

ECONOMIC VULNERABILITY AND AGEING IN MEXICO

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Resumen

Las personas mayores (EP) son aquellas mayores de 60 años y más. En México la participación de éstas está aumentando y para los que residen en las zonas urbanas, las pensiones constituyen la principal fuente de ingresos, pero en la contraparte rural los ingresos de dichas personas mayores incluye: traslados familiares, pensiones y transferencias dirigidas de programas de gobierno. Cuando las EP se retiraran, su ingreso disminuye drásticamente porque ni pensiones ni los ingresos por rentas igualan el salario. Esta situación implica que la mayor parte de PE en las dos áreas, urbanos rurales sean pobres. Las mujeres se ven más afectadas principalmente porque ganan un ingreso más bajo y tienen una esperanza de vida mayor que los hombres. Por lo tanto, además de estar asociado con las zonas rurales/urbanas y el proceso de envejecimiento, la pobreza es también sesgada de género. Las perspectivas económicas para la EP no

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son favorable dado que la vulnerabilidad económica de ancianos podría estar aumentando para las generaciones futuras.

Palabras clave: ancianos, la política pública, la vulnerabilidad, México.

Clasificación JEL: J14, J18, O54.

Abstract

Elderly people (EP) are people aged 60 years and over. In Mexico EP participation is increasing and for those EP residing in urban areas, pensions constitute the main income source but, in the rural counterpart EP's income includes: family transfers, pensions and government targeted programmes' transfers. When EP retire income decreases sharply because neither pensions nor income from rents smooth wages drop. This situation entails that most EP in both rural as well urban areas, are poor. Women are mostly affected because earning a lower income and having a larger life expectancy than men. Thus, besides being associated with the rural/urban areas and the ageing process, poverty is also gender biased.

The economic outlook for EP is not favorable as elderly economic vulnerability might be increasing for future generations.

JEL Classification: J14, J18, O54.

Keywords: elderly, public policy, vulnerability, Mexico.

1. Introduction

The purpose of this paper is to analyze the economic vulnerability of the elderly persons (EP) in Mexico based on the evidence provided by the most recent surveys that focused on people aged 60 years and over as the National Households' Incomes and Expenses Survey 2010 [Encuesta Nacional de Ingresos y Gastos de los Hogares 2010 (ENEGI, 2010)].

After the introduction, a demographic analysis of Mexico's ageing process and the legal improvements of the EP status are presented in section

2. However, this age group is still vulnerable because the problems with health and assets (section 3). The main findings of recent surveys focused on EP are analyzed in section 4; but the most complete data (ENEGI, 2010)

allow focusing on EP income and its components. We emphasize that women and those who live in rural areas, as well as older age groups are more vulnerable from an economic point of view. In the last section concludes and we provide, a not very pleasant, economic outlook for EP and future generations which will probably have to bear the economic burden of the elderly besides theirs.

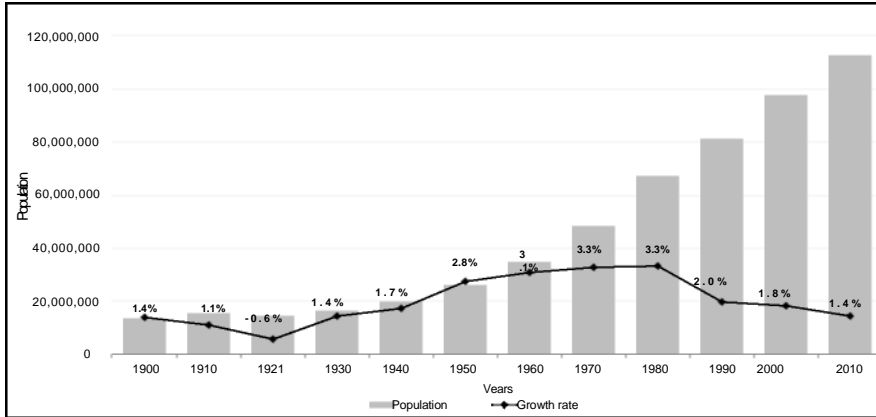
2. Ageing in Mexico

Ageing may be defined through different approaches; person's age versus a threshold is one of them. According to the *Ley de los Derechos de las Personas Adultas Mayores* (Elderly Rights Law) in Mexico, article 3, fraction I, and in Mexico City according to the *Ley de los Derechos de las Personas Adultas Mayores en el Distrito Federal* (Mexico City Elderly Rights Law), the EP are those persons aged 60 years and over that live or are in transit throughout the country.

Nevertheless, ageing is not represented by a chronological age only, it is "a natural, gradual, continuous, irreversible and complete changing process along time (...), involving biological, psychological and social aspects determined by the history, culture and economic situation of the groups and persons" (Instituto para la Atención de los Adultos Mayores en el Distrito Federal, 2014). Though, each person lives its own ageing process from a different perspective; such process is of paramount importance for geriatric and gerontology specialists; the former deal with EP's biological and physiological features, while the latter focus on the psychosocial care and an integral perspective of the person framed in the historical and social context (Castillo, 2002).

2.1. Demographic trends

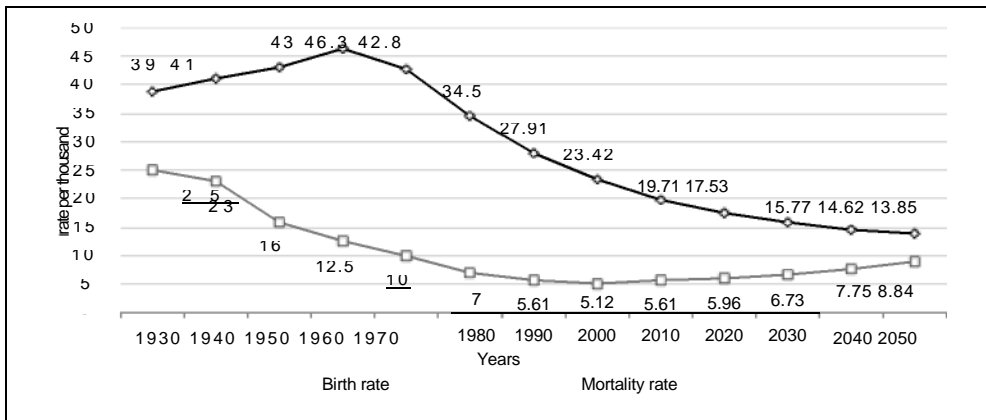
Mexico's demographic data show that in the last three decades total population increased from 66.8 to 112.3 million inhabitants (figure 1). The demographic growth was paired with the ageing process that has been associated with an inflexion in the pattern in 1980, when total population began to grow at a decreasing rate, because of a lower birth rate and a decreasing mortality rate, up to year 2000 (figure 2) (Fernández and Velarde, 2014).



