

Study of an SB2 Beneficiary's Pension Plan

Enriqueta Mancilla-Redón

Universidad La Salle México

Carmen Lozano Arizmendi

Universidad La Salle México

Received February 17, 2020; accepted May 22, 2020.

ABSTRACT

The individual account pension system established by the Social Security Act 1997 shows that the contributions of beneficiaries invested in retirement fund managers have had negative returns and the investment instrument in which the contributions of the retirement savings system are invested are not known. The objective of this study is to analyze the contributions in AFORES of an SB2 classification beneficiary invested in SIEFORES and the performance they have generated that the statements reveal to quantify in a prospective study the value of the pension in its old age. It is hypothesized that the pension obtained by a beneficiary is insufficient to sustain a quality of life at this unproductive stage of life. It applies the hemerographic-legislative technique, and a quantitative study of time series. As a result of the study is concluded that the regime individual account system pensions contains uncertainty factors for the beneficiary and meets strict requirements for temporaryity and work activity, and pension income to be received in old age will not guarantee the quality of life of individual account holders.

KEYWORDS

AFORES, Social Security Law 1997, SB2.

1. Introduction

Social security and pension plans have long been an instrument to reach welfare horizons during the population's unproductive life stages. Vásquez Colmenares (2006) remarks on the countries that have implemented structural reforms in pension plans. Chile established a substitutive model in May 1981, followed by Bolivia (1997), Mexico (July 1997), El Salvador (May 1998), Dominican Republic (2003), and Nicaragua (2004). Peru and Colombia chose a parallel model (1993 and 1994, respectively), while Argentina (1994), Uruguay (1996), Costa Rica (2001), and Ecuador (2004) maintained a mixed model. Brazil, Cuba, Guatemala, Haiti, Honduras, Panama, and Venezuela defined parametric reforms or chose no reforms at all.

France ranks 19th in human development (United Nations Development Program, 2016, p. 22) and applied a parametric pension reform. Sweden has a defined benefit pension plan, complemented with mandatory individual accounts, and is ranked 14th in human development. According to Vásquez Colmenares (2006, p. 127), the United States possess "a comprehensive and consolidated benefit plan for old age, disability, and life retirement [...] and distribution systems and private funds based on individual capitalization exist as a complement". The country occupies the 10th position in human development, while Chile is placed in position 38 and Mexico, in 77.

The pension scheme in Mexico was reformed in 1997 to move from a defined benefit scheme to a system of individual accounts in order to ensure that the pensioner had a better quality of life in the old age stage. Currently, the precision is not available if the pension received by a beneficiary of the individual accounts scheme is sufficient to provide that vital *mínimum*. The question is asked about the employer's contributions made in the individual account scheme if they generate reasonable returns that increase the worker's pension fund and promote a real retirement savings system according to the beneficiary's current income level. The question arises whether individual account pensions will improve the human development indicator or form a new way of poverty.

This study aims to analyze the contributions in the AFORES of an SB2 rating beneficiary's and the return invested in SIEFORES that reveal fifteen quarterly periods from 2012 to 2017 to quantify the value of the beneficiary's pension in its old age. It is hypothesized that the pension obtained by a beneficiary is insufficient to sustain a quality

of life at this unproductive stage of life. The hemerographic-legislative technique (Alvarez, 2003) is applied to study the legal framework of the current pension scheme, to understand the economic effect of legislation in the financial field of the beneficiary of the individual account AFORES SB2. A financial forecast is made through the quantitative study of time series (Cromwell, Labys, Terraza, 1994), to quantify the value of a pension of a beneficiary SB2 at sixty-five years, based on the new regime.

The first section makes the cabinet review on the pension system and the structure of the social security law. The second section reveals the categories of the savings system and the relationship they have with the ages, and the stage of elderly cessation and old age, recovering historical data on employer's contributions and the performance of the beneficiary's statements. Subsequently, the case analysis and the study of time series is presented. Finally, the conclusions are presented.

