

STUDIES AND ACTUARIAL PROJECTIONS OF THE INSTITUTO DE PREVISIÓN SOCIAL PENSION SCHEME

2018-2100

EXECUTIVE SUMMARY
ACTUARIAL REPORT - 2018

In case of discrepancies between the original document and this translation, the original document in Spanish will prevail.

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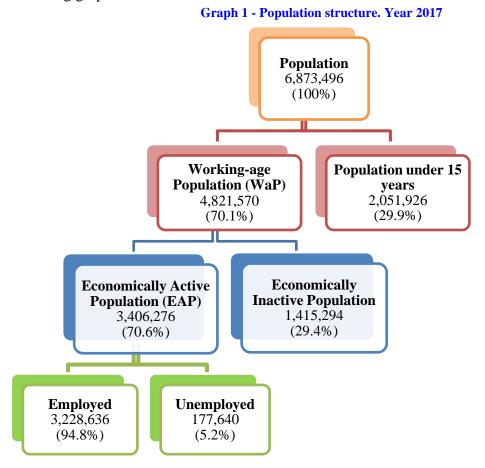
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EXECUTIVE SUMMARY

In Paraguay, the financing of the Pension System, in particular the Pension Scheme administered by the IPS, is based on workers-employers' contributions on employees' remunerations; therefore, knowing the universe of potential affiliates is of utmost importance.

According to the Permanent Household Survey (EPH for its acronym in Spanish) conducted by the Department of Statistics, Surveys and Census (DGEEC for its acronym in Spanish), the Paraguayan population in 2017 was 6,873,496 people, of which 4,821,570 were 15 years or older; which for the purposes of this report will be considered as the Working-age Population (WaP), this represents 70.1% of the total population. A subpopulation of interest is made up of people who are employed and those who are unemployed, who are part of the Economically Active Population (EAP), also called Labour force, which is composed of a total of 3,406,276 people, who represent the 70.6% of the WaP, this last number is known as the labour force participation rate. The rate of unemployment or open unemployment affected 5.2% of the EAP, which means that around 177,640 people were unemployed and actively sought employment in the reference period of the survey (last 7 days). The population structure is observed in the following graph.



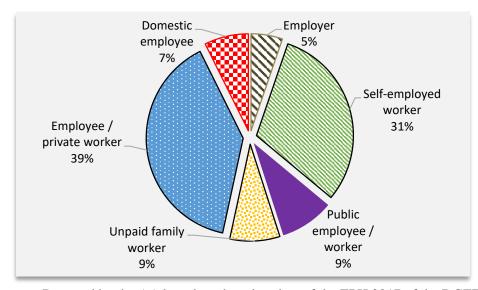
Source: Prepared by the AA based on the microdata of the EPH 2017 of the DGEEC.

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¹ This result differs from the official publications of the DGEEC by the special definition considered for the Working-age Population.

When the Employed population is analysed, the segmentation of the workers according to type of occupation indicates that 36% of them correspond to independent labour (31 self-employed and 5 employer); 55% are employees, classified as Private 39%, Public 9% and Domestic 7%. And the remaining 9% belongs to the category of "Unpaid family workers" (see *Graph 2*).

The importance of knowing the employment relationship of the worker, "dependent / independent" or "public / private", is based on the fact that the liability to contribute to the IPS Pension Scheme is restricted to "Private Employee / Worker" and "Domestic employee 2".



Graph 2 - Economic Structure of the EP. Year 2017

Source: Prepared by the AA based on the microdata of the EPH 2017 of the DGEEC.

Table 1 presents the evolution of the last 5 years considering the different possible definitions. During 2017, the contributors to the IPS Pension Scheme were $684,230^3$ people aged 15 and over, representing 19.74% of the EAP and 20.82% of the employed population. However, considering that only employees of the private sector (including domestic service) are required to affiliate and contribute, contributors to the IPS of 2017 represent 41.34% of its required population (see *Table 1*).