Source: Authors' calculus with Population: volume and growth 1895-2010 (INEGI, 2012). Retrieved from: <http://www3.inegi.org.mx/sistemas/sisept/Default.aspx?t=mdemo148&s=est&c=29192>

Figure 1
Mexico total population and annual growth rate

It is expected that the ageing process will continue at an increasing rate, as the highest birth rate had been registered in 1960 (figure 2) and those who were born in that decade will start to be part of the EP in a few years (2020). Note that the difference between the birth rate and the mortality rate, measured in per thousand inhabitants, is a proxy of the population growth rate.



Source: Fernández and Velarde (2014).

Figure 2
Mexico Gross Birth and Mortality Rates

When analyzing data from an historical perspective, the Mexican aging process is easily understood. Those who in 1950 were younger than 24 years old, representing the 60.8% of total population were, by the year 2010, part of the elderly group, equivalent to 9.0% of total population. In 1970, the group younger than 24 years old rose to 65.0% of total population and they will join the elderly group in 2030, when EP will be 14.6% of total population. Similarly, 38.3% of total population (younger than 24 years old) registered in 1990 will be part of EP in 2050, and they will represent 21.4% of total population (National Population Council (Consejo Nacional de Población) CONAPO, 2010).

The ageing process will lead to an increasing unbalance between the labour force (persons aged between 15 and 59 years) and the EP, pressuring the pension system and requiring a resource reallocation to health care and social security services. Such circumstances will call for significant transformations in the family organization and household' structure, because the efforts to disentangle the problems stemming from the above will have to be, literally, faced (and financed) by younger generations.

2.2. Demographic indexes

The demographic indicators that measure the ageing process of a population are:

- AI: Ageing Index (EP as a percentage of total population).
- EEDI: Elderly Economic Dependency Index (EP as a percentage of the labour force [persons aged between 15 and 59 years]).
- TEDI: Total Economic Dependency Index (EP and persons younger than 15 years old as a percentage of the labour force).

The indexes for the period 1950-2010 are presented in table 1. The data confirm that during the last six decades EP increased as a proportion of total population (AI) and representing an increasing dependence on the labour force too (EEDI). Accordingly with recent data (INEGI, 2010a), in 2010 about 10 million elders were living in Mexico; they were born between 1920 and 1950, when the demographic annual growth rate increased from -0.6% to 2.8% (figure 2), leading to an AI of 9.1% and an EEDI of 14.7% by 2010. Thus, in 2010 there were 15 elders per hundred members of the labour force. As the youngest (under 15 years old) are considered along with the EP (by

construction the TEDI is always higher than the EEDI), TEDI increased to 62.3% in 2010; that is, on average, almost 63 persons were economically dependent on a hundred persons at work age.

Table 1
Mexico Elderly Indexes: 1950-2010

Index	1950	1960	1970	1980	1990	2000	2010
AI	5.5%	5.6%	5.6%	5.5%	6.1%	7.1%	9.0%
EEDI	10.5%	11.1%	11.7%	10.7%	11.2%	12.4%	14.7%
TEDI	89.7%	99.9%	107.6%	94.6%	81.0%	70.7%	62.3%
TEDI-EEDI	79.3%	88.7%	95.9%	83.9%	69.8%	58.3%	47.6%

Source: Authors' calculations with Population: volume and growth 1895-2010 (INEGI, 2012). Retrieved from: <http://www3.inegi.org.mx/sistemas/sisept/Default.aspx?t=mdemo148&s=est&c=29192>

Therefore, due to the demographic growth path between 1960 and 1980, when the population grew at 2.8% and 3.3% annual, jointly with a higher life expectancy, the EEDI will further increase during the next decades. The National Population Council (CONAPO, 2004) estimates that the EEDI will reach 28.1% in 2030, with a higher life expectancy (women: 84.5 years; men: 82.0 years), a situation that, as previously mentioned, will put pressure on national health care and social security systems.

Because the imminent ageing process at national level, it is relevant to analyze the health, economic and social conditions of the EP, as well as the family ties and social networks they may access because, as time goes by, functional, emotional and cognitive abilities of the EP deteriorate, increasing the demand for special care and health services. Such changes prevent accessing a paid job, diminishing EP economic independence and leading to a higher vulnerability.

2.3. Legal Framework

2.3.1. Discrimination of the Elderly and Human Rights

Human Rights National Commission (2012: 5) states that “discrimination is a social phenomenon that violates the dignity, the human rights and the

fundamental freedoms of the persons (...), those who are discriminated receive a different care or a lesser assistance in term of his rights and social consideration from other persons, organizations and states; [the discrimination] can become a motive of difference, exclusion or rights restrictions (...)"

Also, "(...) discrimination is a systematic, socially and culturally based extended behavior, oriented to contempt a person or a group of persons, supported by a negative prejudice or stigma related with an undeserved disadvantage, that ends up (intentionally or not) damaging their rights and fundamental freedoms" (Rodríguez Zepeda, 2005: 23).

EP can be subject to direct discrimination¹ when a person, based on some characteristics, physical features or socioeconomic conditions, is treated in a less favorable manner (an unfavorable behavior, or the omission of a favorable behavior) compared to how another person could be treated in a similar situation. Ethnic origin, nationality, gender, age, impairment, health and/or socioeconomic condition, are some of the elements underlying discrimination. Often EP are discriminated, because they are associated with illness, inefficiency, slowness and low productivity, leading to mistaken stereotypes of decay that may end up in abandonment, exclusion, and mistreatment. Thus, a double or triple discrimination – as commonly known – arises: the elder is a woman, she belongs to some indigenous group and, she is impaired (INAPAM-CONAPRED, 2011).

Although human rights are inherent to all human beings, without any distinction, the conceptualization of the EP as a subject of rights become part of a wider theoretical and political discussion of vulnerable groups' rights. Women, children, impaired and indigenous groups, and EP of course, call for the recognition of their rights because *de jure* and *de facto* equality is seldom applied. In fact, "The sectors, or social groups, historically discriminated, left behind or disadvantaged, look to abolish legal, economic and social barriers that ban the access or restrict their participation in diverse social spheres" (Abramovich and Courtis, 2005, cited in Huenchuan, n.d.).

¹ Besides direct discrimination, the indirect discrimination occurs when a rule, criteria or practice, apparently neutral, put some people in a specific disadvantage situation compared with others, except that rule, criteria or practice can be objectively justified with a legitimate purpose, and that the means are adequate and necessary.

