of Participants)	4,509,737	15,299,806	19,809,543
Terminated	3,412,597	10,384,572	13,797,169
Continuation AES	1,097,140	4,915,234	6,012,374
Continuation and Termination Rates			
Terminated	75.7	67.9	69.6
Continued AES	24.3	32.1	30.4

Reference: Pension Monitoring Center

Note: "The ones whose data could not be retrieved by their corporation" make up the difference between the percentages. There is a small percentage that "could not be retrieved by their corporation" because the Pension Company does not give information about the public-private sector. As this percentage is considered insignificant, it was not included in another tab. Because the same employee can get included in the system with different certificates from different workplaces, the number of employees can differ according to the contents of the table. Reporting Date: 31.07.2021

This data supports the idea that automatic enrollment can solve the inertia problem. Adding to this, it is possible for participants who have enrolled in the system automatically to not leave the system because of inertia. Looking at the reasons behind the termination of AES certificates in Turkey, it is seen that almost half of the participants (48.52%) applied for withdrawal after two months without any sign of inertia. The other half of AES participants is made up of participants who terminated their contract in 4 years and the participants who continue to stay in the system. There is a chance that these participants may not have terminated their contract immediately because of inertia.

The automatic enrollment system practiced in Turkey has solved the inertia problem to some extent and increased the number of participants in individual pension system. However, it is possible for AES to have created a substitution effect. The employees who have enrolled in AES might have reduced their other

savings or the participants who have previously enrolled in VIPS might have reduced their savings in IPS or have terminated their contracts. Within this study, an evaluation on whether the AES participants have reduced their other savings or no, is not possible. However, the data on the number of participants and assets in AES and VIPS are available. AES has provided an increase in total private pension assets. While the annual nominal growth rate in AES and VIPS in the 2009-2019 period was 30.3%, after the establishment of AES, this rate has gone up to 37% (OECD, 2020). But, there is a decline in the number of participants who entered VIPS and a rise in the number of participants who left VIPS²⁵. There is also a decline in the net assets of IPS²⁶. This change has been observed since the public statement about the establishment of AES has been given in 2016. But as it is explained in the related chapter²⁷, the cause behind the decline in the number of participants and assets in VIPS are other reasons rather than AES. As it is seen in Table 2, while employees having VIPS contracts when entering AES have decreased the continuation rate in AES and not all employees who have VIPS contracts left AES. Therefore, it can be observed that VIPS is not an exact substitution of AES.

Table 2. Whether the Employees Had VIPS Contracts When They Entered AES
(At the time of entry to OKS)

	Entered AES Before VIPS	Did Not Enter AES Before VIPS	Total Employees Who Entered AES
Number of Certificates	3,855,775	24,008,404	27,864,179
Entered AES (Number of Participants)	2,999,332	16,934,802	19,934,134
Terminated	2,305,251	11,599,599	13,904,850
Continued AES	694,081	5,335,203	6,029,284
Continuation and Termination Rates			
Terminated	76.9	68.5	69.8
Continued AES	23.1	31.5	30.2

Reference: Pension Monitoring Center

Note: Reporting Date: 31.07.2021.

Thanks to AES not being substituted in VIPS' place, both the number of participants and the amount of assets in the individual pension system have increased. But AES has been practiced for 4.5 years. There is a chance that the contracts in force may be terminated in the mid-term in the upcoming years. The approximate term of VIPS contracts being 3-6 years²⁸, strengthens the prediction of AES contracts also having short terms. Also, even if AES has significantly increased the number of participants, it could not increase the amount of savings at the same rate. The savings made in the individual pension system in Turkey (the total of VIPS and AES) are pretty lower than the OECD average²⁹. Compared to VIPS, the total amount of savings in AES is much lower. Although the number of contracts in AES and VIPS is close, the amount of contributions in the last four years has a big difference. The net amount of contribution in VIPS between 2017 and 2020 is approximately 22 billion TRY³⁰. The total amount of contributions made for the certificates in force in AES is approximately 10.2 billion TRY. The reason why the amount of contributions in AES is low is that a major part of the participants pays the minimum of contributions. The participants transfer a minimum of 3% of their income that is subject to premium (plus a 0.75% matching contribution) to the system.

The minimum contribution rate in Turkey is low compared to many other countries. In selected OECD countries, Turkey has the lowest contribution rate after Norway (2%). The other countries selected for comparison have a higher minimum contribution rate than Turkey. In most of these mentioned countries, employers contribute to the system more than employees³¹.

Because the determined minimum contribution rate is low in AES, most of the participants prefer to pay the minimum contribution and the participants have low income, the amount of savings in AES stays low³².

The monthly approximate contribution of employees by age is shown in Table 3. Although there are differences by age, while the average monthly contribution of the participants who entered the system

through AES is approximately 100 TRY, the average monthly contribution of the participants who continue in AES is approximately 132 TRY.

Table 3. The Monthly Approximate Contribution of Employees by Age (TRY)

	Certificates in Force	Terminations (Including Withdrawals)	Total Certificates
Under the Age of 25	103,46	86,15	91,18
Ages 25-34	133,79	104,15	110,30
Ages 35-44	150,17	111,73	120,72
45 Years and Older	264,50	126,21	180,30
Average of AES	131,96	102,57	109,59

Reference: Pension Monitoring Center

Note: Reporting Date: 31.07.2021.

As can be seen in Table 4, the majority of the participants who entered the system through AES and continue come from the low/middle income group. 45% of the participants' income is under the minimum wage³³, and 44.7% has an income under two minimum wages. 36.7% of the participants who have contracts in force in AES consist of individuals who have an income under the minimum wage, whereas 21.6% consists of individuals whose incomes are under two minimum wages.

Table 4. The Distribution of AES Certificates by the Wage Gap of Employees

	x < MV	MW ≤ x < 2* MW	2* MW ≤ x < 3MW	3* MW ≤ x < 4MW	4MW ≤ x < 5* MW	5MW ≤ x < 6 MW	6MW ≤ x < 7, 5MW	7,5MW and Over	Total (%)
Entered AES	45.0	44.7	5.9	1.8	0.8	0.5	0.8	0.1	100
Continuation rate	36.7	21.6	15.1	14.2	13.6	13.5	12.1	22.4	27.8
Terminations Including Withdrawals	63.3	78.4	84.9	85.8	86.4	86.5	87.9	77.6	72.2
The Share in AES Certificates in Force	59.3	34.7	3.2	0.9	0.4	0.2	0.3	0.09	100

Reference: Pension Monitoring Center

Note. X: Participant, MW: Minimum Wage, 2*MW: 2 times the minimum wage, etc. It is made by assuming that the deduction from the wage is 3%. Reporting Date: 31.07.2021.

The traditional economic theory claims that there is a positive relationship between income and savings. Many empirical studies (Rijckeghem, 2010; Apaydin et al., 2011; Aktaş et al., 2012; Matur et al., 2012; Pektaş, 2020) show that as the income of the household increases, the savings rate increases too in Turkey. An interesting tendency can be observed when the continuation and termination rates in AES are examined by the participants' level of income. The income levels of the participants decline and together with it, the contribution rates decline too, but the participants prefer more to save with AES. The income group with the highest continuation rate in AES consists of individuals which have an income under the minimum wage. The 36.7% of the participants who have an income under the minimum wage and entered the system through AES continue to stay in the system. This rate decreases as the income increases³⁴. These results confirm the claims of the institutional savings theory in particular on the low-income group. AES is a safe and institutionalized savings mechanism. It presents charming public support and makes it easier to save through payroll deductions. These features of AES can explain the high levels of continuation in the lowest income groups. AES might have created the opportunity to save, at the least, for the low-income group.

Even if AES has the capacity to increase the welfare of the individuals with low-income, the contributions of these participants being low is affecting the AES' potential of increasing social welfare negatively. Another goal of the establishment of individual pension system in Turkey is "to contribute in the formation of long term domestic capital". But it is far from achieving this goal. To increase the total assets,

the average monthly contribution should be increased. When the average monthly contribution in VIPS being approximately 400 TRY³⁵ is taken into consideration, policymakers can consider setting the minimum contribution in AES to a higher rate. Although many participants agree to pay higher contributions, they might not be increasing their contributions because of inertia. The possible outcomes of increasing the minimum contribution for both the individual and social welfare are bilateral (positive or negative). An increase in the minimum contributions can have a decreasing effect on the continuation rates in AES by having a deterring effect. The way to prevent this is to use the default option without changing the minimum contribution rate. The default option can be used in two ways. The first is to set the contribution rate at the entrance through automatic enrollment high and the participants can lower the rate down if they want to. Thus the contribution of the savings accumulated through AES to the domestic capital can be increased. But if paying lesser contributions is more rational for the participants, yet they stay in the default options set at their entry because of inertia, this situation will not be optimal for welfare. An answer can be sought out for a normative question such as, what the contribution rate set at the entry should be in order to maximize individual and social welfare, with focus group discussions and surveys. A second method is to use the automatic increase option. The annual contribution rate can be automatically increased without changing the entry rates of contribution.

