

Substantial difference between private and public pensions in Mexico 2018-2021

Істотна різниця між приватними та державними пенсіями в Мексиці 2018-2021

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Purpose: is to analyse the issue of defined-benefit or defined-contribution pensions and retirements in Mexico and to detail and compare the pensions and retirements received by workers in the private sector and those in the public sector.

Method: deductive method, abstraction, analysis of statistical data, descriptive analysis.

Findings: The hypothesis that there are privileges and disincentives in the multiple Mexican pension systems is proven; benefiting public sector workers, especially those who worked in organisations considered decentralised (PEMEX, CFE, IMSS-employer, autonomous and others), bringing demotivation for those who worked in the private sector and obtained IMSS pensions, when both workers made similar efforts to improve their standard of living and quality of life in their retirement.

Paper type: theoretical.

Key words: pension, social security, retirement, economic forecasting, labour law.

Мета роботи: полягає в аналізі питання пенсійного забезпечення із визначеними розмірами виплат або внесків і виходу на пенсію в Мексиці та деталізувати, порівняти величину пенсії та пенсії, які отримують працівники приватного та державного секторів.

Метод дослідження: дедуктивний метод, абстрагування, аналіз статистичних даних. Описовий аналіз.

Результати дослідження: Гіпотеза про наявність привілеїв і обмежень у багатьох мексиканських пенсійних системах доведена; приносячи користь працівникам державного сектору, особливо тим, хто працював в організаціях, які вважаються децентралізованими (PEMEX, CFE, IMSS-employer, автономні та інші), забезпечуючи мотивацію для тих, хто працював у приватному секторі та отримав пенсію IMSS, коли обидва працівники докладали однакові зусилля для покращення їхнього рівня життя та якості життя на пенсії.

Тип статті: теоретична.

Ключові слова: пенсія, соціальне забезпечення, вихід на пенсію, економічне прогнозування, трудове право.

1. Introduction

In Mexico, as in the rest of the world, people are living longer and longer; proof of this is that life expectancy for a woman in the country is 79 years, while for a man it is 74 years. This has caused social security and pensions to acquire a relevant importance in recent times, where 83% of employed Mexicans are affiliated to the Instituto Mexicano del Seguro Social (IMSS) – Mexican Social Security Institute.

At the federal level, the institutions with the most important pension and retirement schemes in the country are IMSS; Instituto de Seguridad y Servicios de los Trabajadores del Estado (ISSSTE) – Institute of Security and Social Services for State Workers; Instituto de Seguridad Social para las Fuerzas Armadas Mexicanas (ISSFAM) – Institute of Social Security for the Mexican Armed Forces; Petróleos Mexicanos (PEMEX) – Petroleum Mexicans; and Comisión Federal de Electricidad (CFE) – Federal Electricity Commission; as well as development banking, the Judiciary and state public universities, cases in which labour relations are formalized with an individual or collective labour contract (ASF, 2019a, p. 6). In the state case, we will refer in the last part of this paper to the Instituto de Seguridad Social del Estado de México y sus Municipios (ISSEMYM) – Social Security Institute of the State of Mexico and Municipalities.

The aim of this article is to analyse the issue of defined-benefit or defined-contribution pensions and retirements in Mexico, which correspond to the so-called transitional regimes, the main ones being Law 73 of the Mexican Social Security Institute (IMSS) and the tenth transitory

article of the Institute of Social Security and Social Services for State Workers (ISSSTE). The aim is to detail and compare the pensions and retirements received by workers in the private sector and those in the public sector.

In order to achieve the proposed objective, we need to answer the following questions: How unequal are private-sector pensions with respect to public-sector retirements in Mexico? If inequality exists, where does it come from or where does it originate? How unequal are retirements in the Mexican federal public sector?

Hypothesis

We start from the hypothesis that there is marked heterogeneity in the Mexican pension system, based on the unequal origins and legal foundations, which leads to the existence of privileges and discouragements at the end of the working life of Mexican workers, as a result of the fragmentation of pension and retirement subsystems that are not proportional.

Proof of this is that until 2018, the Federal Supreme Audit Office (2019a, p. 13) reported that there was only one defined benefit pension scheme for private sector workers, while there were 69 defined benefit pension and retirement schemes in the public sector, of which 29 corresponded to state public universities; 11 to parastatal companies or companies in liquidation; 6 to national credit companies.

The pension systems in our country have varied and unequal origins and legal foundations, leading to a multiple fragmentation into several subsystems that are not related or proportionate to each other, which is why it is claimed that there are privileges and discouragements at the end of the working life of Mexican workers. In the opinion of Villarreal and Macías, the pension system in our country is very complex, with seven institutions that grant benefits in contributory and non-contributory schemes, to which are added those of federal entities, municipalities and universities "Therefore, the Mexican pension system is fragmented, with disparate rules and requirements among them and unequal benefits for the population" (2020, p. 7).

2. Data and methods

The article is framed under the deductive method, which allows us to access knowledge through reasoning and abstractions with a high degree of universality (Finol & Vera, 2020, p. 10), following a hermeneutic paradigm, which is based on personal experience and the approach is of a mixed nature (García, 2020, p. 34-35), since both qualitative discussion and quantitative information is presented, presenting indicators and statistics that analyse the Mexican pension segment.

Information is collected with secondary data and no samples or questionnaires of any kind are collected. Most of the information presented comes from information sources of the IMSS (which has multiple presentations of information that facilitate the analysis of the data) and the ISSSTE (which presents public information in a segmented manner and with little variety), with less publicly accessible information presented by decentralised public bodies that have special pension segments (Petróleos Mexicanos, Federal Electricity Commission, Judiciary, Public Universities).

One of the public institutions that has been analysing the pension and retirement system is the Auditoría Superior de la Federación (ASF), which reports to the Chamber of Deputies of the Mexican Legislative Branch, and which carried out an in-depth analysis of all public sector retirement schemes in 2018, as a result of its functions of monitoring and evaluating the federal public budget. Important data provided in their reports are taken from this analysis.

This article does not use elements of statistical inference, presenting only elementary statistics to understand the description and analysis of Mexico's pension and retirement systems. In this way, a descriptive analysis of the pension phenomenon is carried out in a general way.

3. Results and Discussion

The *Instituto Nacional de Estadística, Geografía e Informática (INEGI)* -National Institute of Statistics, Geography and Informatics- reports that on December 14, 1990, the United Nations General Assembly designated October 1st as the International Day of Older Persons. On the subject of the gradual aging of the population, Villalobos López (2021, p. 2) wrote that in 1973 the film *Soylent Green*, starring Charlton Heston, was released, which indicated that in the year 2022, old people would be 'put to sleep' forever by ingesting pills, evoking music and videos with natural landscapes and extinct animals for that year.

According to information from INEGI (2021, p. 4) of December 2021, Mexico has 15.1 million people aged 60 years or older (12% of the total population), who have the following characteristics:

- For every 100 children under the age of 15, there are 48 adults aged 60 or older.
- Almost three million adults aged 60 and over are not affiliated with a health institution, representing 20% of this age group.
- In 1990, there were 5 million adults aged 60 and over in the country, representing 6% of the total population; this figure will increase to 12% in 2021.
- According to the 2020 Census. 2.4 million Adults aged 60 and over cannot read or write (16% of that age group).
- 29% of the population aged 60 or older is economically active (working).
- The 2020 Census reports that 52% of adults aged 60 and over have some limitation or disability (*Consejo Nacional de Población*, 2021).

The older population is conditioned that they could no longer perform crucial activities of daily life, according to the Ministry of Social Development (cited by Martínez & Absalón, 2018, p. 34) 25% of people over 65 find it difficult to perform their daily acts.

Two terms are often used as synonyms: pension and retirement, in different countries have different meanings of these two terms, in that sense Villalobos López (2021, p. 1) points out that the fundamental difference between pension and retirement is that in the first case the benefit will not be received directly from the employer, but from a fund or mass that he accumulated during his entire working life, while the second implies obtaining the benefit from the employer whom he served during his entire productive life.

In this sense, Ruiz Moreno (2020, p. 45-50) mentions that retirement is always of a labour nature and the direct responsibility of the employer to grant it, while the pension is of a nature that concerns social security, with an example explaining this difference: the IMSS and the National Union of Workers of IMSS enter into a collective labour contract, by which they combine work welfare benefits with social security benefits, whereby the Institute retires its employees, while it pensions the insured population that worked in private companies.

3.1. IMSS pensions in Mexico

One of the most important characteristics that distinguishes economic growth from economic development is basically that the latter seeks a permanent increase in the living conditions of the population, to be achieved through better levels of education, health, environment and social security, while economic growth only concentrates on the permanent and continuous increase of per capita income or production. Villalobos López in the mid-1980s stated: "One of the fundamental aspects for increasing the production capacity and productivity of the country's workers is, without a doubt, social security" (1986: 177).

From information provided by the *Auditoría Superior de la Federación (ASF)* – Superior Audit Office of the Federation (2019a, p. 28), I can highlight these comments:

- Mexico had in 2013 86.1 million people over fifteen years old and with 52.4 million people categorized as economically active population (EAP), going in 2018 to 93.8 million population over fifteen years old and with 56 million EAP.
- In 2013, 36.6% of the country's EAP had contributory social security systems (63.4% did not); by 2018, the situation has improved somewhat, with 41% of the EAP representing the population with contributory social security (59% did not). The population with social security increased by 4.4 percentage points in a five-year period (2013 to 2018).
- Of the EAP with social security in 2013, IMSS absorbed 84.7%; ISSSTE 12.8%; ISSFAM 1.3%; the rest was held by PEMEX, CFE and public universities. By 2018, IMSS absorbed 86.3%; ISSSTE 11.3% and ISSFAM 1.1%; observing an increase in the relative participation of IMSS and a decrease of ISSSTE and ISSFAM, while PEMEX and CFE remain constant.

According to the most recent information, which pertains to the year 2021, Table 1 was prepared, which contains information on IMSS / ISSSTE pensioners,

Table 1 – Pensioners in IMSS-ISSSTE as of December 2021

Type of Pension	IMSS	ISSSTE	SUMA
Severance / Old Age	2,495,194	1,111,575	3,606,769
%	56.6%	88.9%	63.7%
Other Pensions	1,914,383	138,304	2,052,687
%	43.4%	11.1%	36.3%
TOTAL	4,409,577	1,249,879	5,659,456

Source: Own elaboration. With data from IMSS: Dynamic Query (CUBOS): Economic Benefits. National Total Pensioners (April 2022); ISSSTE: Statistics, Yearbooks 2021. Pensions in force by type of pension according to type of regime (December 2021).

Of the IMSS pensions, 2.5 million pensioners corresponded to the types of severance at advanced age and old age (56.6% of total IMSS pensions); while the ISSSTE had 1.1 million retirees for severance at advanced age and old age (63.7% of total ISSSTE pensions). The table does not show this, but by 2020 the ISSFAM (Diario Oficial de la Federación, 2020) presents 130,417 pensioners, of which 75.7% correspond to unemployment and old age, while the Social Security Institute of the State of Mexico and Municipalities (ISSEMYM, 2021, p. 6) for 2021 presents 73,796 retirees without specifying how many correspond to unemployment and old age.

