The analysis of the specific impact of women aging in the sustainability of social welfare system – evidence for Brazil and Portugal

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PROVISIONAL DRAFT

Abstract

Global aging is one of the major challenges of humanity, since during this century will extend to all regions of the world.

The continuing decline in registered total fertility rates over recent decades has led to observed fertility rates, in Portugal and Brazil, in 2011, below the replacement level threshold.

According to Population Reference Bureau, Portugal is the 6th most aged country of the world, in 2011, because it has one of the highest proportions of people aged 65 years and older in its population, while Brazil is still a relatively young country, as ¼ of the population still has less than 15 years old.

The aging population, both in absolute and proportional terms, undoubtedly has many consequences for society, which must be taken into account. Among the most commonly cited implications is the impact on the Social Security Systems. The difference in mortality behavior between men and women leading to a feminization of aging can also have specific consequences on the system of social welfare. So it is essential to try to understand to what extent gender discrimination in the labor market influences the system of social welfare in Brazil and Portugal.

It seems also relevant, recognizing that there has been a profound change in terms of general health and state of well-being and quality of life of individuals as life expectancy has increased, that we do not continue to analyze and plan the future based on the same conventional indicators of demographic aging. Thus, our goal will be to rethink the impact of aging population on the Social Security systems and propose a new evaluation of aging consequences in both countries.

We will use data from the Statistical Yearbook of the Social Security (Brazil), Brazilian Institute of Geography and Statistics, Statistics Portugal, Human Mortality Database, Population Reference Bureau and World Population Prospects (UN).

Introduction

The decline of total period fertility rates (TFR) has a global trend, was recorded primarily in developed countries and later extended, with different pace for developing countries (Ahmed, 2004). Reducing fertility implied a continuous process of global aging (Lutz et al, 2008), and in the southern hemisphere, its reduction has been even faster than historical patterns (Bongaarts, 2009:2987) observed in the northern hemisphere where lie the more developed economies.

The fall of period fertility rates fall and its maintenance below the replacement level threshold causes the increase of the aging process and configures itself as a major challenge for the social state, jeopardizing the sustainability of the Social Security system. An increasing longevity, without a counterpart entry in retirement age leads to a larger number of people enjoy a longer retirement system, which undoubtedly the more onerous. In the domain of health care, another area severely affected, the changes in the epidemiological pattern, characterized by a higher incidence of mortality resulting from chronic and degenerative diseases typical of aging populations, will result in increased expenditure, as these diseases require higher costs and long-term care (Veras, 2009; Veras and Parahyba, 2007 and Wong and Carvalho, 2006).

The decline in fertility leads to the reduction of the working age population, which has serious implications on the dynamism of the economy, beyond the fact that a smaller contingent of the population of working age will have to sustain a high number of elderly (Lee and Mason, 2010:160), which causes rapid aging and in some cases the prospect of population decline will result in great concern and a major socio-economic challenge for policy. Thus, the fact that we have a current fertility level below generation's replacement, forecasting a declining trend in the coming years and a rise of population aged 65 and older with an increasing life expectancy indicate that the challenges are even greater.

Literature review and data analysis

The fertility decline has been associated with several causes and characterized as a rational response to socioeconomic changes (Billari and Kohler, 2003). Commonly cited as causes of the fall in fertility, are the infant mortality decrease; the observed changes in family structure; the increase in the average age of entry into marriage and reproductive life (Van de Kaa, 2002; Oliveira, 2007 and McDonald, 2006), influenced particularly by the extension of permanence in the educational system - understood as a need to deal with a more skilled and competitive labor market with a supply of jobs increasingly scarce (Guerreiro and Abrantes, 2007); the increased costs of children and the dilution of their traditional functions, with an increase of their status (Cunha, 2007 and Almeida et al, 1998); the reversal of the wealth flow, which now moves from the older generations towards the younger ones (Kirk, 1996); the increased participation of women in the labor market; the gender inequality and increased access to modern contraceptive methods (Van de Kaa, 2002 and Leridon, 1987), which allowed us to separate sex from reproduction.

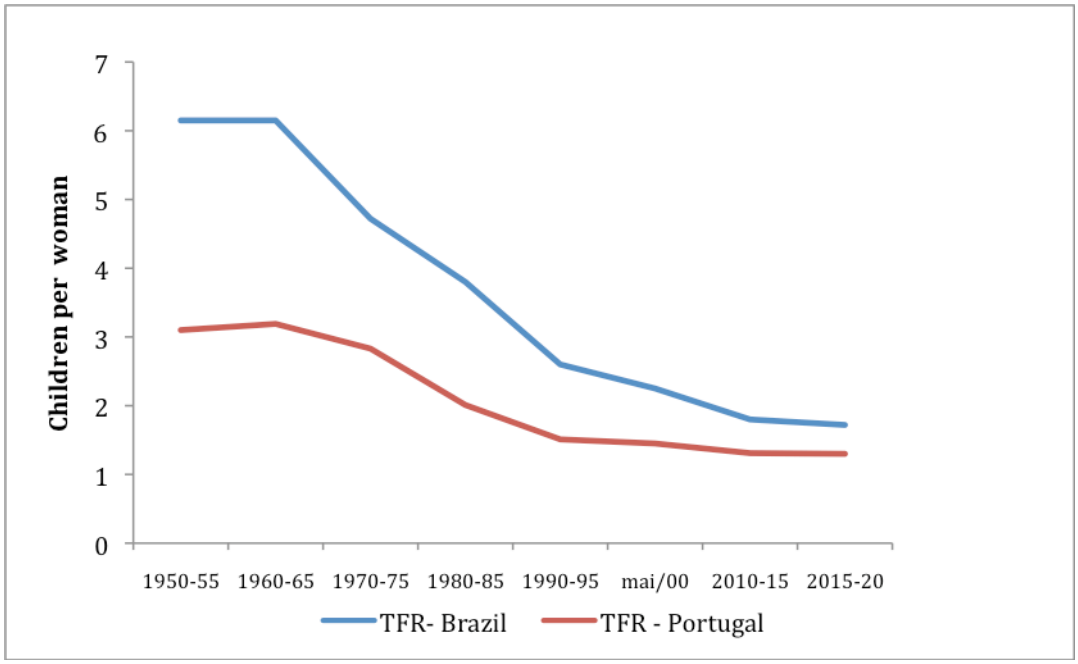
As the level of fertility declines, we assist to a reduction in the proportion of children and youth in the total population and a relative increase in the proportion of elderly. The reduction of child and infant mortality, in turn, causes a raise in life expectancy at birth, allowing potentially a large proportion of people reaching older ages. Some authors, like Veras (1991) and Carvalho and Garcia (2003), argue that initially the decrease in infant mortality contributes to mitigate the aging rate by allowing a greater proportion of women in fertile ages survive until the end of their reproductive cycle, increasing the chances of more births occur.