When the contributions in contracts in force in AES are examined according to age ranges, interesting points are found in terms of economic rationality. According to Table 5, while the average monthly contribution for AES participants under the age of 25 is 103.46 TRY, the average for participants 45 years and older is 264.50 TRY. It can be observed that the contributions rise as the participants get older (See Table 3). Empirical studies examining the saving rates according to age ranges in Turkey (Aktaş et al., 2012; Republic of Turkey Ministry of Development 2014) show that the savings increase as the age gets older, but in contrast to the life cycle theory, they do not show the tendency of inverted U. This tendency is much more evident in AES. 45 years and older population in AES makes 43% more contribution compared to the population between the ages of 35-44. Also, there are serious differences between the contributions in certificates in force and terminated. In terminated contracts, as the age gets older, the monthly average contribution has increased in much fewer rates contrary to contracts in force³⁶. When the continuation rates according to age ranges in AES, the continuation rate of the participants between the ages of 45 and older (41.4%) is vastly higher than the average (27.8%).

Table 5. The Continuation Rate of AES Certificates by the Ages of Employees

Age Range	Continuation Rate
Under 25	34.6
Ages 25-34	23.7
Ages 35-44	26.1
45 Years and Older	41.4
Total	27.8

Reference: Pension Monitoring Center

Note: The ages of the participants at their entrance into the system have been taken into account. Reporting Date: 31.07.2021.

The reason behind the high rates in contributions and continuation rates of participants older than 45 years might be that the matching contributions are more appealing for this age range. This age group will benefit from 100% of matching contributions in lesser time (10 years) than the other age groups³⁷. This situation might be an indicator of people acting economically rational. But the number of participants over the age of 45 being very small in AES does not affect savings much. As can be seen in Table 6, the ratio of the contracts made for participants over 45 to the total number of contracts is 0.9% and its ratio to contracts in force is 1.4%. The second most continuation rate after the participants over 45 is the participants in the age group under 25. While the share of the certificates of the participants under 25 in the total number of certificates is 29.7%, its share in the number of certificates in force is 37%. The continuation rate of the participants in this age group is 34.6% (See Table 5). There is a long time before the participants of this age

group can retire and benefit fully from the matching contribution. This age group can regard AES as a short-term saving instrument for some upcoming expenses in the near future (holding a wedding, buying a car, etc.) rather than an instrument for pension savings. It is also stated in the Country Economic Memorandum, the focus group meetings made for World Bank (CEM) that a major part of the young adults in Turkey started to save a portion of their incomes for their weddings (Republic of Turkey Ministry of Development, 2014). As is the case with the age group that is over 45 years, the contributions of the under 25 years old age group do not increase the assets in AES much. The participants in this age group probably cannot contribute much because of their low levels of income. The ratio of the contribution of the under 25 age group to certificates in force is 15.2%. A large part (82.4%) of the total AES assets for the certificates in force consists of the contributions of participants in the age range of 25-44. The contributions of the participants in the 35-44 age range are more (44.2%). It is possible for this age group to have higher income compared to the other age groups. That is why even if minimum deductions are made, their assets in AES increase more. But the participants in this age group make up the second least group to continue in AES.

Table 6. The Distribution of Certificates by the Ages of the Employees

Age Range	Rates of Certificate in Force	Total Contribution Rates of Certificates	Ratio to Total Certificates	Total Contribution Rate of the Certificates
Under 25	37.0	15.2	29.7	18.0
Ages 25-34	34.3	38.2	40.2	40.7
Ages 35-44	27.2	44.2	29.1	39.6
45 Years and Older	1.4	2.4	0.9	1.7
Total	100	100	100	100

Reference: Pension Monitoring Center

Note: Reporting Date: 31.07.2021.

A distinct difference is not observed when the started and in force contracts are examined by gender. According to Table 7, dating from June 2021, in the contracts in force in AES, the monthly average contribution of women was 128 TRY, while men's average contribution was 133 TRY. There is also a similar difference between the monthly average contributions in total started certificates. Thus, this difference can be explained by the wage gap between the genders³⁸.

Table 7. The Average Monthly Contribution Amount by the Gender of the Employees (TRY)

	Certificates in Force			Total Certificates		
	Women	Men	Total	Women	Men	Total
Total	128.58	133.71	131.96	106.53	110.92	109.59

Reference: Pension Monitoring Center

Note: Reporting Date: 31.07.2021.

The rate of women in the total employment in Turkey (TÜİK, 2021)³⁹ and their rates of owning an AES certificate are similar. 30.5% of contracts in AES belong to women, while 69.5% belong to men. As it is seen in Table 8, while 33% of contracts in force in AES belong to women and 67% to men. It is observed that the continuation rate of women is higher than men, although it is a small rate.

Table 8. AES Certificates of Employees by their Gender

Gender	Continuation Rate	Share in Certificates in Force	Share in Total Number of Certificates
Woman	30.4	32.82	30.49
Man	26.9	67.11	69.51

Reference: TUIK

Note: Reporting Date: 31.07.2021.

4.2. The progress in VIPS

VIPS has been enrolled in since 2003. There have been made 19.032.076 contracts in VIPS between 2003 and 2021. 43.7% of the started contracts (8,313,557 contracts) stayed in force and 56.3% (10,718,557 contracts) have been terminated. The number of participants is 6,934,200⁴⁰.

As of 2021, 8.1% of the contracts consist of employer group contracts, 16.2% from individual contracts affiliated with a group, and 75.7% individual contracts⁴¹. In the IPS Law, there have been incentives⁴² designated to increase the employer group pension contracts. In the individual pension contracts affiliated with a group, the administrative costs and entrance fee are lower. Adding to this, the rates of individual contracts affiliated with a group and employer group pension contracts are low. The probability of peer influence coming into effect and increase savings in individual contracts is low. But it is observed that the peer influence does not show up in individual contracts affiliated with a group and employer group contracts. As it can be seen in Table 9, the average contribution in individual contracts is higher. The average contribution in employer group pension contracts is higher by a small rate compared to group contracts, but the reason behind it is the employer contribution. In the case of the peers working in the same place competing with each other in savings, it would be expected to their monthly average contributions being higher than individual contracts.

Table 9. The Contributions According to the Types of Contracts in VIPS

	Total Contribution (TRY)	Monthly Average Regular Contribution (TRY)
Individual Contract	17,217,089,356	436
Contract Affiliated with the Group	3,582,819,504	319
Employer Group Pension Certificate	1,118,131,421	372

Reference: Pension Monitoring Center

Note: Reporting Date: 31.12.2020.

Table 10. The Age Distribution of Participants and their Ratio to the Population Noninvolved in VIPS. PMC (2021)

Age Range	Number of IPS Participants	Share in IPS Participants (%)	IPS Participants' Ratio to Total Population (%)
Under 25	325,171	4.67	3.1
Ages 25-34	1,525,754	21.90	12.6
Ages 35-44	2,275,399	32.67	18.4
Ages 45-55	1,860,828	26.71	16.8
56 Years and Older	978,556	14.05	7.8

Reference: Pension Monitoring Center

Note: Ratio to population states the ratio of the number of participants in the respective age range to the population in the same age range. Number of Participants and their Ratio to the Population by Age Range Reporting date: 31.12.2020. Age Distribution of Participants Reporting date: 31.08.2021.

A major part of the participants the in voluntary individual pension system consists of middle-aged participants as it is proposed by the life cycle hypothesis. Age distribution of participants and their ratio to the population noninvolved in VIPS is shown in Table 10. The ratio of under 25 and over 56 years old participants to the total of IPS participants is low. This situation is similar to the age distribution in Turkey when compared. A much larger part of the 25-55 age range participates in VIPS.

The monthly average regular contributions of the participants they have set in their contracts by age ranges is shown in Table 11. The monthly average contribution and their continuation in VIPS of VIPS participants over the age of 56 are higher compared to the other age groups.

Table 11. The Monthly Average Regular Contributions of the Participants They Have Set in Their Contracts by Age Ranges

Ages	The Monthly Average Amount of the Regular Contributions Paid Yearly to Contracts (TRY)
Under 25	241
Ages 25-34	298
Ages 35-44	383
Ages 45-55	486
56 Years and Older	544

Reference: Pension Monitoring Center

Note: Reporting Date: 31.07.2021

The data (between 2003 and 2021) on the continuation rates of VIPS contracts by age groups could not be found. However, the continuation and termination rates by age of the contracts between 2018 and 2020 are shown in Table 12. According to this, a major part of the contracts of participants, aged 56 and older, continued in the aforementioned years. As it is with AES contracts, participants at the age of 45 and older prefer to continue longer in individual pension system in VIPS contracts too. In contrast to the life cycle theory which claims that the contribution and continuation rates will decline, in VIPS, as the participant gets older, the contribution and continuation rates increase. The fact that these age groups will benefit from matching contributions earlier might be the reason behind the mentioned points.

