Features that influence the exit decision from the private pension system in Turkey

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Features that influence the exit decision from the private pension system in Turkey[§]

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ABSTRACT

Public pension system costs constitute a significant part of government expenses. Private pension systems have been developed as an alternative and/or as a complement to the public systems. In Turkey, the Private Pension System was given a head start in 2003. Although the system aims to provide supplementary income to the public pensions at retirement, observations reveal that many participants prefer to exit the system before retirement. The purpose of this study is to identify the characteristics of participants, who are more likely to exit earlier than retirement using the total population of contract buyers since the start of the system until 2011. The data is obtained from the Pension Monitor Center, and covers the customer and contract characteristics of more than 75% of all lapse types in the period. Impact of demographic factors and contract features are examined using the logit model. We divide the sample into different groups of customers according to their monthly contributions to the system. The results of econometric analysis reveal evidence of a significant relationship between exit decision and features such as education level, occupation, total accumulated savings, geographical regions, pension sales channel and payment instruments. Staying long enough in the system increases participants' continuity. Our elaborations also provide some tips for pension companies to ensure longevity and retirement of customers.

Keywords: private pension system, exit decision, logit model, Turkey

JEL Codes: J26, J32, G23

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1. Introduction

Public pension system costs constitute a significant part of government expenses. Although the public pension systems provide some coverage for retirement incomes, mostly these are not sufficient to maintain the standard of living attained in working life in retirement (Harrison, *et al.*, 2006). The "Pay-As-You-Go" model adopted by many countries mean that every generation pays for previous generations' benefits. However, the increase in life expectancy and ageing populations of particularly developed countries put this system in danger. The number of pensioners increases more rapidly than labor force participation rate. Therefore, countries prefer to promote private pension schemes to ease the difficulties in paying the pensions of ageing populations and thus decrease the burden on their budgets (Blake, 2000). In many countries public and private pensions systems go side-by side as complementary mechanisms.

Buying a private pension plan is similar to saving for the future that allows participants to maintain their standard of living even after retirement. The individuals, who buy a pension plan today, postpone their consumption to the future i.e., make an intertemporal choice and decide on the optimum behavior by discounting their future utility (Berns *et al*., 2007). Purchase decision of pension schemes as for most financial assets is critical and most individuals find the alternatives complex and difficult to understand. This complexity and the size of the choice set actually affect the involvement of the customers in terms of participation and persistence (Harrison *et al*., 2006).

Turkey is a late adapter of the private pension system mainly because of the well developed public pension system. The public pension system in Turkey was and

still is mandatory and based on defined-benefit plans, in which the retirement incomes depend on earnings, employment period and on accrual rate[1] varying with years of service -and in favour of early years. Whitehouse (2006) finds that in comparison to 30 OECD countries, the public pension system of Turkey fairs quite well among these countries with respect to different measures such as replacement rate, relative average pension level and average pension wealth[2]. The extent of informality in Turkey pushes individuals to retire early (mostly as soon as they are able) and work in the informal sector (Brook and Whitehouse, 2006). This opportunity causes a lower participation in the private pension system compared to other similar countries.

The private pension system introduced in 2003-called the Individual Pension System (IPS), is a voluntary defined-contribution (DC) pension system[3] and was developed as complementary to the public pension system. Whitehouse (2006) calculates that the Turkish public pensions paid at least 75% of pre-retirement level on average earnings, a relatively high replacement rate compared to some OECD countries such as France, Iceland, Japan, Norway, and the Slovak Republic before the introduction of the voluntary private pension system. As of 2002, Turkey and Luxembourg stand out as countries not only with high replacement rates but also with "relatively high pension promises to ... low-income workers" among OECD countries (Whitehouse, 2006). The relative average pension level paid in Turkey is the third

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[1] Accrual rate is the pension entitlement as a percentage of individual earnings for each year of contributions. In Turkey, there are three accrual rates, the typical rate being 2%. The highest accrual rate is for the first few years of coverage and the lowest for later years in longer contribution histories (Whitehouse, 2006).