2. Pension plan background

Mexico is one of the countries with social security provisions ever since the proclamation of the 1917 Constitution (Farfán, 2009, p. 164–165). This principle is supported by the promulgation of the Civil Pension Law (Pani, 1926, articles 3rd, 4th), which comprised “the protection of health, loans, and old age, disability, and death pensions” (Centro de Investigación Económica Presupuestaria, 2017, p. 3), and later, the promulgation of the Social Security Law (1943). Social security became institutionalized with the creation of the Mexican Social Security Institute (Instituto Mexicano del Seguro Social, IMSS), an organization that acts as a mechanism to provide private sector and decentralized government entity workers with social security. Once the bill was passed, social security “became State policy” (Farfán, 2009, p. 186). Social security includes the rights to health and medical assistance, as well as means of livelihood protection, necessary social services for individual and collective wellbeing, and old age pension guaranteed by the State.

The 1973 Social Security Law (Third section, articles 137–142 and Fourth section, articles 143–148, repealed 1973–1994) establishes defined benefits since it provides beneficiaries with a life-long pension plan at the end of their productive life. The defined benefit pension plan incorporates mandatory legal requirements, such as the workers' obligation to contribute to IMSS 500 working weeks and be 65 years of age (Article 138,

Right to receive old age insurance benefits). The foundation of the pension plan is constituted by the monthly average of the last five years of contribution base wage filed at IMSS. Although the provision was published in the 1995 Social Security Law, the transitional provision took effect in the United Mexican States on July 1, 1997. The beneficiaries registered from that date on have a different legal figure from that of the 1973 law since the main reforms included in the pension plan affected disability, life, unemployment, and death insurance.

The previous law scheme established a plan in which workers have an individual account and a defined contribution (Solís, 2006, p. 70–71); the contributions of the worker, the employer, and the State are integrated in the financial system administered by a pension fund manager (Administradora de Fondos para el Retiro, AFORE). According to the Centro de Investigación Económica Presupuestaria (2017, p. 7) “the employer’s contributions went from 75.0 to 55.00%, those from the workers from 20.0 to 10.0%, and the government’s, from 5.0 to 35.0% of the total contribution.” The returns generated and the worker’s voluntary savings are also added (Vásquez, 2006, p. 147–148). In summary, the worker could obtain an old age pension when reaching 75 years of age, given a contribution of 1250 weeks to IMSS.

3. The doctrinaire structure of social security

Federal and local entities or public institutions and decentralized agencies are in charge of social welfare (Article 2), and Social Security (Article 4) is the welfare instrument of IMSS. Social Security comprises two contribution schemes (Article 6), one mandatory and one voluntary (Article 13). The mandatory scheme covers retirement and old age, as well as old age severance (Article 11). “Social Security grants its affiliates an array of benefits in kind and money” (IDC, 2016, p. 1). Benefits in kind include medical and pharmaceutical assistance, prostheses and orthopedics, rehabilitation, funerary services, and daycare. Benefits in money are provided in cash based on the salary with which the worker is affiliated, known as contribution base wage; payments due to disability and pensions are integrated to these benefits.

Old age severance is a classification in which the insured does not have paid employment from 60 years of age and has 1250 weekly contributions to IMSS. This scheme requires the Institute to grant a pension and benefits in kind (medical assistance, family allowance, and welfare aid). Those who have not contributed the minimum weeks but have reached

the age receive the resources they have accumulated (Article 154). Orendain (2016, p. 96–97) has addressed the old age scheme and states it gives the insured who are 75 years of age and have contributed 1250 weeks the right to access the individual account and benefit from an old age pension. To do so, the insured can take out an annuity from an insurance company or maintain the balance in the individual account in an AFORE and program money withdrawals (Article 157).

Employers report the worker-employer contributions which, together with the State contributions, create the retirement, old age, and old age severance insurance. These contributions are deposited into the worker's individual account. As for retirement, the employer covers the equivalent to 2% of the worker's contribution base wage. In old age and old age severance, the employer contributes with 3.150% and the worker with 1.125%. The State's contribution is 7.143% of the total employer contribution (Centro de Investigación Económica Presupuestaria, 2017, p. 32). The law also establishes a contribution by the Federal Government per each contribution day; that is, the government pays a social contribution to those workers earning up to 15 minimum wages (according to the current minimum wage in Mexico City). The contribution is deposited in the worker's individual account, based on the contribution base wage as follows: \$3.87, up to one minimum wage; \$3.70, up to four minimum wages; \$3.54, up to seven minimum wages; \$3.38, up to ten minimum wages; and \$3.22, up to 15 minimum wages (Article 168).