Table 12. The Continuation Rate of Active Contracts (%)

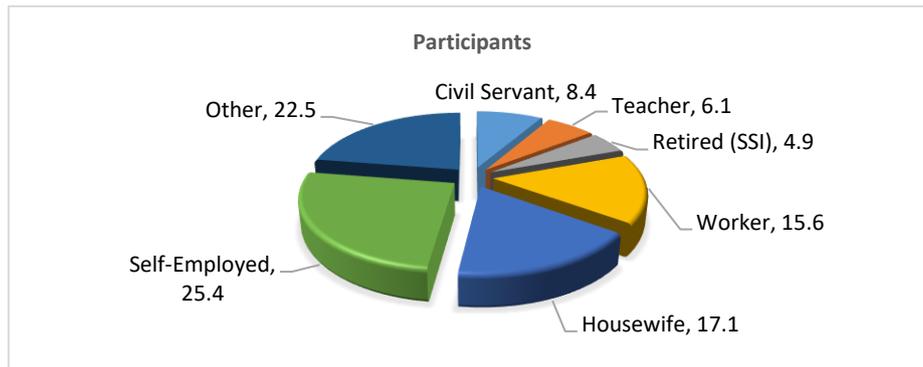
Years	Under 25	25-34 Years Old	35-44 Years Old	45-55 Years Old	56 Years and Older
2020	41.65	45.62	55.86	63.37	71.60
2019	36.03	40.73	51.58	59.99	69.33
2018	31.88	37.02	48.76	57.53	68.38

Reference: Pension Monitoring Center

Note: Reporting date 31.12.2018-31.12.2020.

As of 2018, 41% of the current contracts in VIPS belong to women while 59% belong to men⁴³. This rate is higher than the women who have participated in AES (and thus also higher than the employment rate of women in Turkey). It is not necessary to work in order to participate in VIPS. Therefore, it can be concluded that a major part of the difference consists of non-employed women. IPS can provide women, who do not have any revenue assurances or social security, the ability to make savings and retire. As it is seen in Figure 1, the 17.1% of VIPS participants consist of housewives. This rate is the second-highest after the self-employed participants. When the two data are evaluated together, it can be said that uncertainty and risk are determinants in IPS savings, as it is claimed by the precautionary savings model.

Figure 1. The Distribution of Participants by Occupations



Reference: PMC (2018), 2017 Development Report, pp. 29.

Note: The title of "Other" consists of 3,2 percent Farmer; 2,8 percent Banker; 2,7 percent Doctor/Pharmacist; 2,6 percent Student; 2,4 Technician; 2,3 percent Engineer and others are 6,2 percent.

There is not a major gap between the monthly average regular contributions of woman and man participants between 2005 and 2020. As of 2020, the monthly average contribution of women is 374, and men’s monthly average contribution is 407 TRY⁴⁴. As it is with the contributions in AES, men’s contribution payments are higher than women’s contribution payments by a small rate. This difference can be explained by the wage gap between genders as in the case of AES. However, it is observed that both woman and man participants of VIPS pay much more (almost three times more) contributions compared to AES. While the minimum contribution of VIPS can differ according to the pension plan of insurance company, many pension plans can be participated in by paying a minimum of 100-200 TRY contributions. Hence, the high rate of monthly average contributions in VIPS is not caused by minimum contribution payments. There are two probable explanations for this situation. The first is the income of VIPS participants being higher than the average income of the employed population (and AES participants) in Turkey. Distribution of participants by income range is shown in Table 13. When the 2020 data are examined, it is seen that the average income of VIPS participants is higher than the average income of AES participants. While more than 17.73% of VIPS participants earn more than three times the minimum wage, only 4% of the AES participants earn equal to or more than three times the minimum wage⁴⁵. This wage gap can raise the monthly average contributions in VIPS. But the difference between the monthly average contributions of VIPS and AES is much higher. So, it is possible that the participants, who have entered the individual pension system voluntarily, might be transferring the major part of their monthly income to the VIPS.

Table 13. Distribution of Participants by Income Range

Income Range	Ratio to Total Participants (%)
X <= MW	40.04
MW < X <= MW X 2	22.41
MW X 2 < X <= MW X 3	19.82
MW X 3 < X <= MW X 6	3.54
MW X 6 < X <= MW X 10	6.63
MW X 10 < X	7.56

Reference: Pension Monitoring Center

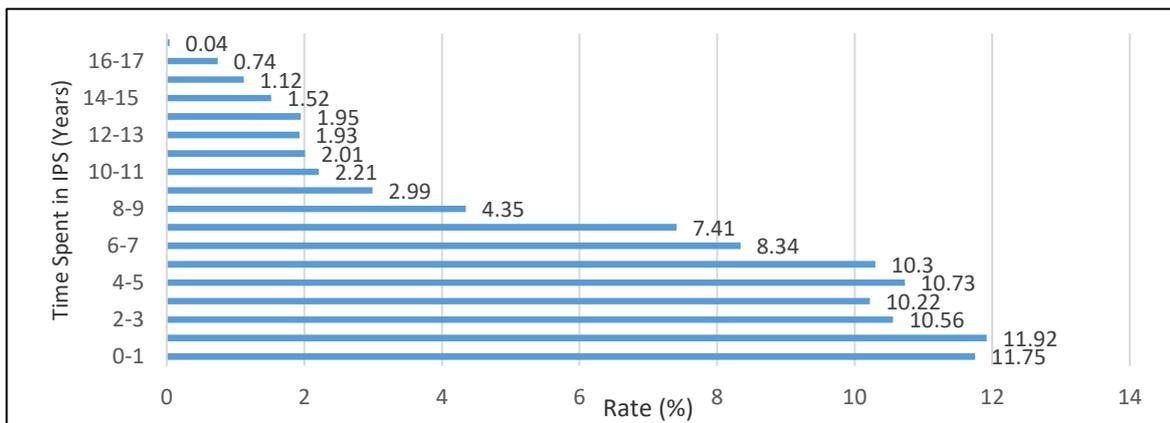
Note: X: Net income, MW: Minimum Wage, Reporting Date: 31.12.2020

The monthly average contributions being high in VIPS increases the total individual pension assets much more than AES. However, although a long time has passed, the share of savings made in VIPS in GDP could not be increased enough. VIPS is used as a short-term saving instrument rather than a long-term one.

Only 1.41% of VIPS contracts are terminated because of retirement. 88.48% of contracts have been terminated because of system exits; 5% transfer to another company; 1.37% dismissal/cancellation; 1.41% retirement; 2.34% account merger and 0.49% death/disability⁴⁶. One of the reasons behind the low number of participants who retired from the system is the system being applied for 18 years. But the rate of system exits apart from retirement and the years of seniority of the contract being short shows that VIPS is used as a short-termed saving instrument.

Distribution of contracts by the time (Seniority) spent in the system is shown in Figure 2. The average seniority of the contracts in the system is 4.6 years. In the system is stayed in 1-2 years at most. The rate of contracts that stayed in the system for 17-8 years is 0.04%. The average seniority of the contracts, which ended with the own system exit decision of the participants, is 2.7 years.

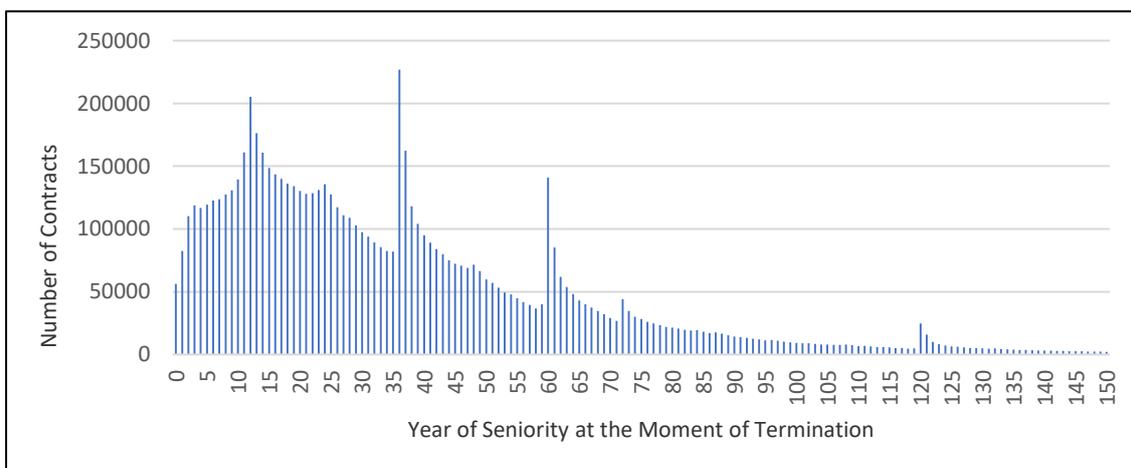
Figure 2. Distribution of Contracts by the Time (Seniority) Spent in the System



The survey study Yazıcı (2015: 179) made with 1014 participants also show that VIPS is seen as a short-term saving instrument. Only 21.1% of the answerers said that their reason for entering VIPS was to provide side income in their retirement. Also according to the results of the surveys PMC made in 2009 and 2011 (PMC, 2009:88; 2011:89) a major part of the participants stated that they entered VIPS because they wanted to save money. The purpose of providing side income for retirement was placed second.

As it can be seen in Figure 3, the exits from the system being mostly made on the 36th month draws attention. The second most exits are made in the 12th month.

Figure 3. The Distribution of Terminated Contracts by Months of Seniority



Reference: Pension Monitoring Center

One reason why the exit rates are high at the end of the 36th month might be that the participants want to benefit from the matching contributions at the least. Even if the participants leave the system, they can benefit from the 15% matching contribution at the end of the 36th month. Also, Eren and İleri (2014), have found evidence that high-income participants exiting the system in short term is optimal because of high administrative and management fees. The reason behind the exits after the 60th month might be that the deductions made in the first five years of the contract (up to 8.5 percent of monthly gross minimum wage every year) on entrance fee and administrative expenses fee are not applied anymore after the fifth year of the contract.