[2] Whitehouse (2006) defines "weighted average relative pension level" as the share of average economywide earnings promised to future pensioners. A measure of 100 indicates that the pension system pays a weighted average pension equal to average earnings. A relatively comprehensive measure of the aggregate pension promise is the "average pension wealth", calculated on the basis of average OECD income distribution and the life expectancy in the respective countries.

[3] DC pension system is quite similar to saving accounts that the participants pay a specific amount into an account and get the accumulated sum upon retirement (Haverstick *et al.*, 2010).

highest in the same group of countries and above 75%. The average pension wealth of men is 10 times and women is 12 times of the average earnings[4] (Whitehouse, 2006).

The IPS allows individuals to take up more than one pension contract and anyone who is over 18, living in Turkey or Turkish citizens living abroad can participate (PMC, 2012). According to the official documentation on IPS (PMC, 2012) retirement earnings are determined by accumulated contributions and by profits from the funds in which the contributions were invested at. The individuals can specify the mutual funds or prefer the default plans. Participants may transfer his/her accumulations to another pension company. However contributions should be paid to system for at least 1 year. The possibility of changing the pension plan or distribution to fund types is limited to at most four times a year. Those, who complete the vesting period, may claim his/her accumulations completely or partially as lump sum beside the monthly benefits.

Participation in voluntary pension schemes especially in developing countries like Turkey remains quite low at the initial periods of introduction. Nonetheless, it is possible to increase purchase of pension contracts through government incentives such as tax exemption, government contribution etc. A relatively more important problem in the Turkish IPS is the pre-mature lapse from the private pension system, where participants leave the system before retirement for various reasons.

This paper examines factors that influence the exit decision of individuals from the pension system prematurely before retirement in Turkey. Although there are some studies that consider the financial side of the Turkish public and private pension

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[4] The calculation of average pension wealth depends on pension eligibility age, mortality rate and indexation procedures. Therefore, as a country with relatively short life expectancy, the pension wealth in Turkey is more modest compared to countries such as Luxembourg, Austria, Finland (Whitehouse, 2006).

systems, the literature does not provide any analysis of the exit decision of consumers in Turkey (such as Teksoz et al., 1998; Sayan and Kiraci, 2001a, 2001b). We consider the effects of individual specific characteristics and some contract features to determine how impactful these are. In analyzing the exit behavior we make some conjectures prior to the analysis and test the validity of these hypotheses using the logit model. The main findings reveal a significant relationship between exit and the usual suspects such as age, gender, marital status, education level. Additionally, we find that size of monthly contributions, payment channel, and contract life also influences the exit decision from the system.

The paper is structured along the hypotheses which are developed in section 2. We use some of the original data as they are and generate other variables in the analysis, and these are explained in section 3. The following section provides the findings and elaborates them with respect to the hypotheses. The paper concludes with an overview and some suggestions.

2. Hypothesis

Variability in consumer behaviour can be assessed and explained by taking account of segmentation within populations. (Harrison *et al*., 2006)

Previous research has conclusive findings about the impact of demographics on consumer behavior including the decision to enter or exit pension schemes, choosing pension plans, etc. (such as Harrison *et al*., 2006; Stanley *et al*., 1985). Ginn (2003) and DWP (2002) gives evidence of gender differences in terms of individuals' pension behaviour and the Pensions Provision Group (2001) suggests age as another

divergent factor on pension behaviour of individuals. Between women and men, even in developed economies, there are equality issues with respect to labour force participation, social responsibilities and roles, wage payments, opportunity of education, etc. These matters influence women's pension behaviour for choice of plans, risk aversion, exit decisions. The literature provides detailed analysis of these equality issues and their relationship to pensions. Unlike most relatively developed countries, following the pension reform in 1990s, women's participation in the personal pension scheme in Chile was higher than men's (Barrientos, 1998). The main factor in this high participation rate is the compulsoriness of the private pensions. Barrientos (1998) finds that household responsibilities, work patterns and pension design are the main factors that determine the pension coverage of women. Defined benefit plans penalize short-tenured, short-hours workers and reward long-tenured stayers (Ippolito, 1994). Similarly, findings by Even and Macpherson (1994) indicate that women-men pension coverage differences arise mainly from labour market factors including earnings and type of employer. Whereas the number of children and marital status elevate the gender pension gap, a substantial portion of the gender gap is explained by job characteristics (Even and Macpherson, 1990). Women, especially in countries like Turkey that experience high volatility of growth, have low labour force participation rates and are usually considered as the income-earner in desperate times i.e., if men loose their jobs. Therefore, in most cases women have short-spells of working life and are mainly part-time workers.