4. SIEFORES and investment instruments

The pension fund manager (AFORE) is in charge of investing resources in Specialized Investment Societies of Retirement Funds (Sociedades de Inversión Especializadas de Fondos para el Retiro, SIEFORE). Currently, the National Commission for the Retirement Saving System (Comisión Nacional del Sistema de Ahorro para el Retiro, CONSAR) endorsed 11 SIEFORES to invest the resources of individual accounts (Profuturo, SURA, Citibanamex, Coppel, Pensión ISSSTE, Azteca, Principal, XXI-Banorte, Inbursa, Invercap) to provide the insured greater benefits at a moderate risk level. Rodríguez and Dorantes (2016, p. 93–96) explain the characteristics of AFORE types of investment after analyzing the circulars sent by CONSAR on July 9, 2007, October 12, 2012, and June 4, 2013 (Table 1). CONSAR classified workers' individual accounts by AFORE Generation, according to age, and calls them Basic SIEFORE

(SIEFORE Básica, SB). To the second quarter of 2019, SB0 included old age unemployed workers; SB1, those aged 60 and above; SB2, those between 46 and 59 years of age; SB3, workers aged 37–45; and SB4, workers aged 36 years and younger. In year 2020, SIEFORES went from five to ten, divided by generations in blocks, according to the year of birth and seeking a higher pension.

Typo of SIEFORE	SB1 (1)	SB2 (2)	SB3 (3)	SB4 (4) (B)
1. At least 51% on debt instruments with a return equal to or greater than that of UDIS or INPC	X (A)			
2. Up to 100% in debt instruments backed by the Federal Government, or issued by the Bank of Mexico	X	X	X	X
3. Up to 100% debt instruments with highest credit ratings	X			
4. Up to 20% in foreign debt securities	X	X	X	X
5. Up to 10% on stocked instruments	X	X	X	X
6. Up to 5% in equity instruments	X	X	X	X
7. Up to 5% in structured instruments	X	X	X	X

Source: own elaboration based on Rodríguez (2016:97)

(1) Workers age 60 and older

(2) Workers between the ages of 46 and 59

(3) Workers between the ages of 37 and 45

(4) Workers 36 years of age or younger

Notes: (A) Includes CKDs (except for SB1) Fibers and Certificates whose payment source are actual assets.
(B) As of 12 November 2012, SIEFORES SB5 resources are integrated into SIEFORES SB4

Table 1. Investment instruments SIEFORES

SIEFORES analyze, based on the investment regime (Banco de México, 2012), the type of instruments in which AFORE resources are to be applied and then invested in government debt (development bonds D, development bonds, development bonds in investment units, treasury certificates, savings protection bonds—bonos de protección al ahorro, BPAS), international debt, national debt (investments in foods, automotive sector, development banking, banking instruments, beverage sector, cement, malls, consumption, State productive enterprises, europesos, industrial groups, infrastructure, paper, financial services, steel sector, transport telecommunications, housing), structured, infrastructure and real estate trusts (fideicomisos de infraestructura y bienes raíces, FIBRAS), and international and domestic equity instruments.

Serrano-García et al. (2016, p. 481–482) consider that FIBRAS are values issued by the trust, which mostly acquires or builds property within the country and income from property lease.

CONSAR, through SIEFORE, has established the concepts that describe Investment in Commodities; these are financial operations derived or underlying by raw materials to gold, silver, or platinum stated in the provisions by Banco the Mexico “that are

consumables different from shares, stock market index, rates, national currency, international currency, investment units, loans, and credits” (SIEFORE XXI, p. 11).

Operations of SIEFORES lead to a commissions scheme consisting of charging commissions whose amount is an annual percentage of the value of accumulated resources in the worker's individual account. It is created through a daily valuation of SIEFORES shares where the worker's funds are. SIEFORES are also bound to advise workers on the Risks that Investment Societies face. Investment Risk is associated to a Financial Risk, which refers to the possibility of losses and losses in value of the SIEFORE investment portfolio caused by liquidity, market, or credit risk, including legal and operations risks (Rodríguez and Dorantes, 2016, p. 177). Rodríguez provides a background on risks and investment returns in Mexico and quotes Derakshani et al. (2000) on the social security system in Mexico, which allows placing retirement funds in money market instruments, and investment laws that promote foreign involvement in fund marketing.