The international community had recognized and proclaimed the in-herency and the universality of individual and collective rights of all the EP in the civil, political, cultural, economic and social realms but, despite recognizing this need, a legal instrument specifically designed to protect them is still missing.²

EP's human rights have been an important issue in the last decades because "the increase in the number of elderly persons will call for significant economic and social adjustments. In most of the countries, the government shall meet these new challenges with adequate policies and programmes in order to attend the needs of the whole society. Thus, the perspectives about social security, human rights and social cohesion must be modified".³

2.3.2. Mexico Legal Framework for the Elderly

Once the Legislative Assembly of the Mexico City Government had enacted laws in favour of the EP at local level, several federal laws have been approved in order to recognize the EP rights. For example, in 2002 the *Ley de Derechos de las Personas Adultas Mayores* (Law of the EP rights) was promulgated. This law establishes that the federal public policy must guarantee the EP's rights while the State shall guarantee health, education, nutrition, housing, integral development and social security conditions for this age group.

Actually, the social development public policy of the federal government, those guidelines are established in the National Development Plan 2013-2018, is implemented by the Secretariat of Social Development (Secretaría

² Since early 1980's, a special emphasis on research of ageing process and its consequences on the countries' socioeconomic development was devoted. This was evident during the 1st Ageing World Conference: Wien action plan (1982). Nevertheless, it was until 2002 at the 2nd Ageing World Conference: Madrid action plan (2002) that governments committed to promote: the full accomplishment of elderly persons' human rights and fundamentals freedoms; the recognition of their social contribution and their right to participate on the decision-making processes; the improvement of their living standards; the implementation of education and training programmes; the creation of job opportunities; intergenerational solidarity; expanding the coverage of the health system and special care services, as well as the intra-family care activities and special care to elder women.

³ United Nations Economic and Social Council (2008). Regional Implementation of Madrid's International Plan of Action on Ageing 2002. E/CN.5/2008/2. Retrieved from: http://www.unece.org/fileadmin/DAM/pau/_docs/e/E_CN5_2008_2_sp.pdf

de Desarrollo Social [SEDESOL]) in order to contribute to reach a higher social welfare, especially for the vulnerable groups. Through the National Institute for Elderly Persons (Instituto Nacional de las Personas Adultas Mayores [INAPAM]), a SEDESOL branch, different services to the EP are being offered: a card that allows buying goods and services at discounted price, labour training, medical services, day care housing, free legal advices and health care education, among others. INAPAM manages the Pension Programme for Elderly Persons 2014 in order to improve life condition of those persons aged 65 years or over that do not receive a contributory pension. The pension programme provides every two months a modest monetary transfer (1 160 pesos, about 76 USD).

Besides the federal government programmes and actions, local or state governments implement other programmes with different operation rules that establish beneficiary's minimum age and the monetary transfer amount. It is worth noting that the Mexico City Government is a remarkable example in this regard (Raccanello, Ángeles and Molina, 2014).

3. Why elderly persons are so vulnerable?

The ageing process constitutes an important social change due to its impact over EP's daily life, their families and the whole society, as it conveys great challenges for the financial viability of the health care and pensions systems. Aging limits EP incorporation into political, social and cultural activities and it is related with vulnerability, rejection and exclusion (Castel, 1995).

Vulnerability can be understood as the likelihood of welfare loss a person has as a consequence of an adverse event. The dimensions that can increase or reduce the vulnerability are linked to the context in which the person lives (environment and housing), as well as personal (health and education), economic (employment and income) and social aspects (safety nets).

The social exclusion affecting EP is a consequence of being marginalized by the labour market while demanding personal attention in an individualistic oriented social environment. Additionally, the informal labour market, a legacy of the domestic economic crises of past decades, is probably the only marketplace where EP may find a job. On one hand, informality provides

some income to EP but, on the other hand, it prevents accessing social security; as EP continue aging without an adequate social protection, the likelihood to fall into poverty may be higher with age.⁴

During the first decade of the xxi century, most of the Latin America and the Caribbean population who went out of poverty now constitutes a “vulnerable class”. This class accounts 37.5% of total population, earning between 4 and 9 USD per day-per capita, that lacking the economic security of the middle class, “in case of an unexpected negative event, they have a probability higher than 10% to fall into poverty in the next five years”.⁵

Thus, vulnerability is the outcome of social and economic specific conditions (Bustelo, 1986), that will be higher, *ceteris paribus*, when people cannot afford satisfiers (Ayala, 2003), in case of an impairment (Linacero, 2004), due to gender discrimination (Tobío, 2005), or because age, this is the case for children (Fanlo, 2004) or EP (Muñoz, 2004). The EP’s vulnerability is associated with “not being physically, mentally or emotionally able to do something, (...) [and having] some limitations to cope with risk” (Grundy, 2006).

3.1. *Vulnerability and Health*

EP health indicators show a significant relationship among age, gender and socioeconomic characteristics (Bowling, Farquhar and Grundy, 1996). EP with lower income and a history of poor jobs, may have been exposed to un-healthy environments that could have harmed their physical and psycho-logical health, while contributing little amounts (if any) for their pensions. In fact, because EP have less financial and physical assets (Disney, Grundy and Johnson, 1997), low incomes prevent from retirement while having to

⁴ The income poverty consists in comparing the individuals’ income with the monetary value of different thresholds: nutritional, capabilities and patrimony poverty line. Those persons that cannot buy a basic food consumption bundle even if they would spend all their disposable income are living below the nutritional poverty line. Those persons that are living below the capabilities’ poverty line cannot buy a basic food consumption bundle and cover their health and education expenses even if they would spend all their disposable income. Finally, those persons that cannot buy a basic food consumption bundle and cover their health, education, housing, transport and garments expenses even if they would spend all their disposable income, are living under the patrimony poverty line. (Poverty measurement. CONEVAL official web page. <http://www.coneval.gob.mx/Medicion/Paginas/glosario.aspx>).

⁵ Ferreira *et al.* (2012:36).

continue accepting poor jobs or depending on family' s or government' s transfers and subsidies.

3.2. Income and Assets

The structuralist approach (Schroder-Butterfill and Marianti, 2006) states that disposable income and wealth, jointly with the EP's ability to manage them, may reduce vulnerability. Wealth should be interpreted broadly and not being limited to financial assets only. Safety nets, for example, constitute a mechanism that may allow EP coping with health care out-of-pocket expenditures; these networks may also provide transfers-in-kind (i.e. food, cloths) and emotional support.

4. Elderly situation in Mexico

4.1. Health and Ageing National Study in Mexico (ENASEM, 2012)

In order to get more information about the ageing process, the illness and impairment impact on welfare, the INEGI (2013) conducted the third round of the "National Study of Health and Ageing Process in Mexico 2012", focusing on people aged 50 years and over living in Mexico.