Contribution collections and termination payments in voluntary IPS by years are shown in Table 14. A total of 138,157,204,434 TRY contributions have been made in VIPS and 75,927,631,585 TRY (except for matching contributions) of these savings have been withdrawn because of terminations. The net amount of savings is 58,198,026,307 TRY.

Table 14. Contribution Collections and Termination Payments in Voluntary IPS by Years (TRY)

	Input	Termination	Net
2003*	6,151,243	7,086	6,144,157
2004	235,402,629	8,045,507	227,357,122
2005	745,388,919	74,488,605	670,900,316
2006	1,235,339,433	248,346,170	986,993,262
2007	1,686,938,809	455,986,127	1,230,952,683
2008	2,131,313,587	746,757,322	1,384,556,267
2009	2,510,052,015	1,147,841,852	1,362,210,163
2010	3,117,590,166	1,029,224,709	2,088,365,456
2011	3,818,482,668	1,268,234,031	2,550,248,638
2012	4,928,287,462	1,883,083,310	3,045,204,152
2013	7,647,840,539	2,481,356,830	5,166,483,709
2014	9,425,567,948	4,275,158,285	5,150,409,665
2015	12,277,033,720	5,474,515,186	6,802,518,536
2016	13,994,172,968	8,152,576,523	5,841,596,446
2017	14,129,910,582	9,577,307,649	6,079,596,302
2018	16,908,713,371	13,473,762,478	2,151,569,258
2019	19,593,309,502	14,623,254,954	4,970,054,546
2020	23,765,708,873	15,282,843,246	8,482,865,629
Total	138,157,204,434	75,927,631,585	58,198,026,307

Reference: Pension Monitoring Center

Note: *The data on 2003 consists of the sum of three months: October, November, and December. Reporting Date: 31.12.2020.

The number of certificates which entered and exited in voluntary IPS by years are shown in Table 15. When the contracts which started in VIPS are evaluated by years, a significant rise in contract numbers is seen after the transition to the matching contributions system. In 2013, a 64.4% increase in contract numbers happened, compared to the year before. The net contract number has increased by 95.4%. This increase has continued until 2016 with a small decline.

The transition to the matching contribution system from tax incentives offers participants who are not taxpayers or have a low tax burden. Adding to that, the matching contribution system is more understandable than tax incentives. According to a survey made by PMC (PMC 2008: 82) although 80% of the participants were taxpayers, 56% of them did not know about tax incentives. The rate of benefiting from tax incentives in individual participants stayed at 33%. According to the results of the survey made in 2011 term (PMC, 2011: 93-94), the rate of participants who do not benefit from tax advantage is very high. The recognition rate of the matching contribution system in the results of the survey Yazıcı (2015:179) made with 1014 VIPS participants is 91.8%. The transition to the matching contribution system might have increased the

participation in IPS as the given incentive is understandable. But, as this new incentive system was presented to the public through media, the presentation of VIPS was also made. Therefore, another reason behind the increase of contracts in VIPS might be the increase in the recognition of VIPS. However, as of 2016 both a decline in VIPS entrances and a sharp downtrend in the net number of contracts because of the high rate increase in exits happened. One reason for the exits might be the participants', who completed their third year, desire to take the 15% matching contribution and exit the system. After the transition to the matching contribution system, the ones who entered the system in 2013 were entitled to benefit from the minimum matching contribution in 2016.

As it is seen in Table 15, the year with the lowest net number of contracts was 2018. That year, the net number of contracts went down to 13,348. The increase in exits was also pretty evident. With the slowdown in the exit rates in the following three years, the net number of contracts has increased in moderate levels. However, it could not reach the pre-2018 levels (as of 2017, the net number of contracts is 390,437). It stayed pretty behind the maximum level (1,247,735) it reached in 2015. In 2018, a significant decline in VIPS' real returns. But this did not happen for the first time. Also in the years 2011, 2013, and 2015, the real returns were negative⁴⁷. But the year 2018 is important as it was the period in which a foreign exchange crisis was happening in Turkey. The Turkish lira has started to rapidly lose value. The savings in VIPS can be utilized in gold and funds indexed to foreign exchange. Nevertheless a large amount of funds are not indexed to gold and foreign exchange⁴⁸. Because of this sudden increase in foreign exchange in 2018, the VIPS participants might have had a more serious thought that the real value of their savings in the system will decrease.

Table 15. The Number of Certificates Which Entered and Exited in Voluntary IPS by Years

Year	Entered	Exited	Net
2003*	22,016	86	21,930
2004	339,446	20,000	319,446
2005	466,478	76,381	390,097
2006	571,741	131,703	440,038
2007	620,730	187,540	433,190
2008	572,132	255,486	316,646
2009	620,413	328,259	292,154
2010	636,273	275,011	361,262
2011	772,892	326,606	446,286
2012	981,997	377,688	604,309
2013	1,615,172	433,938	1,181,234
2014	1,685,781	565,431	1,120,350
2015	1,938,484	690,748	1,247,736
2016	1,766,033	994,073	771,960
2017	1,467,301	1,076,864	390,437
2018	1,332,641	1,319,257	13,384
2019	1,291,639	1,233,150	58,489
2020	989,099	911,260	77,839

Reference: Pension Monitoring Center

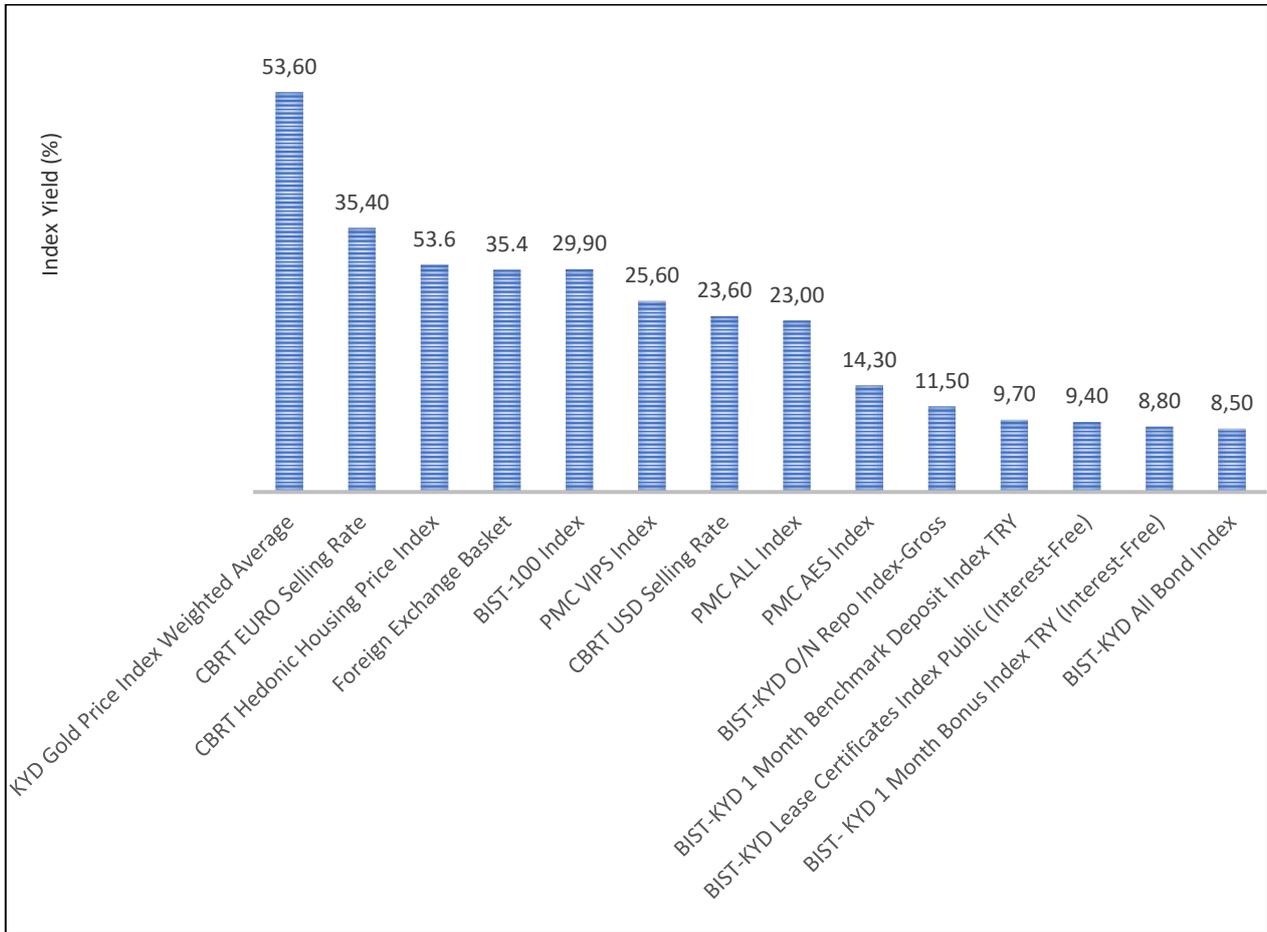
Note: Transfers between companies are not added into entries and exits. The exit data mentioned below have been included.