5. SB2 Case study

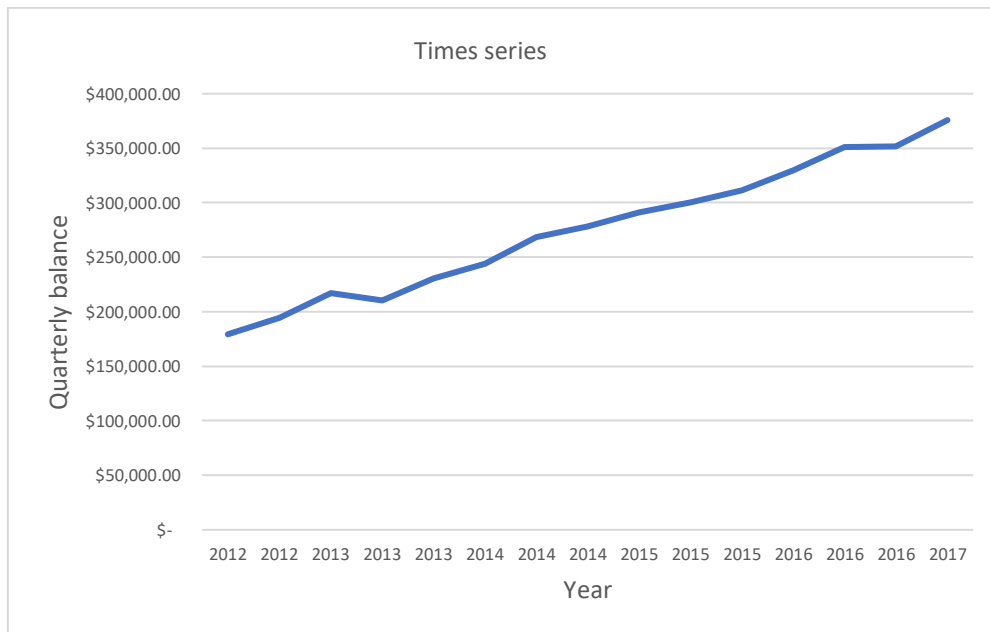
We make a prospective and statistical analysis of a time series regarding the calculation of resources the account holder will receive at the moment of retirement, based on the accumulated balance of the account statements released by the AFORE (Cromwell, Labys, Terraza, 1994). A time series is the completion of a stochastic process in a discrete time, where the elements of the process are ordered and correspond to equidistant moments in time.

As proposed by (Pérez, 2007) the final balance of the statements corresponding to 15 four-month periods of the last five years of contribution (May 2012–April 2017) of SB2 Afore XXI Banorte were analyzed. As shown in Table 2, the final balance is integrated by the worker-employer and State contributions, as well as the returns generated by the accumulated resource invested in SIEFORES. Clearly, the contributions and returns are affected by the amount of the commissions, the money AFORE charges for managing resources.

The series with the historic data (four-month periods) of Afore XXI Banorte is shown in Chart 1.

Year	Period	Previous balance	Contributions	Withdrawals	Income	Commissions	Final balance
2012	01-may 31-aug	159,005.91	189,966.94	-178,446.34	9,542.12	726.14	179,342.49
2012	01-sep 31-dec	174,342.49	9,475.21	-6.94	6,596.23	827.14	194,579.85
2013	01-jan 30-apr	194,579.85	7,709.92	-	15,342.19	791.98	216,839.98
2013	01-may 31-aug	216,839.98	11,608.69	-	-17,087.34	781.10	210,579.63
2013	01-sep 31-dec	210,579.63	11,651.99	-	8,883.79	809.69	230,305.72
2014	01-jan 30-apr	230,305.72	10,291.10	-	4,471.43	823.94	244,244.31
2014	01-may 31-aug	244,244.31	11,548.92	-	13,831.04	907.18	268,717.09
2014	01-sep 31-dec	268,717.09	8,141.58	-	2,124.49	961.75	278,021.41
2015	01-jan 30-apr	278,021.41	8,994.30	-	5,250.63	1,241.29	291,024.95
2015	01-may 31-aug	291,024.95	11,596.90	-	1,161.73	1,041.94	300,418.18
2015	01-sep 31-dec	300,418.18	9,449.55	-	2,181.76	1,042.03	311,008.46
2016	01-jan 30-apr	311,008.46	12,126.91	-	7,887.09	1,064.29	329,958.17
2016	01-may 31-aug	329,958.17	11,922.26	-	10,121.32	1,123.03	350,878.72
2016	01-sep 31-dec	350,878.72	10,373.42	-	-8,531.32	1,178.90	351,541.92
2017	01-jan 30-apr	351,541.92	11,609.47	-	13,867.23	1,208.06	375,810.56

Table 2. SB2 classification. AFORE BANORTE XXI



Graph 1. Historical behavior of the Time Series corresponding to the quarterly balance, AFORE XXI BANORTE SB2.

