İdeal Emeklilik Yaşının Belirlenmesi ve Yaşlanmadaki Gelişmeler: Türkiye Üzerine Bir İnceleme

Determination of Ideal Pension Age and Developments in Ageing: A Case Study for Turkey

İlker ŞİRİN

Social Security Expert & Actuary, Social Security Institution, Department of Actuary and Fund Management

isirin@sgk.gov.tr

Fanny JANSSEN

Assistant Professor Analytical Demography, Population Research Centre, University of Groningen, Faculty of Spatial Sciences

F.Janssen@rug.nl

sgd.sgk.gov.tr
e-posta: sgd@sgk.gov.tr

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ABSTRACT

Population ageing has important implications for the sustainability of social security schemes. Debate is on whether and how to include demographic trends in the determination of the ideal pension age. We determine the ideal pension age for Turkey, based on the developments taking place in both population structure and mortality, by examining conventional and prospective measures of population ageing, and by comparing different decision criteria. Proposed pension ages based on constant remaining life expectancy and intergenerational fairness are higher than those using constant support ratios, show fluctuations over time and are higher for the female than male population. The suggested pension ages differed strongly from the official ones, although less in 2010. The different measures, old-age definitions, and decision criteria result in different alternatives for the ideal pension age with differing popularity for different stakeholders. The observed sex differences and the on-going population and mortality trends demand flexibility.

Keywords: Population ageing, pension age, prospective age, old age dependency ratio, old age definition, Turkey

ÖZET

Nüfusun yaşlanması, sosyal güvenlik planlarının sürdürülebilirliği açısından önemli etkiye sahiptir. Tartışma, demografik eğilimlerin ideal emeklilik yaşının belirlenmesine yansıtılıp yansıtılmaması veya nasıl yansıtılacağı üzerinedir. Çalışmada, nüfus yapısı ve ölümlülükte meydana gelen gelişmeler temel alınarak, nüfusun yaşlanması ölçülerinden geleneksel ve ileriye dönük olanlar kullanılarak ve farklı karar kriterleri karşılaştırılarak emeklilik yaşı belirlenmektedir. Sabit beklenen ömrü ve nesiller arası adaleti temel alan kritere göre emeklilik yaşı, sabit destek oranına nazaran daha yüksektir, zaman içinde dalgalanma gösterir ve kadınlarda erkeklere göre daha yüksektir. Önerilen yaşlar, 2010 yılı için daha az farklı olmakla birlikte genelde resmi emeklilik yaşından oldukça farklıdır. Yaşlanmayı farklı ölçme yöntemleri, yaşlılık tanımları ve farklı karar kriterleri her bir paydaşın rağbet edeceği değişen ideal emeklilik yaşını beraberinde getirmektedir. Yaştaki cinsiyetler arası farklar ile hali hazırdaki nüfus ve ölümlülük eğilimleri ise daha esnek olarak değerlendirilmelidir.

Anahtar Kelimeler: Nüfusun yaşlanması, emeklilik yaşı, ileriye dönük yaş, yaşlı bağımlılık oranı, yaşlılık tanımı, Türkiye

*   Social Security Expert & Actuary, Social Security Institution, Department of Actuary and Fund Management, isirin@sgk.gov.tr*
*** Assistant Professor Analytical Demography, Population Research Centre, University of Groningen, Faculty of Spatial Sciences, F.Janssen@rug.nl*

INTRODUCTION

Population ageing, which denotes the changes in the age distribution of a population toward older ages, is widespread all over the world (Gavrilov and Heuveline, 2003; United Nations, 2009:11), and has consequences on a variety of fields including public finance, pension expenditures, health care, social security demand, and long term care (Hurd et al., 2004:762; Kurek, 2007:29; Carone et al., 2004; Bongaarts, 2004). One of rejuvenation options is immigration. However, a related research shows that immigration is not a sufficient instrument to offset the undesired effects of ageing both for population and labour force (Bijak et al., 2007:28).

In the world, European region is taking the lead in population ageing. Europe not only includes countries that are rich and facing population ageing (North-western countries) but also countries that will age before coming rich in Eastern and South-eastern Europe (Marin and Zaidi, 2007:61). In the European Union (EU), in 2008, the median age, i.e. the age which divides the population in half, was 40 years, which is expected to increase to 48 in 2060. The old-age dependency ratio (OADR), i.e. the number of the elderly as opposed to the number of people at working age, is projected to be more than double in the EU from 25.4% in 2008 to 53.5% in 2060. Pensions, health care and long term care are the areas where most of the projected increase in age related public expenditure over the period 2007 and 2060 is forecasted to be observed (European Commission, 2009:24).