As of 2013, independent or self-employed workers, including employers and representatives of employers, have also been incorporated on a voluntary basis to the target population of the IPS, in addition to the private workers and domestic employees who are required by law to contribute. This is until the Law N° 5741/16, which regulates the incorporation into Social Security of the IPS to the owners and / or persons responsible for Micro, Small and Medium Enterprises (MIPYMES for its acronym in Spanish), is implemented. Although to date, the number of people

² Classification of Occupational Category used by the EPH of the DGEEC, corresponds to the type of employment relationship with the employing entity. They are distinguished within this type of relationship: the employer or active partner, self-employed worker, employee or public worker, employee or worker of a private company, domestic service (employee) and unpaid family worker.

³ Number of contributors aged 15 and over who have had at least one month of contributions during the year 2017. The data was obtained from the Administrative Records (RA) of the IPS.

enrolled in these categories is low and Coverage Rate can be calculated on this new target of the population of the IPS, resulting in a coverage of 23.91% for the year 2017.

Table 1 - Evolution of the IPS Coverage Rate

	2013	2014	2015	2016	2017
Contributors to the Pension Scheme	572,643	616,934	642,959	669,720	684,230
$\mathbf{E}\mathbf{A}\mathbf{P}^4$	3,238,977	3,248,101	3,292,408	3,382,113	3,465,976
Total Employed Population	3,076,353	3,051,977	3,116,224	3,179,239	3,285,722
Pop. Employed Private Sector ⁵	1,211,322	1,287,661	1,517,417	1,570,513	1,654,976
Pop. Employed Private Sector + Indep.	2,363,700	2,436,508	2,624,702	2,740,274	2,861,692
Cov. Rate (of EAP)	17.68%	18.99%	19.53%	19.80%	19.74%
Cov. Rate (of employed workers)	18.61%	20.21%	20.63%	21.07%	20.82%
Cov. Rate (w / dependent private labor)	47.27%	47.91%	42.37%	42.64%	41.34%
Cov. Rate (w / dependent private labor + indep)	24.23%	25.32%	24.50%	24.44%	23.91%

Source: Prepared by the AA based on the RA of the IPS and the microdata of the EPH of the DGEEC.

Watching closely the Coverage rate with respect to the total of dependent workers (private + domestic workers), a decrease can be seen in the rate starting in 2015. In that year, domestic workers were included in the compulsory Scheme; they represent 7.3% of the employed population (approximately 240,000 people). However, those who fall under this category are around 20,000 people, a fact that leads to a decrease in the rate in the defined terms.

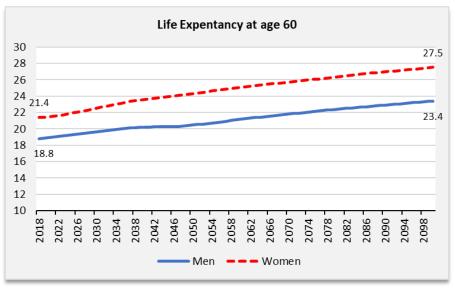
The Life Expectancy is the average number of years a person is expected to live based on his age, so when analysing a Pension System, it is necessary not only to know the Life Expectancy at birth (of a new born) but also (and perhaps even more important) the Life Expectancy of the person at retirement age, since this represents how many years the pensions will be paid on average.

With regard to the average number of years that the Pension Scheme must pay a person who retires at age 60, a sustained increase in the Life Expectancy is projected from that age, reaching an improvement of 6.1 years for women with respect to 2018 and 4.6 years for men; thus reaching 27.5 years in the case of women and 23.4 years in the case of men for 2100 (see *Graph 3*).

In other words, this would mean that by 2100, women are expected to live an average of 6 years longer than the number of years they expected to live in 2018 and men will increase their life expectancy on average by almost 5 years.

⁴ The active, employed and salaried population corresponds to people over 14 years of age.

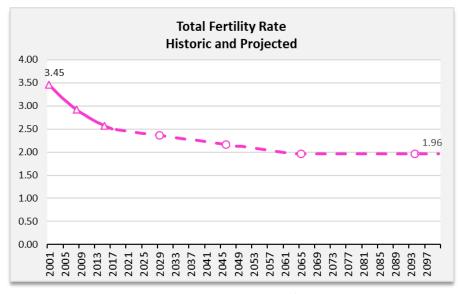
⁵ The total employed population of the private sector for the years 2013 and 2014 does not include domestic workers since they have only been included in the mandatory contribution scheme of the IPS since November 2015.