Results show that chronic illnesses are hypertension, diabetes and arthritis; a higher incidence on women was detected. Adult's health self-perception turned out to be deficient for 67.5% of women and 57.1% of men although less than 5.0% had some difficulties to realize daily activities (dressing, go to bed, walk, take a shower and eat). Most of the people are affiliated to the Social Insurance Mexican Institute (Instituto Mexicano del Seguro Social [IMSS]) services (34.1% of women and 33.5% of men) or to the Popular Insurance [Seguro Popular] health services (women: 32.5%; men: 31.3%); however, 13.7% of women and 16.9% of men still do not have access to health care services whatsoever.

Finally, the percentage of men with a remunerated job is higher than the women's one (68.5% vs. 27.2%), they can take independent decision (women: 96.5%; men: 96.6%), and are generally satisfied with their life (women: 79.7%; men: 83.6%).

4.2. Elderly in Mexico: Socio-demographic Profile at the Beginning of the xxi Century

The research (INEGI, 2005) acknowledges that a person is vulnerable if she belongs to a specific group in a “social risk situation”, defined by those factors related with family or community, among others. EP belong to one of such groups, because many of them are economic dependent, live without a defined role inside the family and are often excluded from the decision making process. All of them share the basic age attribute linked to similar problems; as such they are the target of sectorial programmes and/or national public policy. According to the report, at least one person aged 60 years and over lives in a poor condition house (51.2%), asbestos laminated roof (32.3%) and uncovered or “mud” floor (44.0%).

Another data that shows the EP’s vulnerability is their illiteracy rate (women: 28.7%; men: 19.9%). For those EP that are still economically active, data reveal that 24.8% had no formal education, 50.7% completed primary education, 8.9% had a secondary school certificate, 4.6% high school and the remaining 10.0% had university education or even some postgraduate studies.

4.3. National Survey on Discrimination in Mexico: Outcomes for the Elderly (ENADIS 2010)

According to ENADIS, 2010 (INAPAM-CONAPRED, 2011), 27.9% of surveyed considers that EP’s rights are not respected because age. EP’s main problem is the economic situation (40.3%), health - illness and the access to health services/medicines - (37.3%), and labour problems (25.9%). All these factors are essential for a dignified and independent life.

Most EP do not earn a wage, because housewife/househusband (49.1%) have a pension (19.6%), or are retired (9.9%); a significant percentage is permanently unable to work for some impairment (8.2%), because continue studying (0.4%) or due to other reasons (12.6%). Less than one third of EP worked the week prior to the survey, mainly in agricultural activities, self-employed or in the commerce sector.

In order to cover daily expenses most EP depend on family’s transfers (61.8%). It is worth noting that the Mexican pension system has a limited coverage, especially for women as only 11.7% receives some (*vs.* 57.9% of

men). However, this situation is balanced by family's transfers as 75.6% of women are supported (*vs.* 35.4% of men). No matter the transfers, EP Consider their income insufficient to cover basic needs (56.8%).

4.4. National Households' Income and Expenses Survey 2010

According to the ENIGH 2010 (INEGI, 2010b), EP represent slightly more than a tenth (10.08%) of the Mexican population.⁶ Women over 60 years exceed men by 900 thousands (table 2) and accounting more than half of all EP (53.9%).

Table 2
Age Groups and Gender

Age group	Citizens	%	Women	%	Men	%
Up to 59	103 010.749	89.92	52 440.310	89.39	50 570.439	90.48
60 or more	11 549.182	10.08	6 226.165	10.61	5 323.017	9.52
Total	114 559.931	100	58 666.475	100	55 893.456	100

Source: Authors' calculus with INEGI 2010 data.

For a detailed analysis of the data, EP total population was divided into subgroups according to age, as well as by gender. As expected, subgroups' participation diminishes as age increases but, 87.7% of EP are between 60 and 80 years, and about a million and a half (mostly women) are 80 years old and over (table 3).

Because women have a higher life expectancy than men, their participation in older subgroups is higher than those of men's.

⁶ This percentage is greater than the one calculated with the Census of Population and Housing 2010 (9.0%) because the INEGI is a sample of the total population. Expansion factors have been applied to obtain representative data.

Table 3
Elderly and Gender

Age group	Citizens	% of Country population	Women	%	Men	%
60-65	4 223 241	3.69	2 250 231	36.14	1 973 010	37.07
66-70	2 760 646	2.41	1 496 207	24.03	1 264 439	23.75
71-75	1 910 954	1.67	974 598	15.65	936 356	17.59
76-80	1 229 462	1.07	670 128	10.76	559 334	10.51
81-85	739 823	0.65	452 373	7.27	287 450	5.40
86-90	470 101	0.41	253 425	4.07	216 676	4.07
Older than 90	214 955	0.19	129 203	2.08	85 752	1.61
Total	11 549 182	10.08	6 226 165	100	5 323 017	100

Source: Authors' calculus with ENIGH 2010 data.

Traditionally, some of the elements that contribute to EP vulnerability are low formal education and impairment. Both elements, jointly with (increasing) age and gender, are correlated with the lack of labour income. In table 4 all EP subgroups have, on average, just a few years of formal educational, as almost all EP did not complete the primary school level. Of course, this situation worsens for older subgroups.

It is expected and demonstrated that physical impairments and mental disorders increase with age (both included under "impairment" in table 4); thus, the importance to access health services will be higher as soon as people grow old. For men's impairment, two moments can be appreciated: one is between subgroups 71-75 and 76-80; the other when people are older than 90 years. For women, these moments coincide with the average. It is worth noting that men present an almost constant increase (about 10.0% every five years), that falls for the subgroup 86-90 years old, but augmenting remarkably afterwards. Regardless marginal changes, it is evident the support EP need to receive when age increases in order to avoid spending the last years with a low quality of life.

Table 4
Education and Impairment

Age group	Education (yrs.)			Impairment (%)		
	Avg	Women	Men	Avg	Women	Men
60-65	5.95	5.47	6.49	13.21	12.83	13.64
66-70	4.93	4.52	5.42	20.12	21.53	18.44
71-75	4.14	3.99	4.30	28.71	27.57	29.91
76-80	3.77	3.68	3.88	40.56	41.67	39.22
81-85	3.20	3.20	3.20	49.95	49.94	49.97
86-90	2.85	2.78	2.94	56.58	59.38	53.32
Older than 90	2.38	2.33	2.47	83.43	85.43	80.44
Avg 60+	4.80	4.48	5.19	25.76	26.43	24.98

Source: Authors' calculus with ENIGH 2010 data.

Many people over 60 years old do not opt for retirement (table 5), as the percentage of those still working (primarily men) aged 71-75 years is 45%. Of course, men's participation diminishes when getting older, but it always exceeds women's one. Therefore, a higher women's vulnerability in terms of labour income is advised, as less than 19.0% are engaged in a paid activity.