H1: Women have a higher likelihood to exit the pension system before retirement.

As mentioned by Smith (2006) in her evaluation of UK pension system, securing a sufficient retirement income depends highly on the "individuals' willingness and ability to save" in their working lives under DC pension plans.

Willingness and ability to save is determined by many factors such as the foresightedness of the individuals and their risk behavior, their age, their income levels and occupation/employment status. Some of these factors influence the decision to take up an IPS plan or not, but others dominate the amount of contributions, the length/age of contracts, the choice of specific schemes/mutual funds. Decision to enter the IPS depends on the forward-looking behavior, which is attributed to features such as age, marital status, parenthood in the literature (Engström and Westerberg, 2003; Smith, 2006).

Age may influence the entry decision in twofold: for younger individuals, old age is a far away situation so they might be less inclined to take up a pension plan, whereas for old individuals, who have already planned for their retirement and old age, taking up a new pension plan would be an unnecessary spending therefore they may be less likely to do so as well. A change in living standards as a result of retirement from work may also lead to termination of the pension contract depending on the replacement rate of the actual pension. If the individual suffers a loss in her/his standard of living after retirement, (s)he may need the accumulated savings in the private pension plan to sustain the previous wealth level. Supportive evidence comes from Smith (2006), who cites figures for levels of lapsing 1 in 8 after a year, 1 in 3 after four years for the UK and attributes these persistency rates to low levels of funds accumulated for retirement. Hence, we expect the lapsing from the IPS to first decrease then increase with age.

H2: Older individuals are more likely to exit IPS.

Marriage, on the other hand, requires planning the future for more than oneself and therefore, a more forward looking behaviour. Engström and Westerberg (2003)

provide evidence for the positive affect of marital status on active decision taking of individuals on investment plans for the Swedish labour force. Hence, we use marital status as a proxy for forward looking behaviour and claim that married individuals are likely to have a higher tendency to persist with IPS plans than single individuals[5].

H3: Married individuals are more likely to persist in IPS.

Income and contribution levels of individuals and their employment status determine their "ability to save". High income levels and thus ability to contribute at large amounts to the pension schemes are usually associated with each other and occupation/employment status. Individuals who can make large pension payments are those at the upper end of the income distribution and are most likely to have other saving opportunities and diverse portfolios in terms of assets. These individuals will not be in destitute for the accumulated savings in the pension account. However, the less wealthy individuals may see these savings as a relief fund in times of need. Therefore, we expect to see that at low contribution levels individuals would be more inclined to terminate the pension contract than at higher levels.

H4: High level contributers (high income individuals) are less likely to lapse IPS.

It is not only the amount of contributions that influence the total size of funds accumulated but also the contract life/length or age of the contract. In the Turkish IPS, the individuals become eligible for retirement after 10 years. As individuals get closer to the ten year mark they are expected to have a higher tendency to persist in contributing to the scheme.

H5: As contract life increases individuals persist in IPS.

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[5] Parenthood can be thought of as another condition that leads individuals to have a forward looking behaviour. However, the dataset for the IPS contributers in Turkey lack information on this issue therefore we use only marital status.

As mentioned above employment status and occupation affect individuals' ability to save[6]. The impact of occupation on exit decision from IPS depends highly on the sector the individual works. People working in the financial sector are quite familiar with alternative saving opportunities and assets. This financial literacy/familiarity may cause individuals to exit the system at higher income levels. Engström and Westerberg (2003) emphasize the evidence from the literature on the relationship between familiarity and investment (e.g. Huberman, 2001). Those that are at the disadvantaged end of the income scale may continue saving through the IPS but those with upper-middle and high incomes may prefer alternative assets since they have both the funds and the knowledge to invest. So, we expect the high income professionals of the financial sector to exit IPS whereas low income employees to stay.

H6: Lapse from IPS increases with income level in the financial sector.