It must be considered that by the second (four-month) period of 2013, the final balance was added negative returns of \$17,087.34 MXP. The savings fund was affected by a financial loss and went from \$216,839.98 to \$210,579.63 MXP. The pension fund decreased by 2.90%, substantially demonstrating that returns in this period (\$11,608.69) were non-existent due to the investment loss, as shown in Chart 1. Even though the chart shows a positive tendency, there are negative returns in the second period of 2016, evident in the gridlock by the time of the second balance, showing returns and a linear growth of the total benefit by the first period of 2017.

Now, we will make projections of the patterns found to obtain an estimate for the future value using the behaviors in the past data. We propose a Holt's model to calculate the resources the account holder will receive at the moment of retirement, based on the accumulated balance in the account statements. Holt's model extended simple exponential smoothing to allow the forecasting of data with a trend. The simplest exponential smoothing method is simple exponential smoothing. It is generally used in non-stationary series and supposes the series has the model

$$Y_t = \mu + \varepsilon_t.$$

While the exponential smoothing methods allow for predictions in the short term, Holt's method is a more elaborated tool that provides predictions in mid and long terms. the smoothed datum can be expressed as

$$s_t = \alpha Y_t + (1 - \alpha)Y_{t-1} + (1 - \alpha)^2 Y_{t-2} + \dots,$$

where s_t is the smoothed value in time t , Y_t is the value of the series in period t and α is the smoothing parameter.

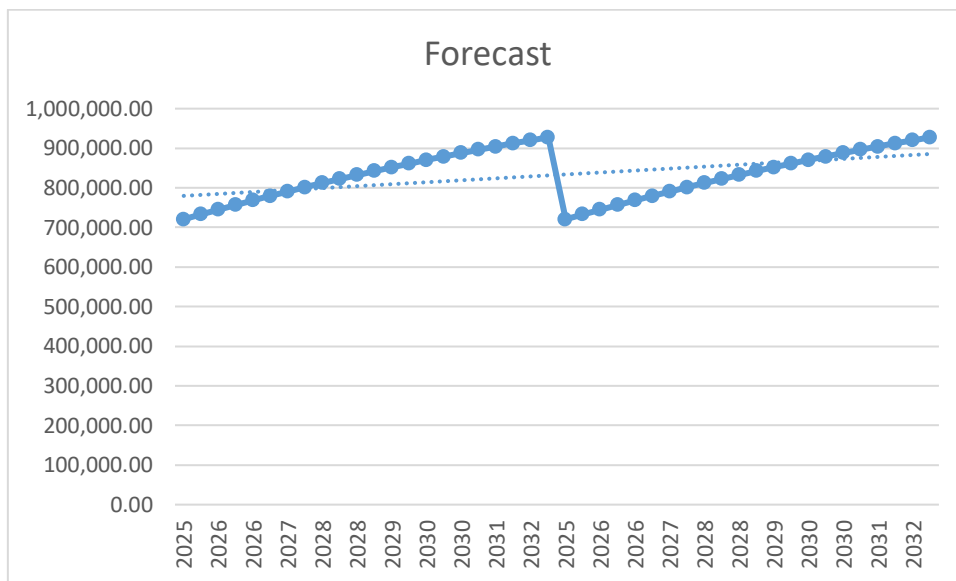
Following Holt's method described above, we made an adjustment. The forecast of worker-employer and State contributions, as well as returns during the analyzed period is shown in Chart 3. The final result is presented in two different ways: punctual prediction and confidence interval. The latter is a range of values calculated so that there is some

certainty, an 80 or 95% of confidence that the real value of the predicted variable is within such range.