Graph 3 - Projection of Life Expectancy at age 60

Source: Prepared by authors of the A.A.⁶

Fertility Rate is one of the most difficult indicators to predict and one with the greatest impact on the volume of the projected population. The projections of this component are in accordance with the estimates presented in the last Actuarial Report and with those published by the DGEEC (2002)⁷ that show a value for the five-year period 2045-50 of 1.96 children per woman. *Graph 4* projects the evolution of this variable.



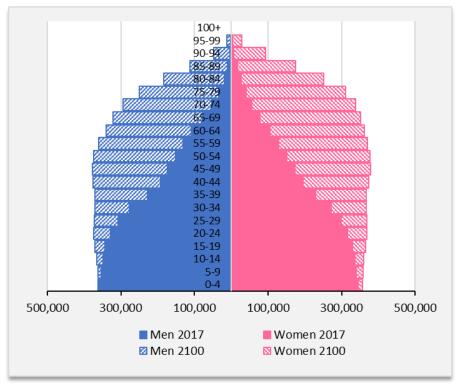
Graph 4 - Evolution and Projection of Fertility

Source: Prepared by authors of the A.A.

⁶ A.A.: Asesoría Actuarial

⁷ The value of the rate considered is based on the projection of the 2002 census, since those based on the 2012 census only cover a 20 year term.

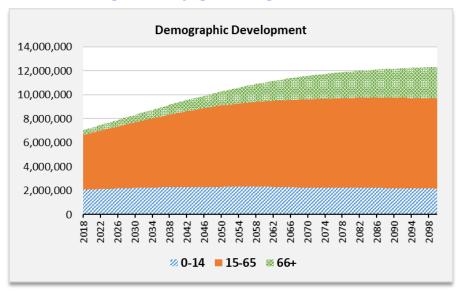
The projection of the total population of Paraguay for the next 82 years is obtained from the projections of Mortality, Fertility Rate and Net Migration. *Graph 5* clearly shows how the shape of the population pyramid moves from a triangular to an almost rectangular shape, typical characteristic of aging populations. The results show that the distribution of the population by age segments will be very different between the base year (2017) and the final year of projection (2100), marked by a growth of the upper age segments.



Graph 5 - Comparative Population 2017 - 2100

Source: Prepared by authors of the A.A.

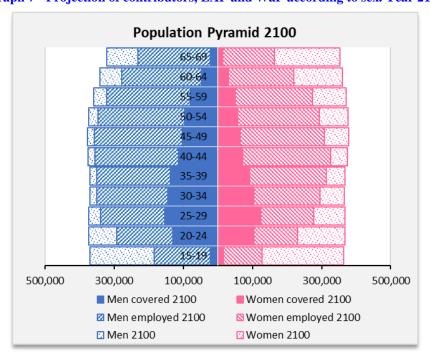
Graph 6 shows the projection of the number of people by age groups. It can be observed that the groups between 0-14 years (considered *Young*) maintain almost the same level throughout the projection section, the group 15-65 (considered *Young Adults*) increases significantly, while the ages over 65 years old (considered *Seniors*) are the ones that increase the most in relation to the beginning of the projection. This indicates that the participation of the young population will tend to decrease and the older population or people considered to be *Seniors* will tend to increase with respect to the proportion they represent in the total population.



Graph 6 - Demographic Development 2018 – 2100

Source: Prepared by authors of the A.A.

The number of contributors, in particular the number of employed for the IPS, has been calculated based on the projections of activity, unemployment and salaries. The projections made, show a sustained growth in the number of employees covered, and according to estimates, in 82 years it is expected that the number of contributors from 15 to 69 years of age will reach 1,775,7958 (See *Graph 7*).



Graph 7 - Projection of contributors, EAP and WaP according to sex. Year 2100

Source: Prepared by authors of the A.A.