As stated in the assumptions of classical demographic transition, Portugal became the first to reveal an intense and sustained decline in infant mortality rates - although it is not possible to date the beginning of the decline in mortality, there is reason to suppose that it has begun at the end of eighteenth century (Flag, 1996:35) - while it is increasing life expectancy at birth. Oliveira (2007) considers that the Portuguese fertility decline has occurred in two key moments: at first (second half of 1920) with the decline in legitimate fertility and a second time (second half of 1960) when Portugal starts the

second fertility transition. From 1960 the country begins a gradual decline in fertility, which at this time was around 3 children per woman, observing at the present a total period fertility rate of 1,3, a value far below the replacement level threshold (2,1 children per woman).

Similarly, although in later periods, we can say that the demographic transition in Brazil began in the 1940s, with a progressive decline in mortality, holding up till 1960 a high fertility. In the meantime, and until now, life expectancy at birth has a rising trajectory. From 1960 to Brazilian fertility plunges downward path, stepping up its pace in coming decades. From a fertility rate above 6 children per woman in 1960, Brazil, during the first decade of this century reveals a fertility rate of only 1.9 children per woman, therefore, below the replacement level (see Figure 1). "The magnitude of this reduction in a short time, it is surprising when compared with the experience of developed nations" (Wong and Carvalho, 2006:7) that carried out so much more slowly from much lower levels (and Berquó Cavenaghi, 2004).

Figure 1 – Total Fertility Rates, Brazil and Portugal (1950-2020)



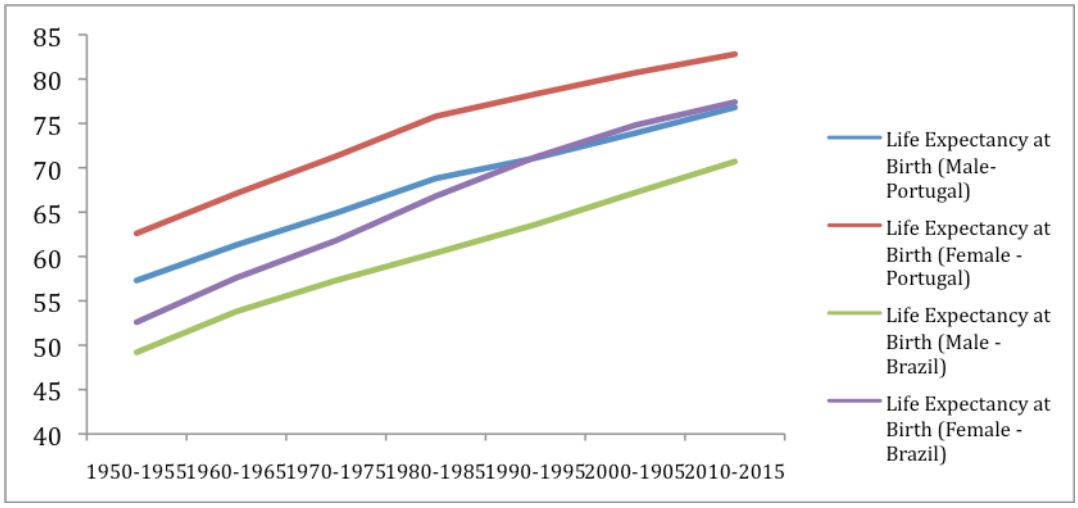
Source: World Population Prospects: The 2010 Revision, United Nations Population Division

With regard to life expectancy, there are important differences both between Brazil and Portugal, both men and women. Portugal has a life expectancy greater than Brazil and by gender; women have a higher life expectancy, with a growing trend. At the beginning of the period, Portuguese men had the 2nd position in the ranking between the two countries, with a life expectancy higher than about 5 years to Brazilian women, while from 2000 the Brazilian take on this position, increasing the differential in subsequent years (as shown in Figure 2).

Migration also perform a relevant role in determining the population age structure, as intense emigration flows in economically active age contribute to exacerbate the aging process in the regions of origin (Carvalho and Wong 2006:8) and attenuate it in host countries, while people who migrated at an early age and return to regions of origin when they reach older ages contribute to enhance the aging process. However, as immigrants tend to be young, in the particular case of women in reproductive ages, which means that "the effect of migration on future population dynamics is not confined only to the number of incoming flows, but also to the number of children born after their arrival" (Carrilho, 2005:15) to the host areas, contributing once again to slow down aging.

Many developed countries, having first started the process of demographic transition, currently in a context of low fertility where the population growth has been particularly associated to migration. Portugal, in 2011, observed a total fertility rate equal to 1,32 children per woman, and its low population growth rate over the past year has been determined "almost exclusively by a positive net migration" (Carrilho, 2010), especially for nationals of Brazil, which according to the Foreigners and Borders Service (SEF), account for about one quarter of all immigrants in the country. Coleman (2010), argues that, in developed countries, immigration has been characterized as the driving force of population growth, including more demographic influence than fertility.