The Mexican population in 2021 was considered to be 128.9 million people, which means that the 5.7 million IMSS-ISSSTE pensioners represented 4.4% of the country's total population for that year, which shows the importance of pensions and retirement for our nation.

Table 1 shows the two major pension systems in the country from 2013 to 2018. The contributors to the defined benefit regime are decreasing over time, they decreased 10% from 2013 to 2018, while workers contributing to the individual account's regime increased 45.3% in the same period.

With information from the *Auditoría Superior de la Federación* (2019a, p. 31), in 2013 there were 19.16 million workers with social security in the country, of which 45.8% belonged to the defined benefit regime and 54.2% to the individual account's regime; by 2018 there were 22.98 million workers with social security at the national level, of which 34.4% were in the defined benefit regime (in transition) and 65.6% under the individual account's regime. With which we appreciate that as time goes by and specifically in a five-year period (2013 to 2018) there was a decrease of 11.4 percentage points in the defined benefit regime (schemes in transition). The above data showed that 1 in 3 workers is under the defined benefit pension system by 2018.

Of the 7.9 million active workers in the transition system (defined benefit) in 2018, the IMSS absorbed 79.3%; the ISSSTE 14.4%; the ISSFAM 3.3%; presenting the remaining 3% the country's productive public companies (PEMEX and CFE) and state public universities.

To see the magnitude of the problem of different pension and retirement schemes present in Mexico, in 2018, 69 defined benefit schemes were found in the federal public sector, of which 29 corresponded to state public universities; 11 to state companies or in liquidation; 6 to national credit societies (ASF, 2019a, p. 13).

Since the IMSS presents pensions and retirements for the country's private initiative workers plus its own workers, for purposes of distinction between these two subsystems, those who are not its direct workers I will call hereafter IMSS-insurer and those who are its workers directly IMSS-employer.

The calculation basis is fundamental to determine the amount of the pension or retirement, as an example, in the privileged productive public companies (PEMEX and CFE) the tabulated salary plus other labour benefits that the public servant had in the last year is considered, while the IMSS-insurer takes into account the base salary of contribution of the last 250 weeks (5 years), with the consequent inflationary deterioration of that five-year period, so the base is much lower than that of public institutions, while the ISSSTE uses tabulators by position as a reference of the last year of base salary (ASF, 2019a, p. 14).

As we will see below, when I talk about retirements: IMSS-employer, ISSSTE, PEMEX and CFE the conditions and especially the amounts of retirements change substantially, observing privileges that are not seen by the vast majority of pensioners in the country who belong to the IMSS-insurer, even when some and other workers made the best effort in the journey and duration of their working life.

With information provided by the Superior Audit Office of the Federation (ASF, 2109a, p. 84-92), I derive these comments on the defined benefit regime in the country that was presented in 2018:

- Mexico had 3.29 million pensioners and retirees under the unemployment at advanced age and old age regime, presenting this configuration: IMSS-insurer 66.8%; IMSS-employer 7.8%; ISSSTE 1.6%; PEMEX 1.6% and CFE 1.3%.

- In the IMSS-insurer, more than 1.53 million pensioners received between 1 and 5 thousand pesos per month, representing 69.8% of total IMSS pensioners and 46.7% of the total number of pensioners in the country under the defined benefit system.

- In the IMSS-insurer, 13.1% of its defined benefit pensioners received between 5 and 10 thousand pesos per month, so that 82.9% of its pensioners received less than 10 thousand pesos per month. Only 1.5% of its pensioners received more than 40 thousand pesos per month.

- In the IMSS-employer 2.4% of retirees receive less than 10 thousand pesos per month; 92.5% receive between 10 and 40 thousand pesos per month; and 4.6% receive more than 40 thousand pesos per month.

- In the ISSSTE, 27.4% of its retirees receive less than 10 thousand pesos and 72.6% receive between 10 and 40 thousand pesos per month.

- 57.8% of PEMEX retirees earn between 10 and 20 thousand pesos per month; 10.2% earn more than 40 thousand pesos; and 5% earn between 60 and 200 thousand pesos per month.

- In CFE 25.3% of its retirees earn between 20 and 40 thousand pesos per month; 34.4% from 40 to 60 thousand pesos; 18.3% from 60 to 80 thousand pesos; 7.9% from 80 to 100 thousand pesos; 10.8% from 100 to 200 thousand pesos; and 655 privileged retirees (1.5% of CFE) earn more than 200 thousand pesos per month.

- The crude reality of such unequal pensions in Mexico can be seen with this data: the IMSS-insurer had a total of 2.2 million pensioners and CFE presented 43,313 pensioners in 2018 (51 times less than IMSS-insurer), even so IMSS-insurer had 2,270 pensioners receiving from 60 to 80

thousand pesos per month, while CFE presents in that range 7,934 pensioners, that is 3.5 times more than IMSS-insurer despite being 50 times smaller. Furthermore, the CFE has 8,773 retirees who receive from 80,000 to more than 200,000 pesos per month (these are the true golden or privileged retirees).

The age of retired workers is another factor that determines a better pension or retirement in Mexico. In the case of the IMSS-insurer, the pension for severance at advanced age is granted when the insured reach 60 years of age, and in the case of the old age pension, it is granted when they reach 65 years of age. Since the pension is granted in the IMSS-insurer based on the contribution of the last 250 weeks (5 years), the purchasing power of the previous year's means that between 80% and 85% of the last salary received is reached when the maximum pension is reached (65 years of age); if it were an old-age severance pension, 75% of it would be obtained, that is, between 60% and 64% of the salary of the last year of contribution.

In the case of the ISSSTE, retirement for federal public sector workers is given with 30 years of service and where the minimum age for retirement in 2022 is 55 years for women and 57 years for men (which increases with the passage of two years of time requiring one more year of age for retirement), reaching 100% of the tabulated salary of the last year (without bonuses or gratuities).

IMSS-employees who signed their contract before 2005 reach retirement with 27 years of service for women and 28 years for men, and can reach up to 129% of their last tabulated salary. For workers who signed their contract after 2005, retirement will be reached at 60 years of age and with 34 years of service for women or 35 years for men.

Until 1988, IMSS-employer workers could obtain a double pension: retirement as a public servant of the Institute and pension as an insured person, which ceased to have any effect due to the abuse committed (Flores & Rubio, 2011, p. 67).

The *Instituto Mexicano de Ejecutivos de Finanzas (IMEF)* -Mexican Institute of Finance Executives- (2004, p. 6) presents a very illustrative table of the pensions that workers of the IMSS-employer (hired before 2005) and of the IMSS-insurer would reach, with a hypothetical salary of five thousand pesos per month in both cases in 2004, presenting these figures:

- Years of work: IMSS-employer 27 for women and 28 for men; IMSS-insurer 40 years (women and men), considering entering work at age 20.
- Pension age: IMSS-employer 52 (women) and 53 (men) years. IMSS-insurer 60 to 65 years.
- Monthly income: IMSS-employer \$6,450 pesos; IMSS-insurer \$2,106 pesos.
- Income paid during pension: IMSS-employer \$2'557,425 pesos; IMSS-insurer \$506,415 pesos.
- Annual increase: IMSS-employer with salary increase; IMSS-insurer by inflation index.

In the IMSS-employer the ratio of active workers to retirees was 10.6 times in 1980, reducing to 2.5 in 2005 (Flores & Rubio, 2011, p. 88), with the Institute having to make extraordinary expenditures for its retirees in more recent years, to appreciate the magnitude of the problem of IMSS-patron retirements, Mikel Arriola, then director general of the IMSS, stated that the institute will face an expense of more than 2 trillion pesos for the next 70 years, externalizing, "it is a universe of 270 thousand people who collect a pension 800 percent higher and who graduate to be pensioned at 52 years of age" (Cited by Leal, 2019, p. 58).

In the case of PEMEX workers, they can retire with 55 years of age and at least 25 years of service, receiving more than 80% on average of the last year's salary, and can reach more than 100%, depending on the increase in age and years of service, until they reach 60 years of age and at least 30 years of service.

In CFE it is possible to obtain a double pension, by complying with the requirements established by its own by-laws, they would reach a retirement and the pension could be obtained

as a beneficiary of the IMSS, in a similar situation where previously the workers of the extinct *Luz y Fuerza del Centro*.

In a similar situation, there are also the workers of state public universities that sometimes can enjoy a double pension, retirement by their university and pension by the IMSS, in this regard Martínez et al (2017, p. 30) indicates that workers of various universities in the country continue to have double benefits in their retirement, as is the case of the *Universidad Autónoma Benito Juárez de Oaxaca (UABJO)* – Autonomous University Benito Juárez of Oaxaca, for which they are causing very acute problems and the collapse of the financial situation of the universities.

In additional form of their retirement, UABJO workers will receive benefits equal to those received by active workers and that is not all, if workers are under 60 years old and reach retirement in the university, the university has the obligation to pay the *Continuación Voluntaria en el Régimen Obligatorio (COVORO)* – Voluntary Continuation Fees in the Mandatory Regime or modality 40 of the IMSS, until the pension for severance at advanced age is reached (Martínez et al, 2017, p. 35).

Professor Ruiz Moreno (2020, p. 45-50) indicates that a teacher at the *Universidad de Guadalajara (UdeG)* has full and unwaivable right to two different pensions: labour retirement pension, for which the UdeG will have to respond; and social security pension for severance at advanced age or old age, which will be in charge of the IMSS, because during his working life he contributed in the two systems, although different from each other complementary.

In terms of gender, in Mexico women live 5.8 years longer than men, which leads to a deeper gap between public sector pensions (IMSS-employer, ISSSTE and CFE) that establish less time of service and age attained to achieve this benefit for women, which of course does not happen in the IMSS-insurer (ASF, 2019a, p.16-17).

Speaking of the financing of pensions and especially retirements, the current spending of the federal public sector pays the vast majority of the amount of pensions, Villarreal & Macías (2020, p. 7) estimate that only 7.3% of spending related to pensions and retirements in the country is paid by worker-employer contributions.

With information from the Public Account of *Secretaría de Hacienda y Crédito Público* (2019; 2020; 2021: Volume I) of the general branch, the item of contributions to social security represented 13.7% of the total budget exercised in 2019; 14% in 2020; and 13.9% in 2021; with an average in this three-year period of 13.9%. Representing 3.28% of GDP in 2019; 3.71% in 2020; and 3.75% in 2021, with a three-year average of 3.58% of GDP.

Villarreal & Macías (2020, p. 7) mention that in 2017 pension expenditure at the national level is equivalent to 3.12% of GDP, of which the defined benefit is 95% and the remaining 5% is for non-contributory pensions (program for the elderly), estimating that the projections for the defined benefit's regime will stand at 5.2% of GDP by 2030, apart from the expenditure on individually funded pensions and non-contributory pensions will have to be added.