Another feature that is considered as a proxy for financial market familiarity by Engström and Westerberg (2003) is individual's education level. They argue, with support from the literature (Bayer *et al.*, 1996), that individuals with higher level of education will participate more in the pension investment plans. We agree with this assertion not in terms of participation –something we are not concerned with in this paper- but in terms of persistence. Individuals with higher education levels are more open to learning new things and have the ability to examine and understand workings of complex systems such as the IPS. So they will not be driven to exit due to uncertainty in the short-term.

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[6] People who are not working (retired, student, unemployed) for whatever reason are dependent upon others to pay their expenses and sustain their living. This may lead them to stop contributing to a pension plan in order to end the dependency or they may prefer to remain in the system and accumulate some wealth. Regrettably, the dataset contains only occupation data making it impossible to assess which facet dominates.

H7: The higher the education level of the individual the more likely (s)he is to persist in the IPS.

It is not only the familiarity with financial assets and investment opportunities that determine access to information on these issues but also the general characteristics and social norms associated with the community individuals are a part of. Therefore, we use the level of development in the region the individual lives as a proxy for social norms. Turkey is divided into seven geographical regions as the Marmara (incl. Istanbul, the most populated and the most developed city in the country), Aegean, Mediterranean, Central Anatolia, Black Sea, Eastern Anatolia and Southeastern Anatolia. These regions are quite different from each other not only geographically but also economically. This divergence can easily be seen from statistical data on the annual average household disposable incomes (Table 1, below).

Table 1. Annual Household Disposable Income in Regions of Turkey

	Multiple of Turkish Average
Marmara	1.163
Aegean	1.090
Central Anatolia	0.944
Mediterranean	0.902
Black Sea	0.829
Eastern Anatolia	0.786
Southeastern Anatolia	0.648
TURKEY (AVERAGE)	$13528.89[7]

Source: Own calculations using TurkStat data.

Considering that aspect, we hypothesize that in the relatively developed regions individuals can and do plan for their future lives more than less developed regions.

H8: Individuals living in the relatively developed regions of the country have a lower tendency to lapse.

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[7] $1=1.80 Turkish Lira

Many other variables are used in the analysis for which we have no prior opinion on the relationship to lapsing or exit decision of individuals. Hence, the evidence is gathered from the analysis and these are reported in the findings section. But before examining the results, data and the variables used in the investigation need some elaboration.

3. Data and Variables

This paper analyses the impact of various features of contracts and participants on the most significant lapse behavior (75% of all lapse types) i.e., *exit from the system*, since the start of the IPS until 2011. The data is obtained from the Pension Monitor Center (PMC) and constitutes of the total population of (5,057,298) contracts covering information on demographics, usage or temporal features/behaviors of the related contracts for current participants and ex-members. Some of the variables are used directly from the PMC data and some others are generated from the information from the data set. The first group consists of gender, age, marital status, education levels, occupation status, lapse types, geographical region, payment frequency, payment instrument, contract type, sales channel, and entrance type. Table 1 reports the frequency of participants with relevant features, as grouped in categories such as gender, education, occupation etc., and shows the contract specifications again in categories. The age distribution of the participants is depicted in Figure 1.

[INSERT TABLE 1 HERE]

[INSERT FIGURE 1 HERE]

As mentioned earlier, not all variables used in estimations are acquired directly from the data set but some are generated to fit our purposes. These are contract life, total savings, and monthly contributions.

Contract life is calculated as "days" from the difference between entrance date and termination date for lapsed participants or the date of preparation of data set for active participants. Then those "days" are converted into months assuming a month to be 30 days. Figure 2 shows the distribution of contract life in months.

[INSERT FIGURE 2 HERE]

There is no information in the data set on the total funds accumulated (savings) over the contract life period but the data gives only the payment in the last month. In order to calculate *total savings* we assume that the real value of the monthly contributions have remained constant over the years. In other words, a participant that pays 500 TL ($278) in 2011 is assumed to have paid 372 TL ($182) in 2007, which is calculated by deflating using the GDP deflator. The total savings accumulated is evaluated at the average rates of return to the funds to produce real contributions[8].