*The data on 2003 consists of the sum of three months: October, November, and December. Reporting Date. 31.12.2020.

The yield comparison of PMC indexes and alternative investment instruments (1) are shown in Figure 4. The individual pension sector had a 23% net nominal yield. The profit made from alternative investment instruments are listed thus: 53.6% in KYD Gold Price Index; 35.4% in CBRT Euro; 29.8% in Foreign Exchange Basket and %29 in Istanbul Stock Exchange Inc. (BIST-100) Index. While the PMC VIPS index had the highest

yield with a 25.6% yield in the total PMC index; the yield of the AES Index stayed under the 14.6% of CPI (Consumer Price Index) with a 14.3% yield in the aforementioned term.

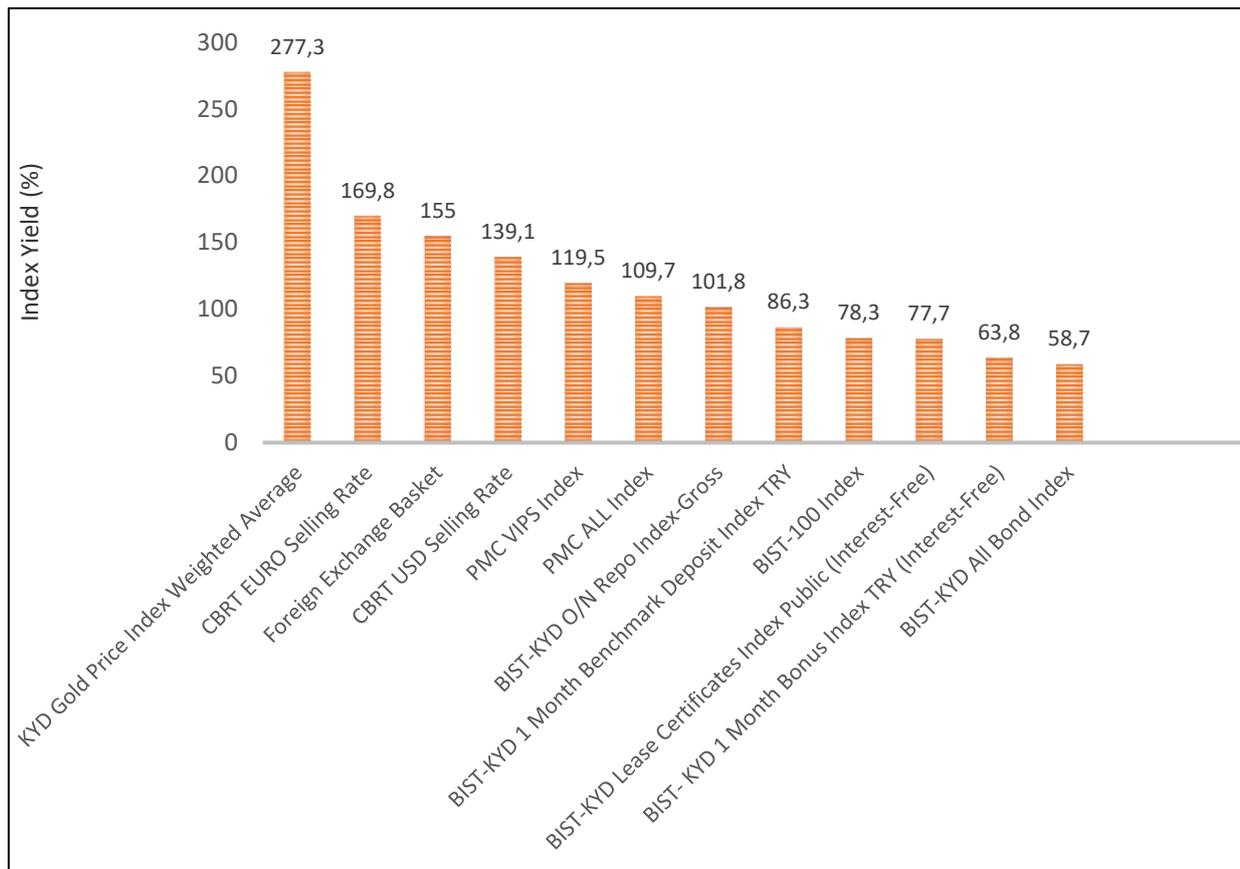
Figure 4. The Yield Comparison of PMC Indexes and Alternative Investment Instruments (1)



Reference: Pension Monitoring Center. The data of the graphic have been reported between 31.12.2019-31.12.2020.

Note. KYD Information Management and Communication Inc. (KYD) KYD Indices are calculated by Stock Market İstanbul A.Ş. (Stock Market İstanbul) and KYD, as of 01/07/2015, BIST-KYD Indices (Index) started to be calculated by Stock Market İstanbul as of 01/07/2015. Indices are divided into 12 main groups according to the investment instruments they contain. BIST-KYD Repo Indices, BIST-KYD Gold Price Indices, BIST-KYD 1-Month Benchmark Deposit Indices, BIST-KYD 1 Month Dividend Indices, BIST-KYD Lease Certificates Index Public etc. are investment instruments in this group. BIST: Stock Market İstanbul; BIST-100, It is the main indicator used to measure the performance of the top 100 stocks in terms of market and trading volume traded on Stock Market İstanbul; CBRT, The Central Bank of the Republic of Turkey

The yield comparison of PMC indexes and alternative investment instruments (2) are shown in Figure 5. When the yield rates between 2017-2021 are examined; “PMC ALL Index” has 109.7%yield; KYD Gold Price index 277.1%; CBRT Euro 169.8%; Foreign Exchange Basket 155%; CBRT USD 139.1%and PMC VIPS 119.5%. Staying in the individual pension system in Turkey in the aforementioned years does not seem profitable. The individual pension system in Turkey is not considered a good investment instrument for rational individuals who utilize the market indicators. Because the alternative investment instruments (gold, foreign currency, stocks, etc.) yield much more compared to PMC ALL, PMC VIPS, and PMC AES indexes.

Figure 5. The Yield Comparison of PMC Indexes and Alternative Investment Instruments (2)

Reference: Pension Monitoring Center. The data of the graphic have been reported between 01.01.2017-31.07.2020

As it is stated in the 2010 OECD report, long-term income is more important than annual income when it comes to pension savings. While the 15-year average real return of IPS in Turkey was positive, the average real returns of the last 5 and 10 years have been negative. One of the three OECD and other (jurisdiction) countries (the other two being the Czech Republic and Nigeria) that had negative real investment returns between 2009 and 2019 was Turkey (OECD, 2020:29)⁴⁹. One of the major reasons why real returns are so low is the high rates of charges made by insurance companies such as entrance fee and fund management fee. Among the OECD countries, the second-highest annual IPS fund management fee is in Turkey, after Albania. The fund management fee in Albania is 2.5% and 1.8% in Turkey (OECD, 2020: 43)⁵⁰. With the 10th Development Plan, it is aimed to “*approximate administration and management fees to international levels to extend the individual pension system further*” (Ministry of Development, 2013: 177). In some studies about IPS in Turkey (Özel & Yalçın, 2013; Eren & İleri, 2015; Peker, 2016), it is also stated that the reason for the low number of participants is high administration and management fees. IPS being a long-term investment instrument worsens the negative effects of this fees. According to Ionescu and Robles (2014)’s calculations, when staying for 40 years in IPS, the participant’s pension savings will decrease by 39.59% because of administration and management fees. Eren and İleri (2015)’s analyses showed that the participants from the high-income group exiting the system after a while is optimal because of high administration and management fees.

5. Conclusion

It is observed that the behavioral instruments used in the private pension system in Turkey are affecting individuals’ savings positively, but the effects are not so high. Behavioral instruments such as the transition from tax incentives to matching contributions system, the establishment of automatic enrollment system in 2016, providing an extra 1000 TRY state subsidies in entering AES and early withdrawal penalties

have affected the number of participants and total assets to a certain level in VIPS and AES. However, a good part of households did not prefer to save in AES and VIPS or used these systems as short-term saving instruments. We think that this situation can be explained with economic rationality. IPS's real returns being lower than alternative investment instruments and having high administration and management fees causes the level of assets in the system to be low. A major part of VIPS participants prefers to exit the system after gaining the right to benefit from the 15% matching contribution at the end of the 36th month. Also after the 60th month, when entrance fees and administration fees are not collected anymore, the exits from VIPS increase. The age group which has the highest continuation and contribution rates in VIPS and AES consists of participants which will gain the right to benefit from the full amount of matching contribution, in a shorter time (over 56 years and 45 years, respectively). Both the short-term exits from the individual pension system and the average age of participants continuing to stay in IPS being high, seem rational in economic terms. However, the fact that the behavioral tools used in PPS could not increase savings sufficiently requires the public sector to think about new behavioral tools and traditional incentive mechanisms. Increasing the state contribution from 25% to 30% in PPS, allowing the participant to withdraw 50% of the savings amount without leaving the system can be an effective policy. Increasing the matching contribution is both a traditional and a behavioral incentive tool. The withdrawal of some of the savings from the system may also positively affect the amount of funds in the system. Participants who have to withdraw their savings for their urgent needs do not have to withdraw all their savings. Moreover, such a facility can also reduce the problem of hyperbolic discount. Future studies examining the impact of these changes may reveal clearer findings. This study can be a guide for other studies examining the impact of new policies. The effects of previous and new regulations can be analyzed comparatively.