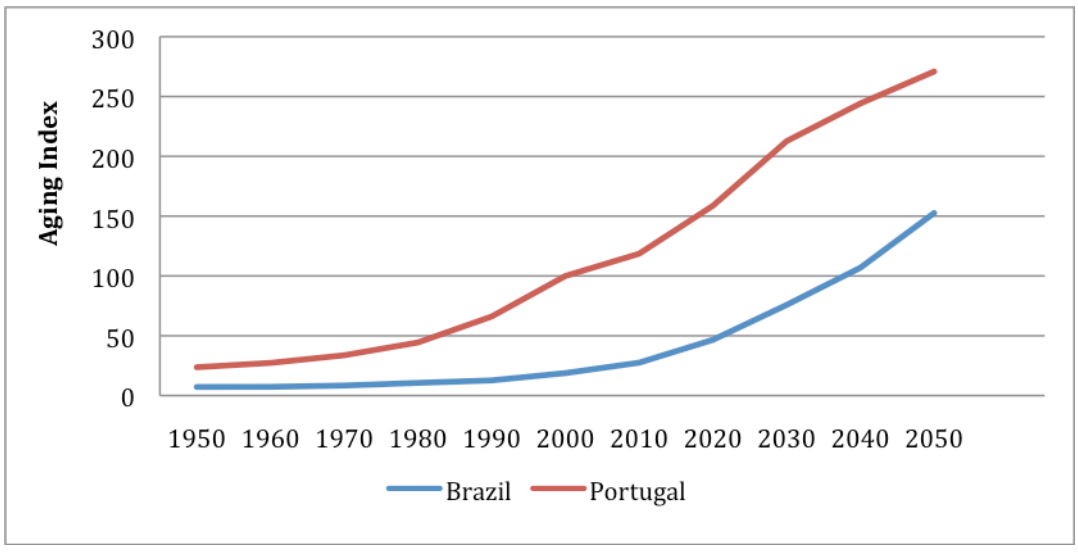
Figure 2 – Life expectancy at birth by sex, Brazil and Portugal (1950-2015)



Source: Own elaboration with data from World Population Prospects: The 2010 Revision

Both countries are still presenting an increasing rise in life expectancy at birth, particularly among women, which, associated with a strong fall in fertility results in a progressive process of aging. Both the growth of aging itself (proportion of elderly in the population), or accelerating the pace of aging are completely predictable in the near future of Brazil and Portugal, but take different dimensions. According to Population Reference Bureau, Portugal is the 6th most aged country of the world, in 2011, because it has one of the highest proportions of people aged 65 years and older in its population, while Brazil is still a relatively young country, as ¼ of the population still has less than 15 years old.

Figure 3- Aging Index of Brazil and Portugal (1950/2050)



Source: Own elaboration with data from World Population Prospects: The 2010 Revision

We recognize however, that there has been a profound change in terms of overall health and quality of life of individuals as their life expectancy has been increasing. However, traditionally we continue analyzing and planning for the future based on the conventional indicators.

In the analysis of aging, we use habitually indicators that are based on the division of the population in function of chronological age. Usually the population is divided into three broad age groups: youngest ages (0-14 years), active ages (15-64 years) and elderly (65 years and older). The indicators commonly used to calculate the aging patterns are the proportion of individuals with 65 years old and older (or 60 and +) in total population, the dependency ratio of elderly (RDI), the ratio of individuals aged 65 years and older related to individuals aged 15 to 64 years old (or 20 to 59) and the aging index represented by the ratio of individuals aged 65 and over in relation to individuals under 15 years old. The estimated values for Brazil and Portugal till 2050 are shown in Figure 3.

However, this view does not take into account changes in life expectancy and causes us "implicitly to think that people of the same age in different years would behave similarly, but because of life expectancy increases there are aspects of behavior where this might not be the case." (Sanderson and Scherbov, 2007:28). So, "with advances in health and life expectancy, measuring population aging presents a problem to demographers because the meaning of the number of years lived has changed" (Sanderson and Scherbov, 2008:3) and "when improvements in health and longevity are not taken into account, 65-year-olds in 1900 are effectively considered to be as old as 65-year-olds in 2000" (Sanderson and Scherbov, 2008:14).

According to Sanderson and Scherbov (2007:28), people can have two different ages: a chronological age measured by the number of years a person have lived and a "prospective age" in which "everyone with the same prospective age has the same expected remaining years of life". The prospective age assumes that old people with the same remaining life expectancy may behave more likely than those of the same chronological age but in different times, so people of certain ages may be living a different stage of the life cycle than the stage lived decades ago by people who were the

same age, since the lengthening of life expectancy influence the behaviors and strategies people adopt in their life courses. As the authors point out, a person of 45 years in 2050 could well behave like a person who in 2000 was 30 years old, if both have the same age remaining. So, "with two ages to consider, populations can simultaneously grow younger according to one measure and older according to the other" (Sanderson and Scherbov, 2007:29).

Under the concept of prospective age, regardless of the number of years a person has ever lived, they may have the same amount of years remaining. For example, a Brazilian woman with 70 years old in 2008 has the same remaining life expectancy of a Brazilian who in 1998 was 65 years old (see Table 1). Thus, the prospective age of a Brazilian woman of 70 years old in 2008 is 65 years old.

Table 1 - Prospective Age of a 65-Year-Old Brazilian Woman (using 2008 as a Base Year)

Age in1998	Life expectancy at age 65 in 1998	Age in 2008	Life expectancy at indicated age in 2008
65 Years	15,5 Years	68 years	16,8 years
		69 years	16,2 years
		70 years	15,5 years
		71 years	14,9 years
		72 years	14,2 years

Source: Own elaboration with data from IBGE/ Tábuas completas de Mortalidade.

The greater the increase in life expectancy at time of analysis, younger (prospectively) individuals appear. In Table 2, our period of analysis is more extensive and showed a substantial increase in life expectancy, so we can see that a Portuguese woman of 65 years old in 2009 was a prospective age of 54 years old, for both the Portuguese woman of 65 years old in 2009, and the 54 years Portuguese in 1941, had the same remaining life expectancy of 20,39 years.