In IPS there are 4 different types of payment periods i.e., monthly, quarterly, semi-annually and annually. Distribution of data shows that most participants prefer *monthly payments/contributions*. In order to ensure comparability, all contributions have been converted to average monthly payments and the contracts were classified into groups according to payment levels and form market segments (see Table 3).

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[8] Annual Average Returns

Years	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Return (%)	6	24	20	11	18	10	22	9	-1	8

Source: various progress reports on IPS, PMC.

[INSERT TABLE 3 HERE]

4. Findings

The findings of logit estimations (see Table 4) are overviewed in this section. Logit estimation methodology is used to model discrete outcomes, where there is a single decision among two or more alternatives. The results are evaluated with respect to a reference category or alternative[9]. The respective reference categories are indicated next to the major variables in the Tables 4 and 5.

[INSERT TABLE 4 HERE]

Most of the factors examined to explain the lapse behaviour are found to be highly significant in the estimations. However, the estimation results in logit models, like those of any nonlinear regression model, do not show the marginal effects. Therefore, marginal effects need to be estimated separately. A marginal effect measures the effect of a regressor on the mean of the dependent variable and is equal to the relevant slope coefficient in linear regression models. Hence, it is more relevant to elaborate the impact of various characteristics on exit behavior using the marginal effects estimations, given in Table 5. Consequently, the results of empirical estimations can be used to evaluate whether the hypotheses are validated or falsified by the data.

[INSERT TABLE 5 HERE]

Analysis of individual's behavior in four segments reveals that *"Older individuals are more likely to exit IPS"* if they belong to the lower contribution segments. Individuals, who pay more than 1500 TL ($833.33) as monthly contribution, become less prone to exit as they get older. As evidenced in previous

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[9] The estimated parameters (β) can be interpreted as *a one-unit increase in the variable x_i is associated with a β_i unit increase in the relative log odds of being in that specific category j versus the reference category*.

literature (such as Even and Macpherson, 1994; Barrientos, 1998; Ginn, 2003) gender makes a difference in terms of pension behavior. Contrary to our expectations, findings reveal that Turkish *women once they enter the IPS -the ratio of women to men in the system is 1:2- are less likely to exit IPS.*

Married individuals, who constitute 2/3 of the total number of participants, are more likely to persist in IPS if they make monthly contributions greater than 500 TL. In the lowest contributions group, the single individuals have a lower probability of lapse compared to the married ones. But the results show that once the individual gets a divorce or widowed regardless of their level of contribution then perhaps the decrease in their family income forces these individuals to exit the IPS and use the money for other expenses.

The higher the education level of the individual the more likely (s)he is to persist in the IPS. The probability of lapse compared to uneducated participants decreases with education for all segments. This shows that educated individuals are both more concerned with the future and old age, and have the means to save for the future. Probably, the highest educated people are relatively more familiar with financial services or they have better access to information on these services and thus are more inclined to take up a pension scheme.

We see a similar effect of work on exit behavior. The lapse risk of individuals changes with the sector they work in and their occupation. For example, labourers and technicians have a lower likelihood of exit compared to those that are self-employed. Interestingly, the lapse behavior of housewives, people not working and engineers and architects do not change with income but the exits of those individuals whose occupation is in the finance sector changes. *Exit from IPS increases with income level*

in the financial sector. The individuals who are working in the financial sector have a lower lapse risk at low income levels but the likelihood of exit from IPS for finance sector professionals increases as their incomes increase. For those that have a monthly contribution of more than 1500 TL the odds of exit is higher than those at low contribution levels.

The development level of the region an individual lives in shapes her (his) attitude to life in general and to unfamiliar ways in particular. Introduction of an unfamiliar savings method may not be welcomed in relatively conservative communities. It may not be too erroneous to suppose that underdeveloped regions and communities are more conservative and thus members would probably not prefer to take up private pension plans. However, individuals living in these regions have little opportunity to retire with satisfactory benefits. As hypothesized, participants living in the relatively developed regions of Turkey seem to have a lower tendency to lapse. Mediterranean, Aegean and the reference category Marmara region are relatively developed regions of Turkey. Individuals, who are living in those regions, are less prone to lapse compared to those living in others if their monthly contributions are less than 3000 TL. Otherwise, the only region that has a lower exit probability is Marmara, which is the most developed region in Turkey. The hypothesis is validated for the three lower segments but in the highest segment, development level of the region does not make any difference in terms of lapse behavior.