To safeguard the sustainability of the social security schemes, pension reforms have been proposed within Europe, including changes in the pension age. Whereas in the past, policy makers predominantly used trends in the population structure to justify pension ages, more recently the linkage with trends in life expectancy has become more attractive (Sanderson and Scherbov, 2007:48). Actually almost half of 30 OECD countries[1] will increase pension age after 2010 which is justified as a "policy response" to longevity (OECD, 2011:81). Countries prefer to adjust pension regimes automatically to the levels of life expectancy at pensionable age or to the trends therein. Increasing pension age is the most obvious way of

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1   Austria, Australia, the Czech Republic, Denmark, France, Greece, Hungary, Italy, Korea, the Slovak Republic, Turkey, the United Kingdom, the United States and Switzerland.

adjustment. For instance in Denmark, Italy and Greece in the future, two-thirds of the increase in life expectancy at retirement age will be added to the working career which will lead to increasing pensionable age (OECD 2011: 86).[2] Other ways of linkage between trends in mortality and pension age include pension formula changes (Finland, Germany, Portugal), structural changes via notional defined contribution (NDC) plans (Italy, Norway, Poland, Sweden) or linking qualifying conditions such as required contribution years (France) to life expectancy (OECD, 2011:84).

It is clearly understood from the abovementioned statements that pension age is increasingly linked to the demographic developments (especially trends in life expectancy) and there are different ways of linkage in practice. In addition, there is an ongoing scientific debate about how to include demographic trends in an optimum way in the determination of the ideal pension age.

An important issue to consider is the different ways of measuring population ageing and the different definitions of old age that exist (Blake, 2009:43; Sanderson and Scherbov, 2005; Sanderson and Scherbov, 2007:31; Shoven and Goda, 2008:4). Literature on population ageing and its reflections on social security, extensively stick to conventional way of measuring age (Golini, 2001; Kurek, 2007; Carone et al., 2005; Grant et al., 2004). Measures to define population ageing can be divided into those who only take into account the age structure of the population (median age, proportion of the elderly, or old age dependency ratio), and those who take into account the developments in life expectancy as well. Whereas the former are more conventional measures, the latter are rather new and labelled prospective measures. In these prospective measures conventional age is adjusted considering time left to live using remaining life expectancies (Fuchs, 1984:30; Sanderson and Scherbov, 2005, Sanderson and Scherbov, 2008:5; Lutz et al., 2008). While with the conventional measures different options exist so as to define the onset of old age (e.g. 60, 65, official pension age) and of working age (e.g. 15 or 20) (Eurostat, 2011), with the prospective measures the a-priori selected remaining number of years to live (often 15 or 20) determines the onset of

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2   Supplementary Information is From A. Reilly-OECD Expert, Personal Communication on March 16, 2012.

old age. Norman Ryder (1975) as a forerunner, considered that the point to the entry to old age started when remaining life expectancy falls below 10 years. These different measures and different definitions are expected to lead to different outcomes as regards population ageing.

In addition, different principles and decision criteria apply when determining the ideal pension age. Overall, three principles can be distinguished: a) constant pension payment period, i.e. adjusting pension age for a certain level of remaining life expectancy, b) intergenerational fairness, i.e. setting a pension age considering a proportion of the gain in life expectancy and c) constant contributory-beneficiary ratio, i.e. adjusting pension age to obtain a certain level of old-age dependency ratio (Shoven and Goda, 2008; Sanderson and Scherbov, 2007; Sanderson and Scherbov, 2008; United Nations, 2001).

These principles can all be linked to different criteria. As analysed in several recent papers (Shoven and Goda, 2008; Sanderson and Scherbov, 2007; Sanderson and Scherbov, 2008), pension ages can be determined with prospective age which uses constant remaining life expectancies. This option translates gains in life expectancy fully to increased ages of pension eligibility and thus safeguards a constant time period for pension payment. Intergenerational fair pension ages are averages of a pre accepted constant pension age (which considers age conventionally) and the prospective age (which denotes the threshold age for a concurred time span to pay pensions) (Sanderson and Scherbov, 2008). The third decision principle is based on UN's assessment of potential support ratios (PSRs). According to the United Nations (2001), a decline of the support ratio from 4 or 5 to 2 or 3 makes pension and health reforms indispensible. Increasing the pension age is recommended if OADRs rise above 25% or 20% (United Nations, 2001: 98). A constant contributory-beneficiary ratio can thus be obtained by keeping conventional old-age dependency ratios, and thus support ratios, constant over time.

A full analysis of the different options, taking into account the different measures, definitions, decision principles and criteria, is necessary to come up with an ideal pension age that is truly evidence-based. In previous studies, prospective methods have been compared to more conventional methods for population ageing, but did not include an in-depth

application on the link between pension age and various methods (Lutz et al., 2008; Sanderson and Scherbov, 2007; Sanderson and Scherbov, 2008; Shoven, 2007). On the other hand, policy documents often even do not reveal how they came to a particular adjustment of pension age (OECD, 2009; 2011; European Commission, 2009; International Social Security Association, 2010).