Table 2 - Prospective Age of a 65-Year-Old Portuguese Woman (using 2009 as *Base Year*)

Age in1941	Life expectancy at age 54 in 1941	Age in 2009	Life expectancy at indicated age in 2009
54 Years	20,39 Years	63 years	22,13 years

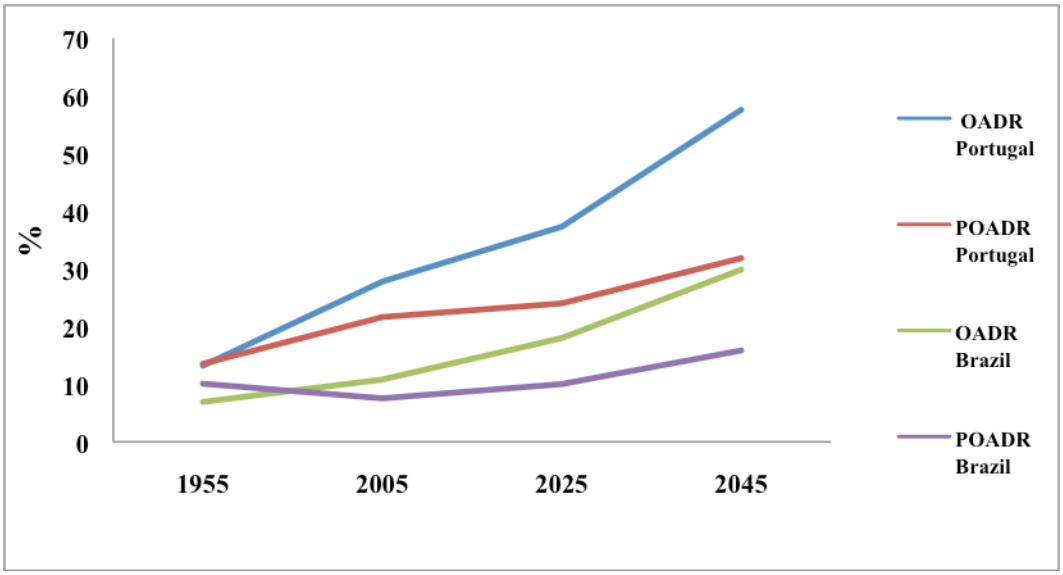
		64 years	21,26 years
		65 years	20,39 years
		66 years	19,53 years
		67 years	18,67 years

Source: Own elaboration with data from Portuguese Female Life Tables available in *The Human Mortality Databe.*

While conventional insight established as the threshold of old age, the age of 65 years and more, prospective view proposed by Sanderson and Scherbov (2008) adopts the threshold of old age people who are 15 years or less of life expectancy remaining. The idea of defining the age threshold from a remaining life expectancy perspective was first suggested by "Norman Ryder in 1975; he recommended that old age be considered to begin when remaining life expectancy fell below 10 years. Fuchs followed with a more complete analysis in 1984. In 1993, Jacob Siegel suggested the possibility of using a remaining life expectancy of either 10 or 15 years to demarcate the boundary of old age" (Sanderson and Scherbov, 2008:7).

This new approach has been developed by Scherbov and Sanderson (2007, 2008 and 2010). The authors adopted the threshold of less than 15 years remaining life expectancy to mark the threshold of old age, and in addition to calculate "the prospective new measure Old-Age Dependency Ratio (POADR)" (Sanderson and Scherbov, 2008:9). Thus, the Prospective Old-Age Dependency Ratio is calculated by the number of people older than the old-age threshold related to the number of people in the ages from 20 till the old-age threshold. The authors calculated those indicators for Brazil and Portugal as represented in Figure 4 (“Conventional and Prospective Measures of Population Aging, 1955, 2005, 2025, and 2045" by Warren Sanderson and Sergei Scherbov, December 2008).

Figure 4 - Conventional Old-Age Dependency Ratio (OADR) and Prospective Old-Age Dependency Ratios (POADR), Brazil and Portugal (1995/2045)



Source: Own elaboration with data from Population Reference Bureau

By using the Prospective Old-Age Dependency Ratios (POADR), we see that the percentage of dependency fell by almost half compared to Conventional Old-Age Dependency Ratio (OADR). Thus, by adjusting the ages due to the lengthening of life expectancy, reducing the dependency ratio of elderly allows to minimize the pressure on the younger generations, and become more viable the sustainability of social welfare. It seems fairer to the elderly, since the retirement age can move both upward and downward, depending on the increase or decrease of life expectancy. An increase in life expectancy would lead to a rise in retirement age while the reduction in life expectancy would lead to move downward the retirement age.

If pensions are the only means of subsistence of those who can no longer make a more productive work, then we have dissociation between retirement and old age, since retirement, in many cases have been prior to old age (Debert, 1997). In other words, is no longer the old age that a decree the retirement, but retirement has decreed old age. For Salgado (1997, op. cit. by Smith, 2009:902), the retirement "creates a principle of identity for old age, setting this life time by inactivity [...] decrees functionally old age, even if the person is not old under a biological point of view".

The increasing life expectancy allows that many individuals still able to work in the labor market will enjoy the pension benefits much longer, for which payment is guaranteed by the contributions of the working age population into the formal labor

market, makes the age that defines old age and retirement are undoubtedly an issue that should not be ignored, requiring a new perception of aging.

The difference between men and women mortality behavior has leading to a differentiate evolution of life expectancy over time and a feminization of aging that can also have distinct consequences on the system of social welfare. So, we question the effect of this dissimilarity even taking into account the new approach in the anlysis of age and aging as previously explained. Therefore we try to understand to what extent gender discrimination in the labor market influences negatively the Brazilian system of social welfare and in a second instance, compare this situation with the Portuguese one.

Gender discrimination in the labor market

(work in progress; gender discimination in the labor market)

Labor market discrimination occurs "when there is no justification, from personal productivity measures, for different earnings" (Santos and Ribeiro, 2006:6), and when equally productive workers have different possibilities to fill jobs higher earnings (Crankshaft and Bridges, 2007). Brazilian women face barriers both wage (for receiving lower wages than males) and occupational, as activities that are part of the pyramid located at the base salary (Matos and Machado, 2006), concentrating mainly in occupations of lower payment and less responsibility (Leone and Baltar, 2008, IBGE, 2009).