⁸ Number of contributors aged 15 to 69 years who have had at least one month of contribution in the last quarter of 2017. The age range between 15 and 69 years was considered since the projections are calculated up to that age.

A variable widely used as the first reference indicator for Pension Systems is the relationship between the number of active contributors and the number of pensioners. The countries with Defined Benefit Pension Systems funded by Pay-as-you-go⁹ financing system, monitor with rigorous actuarial studies that the promise to pay certain amounts of pension can be fulfilled, for which it is extremely important to have many active workers to support the retirees and pensioners.

In simple terms, assuming that all workers receive the same remuneration, each one contributes 20% of their remuneration, and the pension is intended to be equivalent to 80% of the salary, the number of workers for each retirement benefit must be equal to 4 (since with 20% of the remuneration of four contributors a retirement can be financed equivalent to 80% of the average salary).

Table 2 shows the annual evolution of the relationship between the number of active contributors over the number of pensioners that, in the case of the IPS, has remained very high and practically constant during the last 5 years. In this period, this ratio has remained around 11 active contributors for each pensioner. *Graph* 8 illustrates the evolution of this indicator and shows the trend with greater clarity, mainly due to a slight decrease observed in the 5 years analysed. It should be noted that this indicator shows the gross ratio, since it does not consider the contribution percentage, nor the salaries, nor the retirement levels.

Table 2 - Relationship between the number of contributors and pensioners and between average incomes and pensions. Period 2013-2017

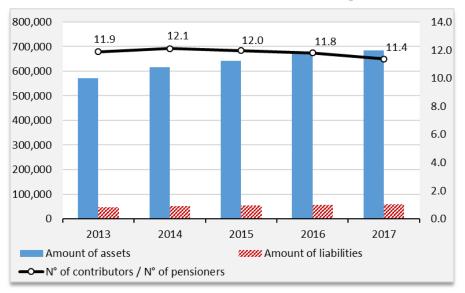
Year	Number of active contributors ¹⁰	Number of pensioners ¹¹	Ratio of contributors and pensioners	Average Worker's income (G)	Average Pensions (G)	Worker's income / Pensioner's benefit
2013	572,643	48,191	11.9	2,539,902	1,935,643	1.31
2014	616,934	50,900	12.1	2,709,485	2,118,864	1.28
2015	642,959	53,760	12.0	2,838,708	2,324,716	1.22
2016	669,720	56,714	11.8	2,939,214	2,529,689	1.16
2017	684,230	60,161	11.4	3,127,767	2,727,877	1.15

Source: Prepared from the administrative records of IPS.

¹⁰ The number of active contributors refers to the number of insured people who contributed to the Pension Scheme for at least one month in the year.

⁹ PAYG: Pay-as-you-go.

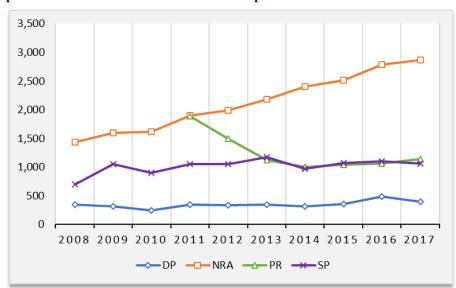
¹¹ The number of pensioners (stock of Pension Scheme) corresponds to the total of payments made in the month of December of each year.



Graph 8 - Annual evolution of the number of active contributors over pensioners. Period 2013-2017

Source: Prepared from the administrative records of IPS.

Graph 9 illustrates the evolution of the new benefits paid ("altas" in Spanish) in Pension by type, and it can be clearly seen that there were increases in the Normal Retirement Age (NRA) grant, accompanied in turn by the implementation of the Proportional Retirement that in the first year had a significant impact and then gradually diminished. The amount of new benefits paid by the Survivors´ Pensions and Disability Pensions, remained practically constant throughout the period considered.