We perform such a full analysis for Turkey. More in detail we shall (i) describe population ageing in Turkey based on different measures and old-age definitions and (ii) determine the ideal pension age based on trends in population structure and trends in mortality and different decision criteria.

Within Europe, Turkey is interesting as it still has a relatively young population. Also in Turkey, however, population ageing is undergoing and expected to increase in the future (TurkStat, 2010a). The lag between ageing process and appearance of the elderly, brings out a "window of opportunity" especially for developing countries (Robine and Michel, 2004:594), which is also the case for Turkey where mortality and fertility decline simultaneously. The expected future ageing will also have socio-economic consequences; increased need for elderly care, changes in living-arrangements and family composition, and risk of poverty in old-age. In 2007, a pension reform was proposed, including a gradual increment of the pension age starting from 58 (females) and 60 (males) in 2035 to 65 for both sexes in 2048, which was based on the rising dependency ratio after 2025 (Social Security Institute, 2007). However, further analysis of different options to determine the ideal pension age and its implementation, remains to be important.

By exploring the developments in both population structure and mortality, through the examination of both conventional and prospective measures of population ageing and using different old-age definitions, and by comparing the effects of different decision principles and criteria, we can provide information to the policy makers on the ideal pension age.

I- DATA AND METHODS

To describe population ageing in Turkey, we shall compare levels and trends in both conventional and prospective measures of population age-

ing, using different definitions of old age. We will do so for the period from 1970 up to 2010.

To calculate the conventional measures of population ageing (i.e. median age, proportion of the elderly, OADRs), population figures were obtained from census data conducted in 1970, 1975, 1980, 1985, 1990 and 2000 (TurkStat, 1977; 1982; 1984; 1989; 1993; 2003) and address-based population registration system census results in 2010 (TurkStat, 2010a).

In addition we calculated the prospective old-age dependency ratios (PO-ADRs), that is dependency ratios that account for changes in life expectancy (Sanderson and Scherbov, 2008). The age at which life expectancy falls below a certain age is regarded as the threshold for 'old age'.

For this purpose, we used a set of six abridged period life tables (1970-1975, 1975-1980, 1980-1985, 1985-1990, 1990-1995, 1995-2000) from the Social Security Institution (Gjonca, 2006). These life tables were constructed with an indirect method proposed by Bennett and Horiuchi (1981). This was necessary because of incomplete death registration and death statistics in the country and the absence of national life tables. In addition, the preliminary complete life table for 2010 is obtained from the Turkish Life Table Project which is conducted by the Center for Life Insurances and members of several universities (Haymer, 2010). This life table is constructed from census information only, by applying the Preston- Bennet method based on an assumption of zero net migration and by modelling mortality through multiplicative regression (Haymer, 2010).

We converted the abridged life tables into complete single age life tables using the UNABR function of Mortpak (United Nations, 2003). This function graduates age-group probabilities into single age probabilities using a graduation formula with eight parameters proposed by Heligman and Pollard (1980).

To come up with population figures for intercensal periods (1995) and years for which the life tables are available (1970-75, 1975-80, 1980-85, 1985-90, 1990-19, 1995-00) we assumed constant age and sex specific growth rates in the intercensal period, following common practice (Preston et al., 2001:12).

The different definitions of old age we considered for the conventional measures are 60, 65, official pension age and average retirement age. Whereas 65 is closer to the pension age in many European countries, 60 is closer to the official pension ages in Turkey (OECD, 2011:25). Official pension ages were obtained from legislative notes received from the Social Security Institution of Turkey (SSI) and the current text of the Social Security Act known as the Law Nr. 5510. Note that it was possible to be a pensioner in 1970, 1975, 1980, 1985, and 1995 by fulfilling conditions for days of contribution and years of service without any requirement of age. Also the official pension ages for 2010 (58 females, 60 males) will apply to those who are employed in that year. In other words, effective pension ages in 2010 are different than 58 or 60 as the pension age requirement is gradually implemented. In that sense, old age definition with respect to the average age of male and female pensioners provides more information for the current situation. Average retirement ages were obtained from statistic yearbooks of SSI and are based on pension payment data. They reflect those working under service contract which represents approximately 60% of total pensioners in the contributory social security system of Turkey (Social Security Institution, 2009; 2010; 2011a; 2011b).