For Bourdieu (2002), the best evidence of the uncertainties of the female condition in the labor market is that women receive consistently lower wages than men, have greater difficulty in access to higher positions even when the qualifications are similar, they are more penalized by unemployment and precarious and discontinous employment, and even they have more limited career prospects. The Brazilian labor market is no exception to this rule, being mentioned by several studies as marked by decisive and persistent gender inequalities (Abramo, 2006:40), although the 9029 Law of 13 April 1995, prohibits the adoption of any restrictive and discriminatory practice for purposes

of access to employment relationship, or maintenance, by reason of sex, origin, race, color, marital status, family status or age.

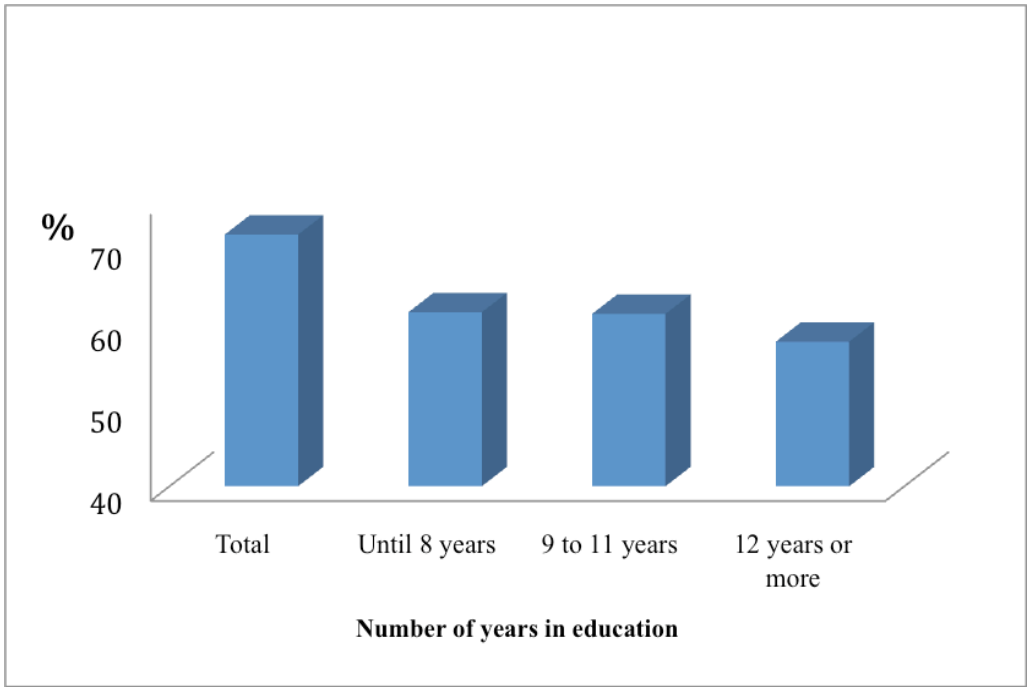
Table 3 - Ratio of average annual of Average Real Income of Main Job*(%) and Unemployment Rate (%) by sex in Brazil (2003/2009)

Year	2003	2004	2005	2006	2007	2008	2009
Ratio of average income	70,8	71,0	71,1	70,6	70,5	71,0	72,3
Male unemployment rate	10,1	9,1	7,8	8,2	7,4	6,1	6,5
Female unemployment rate	15,2	14,4	12,4	12,2	11,6	10,0	9,9

Source: Adapted from data presented in Tables 84, 102 and 107 of IBGE – Main feature the evolution of labor market in the metropolitan areas covered by Survey 2003 – 2009
* Average of monthly estimates

According to Baltar and Leone (2008), gender, overall, mark the circunstances of the individuals in the labor market and creates limitations on access for women to higher social status jobs, limiting their opportunities for mobility and enhancing the difference in wages between sexes. Besides the unemployment rate of women is consistently higher than for men (according to Table 3), occupational segmentation shows that the proportion of poor and informal settlements on the female employment is higher (Abramo, 2006). The mechanisms of women discrimination in addition to receiving lower wages, implies that they face a narrower range of opportunities, for example, access to positions of command (Bruschini and Lombardi, 1996:485), which led Santos and Ribeiro (2006) to admit that in Brazil there is sufficient evidence of the occurrence of the glass ceiling - a sort of invisible barrier that prevents access to jobs and occupations of higher earnings - as there is an abrupt decline in the concentration of women at the end of the distribution income.

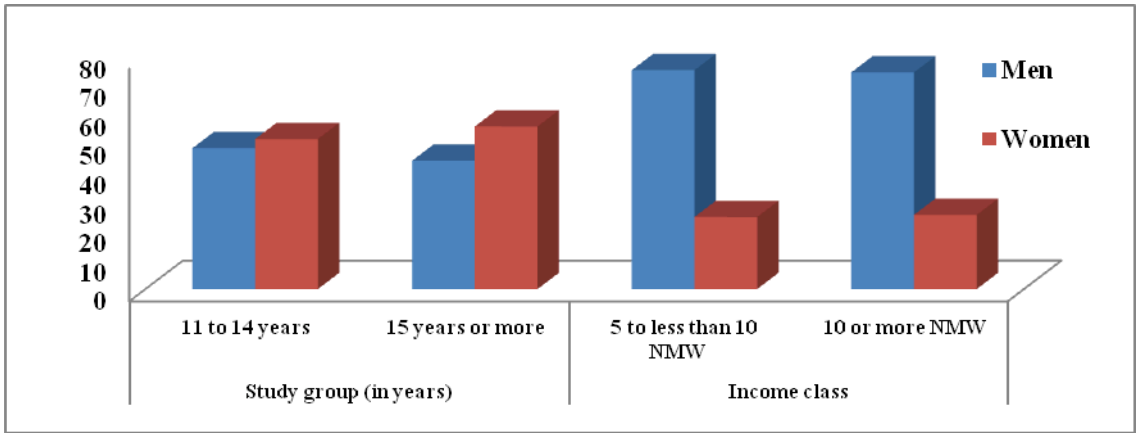
Figure 5 – Proportion of average income of women aged 16 or older, employed, compared to men, by number of eduction years, in Brazil (2009)



Source: IBGE, National Household Sample Survey (PNAD) 2009

The women's wages are consistently lower than those of men, even when the education levels are similar (see Figure 5), and although the dissimilarities between the sexes arise at all levels of education, in higher education it has its highest expression with the smallest proportion of income.