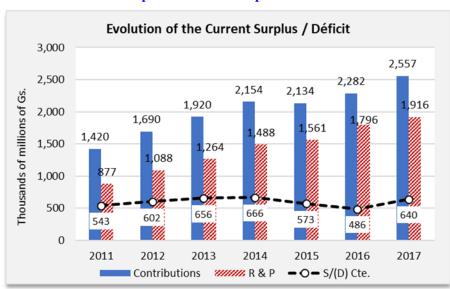
Graph 9 - Evolution of the total of new benefits paid Pension Scheme. Period 2008-2017

Source: Prepared from the administrative records of the IPS.

Note: NRA: Normal Retirement Age, PR: Proportional Retirement, DP: Disability Pensions, SP: Survivors' Pensions.

The increase in the number of new benefits paid is due not only to an expected evolution in the increase in benefits, but also to a great improvement in the administrative procedures for the granting of benefits, providing the benefit when it meets the age requirement (Happy Retirement Plan). At the same time, it is clear that the behaviour of the new benefits granted by Proportional Retirement is due to the fact that, since there are new requirements to qualify for Retirement, many people with contributions between 15 and 25 years old could have access to a benefit, which otherwise would have been impossible.

As for to the "Current Surplus / Deficit" specifically, which is the difference between income from contributions and payments for Retirement and Pension (R & P) payments, as of December 2017, the employer-employee contribution was & 2,557 billion, while Retirement and Pension payments totalled & 1,916 billion.



Graph 10 - Current Surplus / Deficit¹²

Source: Prepared by the AA with data from the Investment Management.

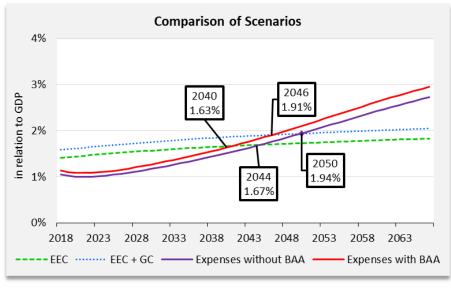
One of the objectives of this paper is to base the projections on the current conditions of the IPS Pension Scheme. So, instead of using a general projection model, the necessary modules have been made to represent the main benefit cases (Normal Retirement Age, Early Retirement, Proportional Retirement, Disability Pension, Survivor Pension).

For the purposes of the present study, 4 (four) scenarios have been analysed according to current legal provisions and what occurs in practice, which are represented in *Graph 11*.

The most likely scenario is that which considers the payment of the Annual Additional Benefit (BAA) or Bonus for retirees and does not consider Government Contribution (GC), which has a Current Deficit in 2040. And if that benefit is remove, the Current Deficit will be postponed until the year 2044 (4 years).

¹² The data for the 2011-2017 series correspond to the month of December of each year.

Considering the Government Contribution and the payment of the BAA, it is expected that the Income and Expenses will be equal in the year 2046. Meanwhile, if this benefit is not paid, the deficit is postponed until the year 2050 (4 years later).



Graph 11 - Income and Expenses. Comparison of scenarios

Source: Prepared by authors of the A.A.

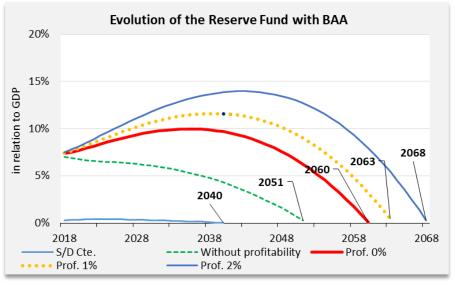
Note: EEC (Employer-employee contribution).

Given that the Current Surplus becomes part of the Common Pension Fund or Reserve Fund, and that these resources generate profitability, the evolution of the Reserve Fund has been projected for the most likely scenario (with BAA payment and without NB), which is represented in *Graph* 12.

First, the evolution of the Current Surplus / Deficit and the evolution of the Reserve Fund are represented, where the Surplus is simply accumulated without generating profitability. To have a more realistic picture, a projection of the possibility of maintaining the purchasing power of money is made, which means obtaining a real return equal to 0% (zero); and, in this situation, it is estimated that all resources will be used by the year 2060 (six years earlier than in the base scenario). Likewise, the Fund is projected with the 1% and 2% profitability rates, which delays the extinction of resources until 2063 and 2068, respectively.