Year	Point Forecast	Lo 80	Ha 80	Inferior 95	Ha 95	Year	Point Forecas	Lo 80	Ha 80	Lo 95	Ha 95
2025	720,739.88	685,821.61	724,924.48	675,487.18	735,390.24	2025	720,739.88	685,821.61	724,924.48	675,487.18	735,390.24
2025	732,993.95	696,667.85	736,274.10	686,322.79	746,667.85	2025	732,993.95	696,667.85	736,274.10	686,322.79	746,667.85
2026	745,010.36	708,147.74	748,825.57	697,154.24	759,859.50	2026	745,010.36	708,147.74	748,825.57	697,154.24	759,859.50
2026	756,786.78	718,146.57	760,373.74	706,661.88	770,977.04	2026	756,786.78	718,146.57	760,373.74	706,661.88	770,977.04
2026	768,321.46	728,678.66	770,825.53	718,077.01	781,604.25	2026	768,321.46	728,678.66	770,825.53	718,077.01	781,604.25
2027	779,613.20	739,406.73	782,117.81	728,375.82	793,620.37	2027	779,613.20	739,406.73	782,117.81	728,375.82	793,620.37
2027	790,661.28	749,668.78	793,366.65	738,250.51	803,871.98	2027	790,661.28	749,668.78	793,366.65	738,250.51	803,871.98
2027	801,465.46	759,067.96	803,512.02	748,316.43	814,972.80	2027	801,465.46	759,067.96	803,512.02	748,316.43	814,972.80
2028	812,025.94	769,119.38	812,291.26	756,947.46	823,887.94	2028	812,025.94	769,119.38	812,291.26	756,947.46	823,887.94
2028	822,343.34	778,072.12	823,488.35	766,617.47	835,676.36	2028	822,343.34	778,072.12	823,488.35	766,617.47	835,676.36
2028	832,418.65	788,485.50	832,404.14	775,543.56	845,487.29	2028	832,418.65	788,485.50	832,404.14	775,543.56	845,487.29
2029	842,253.22	796,591.26	842,860.42	785,068.05	855,099.79	2029	842,253.22	796,591.26	842,860.42	785,068.05	855,099.79
2029	851,848.73	805,056.74	850,917.88	792,930.94	862,606.57	2029	851,848.73	805,056.74	850,917.88	792,930.94	862,606.57
2029	861,207.16	813,954.24	860,635.98	801,231.34	872,962.47	2029	861,207.16	813,954.24	860,635.98	801,231.34	872,962.47
2030	870,330.76	822,540.63	869,840.76	810,543.58	883,174.04	2030	870,330.76	822,540.63	869,840.76	810,543.58	883,174.04
2030	879,222.03	831,012.51	877,694.65	818,098.92	890,671.96	2030	879,222.03	831,012.51	877,694.65	818,098.92	890,671.96
2030	887,883.71	837,873.24	886,268.02	825,133.80	898,937.73	2030	887,883.71	837,873.24	886,268.02	825,133.80	898,937.73
2031	896,318.74	846,325.98	894,066.89	833,734.12	906,177.17	2031	896,318.74	846,325.98	894,066.89	833,734.12	906,177.17
2031	904,530.24	852,619.21	902,268.65	840,037.64	916,212.08	2031	904,530.24	852,619.21	902,268.65	840,037.64	916,212.08
2031	912,521.49	859,588.92	909,939.43	845,441.95	923,079.94	2031	912,521.49	859,588.92	909,939.43	845,441.95	923,079.94
2032	920,295.94	867,761.18	917,969.52	854,219.40	931,043.48	2032	920,295.94	867,761.18	917,969.52	854,219.40	931,043.48
2032	927,857.15	874,751.69	923,992.10	862,407.62	937,606.06	2032	927,857.15	874,751.69	923,992.10	862,407.62	937,606.06

Source: Prepared by the author. Dates obtained from the proposed model.

Table 3. Prediction results.



Graph 2. Prediction obtained from the proposed model.

In Graph 2, presented below, we observe the predicted values with the model. By 2032, the retirement savings accumulated in Afore XXI Banorte will be \$927,857.15. The confidence intervals 80% and 95% of the forecast are (874,751.69; 923,992.10) and (862,407.62; 937,606.06), respectively. There is 80% confidence that the accumulated retirement savings in Afore XXI Banorte will be between \$862,407 and \$937,606 MXP. By that year, the SB2 individual account holder is expected to receive a monthly pension of around \$4,062.87.

6. Conclusions

In this scenario, a system of individual accounts cannot ensure the workers' lifestyle according to their contribution base wage, when old age pension is guaranteed by the State. The individual account system is limited to the amount of the contributions and, when applicable, the workers' voluntary savings, probably bound to a savings system with a financial insurance company.