Health access for EP is a relevant issue because illness tend to be more common with age. In table 5 women's access to health care service decreases when they are older than 75 years. Men do not show any pattern; despite having a lower average access than women, they have a more extensive coverage after ageing 86. It is important noting that, on average, 1 out of 4 Mexicans aged 60 and over does not have any access to health care services.

Table 5
Workers and Health Service Access

Age group	Workers (%)		Health service access (%)			
	Avg	Women Men	Avg	Women	Men	
60-65	46.11	27.83	66.96	77.27	78.99	75.30
66-70	35.00	19.91	52.85	76.11	77.95	73.92
71-75	28.77	13.17	45.00	79.27	82.32	76.10
76-80	19.00	8.97	31.01	77.43	78.33	76.36
81-85	11.46	8.08	16.78	71.93	70.17	74.71
86-90	9.17	5.07	13.96	73.18	68.60	78.55
Older than 90	1.71	0.43	3.63	68.65	65.34	73.65
Avg 60+	33.15	18.67	50.08	76.67	77.84	75.30

Source: Authors' calculus with INEGI 2010 data.

According to past results, poverty likelihood increases for older sub-groups. On average 6 out of 10 EP are poor. Gender differential is striking. For all subgroups, the percentage of women living in poverty is higher than men's; the percentages increase with age and reach 83.0% for women aged 90 years and over. Meanwhile, men double poverty likelihood between the younger (34.25%) and the older subgroup (68.04%). Because women's higher life expectancy and lack of income, more than 7 out of 10 women aged 60 years and over cannot buy the minimum satisfiers (table 6).

Table 6
Poverty

Age group	Country			Rural (>15 000 citizens)			Urban (<15 000 citizens)		
	Avg	Women	Men	Avg	Women	Men	Avg	Women	Men
60-65	54.67	72.58	34.25	62.18	79.91	43.32	50.97	69.13	29.52
66-70	62.28	76.30	45.68	66.68	76.45	54.90	59.52	76.20	40.00
71-75	61.16	75.67	46.07	66.05	79.43	54.67	58.07	73.64	39.64
76-80	62.88	73.74	49.86	64.61	74.47	55.48	61.86	73.39	45.79
81-85	71.69	77.23	62.97	76.21	82.24	68.74	68.35	74.10	57.45
86-90	71.55	78.70	63.18	73.08	72.71	73.53	70.64	82.30	57.19
Older than 90	77.04	83.01	68.04	88.05	86.92	89.97	66.08	78.72	49.14
Avg 60+	60.63	74.89	43.96	66.38	78.47	53.46	57.29	72.93	37.99

Note: Poverty line for rural households was set at 1 413.95 pesos; for urban households at 2 102.59 pesos. Source: Authors' calculus with INEGI, 2010 data.

Rural areas (those with a population of less than 15 thousands) score worse than urban ones as average poverty percentages are always higher than in the urban counterpart and, in general, women are more likely to be poor no matter where they live. Thus, besides being associated with rural/urban areas and the ageing process, poverty is also gender biased.

Income data presented below confirm such findings. Women's total income is significantly lower than men's, decreasing for older subgroups as pensions they receive cannot compensate falling wages.

In table 7, EP's total income is the sum of wages, transfers and rents (coming both from real estate and investments). For men, wages are the most important total income source, decreasing with age. Transfers remain constant for all age subgroups, but their relevance increase for older subgroups. Rents constitute a small complement of total income (between 3.0% and 15.0% according to the subgroup) and, when EP are 80 years old and over, they exceed labour income.

Transfers are the main women income's source (table 7), that are complemented with labour income up to 75 years old. Then, as it happen for men, labour income drops. For both genders, rents are marginal - although

higher for men - and come from real estate; financial assets yields are very low (table 8).

Pensions are the most important transfers' component (table 9), and - again- men receive a higher amount than women because a larger labour history; other transfers includes family transfers, gifts, and donations, among others. Finally, incomes from elderly government programmes to improve EP welfare have been also included. For women, the pensions' decreasing trend is offset by private transfers, while public programmes are constant thus, total income falls because labour income drops.

Table 7
Elderly Total income Composition

Age group	Total income			Wages		
	Avg	Women	Men	Avg	Women	Men
60-65	3 685.31	1 988.53	5 620.49	2 169.98	782.71	3 752.1
66-70	3 218.62	1 708.73	5 005.27	1 408.73	446.31	2 547.5
71-75	2 551.69	1 780.71	3 354.16	655.12	229.53	1 098.0
76-80	2 546.65	1 940.69	3 272.64	376.21	138.53	660.9
81-85	1 764.44	1 539.13	2 119.02	191.83	139.70	273.8
86-90	1 901.66	1 181.49	2 743.97	45.68	23.51	71.60
Older than 90	1 647.90	1 263.77	2 226.66	11.76	0.65	28.48

Age group	Transfers			Rents and returns		
	Avg	Women	Men	Avg	Women	Men
60-65	1 379.29	1 111.09	1 685.18	136.04	94.73	183.14
66-70	1 592.85	1 077.48	2 202.70	217.04	184.95	255.01
71-75	1 745.63	1 414.22	2 090.58	150.94	136.97	165.49
76-80	1 907.18	1 620.84	2 250.23	263.26	181.32	361.43
81-85	1 299.99	1 152.82	1 531.60	272.62	246.61	313.56
86-90	1 624.49	1 063.98	2 280.07	231.49	94.00	392.30
Older than 90	1 527.20	1 144.72	2 103.47	108.95	118.40	94.71

Note: All amounts are in Mexican pesos.

Source: Authors' calculus with INEGI, 2010 data.

Table 8
Rents Composition

Age group	Rents and return			Rents			Rents and return		
	Avg	Women	Men	Avg	Wom- en	Men	Avg	Women	Men
60-65	136.04	94.73	183.14	127.86	89.79	171.27	8.18	4.94	11.88
66-70	217.04	184.95	255.01	174.05	172.12	176.34	42.99	12.82	78.68
71-75	150.94	136.97	165.49	139.54	116.85	163.15	11.41	20.12	2.34
76-80	263.26	181.32	361.43	235.20	171.49	311.53	28.06	9.83	49.90
81-85	272.62	246.61	313.56	174.46	246.61	60.92	98.16	0.00	252.63
86-90	231.49	94.00	392.30	191.96	38.35	371.61	39.53	55.65	20.69
Older than 90	108.95	118.40	94.71	106.92	118.40	89.62	2.03	0.00	5.09