Obtaining positive real rates of return will allow the Reserve Fund to postpone the extinction of resources for a few years, but it will not be possible to sustain, indefinitely, structural problems that the Pension System has (high substitution rate, increase in life expectancy and aging of the population).

The possibility of suppressing the Additional Annual Benefit or obtaining financing through contributions on the bonus could postpone the Current Deficit by 4 years, but the trends of the scheme would not change substantially.



Graph 12 - Evolution of the Fund with the BAA payment

Source: Prepared by authors of the A.A.

Finally, the Actuarial Balance represents the difference between the Present Value of the Future Benefits and the Present Value of the Future Contributions and the Asset that backs these obligations at a valuation date.

The estimates have been made for the most likely scenario, where there is no contribution from the Government and the Annual Additional Benefit is paid. They are presented with two terms, one to 70 years, to be able to compare it with the estimates that are usually made by multilateral organizations and another one to 82 years to analyse if the trend of the first result is deepened or reversed.

The "Actuarial Liability" represent the obligation that the Scheme (Administrator and / or System) has with the affiliates, whether these are "Granted and / or Irrevocable Benefits" or "Benefits to Grant", and when they are registered it becomes a Liability in the Balance Sheet of the Fund.

To estimate the "Actuarial Liability" in the case of "Benefits Granted" (Pensions), it is only necessary to estimate the "Present Value of the Future Benefits" (VPCF), which takes into account the age, sex, the beneficiary's civil status, and the amount of the benefit to project the benefits to be paid and during which time it will be paid (life expectancy of the benefit's holder and beneficiaries), to finally calculate the current value at the cut-off date of the estimates made.

In the case of the "Benefits to be Granted", the estimation of the Present Value of the Future Benefits must be made first, and, subsequently, a methodology to constitute the "Actuarial Liability" based on the criterion of years of contributions in the Scheme must be established.

On the income side, the "Present Value of the Future Income" (VPIF) must be estimated, which consists of the estimates of the income from contributions on wages, for which the evolution of wages, probability of surviving active and remaining in the company is projected. While the

Assets represents the resources which the Fund currently has (Administrator and / or Scheme) and are registered in its Financial Statements.

For the present study, an open group is considered, which includes all affiliates, present and future, under the assumption that the operating system will continue under the same legal conditions during the projection's horizon. Therefore, it is considered whether future contributions will be sufficient to cover future commitments, or not. The assumptions used are the same for the Actuarial Projection of this work, considering the real 2% technical interest rate established by RCA 038-008/11.

Table 3 presents the Actuarial Balance in guaranies, based on the year 2017, with projection terms of 70 and 82 years; in parallel the results in dollars are presented at an exchange rate of & 5,590¹³ - US\$ 1.

In the case of the projection to 70 years, an Actuarial Deficit of US\$ 5,611 million is estimated, while, if the projection extends to 82 years, the Actuarial Deficit increases to US\$ 9,361 million.

Table 3 - Actuarial Balance (in millions of Guaranies and Dollars)

		70 years		82 years	
		Guaranies	Dollars	Guaranies	Dollars
1.	Actuarial Liability	221,940,155	39,703	265,000,069	47,406
1.1	Irrevocable Benefits	20,112,262	3,598	20,112,347	3,598
1.2	Benefits to Grant	201,827,893	36,105	244,887,722	43,808
2.	Present Value of Assets	190,571,214	34,091	212,668,263	38,044
2.1	Assets	12,020,926	2,150	12,020,926	2,150
2.2	Present Value of Future Income	178,550,288	31,941	200,647,337	35,894
3.	Surplus / Actuarial Deficit	-31,368,941	-5,612	-52,331,806	-9,362
	Exchange rate	5,590	•		

¹³ Quote of 28.12.2017 published in https://www.bcp.gov.py/webapps/web/cotizacion/monedas

CONCLUSIONS

According to the results obtained, based on the demographic projection, it is expected that the population of Paraguay will grow from 6,953,646 inhabitants as of 2017 to a total of 12,321,283 by 2100, which represents a growth of 77.2% and an interannual increase average close to 0.69%. The Global Fertility Rate for the 2015-2020 quinquennium is 2.50 children on average for each woman of reproductive age (15 - 49 years of age), which is still above the world average values. However, it is assumed that it will decrease and begin an aging process as in the rest of the countries of the region, where, by the year 2100, it is assumed that it will be 1.96. While the distribution by age indicates a predominantly young population in 2017, the distribution pattern will change considerably towards the end of the projection, going on to observe a more aged population.