As of August 31, 2020, there were 19.6 million jobs registered in the IMSS (86.3% permanent and 13.7% temporary); in other modalities, 7.3 million are affiliated to the Optional Insurance; 230.4 thousand are enrolled in the Family Health Insurance; and close to 191 thousand people are affiliated to the Voluntary Continuation of the Mandatory Regime (Sagnelli, 2020). In information on IMSS pensions over the last 22 years, a table is presented

From Table 2, I can derive the following comments on IMSS pensions:

- In 2000, there were 1.8 million IMSS pensioners, with almost two thirds (63.3%) of pensioners in that year corresponding to disability and life insurance (51.8%); one fourth (25.2%) to severance and old age pensions and 11.5% to old age pensions.
- In April 2022, the IMSS already had 4.6 million pensioners in total, with a balance between old-age and severance pensions and disability and life pensions, where the former covered almost half of all pensions.

Table 2 – IMSS Pensioners 2000-2022

Year	Total	Severance	%	Old age	%	Other	%
2000	1,802,352	453,713	25.2%	207,280	11.5%	1,141,359	63.3%
2005	2,222,157	691,821	31.1%	248,394	11.2%	1,281,942	57.7%
2010	2,684,716	984,009	36.7%	289,097	10.8%	1,411,610	52.6%
2015	3,343,756	1,387,515	41.5%	355,135	10.6%	1,601,106	47.9%
2020	4,251,857	1,933,717	45.5%	449,552	10.6%	1,868,588	43.9%
Apr.2022	4,629,747	2,143,022	46.3%	473,063	10.2%	2,013,662	43.5%

Source: Own elaboration. With data from IMSS: Dynamic Query (CUBOS): Economic Benefits. Total National Pensioners (April 2022)

- Old-age pensions have been losing their share of total IMSS pensions, from 11.5% to 10.2%.
- From 2000 to 2022, severance and old-age pensioners grew 4.72 times in relation to the first year, while old-age pensioners grew 2.3 times and other pensions (disability and life) grew 1.8 times, which shows the dynamic growth of severance and old-age pensions in the IMSS.

On the other hand, updating with more recent information, as of December 2021, the National Occupation and Employment Survey of *Instituto Nacional de Estadística, Geografía e Informática* (INEGI, 2022, p. 4-11) reported that Mexico's economically active population (EAP) was 59 million people, of which 56.9 million people (96.5%) were employed. Of this number, 24.8 million people (43.5%) are employed in the formal sector of the economy, while 32.1 million people (56.6%) were employed in the informal sector.

The only way that this large number of Mexicans will be able to obtain resources in their old age is the pension for the elderly, which in theoretical and conceptual terms is more of a subsidy or transfer than a pension. Non-contributory pensions in the country, or pensions for the elderly, were born in the government of the Federal District in 2001 (headed by López Obrador). At that time, the amount of 600 pesos per month was granted to people 70 years of age or older, who presented at least three years of residence in the capital of the country, starting with 250 thousand people.

In 2006, the federal government took that idea and the Secretariat of Social Development implemented it nationwide, as long as they did not have another type of pension (Pérez & Camacho, 2018, p. 104). In order for that federal aid to reach more people, in 2013 the age of people is lowered to 65 years old, seeking as a public policy to combat the situation of poverty in older adults, granting the payment of that non-contributory pension on a bimonthly basis.

The following is the case of privileged pensions and retirements granted in our country, Forbes (quoted by RIOaxaca, 2019) makes it clear that of the economically active population, 60% do not have social security, which will make them unable to have a contributory pension, according to Forbes inference in the country more than 8 thousand pensioners belonging to the defined benefit regime (in transition) received more than 100 thousand pesos monthly, while 2.8 million IMSS pensioners lived on less than five thousand pesos a month.

Although in reality, according to the information presented above, it is recognized that retirees earning more than one hundred thousand pesos (all from public institutions) amounted to 5,734 retirees. Thus, the Superior Audit Office of the Federation (2019b, p. 46) would express that there are 5.5 million defined benefit pensioners who receive amounts ranging from one thousand to two hundred thousand pesos per month, as a consequence of the Mexican pension disorder that has 69 pension schemes in total.

With information from Guillermo Rivera (2017), I present these data that tell us about the privileges enjoyed by PEMEX retirees five years ago:

○ President E. Peña Nieto received 359 thousand pesos gross per month and senators in 2017 received 228 thousand pesos gross per month, while 14 PEMEX retirees received more than 238 thousand and up to 362 thousand pesos monthly, which meant between 98 times and 150 times the minimum wage of that year.

○ In accordance with the regulations on transparency that govern the nation, the journalist (Rivera, 2017) presented this information (in Mexican pesos):

1. Pedro Silva López, corporate director of Research and Development: 362,432.
2. Miguel Tame Domínguez, director of Pemex Refining: 271,585.
3. Alejandro Martínez Sibaja, director of Transformation: 280,288.
4. Carlos Morales Gil, director of Exploration and Production (PEP): 250,000.
5. Manuel Ortiz Javier de M., also from PEP: 238,000.
6. Enrique Vázquez Domínguez, of Pemex Refining: 248,000.
7. Luis Puig Lira, of Pemex Petrochemicals: 298,000.
8. Armando Leal Santa Ana, of Pemex Refining: 249,000.
9. Roberto Ramírez Soberón, of Gas and Petrochemicals: 255,000.
10. Marcos Ramírez Silva, Corporate Director of Operations: 255,000.
11. Jaime Hernández Balboa, deputy director of Projects and Construction: 248,000.
12. Víctor Manuel Alcérreca, director of the Mexican Petroleum Institute: 248,000.
13. Abundio Juárez Méndez, sub-director of Primary Production: 248,000.
14. Roberto Osegueda Villaseñor, Director of Strategic Planning: 218,000.

The average age to retire in PEMEX is 55 years old and with 25 years of service, with which they could obtain 100% of the salary of the last year, recalling Pedro Vázquez C. (Rivera, 2017) that in the OECD the average pension is obtained with 57% of the salary of the last year. Bringing up that in the IMSS it is required to reach 60 or 65 years of age, with pensions ranging from 60% to 80% of the salary received in the last year.

In the case of IMSS workers, the pressure on public finances will be present at least until the year 2039 to 2044, when workers 18 years of age registered in the Institute before June 30, 1997, reach 60 or 65 years of age, in order to opt for old age severance or old age pensions, with the possibility of extending their maintenance for additional years, depending on their life expectancy in the future.

But in the case of public pensions (ISSSTE, IMSS-employer, PEMEX and CFE) these years would be extended by at least another decade, since the reforms in the retirement schemes took place a decade later (2007 onwards). Treviño & De la Luz comment on the pension reforms of 1997 and 2007: "The reform to the pension systems (IMSS, 1997; ISSSTE, 2007) aimed to provide financial viability to the institutions responsible for making pension payments" (2017, p. 59).

One of the fundamental points of concern for the nation's public finance specialists is the ceiling established by the IMSS administrative authorities of 25 *Unidad de Medida y Actualización (UMA)* -Unit of Measurement and Updating- for the quotas and pensions granted, instead of the 10 minimum wages established by case law by the Supreme Court of Justice of the Nation. In this regard, the Federal Supreme Audit Office (ASF, 2019a, p. 37) points out that the IMSS should immediately and gradually regulate the maximum ceiling for quotas and pensions, in order to avoid further pressure on the already punished public finances.

In 1970 the population over 60 years of age in our country was 2.7 million people and in 2020 it reached 14 million, which represents 5.2 times more than in 1970, when the total population of the country in that period grew 2.6 times more, so that the rate of older adults doubled the population rate in half a century.

An important indicator for the analysis of pensions is the ageing index, which shows the number of older adults (over 60 years of age) for every one hundred children, expressed as a

percentage. The National Institute of Statistics, Geography and Informatics (INEGI, 2016) marks the ageing index for these years: 16% in 1990, 18.5% in 1995, 21.3% in 2000, 26.4% in 2005, 30.9% in 2010 and 38% in 2015. Appreciating a growth rate of more than double in 25 years.

The ageing index phenomenon is even greater in the case of women in the country, according to data from the *Consejo Nacional de Evaluación de la Política de Desarrollo Social (CONEVAL, 2021)* [National Council for the Evaluation of Social Development Policy] in 2019, for every 10 older adults, there are 6 women, with this they have identified a phenomenon known as 'feminization', taking into account that life expectancy in the country is 75 years in general, where men present 73 average years and women 78 average years of life.

A fundamental indicator to be able to compare the case of Mexican pensions with other countries, is the Melbourne Mercer Global Pension Index (MMGPI), which in 2019 rated 37 countries in reference to the pension systems that each nation had, making reference that with its indicators contemplated two thirds of the world's population. In the 11th MMGPI-LATAM (2019) Mexico was ranked 33rd, with 45.3 rating points, where the average of the countries was 59.3 points and the best rated countries are: Holland 81; Denmark 80.3; Australia 75.3; Finland 73.6; Sweden 72.3; Norway 71.2; Singapore 70.8; New Zealand 70.1; Canada 69.2 and Chile 68.7 (within the first ten places), United States 60.6; Colombia 58.4; Peru 58.5; Brazil 55.9 and Spain 54.7.

Below Mexico were only Argentina (39.5 points) and the last three countries to join the MMGPI: the Philippines, Turkey, and Thailand. Compared to the pension system of low countries, the Mexican system denotes fragmentation and weakness, despite the 1997-2007 reform of the transitional pension system, whereby pension beneficiaries will obtain different benefits (Auditoría Superior de la Federación, 2019a, p. 26).

For Ruiz Moreno (2020, p. 18) the issue of pensions in Mexico has overtaken us, where the federal expenditure budget is no longer supporting the expenditure generated by pension rights, observing that pension systems at national level are on the verge of collapse or technical bankruptcy. The author of reference (Ruiz, 2020, p. 78), states categorically that the creation of the bodies in charge of pensions has been managed with a evident lack of legal orthodoxies and with discretionary policies.

The amount of liabilities for defined benefit pensions and retirements is putting the national public finances against the ground, with the reforms to the social security law in 1997, only the IMSS-insurer recognized liabilities equivalent to 42.6% of GDP, an amount greater than the nation's total public debt, which was equivalent to 38.1% of GDP (7.6% internal and 30.5% external), liabilities that would increase as the number of pensioners in the country increased (González, 1997; cited by Treviño & De la Luz, 2017, p. 66-67).

As we have seen before, people live longer in the country and in the world, Augecorp Artificial Intelligence (2020) notes that according to their studies, in 1943 an IMSS pensioner lived an average of 6 years as a pensioner, while in 2020 they survive an average of 20 years as a pensioner. Thus, from 1943 to 2020, IMSS pensioners live an average of 14 years longer than when the country's social security law was created, increasing the budgetary expenditure required for medicines and hospital care, thus affecting national public finances.