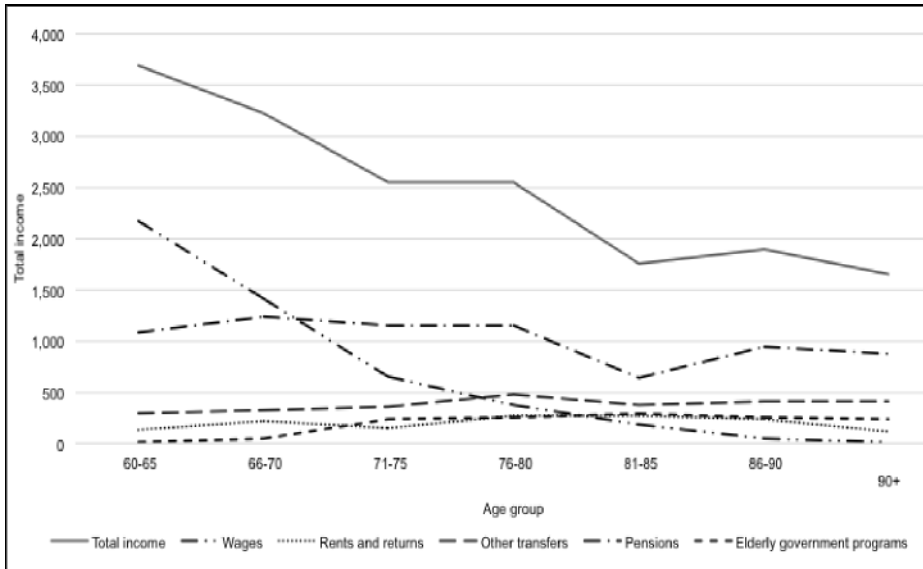
Note: All amounts are in Mexican pesos.
Source: Authors' calculations with INEGI, 2010 data.

Table 9
Transfers Composition

Age group	Transfers			Pensions			Other transfers			Elderly government programmes		
	Avg	Women	Men	Avg	Women	Men	Avg	Women	Men	Avg	Women	Men
60-65	136.04	94.73	183.14	127.86	89.79	171.27	8.18	4.94	11.88	4.75	5.29	4.13
66-70	217.04	184.95	255.01	174.05	172.12	176.34	42.99	12.82	78.68	37.91	40.93	34.34
71-75	150.94	136.97	165.49	139.54	116.85	163.15	11.41	20.12	2.34	231.32	242.19	220.00
76-80	263.26	181.32	361.43	235.20	171.49	311.53	28.06	9.83	49.90	260.78	253.92	268.99
81-85	272.62	246.61	313.56	174.46	246.61	60.92	98.16	0.00	252.63	292.49	283.57	306.52
86-90	231.49	94.00	392.30	191.96	38.35	371.61	39.53	55.65	20.69	259.44	274.70	241.59
Older than 90	108.95	118.40	94.71	106.92	118.40	89.62	2.03	0.00	5.09	238.58	232.16	248.26

Note: All amounts are in Mexican pesos.
Source: Authors' calculus with INEGI, 2010 data.

Figure 3 shows how EP's total income decreases when labour income falls as age increases. It is also evident that pensions may partially smooth this drop up to the 76-80 subgroup, but do not for older subgroups.

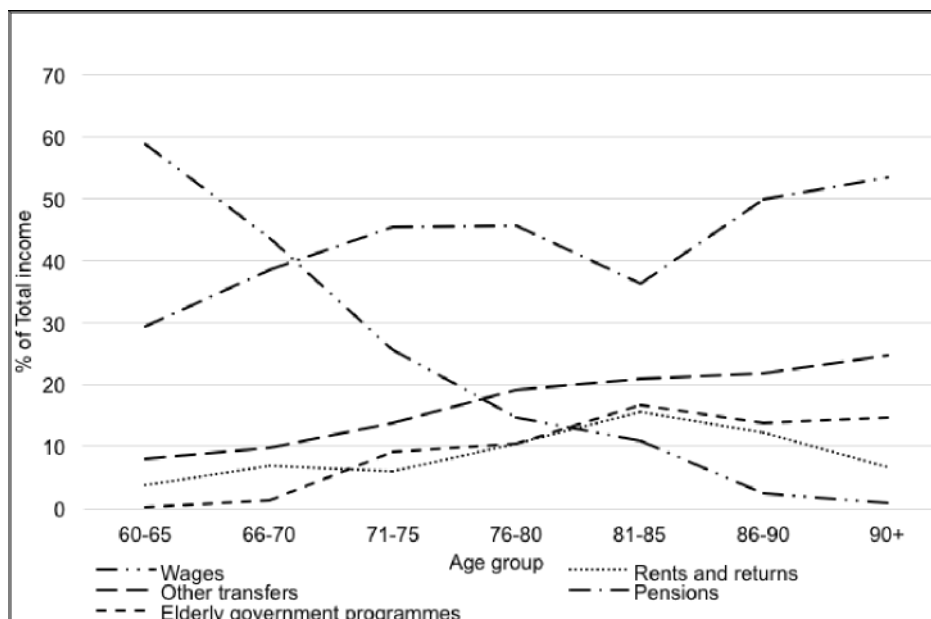


Source: Authors' calculus with INEGI, 2010 data.

Figure 3
Total Income and Income Composition (in pesos) per Age Group

Figure 4 reports the total income's composition according to the different age subgroups. It is possible to appreciate the diminishing participation of labour income (wages) while pensions, transfers and government programmes targeting EP become more relevant.

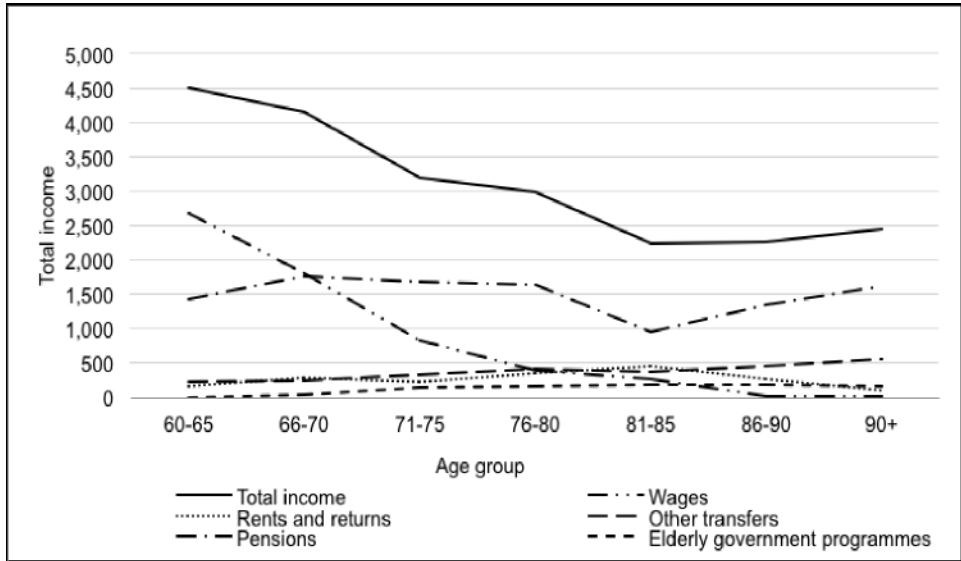
Nevertheless, we ought to consider that total income's amount (table 7) diminishes (on average) by more than 55.0% between the younger and the older subgroup. Gender's income loss differences are relevant: 36.0% for women and 60.0% for men. Despite the loss, men aged 90 years or more still earn a higher amount than women (2 266.70 vs 1 263.80 pesos).