The labour scenario for 2017 indicates that, out of total people eligible for work, a high participation of such people will be willing to enter the labour market, especially of men and, in general, a low level of unemployment. Equal participation levels are projected for men and a slight improvement in the participation of women; therefore, it still exists a wide margin to increase the Social Security coverage.

The main characteristics of the country within the framework of Social Security are: a) Accelerated demographic transition; b) Inequities in the redistribution of income; c) High informality in the labour market, high unregistered employment rate; and d) Low capacity to transfer public resources or income from public finances to Social Security (due to the existence of other priorities).

It can be stated that the IPS has entered a stage of reforms, especially if it refers to the incorporation of new groups. Indeed, we can mention the incorporation of Non-government school teachers, mandatory membership for domestic employees, voluntary adhesion of self-employed workers, and the introduction of the law that grants a Proportional Retirement with 15 years of contribution and 65 years of age.

In 2017, the IPS registered a ratio of 10.8 contributors (between 15 and 69 years of age) for each benefit granted, which can be considered quite high not only in comparison to the countries of the region, but also considering the seniority of the Pension Scheme, which with many years of life usually has a lower ratio. It is projected that this ratio will decrease to 3.2 by 2100.

Assuming a constant interannual increase of 0.98% for the coverage rate (by sex and simple age) during the entire projection period, there would be an increase between points (2017-2100) of 161% in the number of contributors, in accordance with the levels of increases observed in the last 5 years. This is based not only on the improvement in the control procedures but also on the favourable economic conditions of the country that have driven the formalization of the economy.

The liabilities for the same period are projected to present an increase of 776%, mainly as a consequence of the introduction of the Proportional Retirement Act in 2011, and associated with the demographic transition (aging of the population) that will suffer not only the population covered by the Pension Scheme of the IPS, but the whole country. These liabilities will also generate a sustained increase in the number of new payments in retirement and pensions. This, combined with the current requirements of seniority, contributions and high substitution rate, will drive the sustained increase in retirement and pension expenses.

The most realistic scenario according to the prevailing conditions is the Base Scenario, where the Governments Contribution of the National Budget is not considered but the Annual Additional Benefit payment is so. From 2041 on, this Scenario projects that a current deficit will begin (the retirement and pension expenses will exceed the income from employer-employee contributions) and the Reserve Fund will be extinguished in 2052 even if an average return at least equal to the purchasing power of money is maintained.

Obtaining real positive rates of return will allow the Reserve Fund to postpone the extinction of resources for a few years, but it will not be possible to indefinitely sustain structural problems that the Pension Scheme has (high substitution rate, increase in life expectancy, and aging of the population).

The possibility of suppressing the Additional Annual Benefit or obtaining financing through contributions on the bonus could postpone the Current Deficit by 5 years in case of not receiving financial assistance through the National Budget, but the trends of the Scheme would not change substantially.

In this Report, the Actuarial Balance is incorporated, which presents a deficit of US\$ 5,611 million considering a horizon of 70 years; if the projection extends to 82 years, the Actuarial Deficit increases to US\$ 9,361 million.

In the next and last chapter of the Report, we present some comments and suggestions that range from technical corrections and legal loopholes to the analysis proposal to make some adjustments to the System, which are presented in the following section.

COMMENTS AND SUGGESTIONS

Pension System

Although the By-laws of the Instituto de Previsión Social does not explicitly establish which is the Pension Scheme that it administers, by considering how the contributions and benefits are established, it is clear that it is not a Capitalization system or a Pay-as-you-go financing system (at least not a pure one).

Although it can be defined in one way or another according to the criteria established by the different schools of thought, bearing in mind these characteristics, we can say that the Scheme administered by the IPS is a Defined Benefit System and Collective Capitalization with a Reserve Fund.