For the prospective measures, we included the age at which life expectancy falls below 15 years ($e_x \leq 15$) as the threshold for 'old age' following the recent literature (Sanderson and Scherbov, 2008; Lutz et al., 2008). In addition, ($e_x \leq 20$) is also included as it results in ages closer to the current official pension ages in the country.

For both conventional and prospective OADRs we shall use age 15 as the onset of working age, since in 2009 as many as 3.4% of actively insured people working under service contract were aged 15-19 (Social Security Institution, 2010). To come up with an ideal pension age, we shall calculate proposed pension ages based on different decision criteria by sex and compare those to the official pension age and the mean age of pensioners. Different decision criteria that we compare are as follows: constant remaining life expectancies (either 15 or 20), the average of thresholds for retrospective and prospective age and constant OADRs (either 20% or 25%).

II- RESULTS

The recent situation as regards population ageing in Turkey can be seen in Table 1. In 2010, half of the Turkish population is aged 29 or over, 10% of the population is aged 60 and over, and for every 100 people aged 15-64, there are 10.5 people aged 65 and over. These conventional population ageing measures thus clearly indicate that Turkey in 2010 still has a young population. This picture becomes even clearer when taking the European context into account. For the EU27 in 2010 the abovementioned conventional population ageing measures are much higher with 41, 23.2%, and 25.9% respectively (Eurostat, 2011).

Table 1. *Levels of Population Ageing in Turkey in 2010 Based on Different Measures and Different Definitions of Old Age, By Sex*

Measure	Old-age Definition	Male	Female	Total
Median Age	n.a.	28	29	29
Proportion	60+	9.18%	11.35%	10.26%
Proportion	65+	6.10%	7.92%	7.01%
OADR	60+	14.28%	17.95%	16.09%
OADR	65+	9.05%	11.89%	10.46%
OADR	Official pension age (m:60, F:50)	14.28%	20.75%	17.44%
OADR	Average retirement age (m:51, F:50)	30.55%	38.11%	34.23%
POADR	Age at which $e\,x \leq 15$ (M:63, F:67)	10.83%	10.12%	10.47%
POADR	Age at which $e\,x \leq 20$ (M:56, F:60)	12.48%	11.56%	12.01%

Source data: TurkStat, 2010b.

For the calculation of the (P) OADRs age 15 is used as onset of the working age.

POADRs for total are figured out using the threshold ages for women and men.

However defining old-age according to the official pension age (60 for males, 58 for females) and especially the average retirement age (51 for males, 50 for females) leads to higher levels of OADRs and thus much more pronounced population ageing. When prospective OADRs are used, including old-age definitions based on threshold ages according to the remaining life expectancy, different outcomes are indicated again. The POADR with remaining life expectancy of 15 as threshold is around 10% for both sexes and close to the conventional OADR using 65 as a threshold.

The POADR with remaining life expectancy of 20 as a threshold, results in extra dependence of 1.5 percentage points.

Whereas, based on the conventional population ageing measures, population ageing in Turkey in 2010 seems to be more widespread among women than men, when we consider life expectancy, it leads to slightly higher population ageing among men than women, although the difference is small.

Figure 1 represents the trends over time in population ageing, again using various measures and old-age definitions. The OADR using the average retirement age resulted in the highest dependency ratios both for men and women. The OADR using official pension age shows fluctuations, which reflect the changes in the official pension age (see Figure 2). The sharp decline around 2000 with a small increase thereafter resulted in levels close to OADR 60+. Conventional OADR shows some decline up to 1990 but an increase afterwards. Interestingly, POADRs for $(e_x \leq 15)$ and $(e_x \leq 20)$ have been declining for the female and increasing for the male. Whether $(e_x \leq 15)$ or $(e_x \leq 20)$ is used led to more difference in the past than in 2010. Overall, a gradual increase in population ageing can be observed since 1990. Throughout the years, female population has been through more ageing than the male.

Table 2. *Proposed Pension Ages in Turkey In 2010 Based on Different Decision Criteria, By Sex (M,F,T)*

Criterion		Male	Female	Total
A-Constant pension payment period	Age at which $e_x \leq 15$	63	67	n.a
	Age at which $e_x \leq 20$	56	60	n.a
B-Intergenerational fairness	Average 65 and age at which $e_x \leq 15$	64	66	n.a
	Average 60 and age at which $e_x \leq 20$	58	60	n.a
	Average official pension age and age at which $e_x \leq 15$	62	63	n.a
	Average official pension age and age at which $e_x \leq 20$	58	59	n.a
C-Constant contributory-beneficiary ratio	Age at which OADR $\geq 25\%$	53	55	54
	Age at which OADR $\geq 20\%$	55	58	57

Source: TurkStat, 1977, 1982, 1984, 1989, 1993, 2003, 2010b, Gjonca, 2006, SSI, 2009.