On the other hand, the population should be aware of the structure of the funds that make up their retirement savings, but this is not the case. Hernández et al (2020, p. 13) conducted a study in the IMSS sub-delegation of Ciudad Juárez, Chihuahua, finding that people in general (both young people and adults) have little knowledge about their *Administradora de Fondos para el Retiro (AFORE)* – Retirement Funds Administrator, presenting a failing grade of 5.3 points, despite the fact that these funds are indispensable and indispensable for their adult life in advanced stages.

Regarding the extraordinary profits obtained by the Retirement Fund Administrators (AFORE), which in no country were obtained by the institutions in charge of managing the funds, Sedeño Cortés (2004: 99-100; quoted by Martínez & Alcaraz, 2006, p. 97), proposed in 2004 that

the resources of the AFOREs should be managed directly by the IMSS and ISSSTE, which would save substantial amounts of commissions for the workers and, by keeping these institutions with an acceptable commission, they would improve financially.

A decade later, the same Sedeño C. (2013, p. 92-96) points out that the resources of the AFOREs should be managed by a single institutional AFORE: *Siglo XXI Banorte*, centralizing all the resources currently managed.

3.2. Public sector pensions in Mexico

As of 2018, there were close to 23 million workers with social security at the national level, of which: 11.3% had coverage in ISSSTE, 1.1% in ISSFAM, 0.7% with social security coverage in PEMEX, 0.4% in CFE and 0.2% in state public universities (Auditoría Superior de la Federación, 2020, p. 28). With these public institutions, 13.7% of workers who had formal employment in 2018 are contemplated.

When talking about public institutions, it is considered that their retired workers reach retirement for the years of services rendered, pensions are only considered when they are given for temporary or permanent disability and for widowhood or orphanhood, when the worker dies or does not have full capabilities for the labour activity.

Regarding the total number of people who have a defined benefit retirement in 2018, in public schemes would be the following people: ISSSTE 743,180 retirees (22.5% of total pensioners nationwide); PEMEX 52,778 retirees (1.6%); and CFE 43,413 retirees (1.3%), totalling 25.4% of pensioners and retirees nationwide by defined benefit.

Regarding the amount of retirement received by these Mexican State workers, there is a substantial gap (which I would call an abyss), in relation to private sector workers who have social security coverage in the IMSS and specifically in the area of pensions.

In 2018, the IMSS-insurer with more than 80 thousand pesos per month presents 5 pensioners; the ISSSTE 5 retirees (represented in both cases 0.0%); PEMEX presents 980 retirees (1.9% of its total) and CFE presents 8,773 retirees (20.2% of its total). Reiterating that the IMSS-insurer has fifty times more pensioners than the CFE.

Within the range indicated in the previous paragraph are the privilege pensions: 179 PEMEX retirees receive between 160,000 and 200,000 pesos per month, while 873 CFE retirees are in this range. What I will call 'golden pensions', which receive more than 200,000 pesos per month, correspond to 2 PEMEX retirees and 655 CFE retirees, which represent 1.5% of the total number of CFE retirees.

In Mesa Lago's work, where he analyses the pensions of several Latin American countries, he states that state workers are privileged, recommending that such fragmented systems should be equalized in terms of conditions and benefits in a single general system, which would have to be fully financed by the insured without tax subsidies. The author himself recognizes that this brings complications in political matters and pressures from his unions. With respect to our country, he states: "In Mexico, the two main programs for the private and public sectors should be integrated (the latter has better conditions than the former)" (Mesa, 2020, p. 131-132).

Alanís & Soto (2020, p. 45) agree with this opinion, observing that the fragmentation of the Mexican pension system goes beyond the differences between public and private schemes, and that pension systems such as those of public state-owned companies (PEMEX and CFE) or public universities are privileged with respect to the others.

3.2.1 ISSSTE Pensions

Like the IMSS, the *Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado (ISSSTE)* – Institute of Security and Social Services of State Workers presents two figures in the area of pensions: as an insurer and as an employer; however, it is not necessary to distinguish the level

of aggregation for the purpose of analysing public pension spending, since in both cases the federal government contributes to the payment of pension funds.

The population of workers insured by ISSSTE (2020, p. 26-27) as of December 2019 is 2.95 million, where 32.8% of them are between 50 and 70 years of age, while 56.9% present 30 to 49 years of age. With more updated data, by December 2021 ISSSTE (2022, p. 1-2) had 3.1 million workers (protecting 8.3 million additional family members); retirees were 1.3 million (protecting 935 thousand family members), which gives a total protection of 13.7 million people, providing social security to 10.9% of all Mexicans in 2020.

There are three pension schemes in the ISSSTE: 1. Abrogated Law: population that enjoyed retirement before the reform to the ISSSTE Law (April 1, 2007); 2. Tenth Transitory: population contributing at the entry into force of the reform to the ISSSTE Law, whose conditions are established in the Tenth Transitory Article of said law; 3. Individual accounts: population that joined the ISSSTE after 2007 or those previous workers that opted for this scheme. The first two are defined benefit schemes and the last one is a defined contribution scheme.

Remembering that on December 27, 1983, the Law of the Institute of Security and Social Services for State Workers was reformed, which was reformed again on March 31, 2007, and remains in effect to date. With the 2007 ISSSTE Law, the regime of individual accounts for state employees was created, and the tenth transitory article of this law is of fundamental importance to regulate the defined benefit retirement regime (in transition).

On June 21, 2009, the Official Gazette of the Federation published *El Reglamento para el Otorgamiento de Pensiones de los Trabajadores Sujetos al Régimen del Artículo Décimo Transitorio (DT)* [The Regulation for the Granting of Pensions to Workers Subject to the Regime of the Tenth Transitory Article], amending the Law of the Institute of Security and Social Services of State Workers (2009, DT ISSSTE Regulations).

From the DT ISSSTE Regulations (2009), three types of defined benefit retirement pensions can be derived, where the State is obliged to contribute the resources: 1) Retirement for 30 years of service; 2) Age and time of service; 3) Severance at advanced age.

Fraction II of the DT ISSSTE Regulations (2009) refers to the retirement pension. Section I of Article 18 states that in order to obtain a retirement pension, workers must have contributed at least 30 years in the case of men and 28 years in the case of women. Fraction II of Article 18 states that the minimum retirement age for the years 2022 and 2023 is 57 years for men and 55 years for women, indicating that thereafter, for every two years elapsed, one more year of age will be added to be able to enjoy the retirement benefit, until in the year 2028 the age of 60 years for men and 58 years for women is reached.

The numeral 19 of the DT ISSSTE Regulations establishes that the retirement payment will be equal to one hundred percent of the average salary of the last year enjoyed. Article 20 of the DT Regulation states that retirement pensions based on age and time of service will be granted to those who have reached 60 years of age and with a minimum of 15 years contributing to the ISSSTE, establishing a progressive table expressed as a percentage that will be paid starting at 50%, adding a higher percentage for each extra year of service, until reaching 29 years of service, which would be paid at 95%.

Article 24 of the DT Regulation stipulates that pensions for severance at advanced age will be granted to those who have reached 65 years of age and will be granted with at least ten years of service and contribution to the ISSSTE, in a table ranging from 40% at 65 years of age to 50% if they are 70 years of age or older.

Making a comparison between the pensions that apply to retired workers in the private sector (IMSS) and the public sector (ISSSTE), the following can be noted:

- IMSS workers are governed by Section 'A' of Article 123 of Political Constitution of the United Mexican States, while public sector workers are regulated by Section 'B'.
- As a concept, the IMSS provides pensions, since workers may render their services for different employers during their working life and the funds are pooled into a global mass, which at the end of their active work period generates a monthly income. In the ISSSTE, retirements are granted on the basis that workers render their services for a single employer (federal government), and this single employer grants them their retirement at the end of their working life. However, ISSSTE pensions are granted for temporary or permanent disability or widowhood and orphanhood.
 - In order to obtain a defined benefit pension (in transition or under Law 73) in the IMSS, it is indispensable to be sixty years of age, with no distinction being made between men and women, reaching 75% of your pension if you are 60 years of age, increasing by 5% for each additional year of life until you reach 65 years of age (100%). In ISSSTE, men are required to be at least 57 years of age and women 55 years of age by 2022 and 2023, until 2028, when men will have to retire at 60 years of age and women 58 years of age, with 100% of their base salary.
 - Continuing with the defined benefit pension, the IMSS requires at least 500 weeks of contributions (almost ten years of service, according to Law 73), while the ISSSTE requires ten or fifteen years of service in order to be able to retire due to unemployment at an advanced age or old age, reaching at least 40% of the last salary received. In the ISSSTE, if you want to receive 100% of the retirement pension, you must have contributed at least 30 years of service.
 - The IMSS pension is granted on the basis of the worker's daily salary during the last 250 weeks of contributions (1750 days or 58 months), while the ISSSTE pension is granted on the basis of the daily salary during the last year of work. As a result, IMSS pensioners receive a maximum of 80% of the salary received during the last year and ISSSTE retirees receive 100%.
 - According to the Supreme Court of Justice of the Nation, pensions and retirements in Mexico are capped at up to ten minimum wages, which for January 2022 would be equivalent to \$43,100 pesos per month on average $[(141.70 \cdot 10 \cdot 365) / 12]$; however, the IMSS applies the criterion in practice of up to 25 UMAs based on the last five years of salary, the maximum that such pension could reach would be \$67,750 pesos per month on average (23.27 times the UMA), provided that three conditions were met: 1) Salary capped at 25 UMA during the last 250 weeks (five years); 2) Being 65 years of age; and 3) Having 2000 weeks of contributions (more than 38.3 uninterrupted years of work).
 - There is much talk about IMSS mode 40, under the same conditions for January 2021, the maximum pension that could be granted would be \$61,312 pesos (21.06 UMA), since the salary cannot be updated every year in this mode, taking the salary of five years ago.

Looking at the defined benefit pension and retirement conditions, which imply higher expenses for the national public budget, it can be seen that public sector workers enjoy better conditions to achieve such benefits. The only advantage that I appreciate for private sector workers is the maximum ceiling that the IMSS administration unilaterally applies, understanding that it is only for very few workers who enjoy such high salaries.

As of December 31, 2019, the ISSSTE (2020, p. 34) reported 1.2 million retirees, of which 41.5% correspond to the abrogated law, 55.4% to the regime of the Tenth Transitory Article and 3.1% to the individual account's regime. In ten years, from 2009 to 2019, ISSSTE retirees increased by 65%, in the first year the retired population represented 28% of the total number of workers, while by 2019 they represent 41% with respect to active workers.

According to more recent information from December 2021, the ISSSTE (2022, p. 2) points out that there are 465,385 retirements by the previous law (37.2%); 737,859 retirements by the tenth transitory article (59%); and 46,635 retirements by individual accounts (3.8%). With these

figures we see that 3 out of every 5 retirees that the ISSSTE will have in 2021, will retire through the tenth transitory article, being very low the percentage of retirees through individual accounts.