It is clear from the marginal effects of monthly contributions that as the amount of contribution increases the exit probability decreases. So individuals with *high level of contributions (high income individuals) are less likely to lapse IPS.* It is not only the amount of contribution that influences the lapse behaviour but also the contract life

and total savings. The results reveal that the longer the individuals stay in the IPS the longer they tend to stay. In other words, if the pension companies can manage to hold the customers in the system long enough then it is more likely that they reach retirement from the IPS. *As contract life increases individuals persist in IPS.* Unexpectedly, the findings imply that as individuals accumulate more funds in their pensions their probability to exit the system before retirement decreases. Hence, Total Savings have a negative influence on the decision to exit. Lapse probability increases with the amount of accumulated savings at all segments.

The impacts of payment channel, contract type and sales channel are also found to be highly significant. Although we have not foreseen a systematic behavior, paying the contribution through automatic payment order decreases the probability of exit in all segments but for the individuals with lower-middle incomes (contributions). Individuals making cash payments are more likely to exit. For contract type, in all segments but for the individuals with highest contributions, group contract increases the exit probability compared to individual contracts, on the other hand, for noncontributory contracts lapse probability decreases. Lapse probability increases if the sales channel is anything other than Bank assurance for individuals paying more than 500 TL as monthly contribution.

5. CONCLUSION

Common characteristics of the participants, who exit from private pension system in Turkey and of those, who stay in the system, are examined using data on the total population of IPS participants with the help of logit model. The analysis shows that some factors have a large impact on lapse behaviour. Primarily, staying long enough

in the system increases participants' continuity. So when the system manages to hedge early exits, lapse desire will decrease over time. We find that at low contribution levels individuals are more inclined to terminate the pension contract than at higher levels. So participants need to be encouraged to increase their monthly contributions to ensure sustainability in the pension system. The recently introduced government subsidies on participants' contributions may help to keep the individuals in the system and also may deter them from exit prematurely.

Education level has, as predicted, a positive effect in favor of persistence. As mentioned earlier, individuals with low levels of education earn less and cannot risk their earning on savings instruments that cannot guarantee a pre-specified income. Perhaps explaining the benefits of the pension system and the necessity of retired pay better could decrease the exit rates of the less educated participants. A similar information sharing is needed to ensure the stay of individuals living in the relatively underdeveloped regions. Eastern Anatolia seems to be the most adversely affected region in that sense.

There is also a critical point in payment channel choices. Participants, who pay their contributions manually (in cash or by bank transfer), are more likely to exit IPS before retirement. Therefore, they need to be convinced to switch from manual payments to automatic ones like by credit cards or automatic payments. This could be promoted with certain discriminating advantages, incentives. Noncontributory contracts encourage participants to stay longer because supporter institutions share the contributions load with participants. Hence, institutions could be encouraged to draw such pension plans for their employees. Another critical point is in the sales channels, participants, who enter the system via Agents, have significant lapse rates. Agents may

raise expectations during sales because of commissions' expectations from pension companies. So this situation might cause this result. Pension companies may empower their audit mechanism over agents.

References

Aslan, F. (2006) Individual Pension System in Turkey, Fund-Creating Capacity and Impact on Capital Markets, Y.T.U Institute of Social Sciences, mimeo.

Barrientos, A. (1998) Pension Reform, Personal Pensions and Gender Differences in Pension Coverage, *World Development*, 26, pp. 125-137.

Bayer, P., B. D. Bernheim and J. K. Scholz (1996) The Effects of Financial Education in the Workplace: Evidence from a Survey of Employers, NBER Working Paper No. 5655.

Blake, B. (2000) Two decades of pension reform in the UK: what are the implications for occupational pension schemes?, *Employee Relations*, 22, pp. 23-45.

Brook, A. and E. R. Whitehouse (2006), The Turkish Pension System: Further Reforms to Help Solve the Informality Problem, OECD Social, Employment and Migration Working Papers, No. 44, OECD Publishing.