As the behavioral economists, who suggest libertarian paternalist policies, assert, behavioral instruments do not prevent the individuals who make rational decisions from acting with utility-maximization. However, regulations such as Complementary Individual Pension System conflicts with the consumer sovereignty principle. Also, the transferring of a part of provisions for termination indemnities into CIPS and not being able to withdraw the savings in this pension plan wholly will not be rational for many economic units. Therefore, these kinds of policies will have a negative effect rather than a positive one on both individual and social welfare. Jolls et al. (1998:1543) claim that irrational paternalist policies can be prevented when the public choice approach is paired with the behavioral approach. They assert that the demands for regulations coming from the private sector can drive the politicians who want to carry out populist policies. When the agenda on CIPS in Turkey is followed, a mechanism identical to this can be seen. According to the information in media, it is planned to pay the CIPS premiums to be paid from the employees' provisions for termination indemnities. Labor unions opposed this regulation on termination indemnity and protested. In mid-2020, as a result of the CIPS debate between politicians and private sector employees made through printed and visual media, the government set this regulation aside from its agenda. Most of the unaccredited information given in printed and visual media are from June 2020.

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Ethical Responsibilities of Authors: The authors of this article confirm that their work complies with the principles of research and publication ethics.

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End Notes

1. See OECD (2020) for country examples of automatic enrolment in private pension systems. <https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm> (Access Date: 01.07.2021).
2. With the confirmation of pension plans on 27.10.2003, pension companies got into action. See Act of Individual Pension Saving and Investment System (2001, March 28). <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=4632&MevzuatTur=1&MevzuatTertip=5> (Access Date: 05.07.2021).
3. See OECD (2020), Statistics on Pension Markets in Focus No.17, 2020, Statistical Tables (Annual Nominal Growth Rates of Pension Assets in 2019 and Over the Last Ten Years (or Longest Period Available) in Selected OECD and Other Jurisdictions). <https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm> (Access Date: 01.07.2021).
4. See OECD (2020), Statistics on Pension Markets in Focus No.17, 2020, Statistical Tables (Total Assets in Retirement Savings Plans (as a Percentage of GDP)).
5. Presidency of Strategy and Budget (2021). Economic and Social Indicators, Statistical Tables (The Share of Domestic Savings and Fixed Capital Investments in GDP (1975-2015)). <https://www.sbb.gov.tr/ekonomik-ve-sosyal-gostergeler/#1540021349032-1be70108-294c> (Access Date: 10.06.2021).
6. The Act on Amendment on Insurance Business' and Other Fields' Acts and Legislative Law (2021, May 25), Official Gazette, Issue: 31491. <https://www.resmigazete.gov.tr/eskiler/2021/05/20210525-12.pdf> (Access Date: 30.06.2021).
7. See Turkey's 10th Development Plan (2013). <https://www.resmigazete.gov.tr/eskiler/2013/07/20130706M1-1-1.doc> (Access Date: 25.06.2021).
8. Republic of Turkey Ministry of Treasury and Finance (2019), The New Economy Programme (Medium-Term Programme): 2019-2021. Official Gazette, Issue: 30908. <https://www.resmigazete.gov.tr/eskiler/2019/10/20191004M1-1.pdf> (Access Date: 25.06.2021).
9. The Act on Amending on The Act on Amendment on the Individual Pension Saving and Investment Law and Some Law and the Decision with the Law Number 375 (19.01.2022). <https://www.resmigazete.gov.tr/eskiler/2022/01/20220122-1.htm> (Access Date: 26.03.2022).
10. Since the law has just been enacted and the data are not sufficient for a scientific study, calculations have been made taking consider (state contribution 25%) the legal rates before the aforementioned law.
11. In the 2005-2017 Individual Pension System Growth Reports, when the tables titled Consolidated Goals of Companies and Actualizations are examined, it is seen that every year (except for 2005, 2011, 2012, 2013) the desired goals couldn't be actualized. The years 2008 and 2016 have been negative; in 2006-2007-2009-2010-2014 and 2015 they got behind the most probable goals set. In 2005 and 2011 have been actualized over the most probable goal; in 2012 and 2013, contracts have been actualized above the optimistic goals.
12. The experiment has shown that the three effects: data, financial incentives, and peer influence have increased enrollment into TDA (a retirement plan in a university, named Tax-Deferred Account). But the effects cannot be separated from each other.
13. In earlier dates, there were narrow-scoped retirement and cooperative funds available. See SSI (2021) for the history of IPS in Turkey. <http://www.sgk.gov.tr/wps/portal/sgk/tr/kurumsal/kurumumuz/tarihce> (Access Date: 27.06.2021).
14. 25% of the payment, made to the ones which leave the system mandatorily and the ones which got the right to get their retirement in the IPS, is an exception from tax deduction. 10% of the payment is made to the ones who have paid premiums for 10 years and the payments made from the single premium annual income insurances are exceptions from the tax deduction. See. The Act on Amendment on the Several Tax Laws, dated 28.06.2001 and no. 4697, Official Gazette, Date: 10.07.2001, Issue: 24458. <https://www.mevzuat.gov.tr/MevzuatMetin/1.5.4697.pdf> (Access Date: 05.07.2021).
15. The rate of deduction of withholding for the ones who have gained the right to retire from the system, or leave the system with compulsory cases like death, disabilities, or divestment is 5%. It is 10% for the ones who have stayed 10 years in the system but left it before gaining the right for retirement, if the participant has stayed for less than 10 years, the rate is 15%.
16. The maximum rate for 2021 is 10.732,50 TRY. Matching contributions are not paid for the contributions paid by the employer. The amount of matching contribution paid for the participant, who has multiple contracts, is divided among the contracts according to the weight of the contribution paid per contract in a month. With the new

regulation, the upper limit of the state contribution for a participant is 30 percent of the annual gross minimum wage for 2022. It is 18,014 TL. <https://www.resmigazete.gov.tr/eskiler/2022/01/20220122-1.htm> (Access Date: 26.03.2022).

17. The Act of Amendment on the Individual Pension Saving and Investment Law (2016, August 10). <https://www.resmigazete.gov.tr/eskiler/2016/08/20160825-4.htm> (Access Date: 06.07.2021).
18. If the new workplace is in AES, the employee can return to the system if they have used their withdrawal or termination rights and are younger than 45 years at the date they have started working in their new job. They can return to the system if they have not used their withdrawal or termination rights in the certificate registered into the system in their former workplace. The certificate from the former workplace, current savings, the time subject to retirement, and matching contributions rights can be transferred altogether into the retirement plan of the new employer. If the new workplace is not in the AES and if the employee has not used their right to withdraw from the system or termination in their former workplace, their contribution pay can be continued according to the personally assigned former plan or the plan can be ended. If the contribution pay is continued, there is an opportunity to switch to the retirement plan when the new workplace participates in AES.
19. The data given under this title are compiled from newspaper reports. See: TRT News (16.06.2020). All about the complementary pension system, Accessed on: <https://www.trthaber.com/haber/ekonomi/tamamlayici-emeklilik-sistemi-ile-ilgili-tum-merak-edilenler-493130.html>, Palabıyık, D. Ç. (16.06.2020). Complementary pension system from A to Z, AA News, Accessed on: <https://www.aa.com.tr/tr/ekonomi/adan-zye-tamamlayici-emeklilik-sistemi/1878484>, Özcan, S. (18.06.2020). Complementary pension system, Sözcü, Accessed on: <https://www.sozcu.com.tr/2020/yazarlar/sezgin-ozcan/tamamlayici-turkiye-emekliler-derneginden-emeklilik-sistemi-5880582/>, Elçi, U. D. (13.09.2020). The sector is ready for the complementary pension system, Insurer Gazette, Accessed on: <https://sigortacigazetesi.com.tr/tamamlayici-emeklilik-sistemi-icin-sektor-hazir/> (Access Date: 25.06.2021).
20. Statistics published by the Pension Monitoring Center (PMC) have been used in the table and graphics made under this title. The most up-to-date data have been used on the date this study has been made. <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021).
21. This number is consistent with the number of employees in Turkey.
22. See PMC (2021) for Continuation Status of AES Certificates by Termination Reasons. <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021).
23. See PMC (2021) for the number of certificates and contribution in AES. <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021).
24. The rates of terminations caused other than the personal requests of individuals (intercorporate transfers, quitting the job, and account mergers) are added to the rates of contracts in force.
25. See PMC (2021) for the monthly number of contracts entering and exiting the system in IPS. <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021).
26. See PMC (2021) for the monthly Contribution Collections and Termination Payments in Voluntary IPS (Total). <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021)
27. See: pp. 18-21.
28. See PMC (2021) for Distribution of Terminated Contracts by Seniority (IPS). <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021).
29. While the share of the private pension savings in Turkey's GDP was 2.9% in 2019, the OECD average was 91.5%. See OECD (2020), Statistics on Pension Markets in Focus No.17, 2020 (Minimum or mandatory contribution rates (for an average earner) in mandatory and auto-enrollment plans (unless specified otherwise), 2019 (or latest year available). <https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm> (Access Date: 01.07.2021).
30. See PMC (2021), for Termination Payments and Contribution Collections in Voluntary IPS by Month (Total) Accessed on: <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021).
31. OECD (2020), Statistics on Pension Markets in Focus No.17, 2020, Statistical Tables (Coverage of retirement savings plans in selected OECD and other jurisdictions, by type of plan, latest year available). <https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm> (Access Date: 01.07.2021).
32. If the minimum contribution rate is equal to 3% of the income that is subject to premium is considered, the income levels of AES participants can be guessed. According to TSI, the average income and average contributions of the participants show consistency. See TSI (2021) for Average Wages of Employees. <https://data.tuik.gov.tr/Kategori/GetKategori?p=Istihdam,-Issizlik-ve-Ucret-108> (Access Date: 15.06.2021).