Figure 1. *Trends in Population Ageing in Turkey, 1970-2010, Based on Conventional and Prospective Old Age Dependency Ratios* And Different Definitions of Old Age, By Sex***
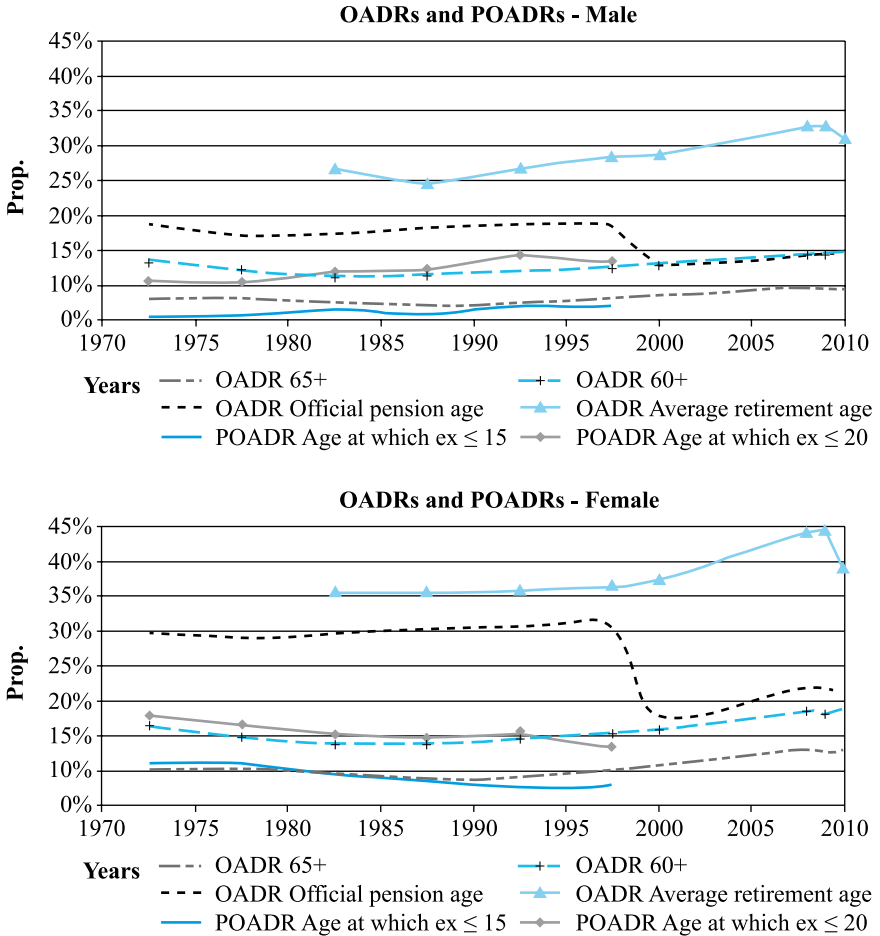
* Start of working age is set at 15. **Corresponding threshold ages are presented in Figure 2.

Source: TurkStat, 1977, 1982, 1984, 1989, 1993, 2003, 2010b, Gjonca, 2006, SSI, 2009.

Proposed pension ages in Turkey in 2010 according to the three main principles and related criteria are presented in Table 2. Based on constant

remaining life expectancy and intergenerational fairness, pension ages will be higher than those calculated with constant support ratios. Especially using an OADR of 25% or higher results in a low pension age of 54. Criteria A1 ($e_x \leq 15$), B1 (its average with 65) and B3 (its average with official pension age) result in the highest pension ages of 63, 64 and 62 for men, and 67 and 66 and 63 for women. Using ($e_x \leq 20$) and its average with 60 and with the official pension age, results in 7 to 4 years lower pension ages. Excluding the extremes, proposed pension ages are between 55 and 58 for men and 58 and 60 for women in 2010.