Dalgar, H. (2006) *Evaluation of Pension Mutual Funds and Performances as Insıtutional Investors in Turkish Financial Markets,* Suleyman Demirel University, mimeo.

Department for Work and Pensions (DWP) (2002) *Simplicity, Security and Choice: Working and Saving for Retirement*, London.

Engström, S. and A. Westerberg (2003) Which individuals make active investment decisions in the new Swedish pension system? *Journal of Pension Economics and Finance*, 2, pp. 225-245.

Even, W. E. and D. A. Macpherson (1990) The Gender Gap in Pensions and Wages, *The Review of Economics and Statistics*, 72, pp. 259-265.

Even, W. E. and D. A. Macpherson (1994) Gender Differences in Pensions, *The Journal of Human Resources*, 29, pp. 555-587.

Ginn, J. (2003) Pensions and poverty traps: for which women is saving worthwhile?, *Journal of Financial Services Marketing*, 7, pp. 319-329

Harrison, T., K. Waite and P. White (2006) Analysis by paralysis: the pension purchase decision process, *International Journal of Bank Marketing*, 24, pp. 5- 23.

Haverstick, K., A. H. Munnell, G. Sanzenbacher and M. Soto (2010) Pension type, tenure, and job mobility, *Journal of Pension Economics and Finance*, 9, pp. 609-625.

Huberman, G. (2001) Familiarity Breeds Investment, *Review of Financial Studies*, 14, pp. 659-680.

Ippolito, R. (1994) Pensions and indenture premia, *Journal of Human Resources*, 29, pp.795-812.

Pension Provision Group (2001) *Pensions in the Labour Market*, Pension Provision Group, London.

Pension Monitoring Centre (PMC) (2012) About ISP, http://www.egm.org.tr.

Sayan, S., and A. Kiraci (2001a) Identification of Parametric Policy Options for Rehabilitating a Pay-As-You-Go Based Pension System: An Optimisation Analysis for Turkey. *Applied Economics Letters,* 8, pp. 89–93.

Sayan, S., and A. Kiraci (2001b) Parametric Pension Reform with Higher Retirement Ages: A Computational Investigation of Alternatives for a Pay-As-You-Go Based Pension System. *Journal of Economic Dynamics and Control*, 25, pp. 951–966.

Smith, S. (2006) Persistency of pension contributions in the UK: Evidence from the British Household Panel Survey. *Journal of Pension Economics and Finance*, 5, pp. 257-274.

Stanley, T.O., J.K. Ford and S.K. Richards (1985), Segmentation of bank customers by age, *International Journal of Bank Marketing*, 3, pp. 56-63.

Teksoz, A.T., M. Akmaz; and N. Kenar (1998) A Social Security Reform Proposal for Turkey. Paper Presented at the Conference on Maintaining Prosperity in an Ageing Society, OECD, Paris.

Uğur, S. (2004) Types of Private Pensions and Individual Pension, *Cement Employer Journal*, 18.

Undersecretariat of Treasury, Turkey (2012) *Regulation on Working Principles and Procedures for Individual Pension Advisory Board*, http://www.hazine.gov.tr.

Whitehouse, E. (2006) New indicators of 30 OECD countries' pension systems. *Journal of Pension Economics and Finance*, 5, pp. 275-298.

Appendix

Institutional Framework of the IPS in Turkey

Individual Pension Advisory Committee (IPAC): The committee decides on the individual pension policies and collaborates on IPS issues with the Undersecretariat of Treasury, Ministry of Finance, Ministry of Labor and Social Security and Capital Markets Board of Turkey. (Undersecretariat of Treasury, 2012a).

Undersecretariat of Treasury: Legislative arrangements concerning IPS and development studies are executed by the Undersecretariat of Treasury, General Directorate of Insurance (GDI). GDI is the chief advisor institution for IPS (Undersecretariat of Treasury, 2012b).

Capital Markets Board of Turkey (CMBT): CMBT makes arrangements about pension mutual funds, portfolio management companies and contracts and gives approval for the information used in pension companies' advertisements and announcements about IPS together with the Undersecretariat of Treasury. It also contributes to legislative arrangements about the system (Dalgar, 2006).