Financial projections by the Organization for Economic Cooperation and Development (2006, p. 25) indicated that before the 2007 reforms, the ISSSTE actuarial deficit was equivalent to 45.6% of GDP, while with the reforms it will represent 23% of GDP, which shows a drastic decrease and half of what the primary projections indicated, hoping that those projections can be given in future years, for the good of the national public finances.

For Tapen (2012, cited by OECD, 2016, p. 52), ISSSTE workers in transition and those benefiting from the special regime as IMSS workers, which in 2010 represented 1.2% of GDP, would represent 3% of GDP in 2030.

The projections mentioned by the *Centro de Estudios de las Finanzas Públicas (CEFP)* -Center for the Study of Public Finances- (2018, p. 16-17) of the ISSSTE, point out that the fiscal cost linked to the change of pension regime will reach its maximum in 2035, where it will have to cover approximately 260,878 million pesos, an amount that will decrease until it is extinguished in 2099. The Superior Audit Office of the Federation (ASF, 2019a, p. 55-56) points out that the pensioners of the tenth transitory article of the ISSSTE will grow until 2037, when there will be more retirees, reaching its peak in 2038.

3.2.2 Other pension systems of public institutions

Just like the two largest public companies in Mexico (PEMEX and CFE), various state governments were creating defined benefit pension subsystems, even though they never took into account long-term financial viability, similarly they were created by municipal institutions, state public universities, judicial powers (federal and state), development banking, central bank, police and even municipal water boards, thus having more than a thousand special pension subsystems operating in Mexico (Azuara et al, 2019, p. 10).

Similarly, OECD financial projections (2016, p. 25) pointed out that before the reforms agreed in the regime of state-owned companies (CFE and PEMEX) the actuarial deficit corresponded to 8.6% of GDP, but now they represent 6%, achieving savings of 2.6 percentage points of GDP attributable to reforms in retirement schemes.

In 2008 the CFE signed an agreement with the union of its workers, in which the personnel entering as of that year would enter under the individual accounts scheme, in this way the modality in transition would begin to decrease in the year 2027, twenty-seven years before the reduction of the employer obligations of PEMEX, extinguishing in 2075 (CEFP, 2018, p. 21).

It was not until 2014 that the Collective Labour Contract and the Work Regulations for Trust Personnel of *Petróleos Mexicanos* were modified, stating that newly hired workers would enter under the individual accounts scheme. Given that more than half of the people to whom PEMEX's transitional labour liabilities are linked continue to be active, the decrease in pension obligations will be reflected in the very long term, estimating that they would begin to decrease until 2054 (CEFP, 2018, p. 19).

In more recent figures, the ASF (2019a, p. 59) shows that PEMEX projected the expected evolution of the retired population, reaching its peak in the year 2050, likewise it was found that with the modifications to its retirement system, payment pressures have decreased.

In 2013, the IMSS-insurer granted monthly pensions averaging 3,700 pesos, while in PEMEX the average monthly pension was 33,200 pesos, which means that its retirees receive eight times more than the average of workers nationwide who had worked for the private sector. For this reason, it is explained that three out of every ten pesos of the budget are destined to the payment of IMSS-Patron, PEMEX, CFE, and *Luz y Fuerza* pensions, whose population is approximately one tenth of the IMSS and ISSSTE pension beneficiaries (CEFP, 2018, p. 23).

The OECD has expressed that in Mexico there is a deep fragmentation and substantial differences in general pensions (IMSS, ISSSTE) from those they consider special: Armed Forces (ISSFAM), PEMEX, CFE, the IMSS-Patrón itself, teachers, courts (Supreme Court of Justice of the Nation and the Federal Judiciary Council), the central bank and development banking. In this regard, he points out: "The fragmentation of the pension system is deeply rooted and goes far beyond the notable differences between the IMSS and ISSSTE schemes; different groups of workers are treated very differently from the point of view of retirement requirements and benefits" (OECD, 2016, p. 53).

As we have already seen, the privileged pensions of public institutions (PEMEX, CFE) are higher than those of other public servants who are insured by the ISSSTE, presenting a greater differentiation with workers in the private sector who are insured by the IMSS, although they are in a better economic position than the beneficiaries of the misnamed pension for the elderly (pillar zero). In this regard, Azuara et al (2019, p. 47) state that the highest expenditure per average pensioner is by *Luz y Fuerza del Centro* with 971 thousand pesos per year, compared to 91 thousand pesos with an IMSS-insured pensioner and 15 thousand pesos per year from the pension for older adults (non-contributory).

To show the magnitude of the amount of pensions received by three public companies (PEMEX, CFE and LyFC), here are some data: these three public companies had approximately 205 thousand retirees in 2019, the federal government allocated resources to them for a total of 116,904 million pesos, while for the zero pension or senior citizens program the federal government allocated 113,068 million pesos.

With information from *Valuaciones Actuariales del Norte*, Azuara et al (2019, p. 10) prepare a good table where they indicate that according to the reforms made to the pension regimes of public institutions, these would be their estimates:

1. PEMEX and CFE will require resources of up to 16% of the GDP.
2. State Systems: 25 of 32 entities will require up to 13% of GDP.
3. Public Universities: 27 of them will require resources of 2% of the GDP.
4. Bank of Mexico and development banks: fiscal cost assumed.

The fact that several pension systems of public institutions have been reformed does not mean that the financing problem has been solved, but rather that workers' pensions will no longer grow disproportionately, as has been the case in recent years.

Such is the unequal treatment of pensions in these public institutions compared to workers in private sector companies in Mexico, that Leal Fernandez (2020, p. 144-145) illustrates is the case of José Ángel Gurria, head of the SHCP between 1998-2000 and current secretary general of the OECD, who at the age of 43 years 11 months simultaneously received a 'lifetime retirement pension' from *Nacional Financiera* (NAFINSA) and also occupied the headship of the Ministry of Finance and Public Credit (SHCP), working less than 20 years required by the then applicable rule for that benefit, for which an Investigative Commission of the Chamber of Deputies concluded in 1999 that this 'pension was illegal'.

When observing this account, four things stand out: 1) The very low term (20 years) to have a lifetime retirement pension from NAFINSA in those years; 2) How it was possible to enjoy a lifetime retirement pension and to be the head of a Secretary's Office at the same time, enjoying double glory: retirement from the development bank and a very high salary from the SHCP; 3) The very short age in relation to the lifetime retirement that the public servant received; and 4) That he had not even completed 20 years of work as they made believe by granting him the lifetime retirement pension.

The other great institution that offers social security in the country at the federal level is the *Instituto de Seguridad Social para las Fuerzas Armadas Mexicanas (ISSFAM)* – Institute of Social Security for the Mexican Armed Forces, which has its remote antecedents in 1829 with the issuance

of the General Regulations of the Great National House of Invalids, which sought to benefit the wounded and disabled as a result of the war of independence that ended in 1821.

In 1926, the Law of Retirements and Pensions of the National Army and Navy was issued, also seeking to bring benefits to the military who had participated in the process of the Mexican Revolution. In 1936 the Army Savings Fund was founded and in 1953 the Military Life Insurance Law was enacted. The Law of the Social Security Institute for the Armed Forces (ISSFAM Law) was created in 1976, with amendments and additions in 2003 and 2008.

The ISSFAM is the fourth-largest public social security institution in the country, after the IMSS, ISSSTE and ISSEMYM, with an average of 900 workers (Diario Oficial de la Federación, 2020) who work for the Secretariat of National Defense (SEDENA) and the Secretariat of the Navy (SEMAR).

The ISSFAM (DOF, 2020) has 1'263,704 members: 282,030 active military personnel; 98,696 retired military personnel; 31,721 pensioners; and 851,257 entitled family members, in addition to the new positions that will be created in the National Guard. In 2013, military retirees numbered 66,237; in 2018, this number increased to 88,417, which shows a growth rate of 33.5% in a five-year period, while the number of pensioners remains stable.

The ISSFAM introduces the concept of military credit, which consists of granting compensation for life to personnel who leave before reaching 20 years of service (DOF, 2020). Retirements are granted to military personnel who reach the determined age, which ranges from 50 years for troop elements, to 65 years for the maximum position (major general), where they must complete at least 20 years of active service and upon retirement the elements are promoted to the immediate grade on which the amount of their retirement is calculated (Villarreal & Macías, 2020, p. 22).

According to Tapen (2012; cited by OECD, 2016, p. 52-53) if there is no change in the country's pension policies, the combination of the transition costs of the reformed systems will exert too much pressure on public finances for a long time, resulting in a deficit of the pension systems in transition of around 6% of GDP by the mid-2030s, agreeing with other authors that the year when the most financial pressure from pensions and retirements on public finances would be seen would be in the year 2035.

3.2.3 ISSEMYM pensions

One of the largest pension systems in the country is undoubtedly the *Instituto de Seguridad Social del Estado de México y Municipios (ISSEMYM)* – Social Security Institute of the State of Mexico and Municipalities, which was created on September 1, 1969 and its purpose is to provide social security services to workers in the service of the State of Mexico. As background, in 1951 the Pension Law for Employees of the State of Mexico and Municipalities was issued, which also created the Pension Directorate of the State of Mexico.

On January 9, 2002, the Social Security Law for Public Servants of the State of Mexico and Municipalities was approved, which established ISSEMYM (2022, p. 4) as a decentralized public agency with its own legal personality and assets, is catalogued as the third-largest social security agency in the country, the Institute writes about its human resources: "Currently, the health area has a staff of 7,656 public servants... In total, ISSEMYM has a team of more than 10,000 public servants who provide care to more than 861,000 rightful claimants" (ISSEMYM, 2021, p. 6).

By December 2021, ISSEMYM (2022, p. 7) has 848,268 rightful claimants, of which 378,017 are active public servants (44.6%); 73,736 pensioners (8.7%) and pensioners; and 396,525 economic dependents (46.7%); By December 2020 it had 860,294 beneficiaries, of which 384,588 are active public servants (44.7%); 69,811 pensioners and pensioners (8.1%); and 405,895 economic dependents (47.2%).

There was a 1.4% decrease in the number of beneficiaries in the last year, as well as fewer active workers and economic dependents, with only a 5.6% increase in the number of pensioners. In 2021 the payment of ISSEMYM pensioners and pensioners (2022, p. 11) corresponded to 16,577.5

million pesos, of which 68.9% was granted for retirement; 15% for retirement; 1.7% for disqualification; and 14.3% for death, appreciating that retirement represents 7 out of 10 pensioners.

The public budget approved for the State of Mexico is 303,120 million pesos for the 2021 fiscal year. If we consider that all pension spending in the State would come from public funds, it would absorb 5.5% of the total budget of the Mexican government. If we also consider the State of Mexico's GDP of 2.35 billion pesos for 2021, we would have to consider that spending on pensions and retirement would mean 0.72% (less than 1%) of the state's GDP.

The ISSEMYM acknowledges that revenues from workers' contributions are decreasing, stating: "the resources associated with quotas and contributions have been decreasing, due to the reduction in the number of active public servants" (ISSEMYM, 2022, p. 4). Corona Mendoza (2022, p. 2) shows that by 2020, more than 60 thousand active workers are eligible for retirement.