Figure 2. *Proposed Pension Ages Compared with the Official Pension Age (And The Mean Age Of Pensioners) in Turkey for the Period Between 1970 and 2010 Based On Different Options, By Sex*
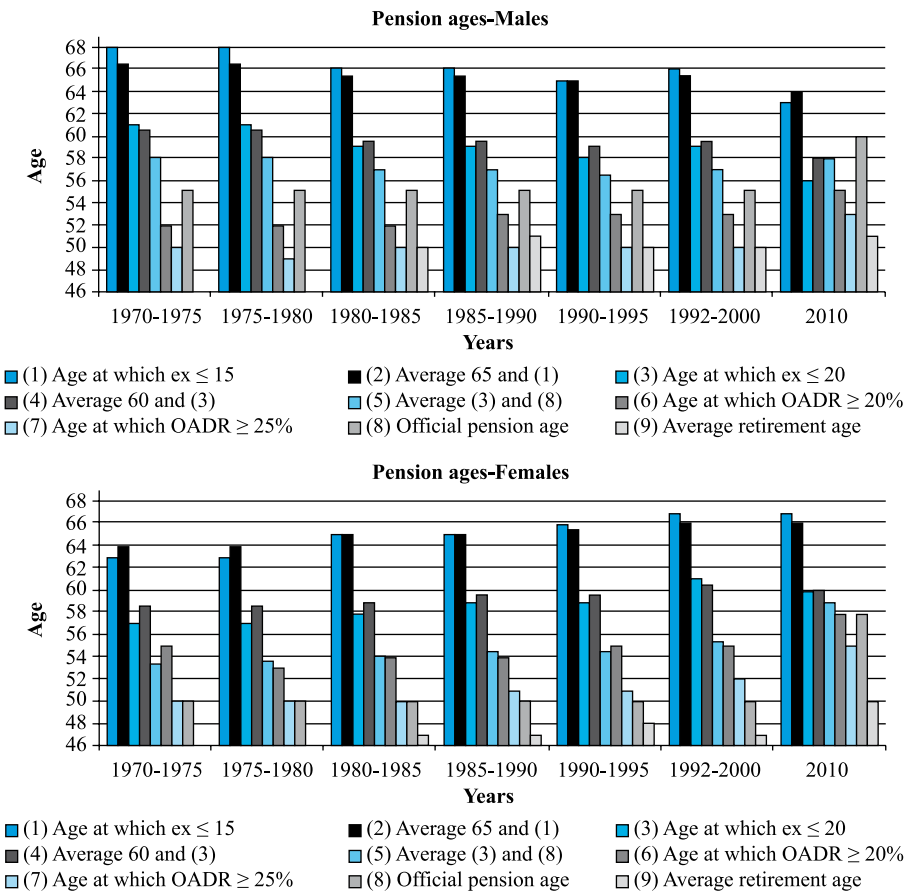
Source: TurkStat, 1977, 1982, 1984, 1989, 1993, 2003, 2010b, Gjonca, 2006, SSI, 2009.

Comparison of proposed pension ages with the official pension age and the mean age of pensioners between 1970 and 2010 for both sexes is given in Figure 2. Average retirement age stays well below all other options, both for men and women. Only for males OADR >=25% comes close to average reirement age. On the other extreme, ($e_x \leq 15$) and its average with 65 leads to by far the highest pension ages over time for both males and females, with no substantial change in its difference to the bulk of other pension ages. For both males and females, the difference between the proposed pension ages is smallest in 2010. Moreover the difference between the proposed pension ages and the official pension age is smaller in 2010, especially for the female.

For female population, the OADR >= 25% came closest to the official pension age in all previous years, except 2010. For male population, on the other hand, the official pension age is closest to the age at which OADR >= 20%.

III- DISCUSSION

A- Summary of the Results

The objective of this paper was to determine the ideal pension age based on the developments taking place in both population structure and mortality, by examining conventional and prospective measures of population ageing, using different old-age definitions, and by comparing different decision principles and criteria.

The extent of population ageing differs considerably when comparing conventional and prospective measures and when using different definitions of old-age. For Turkey, according to the conventional population ageing measures, population ageing has increased gradually since 1990, but is still modest compared to the EU, and more widespread among women than men. Conventional old-age dependency ratio amounts to 10.5 people aged 65+ per 100 people aged 15-64 in 2010. Prospective old-age dependency ratios, however, declined for females and increased for males, leading to currently fairly equal levels between the sexes, which are comparable to the conventional OADR 65+. OADRs based on official pension ages and actual retirement ages led to higher levels of population ageing.

In addition, the different decision principles and associated criteria led to substantial differences in the proposed pension ages. For Turkey, proposed pension ages based on constant remaining life expectancy and intergenerational fairness are higher than those using constant support ratios. Based on constant OADR of 25% considering 15 as the onset of working age, a pension age not less than 55 for women and 53 for men in 2010 would be concluded, whereas based on constant remaining life expectancy of 15 it would be 63 for men and 67 for women. The proposed pension ages show fluctuations over time and are higher for the female than male. The suggested pension ages differed strongly from the official ones, although less in 2010.

Clearly, the different population ageing measures, definitions of old-age, decision principles and criteria result in different alternatives for the ideal pension age.

B- Taking into Account the Demographic Situation

The message of considering the demographic situation while determining the pension age was already advocated by Lutz et al., 2008; Sanderson and Scherbov, 2007, 2008; Shoven, 2007. In this article, we do so by exploring different options including trends in both life expectancy and population structure.