33. *The gross minimum wage in Turkey is 3,577 TRY as of 2021.*
34. *The only exception is the individuals who earn 7 times the minimum wage.*
35. *See PMC (2021) for Monthly Average Regular Contributions by Gender of the Participants by Years (AES), Reporting Date: 31.12.2021. <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021).*
36. *In terminated contracts, the population of 45 years and older has made 11% more contribution compared to the population between the ages of 35-44.*
37. *The retirement age in Turkey is 65. But the retirement date in Turkey can vary according to the employee's insurance starting date, age, and premium days. Employees can gain the right to retire under the age of 65. See Republic of Turkey Social Security Institution (2021). <http://www.sgk.gov.tr/wps/portal/sgk/tr/emekli> (Access Date: 25.07.2021).*
38. *See TÜİK (2021) for average monthly and annual gross wage by gender. <https://data.tuik.gov.tr/Kategori/GetKategori?p=istihdam-issizlik-ve-ucret-108&dil=1> (Access Date: 10.06.2021).*
39. *See TÜİK (2021) for employment, unemployment, and wage statistical tables. <https://data.tuik.gov.tr/Kategori/GetKategori?p=Istihdam,-Issizlik-ve-Ucret-108> (Access Date: 10.06.2021).*
40. *Some participants have more than one contract. As of the reporting date (31.12.2020), 85.20% of the participants have one contract, 11.45% have two contracts and 3.35% have three or more contracts. See PMC (2021) for contracts in force and terminated. <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 30.08.2021).*
41. *See PMC (2021) for The Distribution of the Number of Contracts/Certificates and Total Net Asset Value of Funds by Gender (IPS). <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021).*
42. *The contributions paid by the employer (up to 15% of the employees' gross income and the annual total of the annual gross minimum wage) can be shown as expenses and be deducted from the tax base. Part of the amount of the contribution paid by the employer (30% of monthly gross minimum wage) is not included in the SSI premium basis.*
43. *See PMC (2021) for Distribution of Participants by Gender and Age, Reporting Date: 31.12.2018. <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021).*
44. *See PMC (2021) for Monthly Average Regular Contributions by Gender of the Participants by Years, Reporting Date: 31.12.2021. <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021).*
45. *The rate of IPS participants who earn equal to or less than three times the minimum wage is 19.82%. Therefore, part of these participants should be included in the 17.73% rate. However, the rate cannot be determined with the available data.*
46. *It is not included in the graphic because the contracts of the participants, who used stayed in the system by using their right for retirement and chose programmed payment, did not end. See PMC (2021) for distribution of certificates by termination reason. <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021).*
47. *OECD (2020). Statistics on Pension Markets in Focus No.17, 2020, Statistical Annex (Annual real investment rates of return of retirement savings plans, 2009-2019). <https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm> (Access Date: 01.07.2021).*
48. *There are a total of seven fund groups: Stock Certificate, Government Bonds and Bills (Turkish Lira, TRY); Government Bonds and Bills (Foreign Exchange, FE); Liquids, Precious Metals, Flexible and Standard Funds. Under these fund groups, there are a total of 236 funds. As of the end of 2017, 5.9 percent of the aforementioned funds consists of precious metals and 9.7 percent consists of Government Bonds and Bills fund groups. The net asset value of these fund groups in total fund groups are 4.88 and 10,79 respectively. Their real returns are 5.63 and 5.23 respectively. See PMC (2017) for individual pension system progress report. <https://www.egm.org.tr/bes2017gr/English/mobile/index.html#p=I> (Access Date: 25.08.2021).*
49. *OECD (2020), Statistics on Pension Markets in Focus 2020, Report. <https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm> (Access Date: 01.07.2021).*
50. *OECD (2020), Pension Markets in Focus 2020, Report. www.oecd.org/finance/pensionmarketsinfocus.htm (Access Date: 01.07.2021).*

References

- Aktaş, A., Güner, D., Gürsel, S., & Uysal, G. (2010). Structural determinants of household savings in Turkey: 2003-2008. Bahçeşehir University Center for Economic and Social Research, Working Paper Series 007.
- Apaydın, E., Türeli, A., & Yalçın, C. (2011). Determinants of private sector saving rates in Turkey. In Presentation at the CEM workshop on March, Vol. 24.
- Arrow, K. J. (1971). The theory of risk aversion. In: K. J. Arrow (Ed.) *Essays in the theory of risk bearing*. New York: American Elsevier.
- AVIVA, (2016). 2. Mindthegapreport. <https://www.aviva.com/newsroom/news-releases/2016/09/european-pension-savings-gap-reaches-2-trillion-a-year-17667/> (Accessed on 25 July 2021).
- Bailey, J. J., Nofsinger, J. R., & O'Neill, M. (2004). 401 (K) retirement plan contribution decision factors: The role of social norms. *Journal of Business & Management*, 9(4), 327-344.
- Barr, M. S., & Sherraden, W. M. (2005). Institutions and inclusion in saving policy. In: N. Retsinas & E. Belsky (Eds.), *Building assets, building wealth: Creating wealth in low-income communities* (pp. 286-315). Washington DC: Brookings Press.
- Bernheim, B.D., & Rangel, A. (2005). Behavioral public economics: Welfare and policy analysis with non-standard decision makers. NBER Working Paper No.11518.
- Beverly, S. G., & Sherraden, M. (1999). Institutional determinants of saving: Implications for low-income households and public policy. *The Journal of Socio-Economics*, 28(4), 457-473.
- Camerer, C., Issacharoff, S., Loewenstein, G., O'Donoghue T., & Rabin, M. (2003). Regulation for conservatives behavioral economics and the case for asymmetric paternalism. *University of Pennsylvania Law Review*, 151(3), 1211-1254.
- Carroll, C. D., Hall, R. E., & Zeldes, S. P. (1992). The buffer-stock theory of saving: Some macro economic evidence. *Brookings Papers on Economic Activity*, (2), 61-156.
- Ceritoğlu, E. (2009). The empirical importance of precautionary saving in Turkey. PhD Thesis, University of Nottingham. <http://eprints.nottingham.ac.uk/10885/>
- Chetty, R., Friedman, J. N., Leth-Petersen, S., Nielsen, T., & Olsen, T. (2014). Active vs. passive decisions and crowd-out in retirement savings accounts: Evidence from Denmark. *The Quarterly Journal of Economics*, 129(3), 1141-1219.
- Choi, J. J., Laibson, D., Madrian, B. C., & Metrick, A. (2002). Defined contribution pensions: Plan rules, participant choices, and the path of least resistance. *Tax Policy and The Economy*, 16, 67-113.
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, 58(6), 1015-1026.
- Deaton, A. (1989). Saving and liquidity constraints. Cambridge: National Bureau of Economic Research, No. 3196.
- Duflo, E., & Saez, E. (2002). The role of information and social interactions in retirement plan decisions: Evidence from a randomized experiment. NBER Working Paper, No.8885.
- Elçi, U. D. (13.09.2020). Tamamlayıcı emeklilik sistemi için sektör hazır [The sector is ready for the complementary pension system], Sigorta Gazetesi, <https://sigortacigazetesi.com.tr/tamamlayici-emeklilik-sistemi-icin-sektor-hazir/> (Accessed Date: 25.07.2021).
- Eren, O., & İleri, Ş. G. (2015). *Government subsidized individual retirement system*. Ankara: TCMB Working Paper No.15/20.
- Fajnzylber, E., & Reyes, G. (2015). Knowledge, information, and retirement saving decisions: Evidence from a large-scale intervention in Chile. *Economia*, 15(2), 83-117.
- Friedman, M. (1957). *A theory of consumption function*. Princeton: Princeton University Press.
- Gordon, W. (1980). *Institutional economics: The changing system*. Austin: TX: University of Austin Press.
- Ionescu, L., & Robles, E. A. (2014). Update of IOPS work on fees and charges. International Organisation of Pension Supervisors, Working Paper 20.
- Joulfaian, D., & Richardson, D. (2001). Who takes advantage of tax- deferred saving programs? Evidence from federal income tax data. *National Tax Journal*, 54(3), 669-688.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47, 263-291.
- Kahneman, D. (2011). *Thinking, fast and slow*. New York: Farrar, Straus and Giroux.