Four important facts (ISSEMYM, 2022, p. 12) for fiscal year 2021 are worth noting

- The pension system presents financial insufficiency since 2016, which is increasing as time goes by.
- The average salary of an active public servant is 16,145 pesos, while that of a pensioner is 17,241 pesos, which means that they earn 7% more than active workers.
- The number of pensioners represents 18.1% of active public servants, which means that there are 5.51 active employees for every pensioner, when in 2000 the ratio was 15 to 1.
- Considering the ISSEMYM law, 66 thousand active public servants are in a position to retire, representing 17% of the eligible population, which could increase the number of retirees by 96%.

The same scenario that is being contemplated with the pension and retirement system at the national level is occurring in the State of Mexico: insufficiency and breakdown of the defined benefit pension system, increasing public resources to deal with it, and a lower proportion of active workers in relation to retirees. It can also be seen that ISSEMYM workers receive more generous pensions than those granted by the IMSS-insurer, leaving them somewhat on the margins of the economic benefits received by other retirees from public institutions in the country.

4. Conclusions

By December 2021, there were 24.8 million people in the formal sector of the economy (43.5% of the total), of which the IMSS absorbed 86.3% and the ISSSTE 11.3%, with both institutions accounting for 97.6% of the population with social security. After carrying out an analysis of pensions and retirements under a defined regime in Mexico (or pensions in transition), we seek to answer the questions posed, drawing the following conclusions.

1. The pension systems that apply in Mexico are multiple and fragmented, so there are privileged pensions for a few workers (CFE, PEMEX, IMSS-Patron and other public agencies) and smaller pensions such as those granted by the IMSS to workers of private companies in the country. By 2018, more than 1.5 million IMSS-insurance pensioners earned less than 5 thousand pesos per month (69.8% of the IMSS and 46.7% of the national total), while in that salary range were 1.7% of ISSSTE retirees; 0.4% in the IMSS-employer and 0.0% in CFE and PEMEX. A fact that leaves more crude the reality of pensions so unequal in Mexico, the IMSS-insurer had in total 2.2 million pensioners for unemployment in advanced age and old age in 2018, CFE had 43.3 thousand retirees in that same, despite this the IMSS-insurer only presents 2,270 pensioners who collect from 60 to 80 thousand pesos per month, while CFE in the range of 60 to 200 thousand pesos per month, presented 16,707 retirees. This figure represented 7.3 times more than the CFE, despite being 50 times less in number than IMSS pensioners.

2. The inequality of the multiple and heterogeneous Mexican pension system originates in the different laws, norms and legal regulations approved in the nation, together with the collective

contracts of public institutions and organisms that benefited their employees in excess, compared to the great majority of retired workers who rendered their services in the private sector of the economy.

3. Even within the federal public sector, including several state governments, there are substantial differences between the retirements received by workers in decentralised public bodies and companies (para-state sector), such as *Petróleos Mexicanos*, *Comisión Federal de Electricidad*, *Compañía de Luz y Fuerza del Centro* (in extinction), *IMSS-patron*, autonomous bodies, public universities, second-tier banks, compared to the pensions received by public employees in the so-called central sector of the federal government. In the case of retired state government workers, such as *ISSEMYM* in the State of Mexico, they receive higher pensions than those provided by the *IMSS* for the vast majority of the nation's retired workers.

The hypothesis that there are privileges and disincentives in the multiple Mexican pension systems is proven; benefiting public sector workers, especially those who worked in organisations considered decentralised (*PEMEX*, *CFE*, *IMSS-employer*, autonomous and others), bringing demotivation for those who worked in the private sector and obtained *IMSS* pensions, when both workers made similar efforts to improve their standard of living and quality of life in their retirement.

Finally, in a future research we intend to test this great inequality between pensions and retirements in Mexico more extensively and with the use of statistical inference, where we hope to make use of economic tools such as the Gini coefficient or some model that allows us to corroborate this inequality in the Mexican pension system.

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6. Competing interests

The authors declare that they have no competing interests.

References

- Alanís Gutiérrez & Soto Esquivel, 2020. Sistema de pensiones en México. Una burbuja a punto de estallar [Pension system in Mexico. A bubble about to burst]. *Revista Ola Financiera*, 13 (35), pp. 32-51. Available from : <http://revistas.unam.mx/index.php/ROF/article/view/75508/66802>
- Auditoría Superior de la Federación, 2019a. *Informes simplificados. Grupo Funcional Gobierno* [Simplified reports. Government Functional Group]. SICSA. Available from : https://www.asf.gob.mx/Trans/Informes/IR2018a/Documentos/Informes_simplificados/IAS_GB_a.pdf
- Auditoría Superior de la Federación, 2019b. *Pensiones bajo el régimen de beneficio*

Список використаних джерел

- Alanís Gutiérrez & Soto Esquivel, 2020. Sistema de pensiones en México. Una burbuja a punto de estallar [Pension system in Mexico. A bubble about to burst]. *Revista Ola Financiera*, 13 (35), pp. 32-51. Available from : <http://revistas.unam.mx/index.php/ROF/article/view/75508/66802>
- Auditoría Superior de la Federación, 2019a. *Informes simplificados. Grupo Funcional Gobierno* [Simplified Social Sciences. Government Functional Group]. SICSA. Available from : https://www.asf.gob.mx/Trans/Informes/IR2018a/Documentos/Informes_simplificados/IAS_GB_a.pdf
- Auditoría Superior de la Federación, 2019b. *Pensiones bajo el régimen de beneficio*

- definido [Pensions under the defined benefit regime]*. Informe del Resultado de la Fiscalización Superior de la Cuenta Pública. Available from : [https://www.asf.gob.mx/uploads/748_Infografias/AED - Pensiones Auditorias CP 047 - 057.pdf](https://www.asf.gob.mx/uploads/748_Infografias/AED_-_Pensiones_Auditorias_CP_047_-_057.pdf)
- Augecorp Inteligencia Artificial (2020). *Sistema pensionario el reto de la nueva generación [Pension system, the challenge of the new generation]*. Published December 28, 2020. Available from : <https://augecorp.com.mx/sistema-pensionario-el-reto-de-la-nueva-generacion/>
- Azuara, O. & Bosch, M. & García H. & Kaplan, D. & Silva Porto, 2019. *Diagnóstico del sistema de pensiones mexicano y opciones para reformarlo [Diagnosis of the Mexican pension system and options for reform]*. BID, pp. 97. Available from : <https://publications.iadb.org/es/diagnostico-del-sistema-de-pensiones-mexicano-y-opciones-para-reformarlo>
- Centro de Estudios de las Finanzas Públicas, 2018. *Gasto en pensiones y su perspectiva de largo plazo [Pension spending and its long-term outlook]*. Briefing Note September 27, 2018. Available from : <https://www.cefp.gob.mx/publicaciones/nota/2018/notacefp0402018.pdf>
- Consejo Nacional de Población, 2021. *Día internacional de las personas de edad [International Day of Older Persons]*. October 1, 2021. Available from : <https://www.gob.mx/conapo/es/articulos/dia-internacional-de-las-personas-de-edad-284170?idiom=es>
- Corona Mendoza, 2021. *Sistema de pensiones en Estado de México [Pension System in the State of Mexico]*. Cámara de Diputados Estado de México, pp. 29. Published July 2021. Available from : <http://www.inesle.gob.mx/Investigaciones/2021/8-21%20-Sistema-de-pensiones-en-el-estado-de-mexico.pdf>
- definido [Pensions under the defined benefit regime]*. Informe del Resultado de la Fiscalización Superior de la Cuenta Pública. Available from : [https://www.asf.gob.mx/uploads/748_Infografias/AED - Pensiones Auditorias CP 047 - 057.pdf](https://www.asf.gob.mx/uploads/748_Infografias/AED_-_Pensiones_Auditorias_CP_047_-_057.pdf)
- Augecorp Inteligencia Artificial (2020). *Sistema pensionario el reto de la nueva generación [Pension system, the challenge of the new generation]*. Published December 28, 2020. Available from : <https://augecorp.com.mx/sistema-pensionario-el-reto-de-la-nueva-generacion/>
- Azuara, O. & Bosch, M. & García H. & Kaplan, D. & Silva Porto, 2019. *Diagnóstico del sistema de pensiones mexicano y opciones para reformarlo [Diagnosis of the Mexican pension system and options for reform]*. BID, pp. 97. Available from : <https://publications.iadb.org/es/diagnostico-del-sistema-de-pensiones-mexicano-y-opciones-para-reformarlo>
- Centro de Estudios de las Finanzas Públicas, 2018. *Gasto en pensiones y su perspectiva de largo plazo [Pension spending and its long-term outlook]*. Briefing Note September 27, 2018. Available from : <https://www.cefp.gob.mx/publicaciones/nota/2018/notacefp0402018.pdf>
- Consejo Nacional de Población, 2021. *Día internacional de las personas de edad [International Day of Older Persons]*. October 1, 2021. Available from : <https://www.gob.mx/conapo/es/articulos/dia-internacional-de-las-personas-de-edad-284170?idiom=es>
- Corona Mendoza, 2021. *Sistema de pensiones en Estado de México [Pension System in the State of Mexico]*. Cámara de Diputados Estado de México, pp. 29. Published July 2021. Available from : <http://www.inesle.gob.mx/Investigaciones/2021/8-21%20-Sistema-de-pensiones-en-el-estado-de-mexico.pdf>