Figure 6 – People aged 10 years age or older, employed in the reference week and searching for employment, according to gender, education years and income classes (in National Minimum Wage – NMW), in Brazil, 2009



Source: Own elaboration with data from IBGE, Directorate of Research, Department of Work and Income, National Survey Household Sample 2009.

Figure 6 shows that although women are mostly in groups with higher education, when it comes to participation in higher income groups, they are clearly a minority. For

Abramo (2004), these differential bind to more with social and cultural constructions that assign different values and places and hierarchically defined the work of men and women than with the level of education or technical attributes. In Portugal, according to the official data of Statistics Portugal, women represent the largest proportion of graduates in higher education, but in the meantime fall mainly on activities related to the services sector. According to the ISCED (2010), although the average rate of female employment in 2009 was higher than the EU27 average, it was still about 9.5 percentage points lower than men's, women showing simultaneously higher rates of unemployment. As in Brazil, there is a wage gap between men and women, and the higher the skill level the higher the income gap. In senior management, the Portuguese women earn about 30% less than men. CITE[1] also revealed that women predominate in jobs of lower skill levels, while the most highly skilled male predominance, and is also the most affected by precarious employment contracts.

Thus, we can question that the evidence that women are penalized by their higher rate of unemployment, its highest insertion in precarious jobs and lower earnings, could be a limiting factor of their contribution to the Social Security system.

Table 4 – People aged 60 years and older, total and percentage distribution of retirees and/ or pensioners, by gender, in Brazil (2009)

Sex	Total (milliards)	Distribution (%) of retirees and /or pensioners			
		Retirees	Pensioners	Retirees and Pensioners (1)	Others
Men	9 615	75,2	1,4	2,8	20,6
Women	12 122	44,1	19,3	12,3	24,3

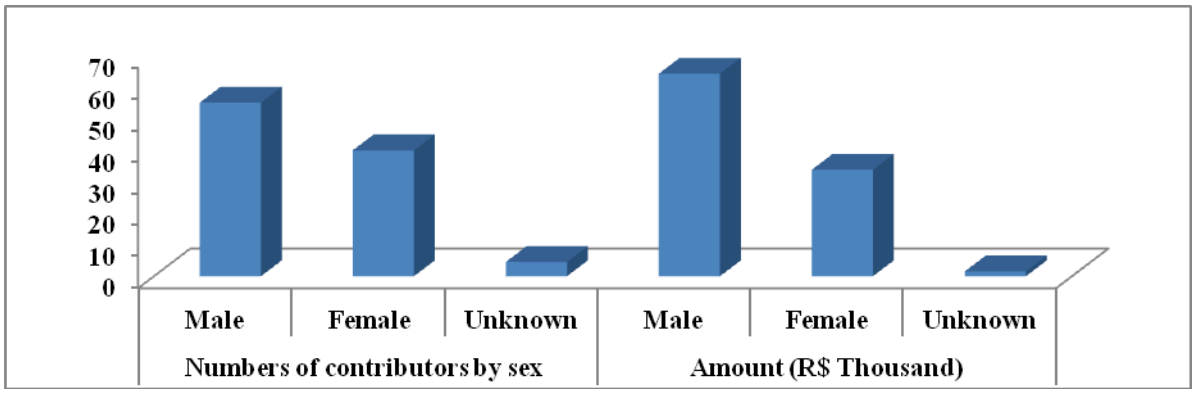
Source: Adapted from data of IBGE/National Survey Household Sample 2009
(1) Person who accumulate retirement benefits and pension[2].

Let us first examine the situation of women in relation to the receipt of social benefits of the Brazilian social security system. According to Table 4, women are the main beneficiaries of this system (over 55% of beneficiaries), revealing also the largest proportion of those who accumulate retirement benefits and pension[3].

[1] Portuguese Commission for Equality in Labour and Employment (CITE)
[2] The value of death benefits correspond to 100% of the pension that the insured received or if he would be entitled to retire on disability "(AEPS, 2008:15).

[3] The value of death benefits correspond to 100% of the pension that the insured received or if he would be entitled to retire on disability "(AEPS, 2008:15).

Figure 7 – Number of Contributors (individual persons) and value of their remuneration, by sex, Brazil – 2009



Source: Own elaboration-using data from DATAPREV, CNIS, Tabulação Especial GFIP

Although women constitute the majority of the population, data in Figure 7, suggest that because they face a higher unemployment rate has an impact on their participation in the contribution for the Social Security system, as they represent only 40% of contributers, while the fact that they receive lower incomes suggests that despite add up to 40% of contributors, the cash value of their remuneration are as only 34% of wages. Men account for about 55% of contributers (individuals) and their payment by almost 65%.

It is consensual that differences between men and women mortality behavior has demonstrated a differentiated evolution of life expectancy over time and implied the feminization of aging, which undoubtedly reflect on the system of social welfare and social security. Women are more long lifetime than men and also in Brazil, retire five years earlier than those, probably "as a compensation mechanism for the opportunity cost that has to bear in their reproductive years" (Camarano, 2003:60). The practical implication of increased longevity and an early entry in retirement is that women tend to enjoy much longer the retirement system.

Concluding Remarks

Brazil although started later the process of demographic transition has been doing it in a much more compressed pace. As fertility decline has been too fast this implies that the aging process will be faster too. However, aging is distinguished by gender, women

being the most long-lived, so they are the ones that will enjoy the retirement system for longer. When analyzing present Brazilian labor market, we note obvious gender discrimination, being the effects deeply negative either for the welfare and the Social Security system. So this is an urgent problem to be evaluated and corrected.