- Kahneman, D., & Tversky, A. (1982). Judgment under uncertainty: heuristics and biases. In: D. Kahneman, S. P. Slovic, P. Slovic, & A. Tversky (Eds.), *Judgment under uncertainty: Heuristics and biases* (pp. 3-20). Cambridge: Cambridge University Press.
- Laibson, D. (1997). Golden eggs and hyperbolic discounting. *The Quarterly Journal of Economics*, 112(2), 443-478.
- Laibson, D., Repetto, A., & Tobacman, J. (1998). Self-control and saving for retirement. *Brookings Papers on Economic Activity*, 1, 91-196.
- Law of Private Pension Savings and Investments. (2001). Official Gazette, Vol. 40., No. 24366 <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=4632&MevzuatTur=1&MevzuatTertip=5> (Access Date: 05.07.2021).
- Leland, H. E. (1968). Saving and uncertainty: The precautionary demand for saving. *Quarterly Journal of Economics*, 82, 153-63.
- Madrian, B., & Shea, D. (2001). The power of suggestion: inertia in 401(k) participation and savings behavior. *Quarterly Journal of Economics*, 116(4), 1149-1187.
- Matur, E. P., Sabuncu, A., & Bahçeci, S. (2012). Determinants of private saving and interaction between public and private savings in Turkey. Topics in Middle Eastern and North African Economies, *Electronic Journal*, 14. <http://www.luc.edu/orgs/meea/> (Access Date: 15.05.2021).
- Modigliani, F. (1990). Recent declines in the saving rate: A life cycle perspective. The Collected Papers of Franco Modigliani, Cambridge: MIT Press. 2005, 107-140.
- Modigliani, F., & Brumberg, R. (1954). *Utility analysis and the consumption function: An interpretation of cross-section data*. The Collected Papers of Franco Modigliani, Cambridge: MIT Press. 2005, 388-436.
- Mugerman, Y., Sade, O., & Shayo, M. (2014). Long term savings decisions: Financial reform, peer effects and ethnicity. *Journal of Economic Behavior & Organization*, 106, 235-253.
- Mulliniathan, S., & Thaler, R. H. (2000). Behavioral economics. NBER Working Paper No.7948.
- Neale, W. C. (1987). Institutions. *Journal of Economic Issues*, 21(3), 1177-1206.
- OECD (2020). Pension markets in focus 2020. www.oecd.org/finance/pensionmarketsinfocus.htm (Access Date: 01.07.2021).
- OECD (2020). Total assets in retirement savings plans, as a percentage of GDP, 2010-2020. In: Statistics on Pension Markets in Focus, No.17. <https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm> (Access Date: 01.07.2021).
- Özcan, S. (18.06.2020). Tamamlayıcı emeklilik sistemi [Complementary pension system], Sözcü, Accessed on: <https://www.sozcu.com.tr/2020/yazarlar/sezgin-ozcan/tamamlayici-turkiye-emekliler-derneginden-emeklilik-sistemi-5880582/> (Access Date: 25.06.2021).
- Özel, Ö., & Yalçın, C. (2013). Yurtiçi tasarruflar ve bireysel emeklilik sistemi: Türkiye'deki uygulamaya ilişkin bir değerlendirme [Domestic savings and Private Pension System: An evaluation of the Turkish Case]. TCMB Çalışma Tebliği, 13(04).
- Palabıyık, D. Ç. (16.06.2020). A'dan Z'ye tamamlayıcı emeklilik sistemi [Complementary pension system from A to Z], AA Haber [AA News], <https://www.aa.com.tr/tr/ekonomi/adan-zye-tamamlayici-emeklilik-sistemi/1878484> (Access Date: 21.06.2021).
- Peker, I. (2016). Türkiyede Bireysel Emeklilik Sistemindeki maliyetlerin düşürülmesi ve otomatik katılım sistemi üzerine öneriler [Suggestions on decreasing pension fund fees and automatic enrollment system in Turkey]. Akdeniz Üniversitesi *İ.İ.B.F. Dergisi*, (33), 34-62.
- Pektaş Erdem, B. (2020). Determinants of household savings in Turkey except for income. Research and Monetary Policy Department, Central Bank of the Republic of Turkey. <https://www.tcmb.gov.tr/wps/wcm/connect/f3e86b8f-e...247bcdc75a8d-nmXjLZa> (Access Date: 16.05.2021).
- Pension Monitoring Center (PMC) (2009). Individual pension system progress report, 2009. <https://www.egm.org.tr/bes2016gr/English/Reports%20of%20Previous%20Years/IPS%20Progress%20Report%202008/E-Book/mobile/index.html#p=1> (Access Date: 25.08.2021).
- Pension Monitoring Center (PMC) (2011). Individual pension system progress report, 2011. <https://www.egm.org.tr/bes2016gr/English/Reports%20of%20Previous%20Years/IPS%20Progress%20Report%202011/E-Book/mobile/index.html#p=1> (Access Date: 25.08.2021).
- Pension Monitoring Center (PMC) (2017). Individual pension system progress report, 2017. <https://www.egm.org.tr/bes2017gr/English/mobile/index.html#p=1> (Access Date: 25.08.2021).

- Pension Monitoring Center (PMC) (2021). Data Center. <https://www.egm.org.tr/bilgi-merkezi/istatistikler/> (Access Date: 25.08.2021).
- Pratt, J. W. (1964). Risk aversion in the small and in the large. *Econometrica*, 32, 122-136.
- Republic of Turkey Ministry of Development (2013). 10th development plan. Ankara. <https://www.resmigazete.gov.tr/eskiler/2013/07/20130706M1-1-1.doc> (Access Date: 10.07.2021).
- Republic of Turkey Ministry of Development (2014). Tenth development plan (2014-2018): Domestic savings specialization commission report. Ankara. https://www.sbb.gov.tr/wp-content/uploads/2018/10/10_YurticiTasararufklar.pdf (Access Date: 10.07.2021).
- Republic of Turkey Ministry of Treasury and Finance (2019). The economic program (medium term program): 2019-2021. Official Gazette, No. 30908. <https://www.resmigazete.gov.tr/eskiler/2019/10/20191004M1-1.pdf> (Access Date: 25.07.2021).
- Ritov, I., & Baron, J. (1990). Reluctance to vaccinate omission bias and ambiguity. *Journal of Behavioral Decision Making*, 3(4), 263-277.
- Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of Risk and Uncertainty*, 1(1), 7-59.
- Sharraden, M. W. (1991). *Assets and the poor: A new American welfare policy*. Armonk, N.Y.: M.E. Sharpe.
- Simon, H. A. (1959). Theories of decision-making in economics and behavioral science. *The American Economic Review*, 49(3), 253-283.
- Sunstein, C. R., & Thaler, R. H. (2003). Libertarian paternalism is not an oxymoron. *The University of Chicago Law Review*, 70(4), 1159-1202.
- Thaler, R. H., & Sunstein, C. R. (2018). *Dürtme [Nudge]*.(Turkish Version: E. Gürsel). İstanbul: Pegasus Yayınları.
- Thaler, R. H. (1994). Psychology and saving policies. *The American Economic Review*, 84(2), 186-192.
- Thaler, R. H., & Benartzi, S. (2004). Save more tomorrow: Using behavioral economics to increase employee saving. *Journal of Political Economy*, 112(S1), 164-187.
- The Act of Amendment on the Individual Pension Saving and Investment Law (2016). Official Gazette, No.: 29812. <https://www.resmigazete.gov.tr/eskiler/2016/08/20160825-4.htm> (Access Date: 06.07.2021).
- TRT Haber [News](16.06.2020). Tamamlayıcı emeklilik sistemi ile ilgili tüm merak edilenler [All about the complementary pension system], <https://www.trthaber.com/haber/ekonomi/tamamlayici-emeklilik-sistemi-ile-igili-tum-merak-edilenler-493130.html> (Access Date: 20.06.2021).
- Turkish Statistical Institute (TSI) (2021). Employment, unemployment and wages, Labour force statistics. <https://data.tuik.gov.tr/Kategori/GetKategori?p=istihdam-issizlik-ve-ucret-108&dil=1> (Access Date: 10.06.2021).
- Tversky, A., & Shafir, E. (1992). Choice under conflict: The dynamics of deferred decision. *Psychological Science*, 3(6), 358-361.
- Van Rijckeghem, C. (2010). Determinants of private savings in Turkey: An update. Boğaziçi Üniversitesi İktisat Bölümü Çalışma Tebliği, No. 04.
- Venti, S. F., & Wise, D. A. (1986). Tax-deferred accounts, constrained choice and estimation of individual saving. *The Review of Economic Studies*, 53(4), 579-601.
- Venti, S. F., & Wise, D. A. (1990). Have IRAS increased US saving?: Evidence from consumer expenditure surveys. *The Quarterly Journal of Economics*, 105(3), 661-698.
- Weinstein, N. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology*, 39(5), 806-820.
- Yazıcı, S. (2015). Private pension system and its practice in Turkey. Phd Thesis, Ankara University. <https://dspace.ankara.edu.tr/xmlui/handle/20.500.12575/37005> (Access Date: 20.05.2021).

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