- Diario Oficial de la Federación, 2020 (28 de septiembre). *Programa institucional 2020-2024 del Instituto de Seguridad Social para las Fuerzas Armadas Mexicanas [Institutional Program 2020-2024 of the Social Security Institute for the Mexican Armed Forces]*. México. Available from : https://www.dof.gob.mx/nota_detalle.php?codigo=5601341&fecha=28/09/2020#gsc.tab=0
- Diario Oficial de la Federación, 2020 (28 de septiembre). *Programa institucional 2020-2024 del Instituto de Seguridad Social para las Fuerzas Armadas Mexicanas [Institutional Program 2020-2024 of the Social Security Institute for the Mexican Armed Forces]*. México. Available from : https://www.dof.gob.mx/nota_detalle.php?codigo=5601341&fecha=28/09/2020#gsc.tab=0
- Finol de F. & Vera S., José, 2020. Paradigmas, enfoques y métodos de investigación: análisis teórico [Paradigms, approaches and research methods: theoretical analysis]. *Mundo Recursivo*, 3 (1), pp. 1-24. Available from : <https://www.atlantic.edu.ec/ojs/index.php/mundor/article/view/38>
- Finol de F. & Vera S., José, 2020. Paradigmas, enfoques y métodos de investigación: análisis teórico [Paradigms, approaches and research methods: theoretical analysis]. *Mundo Recursivo*, 3 (1), pp. 1-24. Available from : <https://www.atlantic.edu.ec/ojs/index.php/mundor/article/view/38>
- Flores Ortega & Rubio Zamorano, 2011. Análisis del régimen de jubilaciones y pensiones de los trabajadores del Instituto Mexicano del Seguro Social (IMSS) contratados antes de julio de 2008 [Analysis of the retirement and pension regime for Mexican Social Security Institute (IMSS) workers hired before July 2008]. *ESEconomía IPN*, (30), pp. 63-91. Available from : <https://ideas.repec.org/a/ipn/esecon/viv2011i30p63-91.html>
- Flores Ortega & Rubio Zamorano, 2011. Análisis del régimen de jubilaciones y pensiones de los trabajadores del Instituto Mexicano del Seguro Social (IMSS) contratados antes de julio de 2008 [Analysis of the retirement and pension regime for Mexican Social Security Institute (IMSS) workers hired before July 2008]. *ESEconomía IPN*, (30), pp. 63-91. Available from : <https://ideas.repec.org/a/ipn/esecon/viv2011i30p63-91.html>
- García Ramírez, 2020. *Metodología de la investigación en las ciencias jurídicas y criminológicas [Methodology of research in legal and criminological sciences]*. Centro de Estudios Superiores en Ciencias Jurídicas y Criminológicas (CESCIJUC), pp. 246.
- García Ramírez, 2020. *Metodología de la investigación en las ciencias jurídicas y criminológicas [Methodology of research in legal and criminological sciences]*. Centro de Estudios Superiores en Ciencias Jurídicas y Criminológicas (CESCIJUC), pp. 246.
- Hernández Lozano & Soltero Puentes. & Solís Rodríguez, 2020. Conocimiento sobre el fondo de ahorro para el retiro de usuarios en Ciudad Juárez, México [Knowledge about the retirement savings fund of users in Ciudad Juarez, Mexico]. *Cuaderno Suplementar*, (4), pp. 1-15. Available from : <http://natal.uern.br/periodicos/index.php/RTEP/article/view/2367/2142>
- Hernández Lozano & Soltero Puentes. & Solís Rodríguez, 2020. Conocimiento sobre el fondo de ahorro para el retiro de usuarios en Ciudad Juárez, México [Knowledge about the retirement savings fund of users in Ciudad Juarez, Mexico]. *Cuaderno Suplementar*, (4), pp. 1-15. Available from : <http://natal.uern.br/periodicos/index.php/RTEP/article/view/2367/2142>

- Instituto de Seguridad Social del Estado de México y Municipios, 2021. *2020 lo más destacado*. [2020 highlights]. Gobierno del Estado de México, January 4, 2021. Available from : https://www.issemym.gob.mx/sites/www.issemym.gob.mx/files/informe_anual_de_actividad_2020_version_corta.pdf
- Instituto de Seguridad Social del Estado de México y Municipios, 2022. *Informe anual 2021 [Annual Report 2021]*. Gobierno del Estado de México. Available from : https://www.issemym.gob.mx/sites/www.issemym.gob.mx/files/informe_anual_2021.pdf
- Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado, 2009. *Reglamento para el otorgamiento de pensiones de los trabajadores sujetos al régimen del artículo décimo transitorio del decreto por el que se expide la Ley del ISSSTE [Regulations for the granting of pensions to workers subject to the regime of the tenth transitory]*. Cámara de Diputados. Available from : <https://www.diputados.gob.mx/LeyesBiblio/regla/n217.pdf>
- Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado, 2020. *Informe financiero y Actuarial 2020 [Financial and actuarial report 2020]*. Available from : <http://gaceta.diputados.gob.mx/Gaceta/64/2020/sep/Issste-20200902.pdf>
- Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado, 2022). *Estadística: Anuarios 2021. Capítulo 2 Pensiones [Statistics: Yearbooks 2021. Chapter 2 Pensions]*. Available from : <http://www.issste.gob.mx/datosabiertos/anuarios/anuarios2021.html#cap2>
- Instituto Mexicano de Ejecutivos de Finanzas, 2004. *Análisis técnico sobre el régimen de jubilaciones y pensiones establecido en el Contrato Colectivo de Trabajo del IMSS [Technical analysis of the retirement and pension system*
- Instituto de Seguridad Social del Estado de México y Municipios, 2021. *2020 lo más destacado*. [2020 highlights]. Gobierno del Estado de México, January 4, 2021. Available from : https://www.issemym.gob.mx/sites/www.issemym.gob.mx/files/informe_anual_de_actividad_2020_version_corta.pdf
- Instituto de Seguridad Social del Estado de México y Municipios, 2022. *Informe anual 2021 [Annual Report 2021]*. Gobierno del Estado de México. Available from : https://www.issemym.gob.mx/sites/www.issemym.gob.mx/files/informe_anual_2021.pdf
- Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado, 2009. *Reglamento para el otorgamiento de pensiones de los trabajadores sujetos al régimen del artículo décimo transitorio del decreto por el que se expide la Ley del ISSSTE [Regulations for the granting of pensions to workers subject to the regime of the tenth transitory]*. Cámara de Diputados. Available from : <https://www.diputados.gob.mx/LeyesBiblio/regla/n217.pdf>
- Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado, 2020. *Informe financiero y Actuarial 2020 [Financial and actuarial report 2020]*. Available from : <http://gaceta.diputados.gob.mx/Gaceta/64/2020/sep/Issste-20200902.pdf>
- Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado, 2022). *Estadística: Anuarios 2021. Capítulo 2 Pensiones [Statistics: Yearbooks 2021. Chapter 2 Pensions]*. Available from : <http://www.issste.gob.mx/datosabiertos/anuarios/anuarios2021.html#cap2>
- Instituto Mexicano de Ejecutivos de Finanzas, 2004. *Análisis técnico sobre el régimen de jubilaciones y pensiones establecido en el Contrato Colectivo de Trabajo del IMSS [Technical analysis of the retirement and pension system*

- established in the IMSS Collective Labour Agreement]. *Comité Técnico Nacional de Seguridad Social*. Bulletin No. 28. Available from : https://www.imef.org.mx/publicaciones/boletinestecnicosorig/BOL_28_04_CT_N_SS.PDF
- Instituto Mexicano del Seguro Social, 2022. *Consulta dinámica (CUBOS). Información: Puestos de trabajo a nivel nacional [Dynamic consultation. Information: Jobs nationwide]*. Available from : <https://www.imss.gob.mx/conoce-al-imss/cubos>
- Instituto Nacional de Estadística, Geografía e Informática, 2016. *Índice de envejecimiento por entidad federativa y período [Aging index by federal entity and period]*. Available from : https://www.inegi.org.mx/app/tabulados/pxweb/pxweb/es/Poblacion/-/Poblacion_05.px/table/tableViewLayout2/?rxid=d518b312-
- Instituto Nacional de Estadística, Geografía e Informática, 2021. *Estadísticas a propósito del día internacional de las personas adultas mayores: 1º de octubre [Statistics on the occasion of the International Day of Older Persons]*. Press Release No. 547/21: September 29, 2021. Available from : https://www.inegi.org.mx/contenidos/saladeprensa/aproposito/2021/EAP_A_DULMAYOR_21.pdf
- Instituto Nacional de Estadística, Geografía e Informática, 2022. *Indicadores de ocupación y empleo: diciembre de 2021. Comunicado de prensa No. 22 [Occupation and employment indicators: December 2021]*. Published January 20, 2022. Available from : https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2022/iiooe/iiooe2022_01.pdf
- LATAM, 2019. *Índice Mundial de Pensiones de Mercer Melbourne [Mercer Melbourne Global Pension Index: MMGPI]*. Available from :
- established in the IMSS Collective Labour Agreement]. *Comité Técnico Nacional de Seguridad Social*. Bulletin No. 28. Available from : https://www.imef.org.mx/publicaciones/boletinestecnicosorig/BOL_28_04_CT_N_SS.PDF
- Instituto Mexicano del Seguro Social, 2022. *Consulta dinámica (CUBOS). Información: Puestos de trabajo a nivel nacional [Dynamic consultation. Information: Jobs nationwide]*. Available from : <https://www.imss.gob.mx/conoce-al-imss/cubos>
- Instituto Nacional de Estadística, Geografía e Informática, 2016. *Índice de envejecimiento por entidad federativa y período [Aging index by federal entity and period]*. Available from : https://www.inegi.org.mx/app/tabulados/pxweb/pxweb/es/Poblacion/-/Poblacion_05.px/table/tableViewLayout2/?rxid=d518b312-
- Instituto Nacional de Estadística, Geografía e Informática, 2021. *Estadísticas a propósito del día internacional de las personas adultas mayores: 1º de octubre [Statistics on the occasion of the International Day of Older Persons]*. Press Release No. 547/21: September 29, 2021. Available from : https://www.inegi.org.mx/contenidos/saladeprensa/aproposito/2021/EAP_A_DULMAYOR_21.pdf
- Instituto Nacional de Estadística, Geografía e Informática, 2022. *Indicadores de ocupación y empleo: diciembre de 2021. Comunicado de prensa No. 22 [Occupation and employment indicators: December 2021]*. Published January 20, 2022. Available from : https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2022/iiooe/iiooe2022_01.pdf
- LATAM, 2019. *Índice Mundial de Pensiones de Mercer Melbourne [Mercer Melbourne Global Pension Index: MMGPI]*. Available from :