In addition to the contribution base wage, the weeks worked are a factor that strongly influences the obtention of old age pension. The 1250 weeks of contribution in the 1997 Social Security law are a variable inherent to employment: If the worker has steady employment for 25 years, they manage to achieve the contribution weeks required by the new law.

Data recovery of the SB2 account holder shows the poor performance of returns (at the time of this study) since SIEFORE XXI Banorte Consolida has likely invested in risk investment instruments that did not yield positive returns to strengthen the worker's savings. It is worth mentioning that the account holder asked SIEFORE XXI Banorte Consolida to know the investment instruments in which their savings are invested, as well as the terms and rates. The request for information was denied, which is a violation of the right to petition as defined in the Constitution. Furthermore, the savings in AFORES are vulnerable to the economic behavior, and so account holders are subject to variables beyond their control. Finally, the account holder did not authorize AFORE Banorte XXI to invest resources in financial instruments.

The Social Security law valid from July 1, 1997 institutes strict requirements to the pension system, and the possibility that people can achieve retirement through individual

accounts is now small. In the next 15 years, the SB2 individual account holder will comply with the first requirement to obtain a lifelong pension, 1250 weeks of contribution in case of having formal employment. The first obstacle in the individual account pension system is the unlikelihood of contributing to IMSS since, in Mexico, there is a great uncertainty of employment; the State is bound to promote economic development. The current employment system does not provide enough job opportunities that fit the social security system due to the negative attitude among employers to provide legal, long, and lasting contracts. In fact, the 2012 labor reform inhibits the growth of formal employment and promotes temporary jobs, per-hour contracting, and reduced workdays.

Supposing they contribute 1250 weeks, workers could reach the minimum pension guaranteed. If they chose a voluntary savings plan, they could obtain a higher pension, which is complicated since wages are usually low and hardly ever cover the workers' basic needs and thus money saving culture is not promoted. Furthermore, the pension will not guarantee a certain lifestyle to those beneficiaries that manage to comply with the legal requirements since their retirement funds have been accumulated based on tax rates and their voluntary savings and not on the contribution base wage as in the previous regime. Therefore, it is understandable why the human development index in Mexico was the lowest when compared against other countries.

The pension system based on individual accounts can satisfy only those who manage to save using their own resources. It has been demonstrated that the amount of worker-employer and State contributions, as well as returns accumulated when workers obtain their pension are insufficient. For that reason, the old age monthly pension that an SB2 account holder will obtain will be the minimum guaranteed and equivalent to one minimum monthly wage. As of today, it is equivalent to \$2,433.21 MXP and will be \$4,062.87 MXP by year 2032. The account holder, whose contribution base wage is \$48,640.60 (higher when compared against most of the wages), will receive a pension that will not cover the expenses of a decent standard life that includes: education, personal safety, income and wealth, social, sports and leisure activities, health, environmental quality, housing, and civic engagement. The account holder is not only financing a rigorous pension system but also paying for the current pension system by mandatorily contributing to public spending.

The prospective study of the current pension system, based on individual accounts, evidences it violates human rights and social security. The State, guarantor of

fundamental rights, is bound to promote, respect, protect, and guarantee human rights according to the principles of universality, interdependence, indivisibility, and progressivity, since it is coresponsible for the individual's development. Together, State authority and fundamental rights and liberties determine a decent lifestyle, the right to the vital minimum, a principle protected by both the Constitution and international standards. New generations will not enjoy pensions from a system supported by public spending. The pension an elderly citizen is to enjoy, will be obtained from their own savings: An income that has already paid taxes. These savings will have to be enough to support a decent living; otherwise, a new type of poverty will be created.

REFERENCES

Álvarez Gayou-Jurgenson, J. L. (2003). *Cómo hacer investigación cualitativa, fundamentos y metodología*. México: Editorial Paidós Educador.

Banco de México (2012). *Descripción Técnica de los Bonos de Desarrollo del Gobierno Federal "BONDES D"*. México: Secretaría de Hacienda y Crédito Público.

Centro de Investigación Económica Presupuestaria (2017). *Pensiones en México. Cien años de desigualdad*. México: CIEP.