Over the past decades, we recognize that there has been a profound change in terms of overall health and well-being and quality of life as life expectancy has been increasing. Similarly, it was found that the levels of fertility have a global trend of decline and, in many countries TFR already lies below the population replacement level, being the case of Brazil and Portugal. In Portugal, this fertility trend has remained for nearly three decades. The implications of lower levels of fertility, associated with increased life expectancies at birth, have implicitly the increase of aging population and calls into question the sustainability of social welfare. Considering that, the replacement of conventional indicators "measure of aging" - which are based on chronological age alone, ignoring the increase in life expectancy and its implications on the behavior of people in their life course - seems be a very interesting approach particularly when we are interested in the analysis of the specific impact of women aging in the sustainability of social welfare system.

References

ABRAMO, Laís (2006). **Desigualdades de gênero e raça no mercado de trabalho brasileiro**. Ciência e Cultura, vol. 58, nº4, p.40-41. Acedido em 29/04/2010.

ABRAMO, Laís (2004). **Desigualdades e discriminação de gênero e raça no mercado de trabalho brasileiro e suas implicações para a formulação de uma política de emprego**. In: Seminário Nacional: Política Geral de Emprego. Necessidades, Opções, Prioridades. Brasília, OIT, 9 e 10/12 de 2004. Accessed in 29/04/2010.http://www.oitbrasil.org.br

ALMEIDA, Ana Nunes; GUERREIRO, Maria das Dores; LOBO, Cristina, TORRES, Anália e WALL, Karin (1998), "Relações Familiares: Mudança e Diversidade". *In* J. Viegas e A. Costa (orgs.), *Portugal, que Modernidade?* Oeiras, Celta Editora

BANDEIRA, Mário Leston (1996). **Teorias da população e modernidade: o caso português**. Revista Análise Social, vol. 135, nº1, p. 7-43. Accessed in 05/05/2010. http://analisesocial.ics.ul.pt

BERQUÓ, Elza e CAVENAGHI, Suzana (2004). **Mapeamento socio-econômico e demográfico dos regimes de fecundidade no Brasil e sua variação entre 1991 e 2000**. Encontro Nacional de Estudos Populacionais, 14, MG. ABEP. Accessed in 18/03/2010. http://www.abep.nepo.unicamp.br

BILLARI, Francesco and KOHLER, Hans-Peter (2003). **Patterns of Lowest-low Fertility in Europe**. http://paa2004.princeton.edu

BONGAARTS, John (2009). "Human population growth and the demographic transition". Philosophical Transactions of the Royal Society,364, pp. 2985–2990.http://rstb.royalsocietypublishing.org

BOURDIEU, Pierre (2002). **A dominação masculina**. 2ª edição, tradução Maria Helena Kühner, Rio de Janeiro, Bertrand Brasil.

BRUSCHINI, Cristina e LOMBARDI, Maria Rosa (1996). **O trabalho da mulher brasileira nos primeiros anos da década de noventa.** Encontro Nacional de Estudos Populacionais, Anais. Vol 1, n. 10, p. 483-516, Belo Horizonte, ABEP. Accessed in 31/03/2010. http://www.abep.nepo.unicamp.br

CAMARANO, Ana Amélia (2003). **Mulher idosa**: **suporte familiar ou agente de mudança?** Estudos Avançados [online], vol.17, n.49, p. 35-63. Accessed in 07/03/2010. http://www.scielo.br

CAMBOTA, Jacqueline Nogueira e PONTES, Paulo Araújo (2007). **Desigualdade de rendimentos por Gênero Intra-ocupações no Brasil, em 2004**. Revista de economia contemporânea [online], vol.11, nº2, p. 331-350. Accessed in 22/04/2010.http://www.scielo.br

CARRILHO, Maria José (2010). **A situação demográfica recente em Portugal**. Revista de Estudos Demográficos, nº48, p.101-145.

CARRILHO, Maria José (2005). **Metodologias de cálculo das projecções demográficas: aplicação em Portugal**. Revista de Estudos Demográficos, nº 37, p.5-24. Accessed in 27/04/2011. http://censos.ine.pt

CARVALHO, José Alberto Magno e GARCIA, Ricardo Alexandrino (2003). **O envelhecimento da população brasileira: um enfoque demográfico.** *Cadernos de Saúde Pública* [online] Rio de Janeiro, vol.19, nº3, p.725-733. Accessed in 26/01/2010. http://www.scielosp.org

CITE – Comissão para a Igualdade no Trabalho e no Emprego (2010). **Mulheres e Homens. Trabalho, Emprego e Vida Familiar**. Indicadores 2009. http://www.cite.gov.pt/pt

COLEMAN, David (2010). **Recent Immigration Patterns and their Implications for Policy: An overview of recent migration to Europe.** Workshop on Population, Economics, Integration and law: Implications for Immigration Policy. Accessed in 7/3/2011. http://migration.ucdavis.edu/rs

CUNHA, Vanessa (2007). "O lugar dos filhos na. Ideias, práticas e significados". Lisboa: *Imprensa de Ciências Sociais*.
http://www.ics.ul.pt/instituto/?ln=p&pid=111&mm=2&ctmid=3&mnid=1&doc=31809901190&sec=5

DEBERT, Guita Grin (1997). **Envelhecimento e curso da vida**. Rev.Est. Feministas, vol. 5, nº1 p.120-8. Acedido 04/03/2010. http://www.ieg.ufsc.br

GUERREIRO, Maria das Dores e ABRANTES, Pedro. 2007. **Transições incertas. Os jovens perante o trabalho e a Família**. 2ª Ed. Lisboa: Comissão para a Igualdade no Trabalho e Emprego (CITE). http://www.cite.gov.pt

KIRK, Dudley (1996). "Demographic Transition Theory". *Population Studies*, vol.50 (2), p.361-387. Acedido em 26/01/2011. http://www.appalachianbioanth.org/Kirks.pdf

IBGE. **Síntese de Indicadores Sociais: Uma Análise das Condições de Vida da População Brasileira 2009.** Estudos & Pesquisas/Informação Demográfica e socioeconômica nº 26. Rio de Janeiro, Brasil, 252p. Accessed in 14/11/2009.http://www.ibge.gov.br