- <https://www.latam.mercer.com/newsroom/MMGPI-2019.html#>
- Leal Fernández, 2019. Pensiones en México 1995-2018: ocaso de una estrategia fallida [Pensions in Mexico 1995-2018: twilight of a failed strategy]. *Estudios Políticos*, (48), pp. 53-70. Available from : <http://www.scielo.org.mx/pdf/ep/n48/0185-1616-ep-48-53.pdf>
- Leal Fernández, 2020. México: hacia un mejor horizonte pensionario [Mexico: towards a better pension horizon]. *Estudios Políticos*, (51), pp. 141-162. Available from : <https://www.scilit.net/article/3a22d14a77e1117dfe2b4b07aef7e1f0>
- Ley del Seguro Social, 1997 [Social Security Law 1997]*. México: Instituto Mexicano del Seguro Social. Available from : <http://www.imss.gob.mx/sites/all/statics/pdf/leyes/LSS.pdf>
- Martínez Brizuela & Alcaraz López, 2006. El ISSSTE y la reforma de la seguridad social [ISSSTE and social security reform]. *ESEconomía*, (11), pp. 77-106. Available from : <https://www.repositoriodigital.ipn.mx/handle/123456789/15042>
- Martínez Carreño & Absalón Copete, 2018. *Análisis económico de la política del programa de pensión para adultos mayores en México [Economic analysis of the pension program policy for older adults in Mexico]*. Octavo Congreso Asociación Latinoamericana de Población, pp. 31-44. Available from : <https://old.alapop.org/Congreso2018/PDF/00613.pdf>
- Martínez Jiménez & Ramos Soto & Trejo Carbajal & Sánchez Hernández, 2017. Análisis del sistema de pensiones de la Universidad Autónoma Benito Juárez de Oaxaca [Analysis of the pension system of the Universidad Autónoma Benito Juárez]. *Revista Global de Negocios*, 5 (8), pp. 29-49. Available from : https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3030955
- <https://www.latam.mercer.com/newsroom/MMGPI-2019.html#>
- Leal Fernández, 2019. Pensiones en México 1995-2018: ocaso de una estrategia fallida [Pensions in Mexico 1995-2018: twilight of a failed strategy]. *Estudios Políticos*, (48), pp. 53-70. Available from : <http://www.scielo.org.mx/pdf/ep/n48/0185-1616-ep-48-53.pdf>
- Leal Fernández, 2020. México: hacia un mejor horizonte pensionario [Mexico: towards a better pension horizon]. *Estudios Políticos*, (51), pp. 141-162. Available from : <https://www.scilit.net/article/3a22d14a77e1117dfe2b4b07aef7e1f0>
- Ley del Seguro Social, 1997 [Social Security Law 1997]*. México: Instituto Mexicano del Seguro Social. Available from : <http://www.imss.gob.mx/sites/all/statics/pdf/leyes/LSS.pdf>
- Martínez Brizuela & Alcaraz López, 2006. El ISSSTE y la reforma de la seguridad social [ISSSTE and social security reform]. *ESEconomía*, (11), pp. 77-106. Available from : <https://www.repositoriodigital.ipn.mx/handle/123456789/15042>
- Martínez Carreño & Absalón Copete, 2018. *Análisis económico de la política del programa de pensión para adultos mayores en México [Economic analysis of the pension program policy for older adults in Mexico]*. Octavo Congreso Asociación Latinoamericana de Población, pp. 31-44. Available from : <https://old.alapop.org/Congreso2018/PDF/00613.pdf>
- Martínez Jiménez & Ramos Soto & Trejo Carbajal & Sánchez Hernández, 2017. Análisis del sistema de pensiones de la Universidad Autónoma Benito Juárez de Oaxaca [Analysis of the pension system of the Universidad Autónoma Benito Juárez]. *Revista Global de Negocios*, 5 (8), pp. 29-49. Available from : https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3030955

- Mesa Lago, 2020. *Evaluación de cuatro décadas de privatización de pensiones en América Latina (1980-2020): Promesas y realidades* [Evaluation of four decades of pension privatization in Latin America (1980-2020): Promises and realities]. Fundación Friedrich Ebert. Available from : <http://library.fes.de/pdf-files/bueros/mexiko/17283-20210701.pdf>
- Organización para la Cooperación y el Desarrollo Económicos, 2016. *Estudio de la OCDE sobre los sistemas de pensiones: México* [OECD reviews of pension systems]. CONSAR. Available from : https://www.gob.mx/cms/uploads/attachment/file/61968/sistema_de_pensiones_2016.pdf
- Pérez Mendoza & Camacho Castro, 2018. *Población de adultos mayores, desafío económico y social para el sistema de pensiones en México* [Older adult population, economic and social challenge for the pension system in Mexico]. Asociación Latinoamericana de Población, pp.92-116. Available from : https://ciscgo.fca.uas.edu.mx/images/2022/PDFs/Volumen_3_El_desarrollo_de_America_Latina_2.pdf#page=21
- RIOaxaca, 2019. *El IMSS paga jubilaciones de 80 a 100 mil pesos a 5 personas* [IMSS pays retirements of 80 to 100 thousand pesos to 5 people]. December 23, 2019. Available from : <https://www.rioaxaca.com/2019/12/23/el-imss-paga-jubilaciones-de-80-a-100-mil-pesos-a-5-personas/>
- Rivera, Guillermo, 2017. *El club de ¿los jubilados de oro? de Pemex* [Pemex's golden pensioners club?]. El Universal, March 13, 2017. Available from : <https://app.vlex.com/#vid/club-jubilados-oro-pemex-671267217>
- Ruiz Moreno, 2020. *Las pensiones. El gran desafío pendiente de México* [Mexico's great pending challenge]. Tirant lo Blanch. Available from : <https://www.tirantonline.com.mx/clou>
- Mesa Lago, 2020. *Evaluación de cuatro décadas de privatización de pensiones en América Latina (1980-2020): Promesas y realidades* [Evaluation of four decades of pension privatization in Latin America (1980-2020): Promises and realities]. Fundación Friedrich Ebert. Available from : <http://library.fes.de/pdf-files/bueros/mexiko/17283-20210701.pdf>
- Organización para la Cooperación y el Desarrollo Económicos, 2016. *Estudio de la OCDE sobre los sistemas de pensiones: México* [OECD reviews of pension systems]. CONSAR. Available from : https://www.gob.mx/cms/uploads/attachment/file/61968/sistema_de_pensiones_2016.pdf
- Pérez Mendoza & Camacho Castro, 2018. *Población de adultos mayores, desafío económico y social para el sistema de pensiones en México* [Older adult population, economic and social challenge for the pension system in Mexico]. Asociación Latinoamericana de Población, pp.92-116. Available from : https://ciscgo.fca.uas.edu.mx/images/2022/PDFs/Volumen_3_El_desarrollo_de_America_Latina_2.pdf#page=21
- RIOaxaca, 2019. *El IMSS paga jubilaciones de 80 a 100 mil pesos a 5 personas* [IMSS pays retirements of 80 to 100 thousand pesos to 5 people]. December 23, 2019. Available from : <https://www.rioaxaca.com/2019/12/23/el-imss-paga-jubilaciones-de-80-a-100-mil-pesos-a-5-personas/>
- Rivera, Guillermo, 2017. *El club de ¿los jubilados de oro? de Pemex* [Pemex's golden pensioners club?]. El Universal, March 13, 2017. Available from : <https://app.vlex.com/#vid/club-jubilados-oro-pemex-671267217>
- Ruiz Moreno, 2020. *Las pensiones. El gran desafío pendiente de México* [Mexico's great pending challenge]. Tirant lo Blanch. Available from : <https://www.tirantonline.com.mx/clou>

- dLibrary/ebook/show/9788413551029#ulNotainformativaTitle
- Sagnelli, Miguel, 2020. *Confirma el IMSS que en agosto se generaron 92 mil 390 empleos [IMSS confirms that 92,390 jobs were generated in August]*. Vanguardia: Sección Nacional. Available from: <https://vanguardia.com.mx/articulo/confirma-el-imss-que-en-agosto-se-generaron-92-mil-390-empleos>
- Secretaría de Hacienda y Crédito Público, 2022. *Cuenta pública 2021 [Public Account 2021]*. Available from: <https://www.cuentapublica.hacienda.gob.mx/es/CP/2021>
- Secretaría de Hacienda y Crédito Público, 2021. *Cuenta pública 2020 [Public Account 2020]*. Available from: <https://www.cuentapublica.hacienda.gob.mx/es/CP/2020>
- Secretaría de Hacienda y Crédito Público, 2020. *Cuenta Pública 2019 [Public Account 2019]*. Available from: <https://www.cuentapublica.hacienda.gob.mx/es/CP/2019>
- Sedeño Cortés, 2013. Crisis y estrategias de solución financiera para el sistema de pensiones IMSS [*Crisis and financial solution strategies for the IMSS pension system*]. *ESEconomía*, 8 (38), pp. 73-109. Available from: http://yuss.me/revistas/ese/ese2013v08n38a03p073_109.pdf
- Treviño Saucedo & De la Luz Juárez, 2017. Veinte años del sistema de capitalización de cuentas individuales y sus promesas de pensiones [Twenty years of the individual accounts capitalization system and its pension promises]. *El Cotidiano*, (204), pp. 59-73. Available from: <https://www.redalyc.org/pdf/325/32553151005.pdf>
- Villalobos López, 1986. *Finanzas y empresas públicas municipales [Finance and municipal public enterprises]*. Centro Nacional de Estudios Municipales, pp. 248. Available from:
- dLibrary/ebook/show/9788413551029#ulNotainformativaTitle
- Sagnelli, Miguel, 2020. *Confirma el IMSS que en agosto se generaron 92 mil 390 empleos [IMSS confirms that 92,390 jobs were generated in August]*. Vanguardia: Sección Nacional. Available from: <https://vanguardia.com.mx/articulo/confirma-el-imss-que-en-agosto-se-generaron-92-mil-390-empleos>
- Secretaría de Hacienda y Crédito Público, 2022. *Cuenta pública 2021 [Public Account 2021]*. Available from: <https://www.cuentapublica.hacienda.gob.mx/es/CP/2021>
- Secretaría de Hacienda y Crédito Público, 2021. *Cuenta pública 2020 [Public Account 2020]*. Available from: <https://www.cuentapublica.hacienda.gob.mx/es/CP/2020>
- Secretaría de Hacienda y Crédito Público, 2020. *Cuenta Pública 2019 [Public Account 2019]*. Available from: <https://www.cuentapublica.hacienda.gob.mx/es/CP/2019>
- Sedeño Cortés, 2013. Crisis y estrategias de solución financiera para el sistema de pensiones IMSS [*Crisis and financial solution strategies for the IMSS pension system*]. *ESEconomía*, 8 (38), pp. 73-109. Available from: http://yuss.me/revistas/ese/ese2013v08n38a03p073_109.pdf
- Treviño Saucedo & De la Luz Juárez, 2017. Veinte años del sistema de capitalización de cuentas individuales y sus promesas de pensiones [Twenty years of the individual accounts capitalization system and its pension promises]. *El Cotidiano*, (204), pp. 59-73. Available from: <https://www.redalyc.org/pdf/325/32553151005.pdf>
- Villalobos López, 1986. *Finanzas y empresas públicas municipales [Finance and municipal public enterprises]*. Centro Nacional de Estudios Municipales, pp. 248. Available from:

<https://catalog.hathitrust.org/Record/101075512/Home>

Villalobos López, 2021. *Marco teórico seguridad social y pensiones [Theoretical framework for social security and pensions]*. MPRA Paper. University Library of Munich. June 2021, pp. 23. Available from : https://mpra.ub.uni-muenchen.de/108065/1/MPRA_paper_108065.pdf

Villarreal, H. & Macías, A., 2020). *El sistema de pensiones en México: Institucionalidad, gasto público y sostenibilidad financiera [The pension system in Mexico Institutionalidad, public expenditure and financial sustainability]*. CEPAL. Available from : https://repositorio.cepal.org/bitstream/handle/11362/45820/S2000382_es.pdf?sequence=1&isAllowed=y

<https://catalog.hathitrust.org/Record/101075512/Home>

Villalobos López, 2021. *Marco teórico seguridad social y pensiones [Theoretical framework for social security and pensions]*. MPRA Paper. University Library of Munich. June 2021, pp. 23. Available from : https://mpra.ub.uni-muenchen.de/108065/1/MPRA_paper_108065.pdf

Villarreal, H. & Macías, A., 2020). *El sistema de pensiones en México: Institucionalidad, gasto público y sostenibilidad financiera [The pension system in Mexico Institutionalidad, public expenditure and financial sustainability]*. CEPAL. Available from : https://repositorio.cepal.org/bitstream/handle/11362/45820/S2000382_es.pdf?sequence=1&isAllowed=y