Pension Monitoring Center (PMC): PMC is established in accordance with the relevant legislation in 2003. It is in charge of ensuring the operation of IPS in a safe, transparent and efficient manner; protecting the rights and benefits of participants, and collecting and sharing sector data for supervisory public authorities.

Takasbank (ISE Settlement and Custody Bank Inc.): Service of pension funds saving is provided by Takasbank.

Figure. Flow chart for IPS
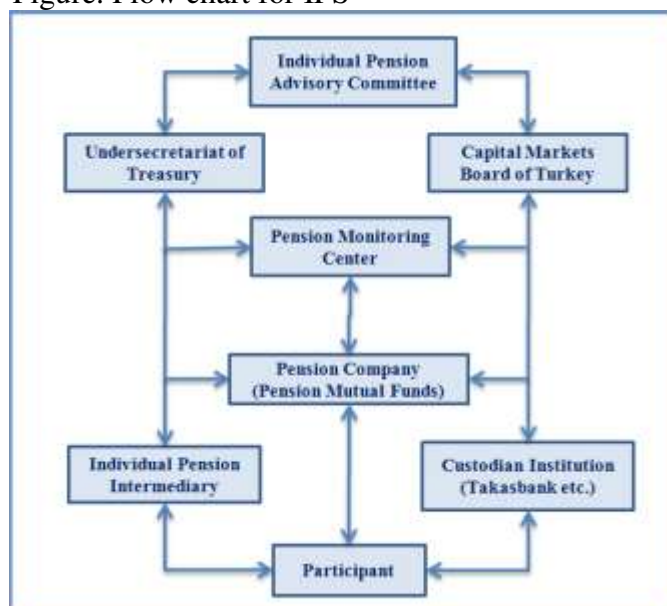
Source: Uğur (2004)

Features of IPS in Turkey

Contributions
IPS is financed by participants' term (optional) payments. Participation to system is voluntary, yet paying a contribution is mandatory. Participants may pay any amount of contribution with the condition of not being less than the amount that has been specified in the pension contract. Additional contributions may be paid whenever participants want beside of regular contribution. Although there is no comment about payment period in legislation, payment period may be selected as monthly, quarterly, semi-annually and annually in practice. The total contributions in the system has amounted to 12.44 billion TL in 2012 (PMC, 2012) showing a steep rise in 2009 and 2010.

Expense Fees
Pension companies possess the right of taking fees from participants for fulfilling the expenses of individual pension activities according to conditions specified in the pension contract. Entrance Fee is taken from the new contracts for beginning expenses of pension activities and can't exceed the amount of minimum wage in relevant date. Administrative Expenses Fee is a cut from regular contributions not exceeding 8 %. Fund Management Fee is calculated on the net pension fund assets and can't exceed daily % 0.010. In the IPS Progress Report 2010 PMC reports that entrance fee, administrative fees and fund management fees constitute 24, 31 and 45 % of the total fees, respectively.

Tax Incentives
There are some tax incentives in IPS for encouraging participation and tax implementations for preventing from opting out of the system before the vesting period. Participants can deduct contributions from taxable income within certain limits. Those who were entitled to retirement and left the system due to disability or death, are exempted from income tax of 25%. Pension mutual funds with stock holdings of at least 25%, pay no corporate tax for profits from portfolio management. Moreover, all transaction of pension companies and participants about IPS, are exempted from stamp tax (duty) (Uğur, 2004). On the other hand, participants who leave the system before completing 10 years, pay 15% of entire accumulation as income tax. Those that leave after completing 10 years but at an age less than 56 years old pay 10% income taxes over the entire accumulation.

Data
A general overview of the variables shows that the most important factor is average monthly contribution as an indicator of participant behavior. In data, there are too many "0"s and "extremely high" average monthly contribution amounts. We assume that the zeros are actually "missing" values and these are approximately 120,000 rows. The other problem is "extremely high" contributions that correspond to monthly contribution amounts over 5000 TL ($2780). We assume that majority of this group are companies, which use the pension funds as an investment instrument. We prefer to focus on individual usage of pension funds. Therefore a threshold amount of 5000 TL (($2780) is specified for individual participants. As a result of this assumption, approximate 700,000 rows are dropped and the final data set consists of 3,779,918 contracts.