Cromwell, J. B., Labys, W. C., Terraza, M. (1994). *Univariate Tests for Time Series Models*. United States of America: Sage Publications.

Farfán Mendoza, G. (2009). *Los orígenes del Seguro Social en México: un enfoque neoinstitucional histórico*. México: Editorial UNAM.

IDC (2016). "Mi pensión ante el IMSS. 50 preguntas y respuesta para conocer cómo, cuándo y quienes pueden obtener este beneficio económico", *IDC Asesor jurídico y fiscal*, Vol. 30, N° Octubre, pp. 1-73.

Orendaín, K. I. (2006). "Efectos fiscales y legales de las pensiones, en Sistema de pensiones en México" en ESPINOSA, Alberto (edit.), *Perspectivas financieras y posibles soluciones*. México: Editorial Instituto Mexicano de Ejecutivos en Finanzas, pp. 81-109.

Pani, A. J.. (1926). *La política hacendaria y la revolución*, México: Secretaria de Hacienda y Crédito Público.

Programa de las Naciones Unidas para el Desarrollo (2016). *Informe sobre Desarrollo Humano 2016*, Estados Unidos: PNUD.

Pérez, F. O. (2007). *Introducción a las series de tiempo. Métodos paramétricos*, Colombia: Universidad De Medellín.

Rodríguez Nava, Abigail; Dorantes Hernández, Patricia Margarita (2016). "La reciente reforma financiera en México: Transformaciones y perspectivas". Available in: <http://oai.redalyc.org/articulo.oa?id=363544478004>. Fecha de consulta: 12 de agosto de 2017

Serrano-García, Izetl América, Rodríguez-García, Martha del Pilar, Méndez-Sáenz, Alma Berenice, Treviño-Saldívar, Eduardo Javier (2016). "Análisis financiero de las fibras en México", *Vinculatégica*, N° 1: pp. 489-499.

Siefore XXI Banorte Consolida (2016). *Prospecto de Información al público inversionista Sociedad de Inversión Especializada de Fondos para el Retiro (SIEFORE Básica 2)*, México: SIEFORE XXI Banorte Consolida.

Solís Soberón, Fernando (2006). "Planes de pensiones personales e institucionales" en Espinosa, Alberto (edit.), *Sistema de pensiones en México. Perspectivas financieras y*

posibles soluciones, México; Editorial Instituto Mexicano de Ejecutivos en Finanzas, pp. 45-77.

Vásquez Colmenares Guzmán, Pedro (2006). “Seguridad Social en materia de pensiones” en Espinosa, Alberto (edit.), *Sistema de pensiones en México. Perspectivas financieras y posibles soluciones*, México: Editorial Instituto Mexicano de Ejecutivos en Finanzas, pp. 111-164.

LAWS

Constitución Política de los Estados Unidos Mexicanos, *Diario Oficial de la Federación*, 5 de febrero de 1917, Tomo V, 4ª, Época, N° 30, 24 de febrero de 2017, última reforma. Ciudad de México, México.

Ley del Sistema de Ahorro para el Retiro, *Diario Oficial de la Federación*, 23 de mayo de 1996, 10 de enero de 2014, última reforma. Ciudad de México, México.

Ley del Seguro Social, *Diario Oficial de la Federación*, 21 de diciembre de 1995, 12 de noviembre de 2015, última reforma. Ciudad de México, México.

Ley del Seguro Social, *Diario Oficial de la Federación*, 12 de marzo de 1973. Ciudad de México, México.

Ley del Seguro Social, *Diario Oficial de la Federación*, 19 de enero de 1943. Ciudad de México, México.

Ley Federal del trabajo, *Diario Oficial de la Federación*, 1 de abril de 1970, 12 de junio de 2015, última reforma. Ciudad de México, México.

Circular 5/2012, *Diario Oficial de la Federación*, 2 de marzo de 2012. Dirigida a las Instituciones de Crédito, Casas de Bolsa, Sociedades de Inversión, Sociedades de Inversión Especializadas de Fondos para el Retiro y a la Financiera Rural, relativa a las Subastas para la Colocación de Valores Gubernamentales y de Valores del IPAB. Ciudad de México, México.

Circular Consar 15-19, *Diario Oficial de la Federación*, 9 de julio de 2007. Reglas Generales que establecen el régimen de inversión al que deberán sujetarse las sociedades de inversión especializadas de fondos para el retiro. Ciudad de México, México.