Source: Authors' calculus with INEGI, 2010 data.

Figure 4
Percentage Composition of Total Income per Age Group

An income composition comparative analysis between EP residing in urban areas (those with a population of more than 15 thousands) versus rural areas (those with a population of less than 15 thousands) confirmed that incomes in urban areas are higher. In both areas, labour income falling leads to total income drop, a situation that occurs when EP aged 60 to 75 years leave their job. In fact, an employment contraction of more than 17 percentage points arise between the subgroup 60-65 years and 70-75 years one (table 5) that corresponds to a total income loss of 37.0% (table 7) for the youngest subgroup. In the urban area only, pensions slightly compensate the labour income loss, while both family transfers and government programmes have a smaller contribution (figure 5).



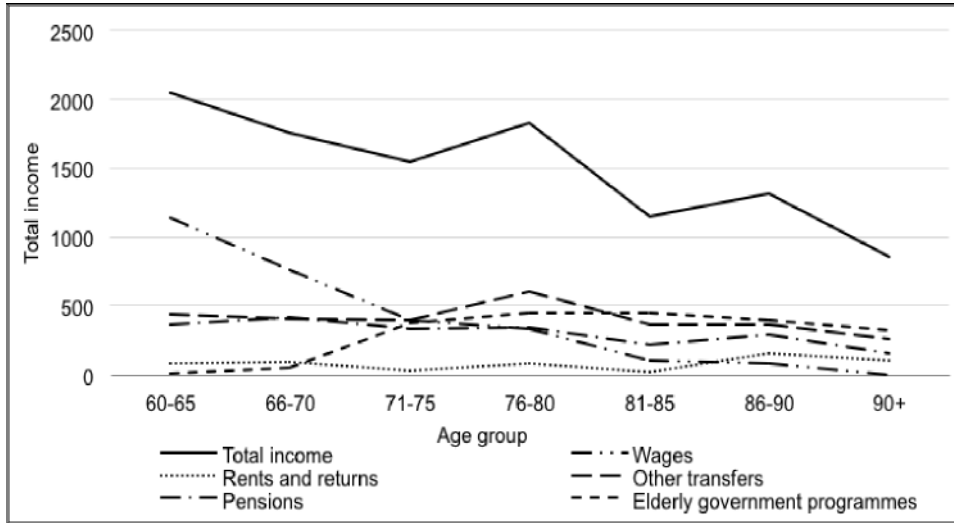
Source: Authors' calculus with INEGI, 2010 data.

Figure 5

Total Income and Income Composition (in pesos) per Age Group (urban)

In the rural area, except for labour income for subgroups between 60 and 70 years, all the income sources provide less than 500 pesos a month, some just a few pesos only, leading to a low total income (figure 6). The heterogeneity of income sources, although allowing income diversification, because the low amount provided by each one, can be interpreted as a form to gather, by any means, the necessary resources. However, a drop of any income source may lead to a total income reduction greater than 15% (figure 8); a situation associated with higher economic vulnerability.

Besides total income amount, income composition also differs significantly between the two areas; the common feature is the fall in labour income participation when EP are ageing.



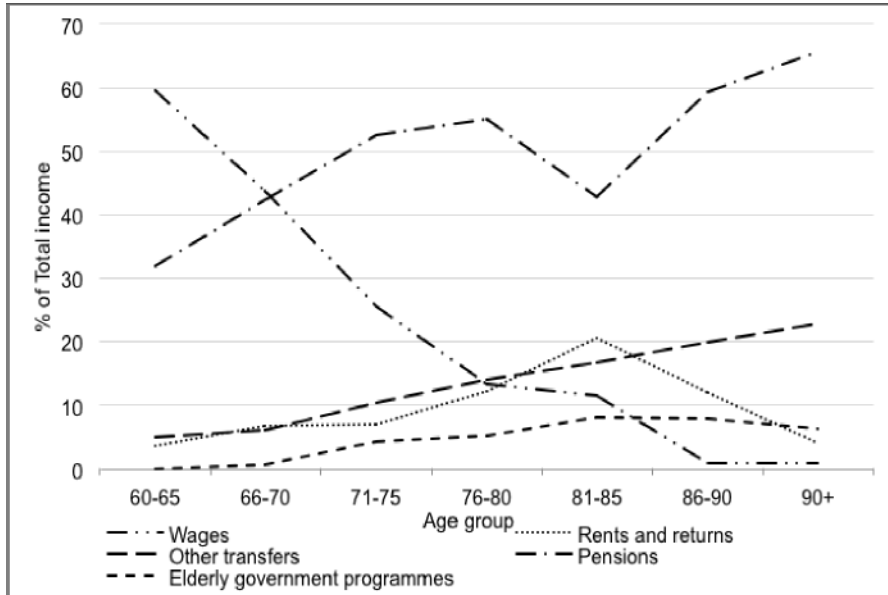
Source: Authors' calculus with INEGI, 2010 data.

Figure 6

Total Income and Income Composition (in pesos) per Age Group (rural)

Figure 6 provides the evidence that in the rural area the public programmes, family transfers and, to a lesser extent, pensions, are the main income's sources, but total income drops dramatically to less than 1 000 pesos a month for the oldest subgroup. Although government programmes do not provide a very high amount, in the rural area they are the most important income source for EP above 80 years old and the second most important for people between 71 and 80 years old (figure 8). Public programmes account about 40% of total income in rural areas.

Accordingly, EP living in rural areas are more vulnerable, due to their greater dependence on public programs-which are subject to budget availability and bureaucratic procedures-and family transfers, but the true underlying reason is the low total income.



Source: Authors' calculus with INEGI, 2010 data.

Figure 7
Percentage Composition of Total Income per Age Group (urban)

Pensions and other (family) transfers are the main income's sources in urban areas (figure 7), while the government programmes have a marginal role, as they account less than 10% of total income. Urban residents enjoy a higher labour income up to the age of 70, thereafter pensions becomes their relevant income's source.