1- Some Important Considerations Beforehand

It should be noted though that data quality issues and/or data availability can hamper the value that is assigned to different measures of population ageing and consequently the comparison of pension ages. For Turkey, measures that are based on population figures (OADRs) are more reliable than measures based on life expectancy because mortality is indirectly estimated and graduation techniques are used to turn the abridged life tables into complete ones, with a slight change in methodology between 2010 and 2000. Investment in a good system of demographic data collection, especially mortality data, is crucial for an unbiased analysis of different options.

In the comparison of the proposed pension ages with the official ones it should be realized that the new pension reforms are mostly implemented

in a cohort manner, which would require a cohort analysis. In the case of Turkey, as well, the new rules for pension age (1999, 2008) are only implemented to those who start working after the enactment of the reform laws. A cohort analysis for Turkey would therefore reveal less fluctuation in the trend for the official pension age. However in general, we expect the same conclusion of important differences between the different options and the sex differences therein from either a period analysis or a cohort analysis, whereas the latter requires a lot more data.

2- Fluctuating Pension Ages

Taking into account the demographic situation would lead to constantly changing instead of fixed pension ages because of on-going trends in ageing and mortality. In general this would mean an increase of the pension age over time, as was observed for example for USA (Shoven and Goda, 2008). Not necessarily however increases in pension age will result. Although the general trend in low-mortality countries is a decline in mortality, some countries have experienced stagnation in the increase in life expectancy at particular ages (see Janssen et al., 2004), which could lead to fluctuating trends in the proposed pension age as well. For Turkey we expect that the observed fluctuations in mortality over time might be an artefact because of the use of indirectly estimated life tables.

3- Dramatic Changes in Pension Ages

While in the past the demographic situation had not been taken explicitly into account in the determination of pension ages, doing so could lead to dramatic changes in pension ages. For Turkey, proposed pension ages based on the situation in 2010 could amount up to age 64 for males and 67 for females whereas the current official pension age is 60 for males and 58 for females and the mean age of retirement is even less with 51 for males and 50 for females. Big differences between the current pension ages and proposed pension ages are likely to hamper the implementation of the latter. Also in recent literature, smooth rather than dramatic changes in pension age are suggested for fairness in pension systems, and therefore a few months of increase for every year is proposed (International Institute for Applied Systems Analysis, 2011; Sanderson and Scherbov, 2005).

4- Sex Differences

Determining the pension age by taking into account demographic trends can result in higher pension ages for females than males because of higher life expectancy and higher conventional old-age dependency ratios. This is also indicated in our analysis for Turkey. Interestingly in Turkey, and more generally in the EU as well, pension ages for women are either equal to (15 out of 27 EU countries) or less than the pension ages for men. There seems to be a legal basis behind using the same pension age for the male and female population. The EU Directive 2006/54/EC known as the directive "on the implementation of the principle of equal opportunities and equal treatment of men and women in matters of employment and occupation" adopts a policy on a same pension age for men and women. In Article 9 of the Directive, fixing different retirement ages is mentioned as an example of discrimination considering occupational social security schemes (European Commission, 2006). Council Directive 2004/113/EC called as directive on "implementing the principle of equal treatment between men and women in the access to and supply of goods and services" is the other legal document that implicitly regulates discrimination in pension entitlements. The topic is not pension age itself but differentiation of premiums and benefits between sexes (European Commission, 2004). Higher pension age for men in some countries is probably due to traditions in providing retirement benefits and the phase of the pension reform the country is actually in (European Commission, 2009).

Also from a societal viewpoint, different pension ages for men and women meets criticism as well. The recent Eurobarometer survey clearly demonstrates that people in the EU do not support higher pension ages for women purely based on differences in longevity (European Commission, 2012:59).

To overcome the above mentioned issues, an analysis for both men and women combined might be appropriate.

C- Determination of the Ideal Pension Age

1- Pros and Cons of the Different Principles

In this paper we compared three different principles and associated criteria

to determine the ideal pension age: a) constant pension payment period, i.e. adjusting pension age for a certain level of remaining life expectancy, using either 15 years or 20 years for pension duration b) intergenerational fairness, i.e. setting a pension age by averaging the retrospective determination of old age (60, 65, official pension age) with the prospective old-age definition (see a) and c) constant contributory-beneficiary ratio, i.e. adjusting pension age to obtain a certain level of old-age dependency ratio, either 20 or 25%.

The decision criteria reflect different approaches for determining pension age and this leads us to touch upon for whom the pension age is "ideal".