LEE, Ronald and MASON, Andrew (2010). **"Fertility, Human Capital, and Economic Growth over the Demographic Transition".** *Eur J. Population* 26:159–182. Accessed in 27/02/2011. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2860101/pdf/10680_2009_Article_9186.pdf?tool=pmcentrez

LEONE, Eugenia Troncoso e BALTAR, Paulo (2008). **A mulher na recuperação recente do mercado e trabalho brasileiro**. Rev.Bras. de Estudos de População [online], vol.25, nº2, p. 233-249. Accessed in 28/04/2010. Disponível em http://www.scielo.br

LERIDON, Henri (1987). "Le Seconde Révolution Contraceptive: la Régulation des Naissances en France de 1950 à 1985". Présentation d'un Cahier de l'INED. *In: Population, 42e année*, n°2, pp. 359-367. Accessed in 28/01/2011.
http://www.persee.fr/web/revues/home/prescript/article/pop_0032-4663_1987_num_42_2_16915

LUTZ, Wolfgang, SANDERSON, Warren. & SCHERBOV, Sergei (2008). "The coming acceleration of global population aging". *Nature,* Vol. 451, 716–719. Accessed in 24/02/2011.
http://dahuang.dhxy.info/population/Global_Ageing08.pdf

MCDONALD, Peter (2006). "An Assessment of Policies that Support Having Children from the Perspectives of Equity, Efficiency and Efficacy"**.** *Vienna Yearbook of Population Research* , pp. 213-234. Accessed in 04/06/2011. http://www.oeaw.ac.at/vid/publications/

MATOS, Raquel Silvério e MACHADO, Ana Flávia (2006). **Diferencial de rendimentos por cor e sexo no Brasil (1987-2001**). Econômica, Rio deJaneiro, vol. 8, nº1, p.5-27. Accessed in 22/04/2010.
http://www.uff.br/revistaeconomica

MINISTÉRIO DA PREVIDÊNCIA SOCIAL (MPS) 2008. **Anuário Estatístico da Previdência Social 2008**. Brasília, v.17, p.1-868. http://www.previdenciasocial.gov.br

OLIVEIRA, Isabel Tiago (2007). **Fecundidade e Educação.** Revista de Estudos Demográficos, nº 40, Lisboa, INE, p. 5-19.

POPULATION REFERENCE BUREAU (2011). World Population Data Sheet. http://www.prb.org

SANDERSON, Warren and SCHERBOV, Sergei (2010) "Remeasuring Aging". *Science,* Vol 329 pp 1287-1288. http://www.demographic-challenge.com/files/downloads/9ed31aa1067a5d6a50c644c46812c0fa/dc_remeasuring_aging_sanderson_scherbov_science_2010.pdf

SANDERSON, Warren and SCHERBOV, Sergei (2008). "Rethinking Age and Aging". *Population Bulletin* 63, nº4. Accessed in 30/09/2011. http://www.prb.org/pdf08/63.4aging.pdf

SANDERSON, Warren and SCHERBOV, Sergei (2007). "A new perspective on population aging". *Demographic Research*, 16 (2), pp. 27-58
http://www.demographic-research.org/Volumes/Vol16/2/16-2.pdf

SANTOS, Renato Vale e RIBEIRO, Eduardo Pontual (2006). **Diferenciais de rendimento entre homens e mulheres no Brasil revisitado: explorando o "Teto de Vidro".** R. de Janeiro, UFRJ. (Texto para Discussão). Accessed in 13/04/2010. http://www.ie.ufrj.br

SIQUEIRA, Renata Lopes; BOTELHO Maria Izabel Vieira e COELHO France Maria Gontijo (2002). **A velhice: algumas considerações teóricas e conceituais.** Ciência & Saúde Coletiva, vol.7, nº4, p. 899-906. Accessed in 02/02/2010 em http://www.scielo.br

VAN de KAA, Dirk. J. (2002). **"The idea of a Second Demographic Transition in industrialized countries".** Paper presented at the Sixth Welfare Policy Seminar of the National Institute of Population and Social Security, Tokyo, Japan, 29 January 2002. Accessed in 14/02/2010. http://www.ipss.go.jp/webj-ad/WebJournal.files/population/2003_4/Kaa.pdf.

VERAS, Renato Peixoto (2009). **Envelhecimento populacional contemporâneo**: **demandas, desafios e inovações**. Rev. Saúde Pública [online]. 2009, vol.43, n.3, pp. 548-554. Accessed in 19/12/2009. http://www.scielo.br

VERAS, Renato Peixoto (1991). **Brazil is getting older: demographic changes and epidemiological challenges.** Rev. Saúde Púb. [online] São Paulo, vol.25, nº6, p. 476-488. Accessed in 05/01/2010.

http://www.scielo.br

VERAS, Renato Peixoto e PARAHYBA Maria Isabel (2007). **O anacronismo dos modelos assistenciais para os idosos na área da saúde: desafios para o setor privado**. Cadernos de Saúde Pública [online], vol.23, nº10, p.2479-89. Accessed in 16/04/2010 em http://www.scielo.br

WONG, Laura L. Rodríguez e CARVALHO, José Alberto Magno (2006). **O rápido processo de envelhecimento populacional do Brasil**: **sérios desafios para as políticas públicas**. *Revista Brasiliera de* Estudos Populacionais [online], São Paulo, vol.23, n.1, p. 5-26. Accessed in 10/08/2010. http://www.abep.nepo.unicamp.br

Internet Sites

Agência Nacional de Saúde Complementar - http://www.ans.gov.br
DATASUS - http://www2.datasus.gov.br
Human Mortality Database - http://www.mortality.org/
Instituto Brasileiro de Geografia e Estatística - http://www.ibge.gov.br
Instituto Nacional de Estatística - http://www.ine.pt
Ministério da Previdência Social (Brasil) - http://www.previdencia.gov.br
Ministério da Saúde (Brasil) - http://portal.saude.gov.br
Population Reference Bureau - http://www.prb.org/
Presidência da República (Brasil) - Casa Civil - http://www.planalto.gov.br
Serviço de Estrangeiros e Fronteiras - http://sefstat.sef.pt/
World Population Prospects - http://esa.un.org/