Source: Authors' calculus with INEGI, 2010 data.

Figure 8
Percentage Composition of Total Income per Age Group (rural)

Economic vulnerability can be reduced through social networks because they may serve as a mechanism to soften the consequences of those events that may impact EP's economic stability. A measure associated with the strength of such networks, available in INEGI, 2010, consists on how EP perceive the easiness they might receive support when facing an adverse event. The answers, through a Likert scale, had five options (very easy, easy, regular, hard, and very hard). Summing up the percentages corresponding to the "very easy" and "easy" options, the average results shows that social networks are more prone to support EP when they need help to "go to the doctor" (68.9%), for "illness care" (52.8%), or "children care" (47.5%). Neverthe-less, networks provide a limited support for "economic assistance" (13.29%) and when EP are "seeking employment" (11.50%). Although women consider getting support from their friends and neighbours easily, for all answers, the average difference between genders does not reach 4 percentage points; so a gender bias seems not interfering with results.

5. Conclusions

Mexico's ageing demographic process, witnessed a continuous upward movement of those indexes measuring elderly participation growth. Thus, while by 2010 Ageing Index (AI) was 9.0% and the Elderly Economic Dependency Index (EEDI) was 14.7%, it is expected that this process will deepen over the next years, raising AI up to 14.6% and doubling IDEE (28.1%) by the 2030. At macro level, this process will lead to a growing im-balance between the EP and the labour force, a situation that will exert a significant pressure on health care and social security systems, especially pensions. The public sector will not be the only one involved; important changes at family (micro) structure level and focused on internal organization will have to be enacted as many of the problems related to the ageing process will call for complementary support at household level.

Ageing process is associated with people's skills and abilities loss, imposing challenges to meet basic needs and incrementing vulnerability. An individual is more vulnerable to the extent in which an unexpected event affects her/his well-being, due to low income, lack of assets or weak social networks. Accordingly, mostly based on INEGI, 2010 statistics, economic vulnerability of Mexican EP was analysed for age subgroups, gender, education level, impairment, and employment status, access to health care services, poverty level at urban and rural areas, as well as their total income –both amount and composition– and social networks.

In order to discuss the relationship between EP's economic vulnerability and their total income level in detail, we focused on incomes sources such as wages, transfers (pensions, family transfers and public programmes targeting EP) as well as yields and real estate's rents. Work force participation in the labour market drops after the 70 years old threshold; it follows that EP's total income falls despite other sources (i.e. pensions) mildly contribute to smooth such contraction. Although EP can adjust their consumption basket, because the low income they can hardly meet all basic needs.

It is important to take into account that EP's health conditions tend to worsen as age increases, while a high percentage of EP do not have access to health care system. This situation increases economic vulnerability *vis-à-vis* health expenditures, and eventually pressing on younger generation's finances. Women constitute the most likely group to fall into poverty because of their

engagement in unpaid activities. Often, in the short run, women employed in the informal economy receive low wages and at the retirement they do not receive any pension. This is a very important problem in most of the less development countries. The greatest part of male total income for younger EP subgroups comes from labour; for oldest ones it comes primarily from pensions, and to a lesser extent from family transfers.

EP's total income composition differs according to each area; in urban areas, the main income component is represented by pensions, while family transfers and government programmes have a small share. Meanwhile, in the rural ones, it is mainly constituted by public programmes and family transfers.

Despite the composition differentials, EP's incomes are low, especially in the rural area, although it can be expected that consuming their own production will allow reducing nutritional deficiencies. No matter adjustments, averages values indicate that total income amount is still too low, very low.

Even when social networks may partially counteract low income effects, benefits stemming from social ties apply only in some situations like "going to the doctor" or for "illness care" and, to a lesser extent, for "economic assistance" and "seeking employment". Thus, they may constitute a short run relief, but not a long run solution.

The economic outlook for the elderly in the next few decades is not promising. People who joined the labour market in the 1980's had little, or no opportunity, to accumulate assets and wealth due to the recurrent economic crises. Both the crisis of 1994 and the unemployment that followed, did not create formal employment but continue boosting informal activities that inhibit qualifying for a pension at the time of the retirement. In fact, since 1980, a sustained expansion of the informal labour market represents a safety valve in order to earn some income. Thus, even if the informal economy has been the only alternative for several generations, and still today continues to be the short run working alternative, in the long run, due to the pension system reform, it would inevitably lead to an almost total evaporation of income—especially for those whose could not accumulate enough wealth—; the consequence will be EP higher poverty and economic dependence.

After comparing birth and mortality rates trends in Mexico, in the next decades we will witness an increase in the number of EP that will live longer

and their income will be insufficient to meet their basic needs. Therefore, EP will be more economically dependent on younger generations that are already having serious difficulties to enter into the formal labour market. Ironically, here is 'another feather in the cap of EP's economic vulnerability', since a greater reliance on youngest generations' support will also affect their ability to accumulate wealth useful for their retirement age. A vicious circle might start leading to a higher intergenerational poverty.

Those elements that can contribute to change this trend should be included in the macroeconomic agenda, while taking into consideration that any relief will not be appreciated in the short run. We posit that it is of paramount importance to create a significant number of formal jobs with better wages. Formal jobs are associated with ensuring a pension and access to health care services that allow lessening economic vulnerability. Wealth accumulation shall be promoted to constitute an avenue to deal with unexpected events. EP's public programmes cannot be eliminated, especially in rural areas because they represent an important income source of elderly. In these areas, where poverty, social exclusion and economic structural problems are greater, public programmes for elderly are more important for transferring economic resources and services as well.

Based on the modifications of the population pyramid that will occur in the next few decades a resource reassignment of the federal budget in favour of EP could be made. The natural ageing process could justify a budget reallocation from the age groups that are reducing their participation at national level in favour of those whose participation is increasing.

Increasing the retirement age, an unpopular measure broadly implemented in European Union, among other countries, will delay income fall and will maintain social benefits as long as EP are employed in the formal sector. However, in order to contribute to the discussion on the matter, we think we would not explicitly recommend such alternative because: *a*) it would delay time to qualify for a pension but not assuring people that will maintain their job; *b*) a large part of the working force is employed in the informal sector and *c*) it is a palliative but not a definite solution to the problem as, eventually, retirement age should be moved ahead even further in the near future.

Finally, the main source of information of this paper does not allow combining health care, food and housing expenses to calculate EP's expenditures, as these topics were not included in the survey. The lack of

statistical information in this regard is a relevant obstacle, since it does not allow comparing the EP's income with the expenses at individual level. In fact, EP can share both the housing as other goods and services with other household's members. A multidimensional time series research of this age group is advised in order to fully identify EP vulnerability sources under a human rights' perspective.

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