The first decision principle, in which the increase in life expectancy is directly linked to the increase in pension age is ideal from the institutional perspective, i.e. from the pension provider perspective, as it deals with how long pensions per pensioner on average will be paid in a country. The OECD (2011) policy document also implicitly addresses life expectancy measures for the determination of pension age and shows that many countries in Europe (will) adopt this principle, although not in all countries a direct or a fully direct link is being made. Critical issue is the length of the constant retirement duration to consider. For our comparison we choose 15-20. e_{65} in OECD countries in 2010 is around 17 years for men and 21 years for women. Thus choosing a constant retirement duration of 15 would result in higher pension ages for the future.

Note that this approach disregards the fact that the same amount of years to be lived at different ages at different years may not be lived with an equal quality of life. Because of increased pension age, people may have to continue working with worsening health situation.

The second decision principle is more ideal for young generations as no full conversion is made between the increase in life expectancy and the increase in pension age (Shoven and Goda, 2008). The process implicitly gives 50% weight to the gain/loss in e_x while converting the mortality improvement/decline to pension eligibility ages. If there is a gain in life expectancy, the procedure allows using half of the gain for pension age increment meaning a share of the gain between working years and leisure years of retirement.

As noted by Sanderson and Scherbov (2008), a fixed prospective age criterion of pension age is accepted as unfair to older generations as they will pay contributions longer but receive pensions for fixed years. On the other hand, conventional fixed pension age is unfair for young generations who fund the expenses of current pensioners and face the risk of working longer, retiring later and receiving less than their grandparents after retirement.

An important additional advantage of the second principle is that taking the average of pre accepted constant pension ages and the prospective age allows for smooth increases in pension ages rather than a rigorous change.

The third decision principle is based on the linkage of OADRs (the inverse of potential support ratios) to pension age. It is important to realize that this linkage does not take into account the labour market situation. That is not all people in working age actually contribute and not all people with ages above the threshold are beneficiaries. Constant OADRs give an idea on the potential that a pension system can use to get close to a pre-determined contributor/beneficiary ratio. It will bring out enough contributors to pay for the expenses of the pensioners. However, the number of effective contributors of a pension regime may be lower than people at economically productive age depending on employment rates and unregistered employment.

The third principle also does not include the insights of recent scientific work on linking mortality developments in obtaining the ideal pension age.

2- Different Views by Different Stakeholders

The above already illustrates that the ideal pension age and the decision principles and criteria clearly depend on the stakeholders involved. Policy makers have to take into account these different views. The government has to guarantee the sustainability of pension regimes which means an "institutional" positioning but it also has to be fair for different generations. Science requires the comparison of different approaches. In addition, governments are restricted as their voters are often reluctant for pension age increments.

The tendency seems to be more and more towards including life expectancy trends although in such a way that it will not increase the pension age too drastically.

3- Turkey

The proposed pension ages for Turkey according to constant pension payment period and intergenerational fairness using the ($e_x \leq 15$) threshold are close to 65, which is in general the statutory retirement age in Europe. All other proposed pension ages for Turkey are well below 65. The suggested pension ages were generally higher than the official pension age, although less so for men and in 2010. Note that the official pension age is implemented in a cohort manner, i.e. to those who start working after the enactment of the reform laws. The proposed pension ages for the future based on a further decline in life expectancy and continued ageing are likely to be higher than the then effective official pension ages. Also, all proposed pension ages are higher than the actual mean age of new pensioners. The smallest differences are observed when using a constant contributory-beneficiary ratio with OADR>=25%.

Based on the rising dependency ratio after 2025, in 2008 a pension reform in Turkey was implemented including a gradual increment of the pension age starting from 58 (females) and 60 (males) in 2035 to 65 for both sexes in 2048.

Taking into account the full analysis in this paper a speeding up of the pensionable age of 65 would seem appropriate. However, acceptability might be a key issue, as according to the recent Eurobarometer survey preferred official retirement age in Turkey is currently the lowest in Europe with 53 (European Commission, 2012:84).

CONCLUSION

The different population ageing measures, definitions of old-age, decision principles and criteria result in different alternatives for the ideal pension age, which should be fully analysed and clearly communicated to policy makers, so that they can make an evidence-based decision.

While deciding on the ideal pension age, the picture is grey rather than

black or white. It can be concluded that the pension age should not be a predetermined constant age, but should take into account the demographic situation, i.e. developments in both ageing and mortality. This is likely to lead to flexible instead of fixed pension ages because of fluctuating trends in ageing and mortality. Different pension ages for the male and female is a likely consequence as well.

In addition, different ideal pension ages, based on different principles and decision criteria should be looked into. The preferred principles and associated ideal pension ages clearly depend on the stakeholders involved. More and more preference is towards including life expectancy trends. The majority of the stakeholders are reluctant to increase the pension age drastically. As regards the decision criteria, some flexibility is required as well. A smooth instead of an abrupt implementation of an increase in pension age is preferred.

This clearly shows the necessity for flexibility in the determination of the pension age.

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