Expansion of Coverage

One point to keep in mind is that, nowadays, when we talk about "Coverage", we not only refer to the possibility of registering / affiliating and finally receiving contributions from a worker, but we also emphasize the possibility that citizens of a country can get Social Security protection according to their characteristics and particular needs.

As long as there is informal Employment or Unregistered Employment and the inequities in the redistribution of income are maintained, it will be impossible to extend the Coverage based exclusively on the contributions of the workers.

It is important to understand that the function or objective of Social Security Systems is not to correct the failures of the labour market, but to provide protection to people in the face of contingencies that endanger their health and their ability to generate income.

In particular, the function of a Pension System is to try to solve the problem of "intertemporal short-sightedness of income". This is nothing other than the lack of foresight people have with respect to the expenses they will have to meet during old age, when they will no longer have the possibility to continue working and generating income.

As its name states, the system seeks to "foresee" this situation, and does so through different mechanisms; but in essence it takes part of the income of the workers with the commitment to return it as a retirement and / or pension. The System administers wealth, so low wages will generate low pensions.

Administrative Records

Although there is a technologically-based information system and an updated database of contributions from 2000 on, the records prior to that date are not yet linked or available in the accounts of the worker insured. It is an important step to have the records prior to the year 2000, but it is necessary to advance in the systematization to assign said records to the insured.

As for the records of the beneficiaries of active workers, that is an issue still pending. These registers are important because they should be the input to generate important indicators on the potential beneficiaries of the Survival Pensions, such as widowhood and orphanhood. For this report, statistics on beneficiaries such as the average age of the wife and children have been generated using the EPH and refer to the relatives of the entire population over 14 years of age and not exactly limited to the contributing population to IPS. This is mainly due to the fact that administrative records on beneficiaries show a high level of under-registration.

Legal Reforms

There are a series of reforms that provide new benefits or introduce new groups of contributors under different laws and, in some cases, have introduced different eligibility requirements or granted differentiated benefits. For example, new laws are considered. These have been taking innovations that tend to a higher retirement age (65 years for Proportional Retirement), but there is no coordination to converge towards an age-rate of reference between the different types of benefits (Proportional, Early Retirement and Normal Retirement Age).

There are articles in the By-laws of the IPS distributed in laws that modify or extend it, that in addition to creating a legislative mess that is often complicated to understand, at other times they contain flaws in the wording that make them inapplicable and / or generate legal loopholes. Therefore, it is required a "technical correction" of the laws that do not necessarily imply parametric adjustments or structural changes to the Pension Scheme.

Finally, many of the suggestions cited below were already proposed in previous Actuarial Reports, both in the one prepared by the Asesoría Actuarial of the IPS and by those carried out by international organizations (ILO – International Labour Organization and OISS - Organización Iberoamericana de Seguridad Social).

1. Inclusion and Exclusion of Contributions

1.1. Insured Salary floor

While article 20 of the Law 427/73 establishes that: "no contribution will be lower than the one that corresponds to the minimum salary or salary legally fixed, even if they are Apprentices who do not receive a salary in cash", there are regulations that allow for contributions lower than the minimum required to be computed as a month old, which threatens the possibility of accumulating years of contributions and access to a retirement based on years of work.

Decree No. 8730/60 in its article 1 paragraph e) states: It is understood as the minimum basis¹⁴ (Insured Salary floor¹⁵), on which day laborers and workers must pay their contributions, as the total amount of eighteen days of minimum legal wages set by the National Labour Department, and the corresponding thirty days for employees. Although it is true that there are many workers who work on a daily wage and effectively only 18 days, there is a great incentive to declare on

¹⁵ The phrase in parentheses it's only printed for clarification, it does not belong to the original text.

¹⁴ Lower limit on insurable earnings (floor).

the minimum and not on what was actually worked. Therefore, it is necessary to strengthen the controls.

In the case of private school teachers, Law 4370/11 in its article 4 establishes: *The minimum basis, of the subjects of this Law will be the total sum of the remunerations actually received, either in a single entity, or under the modality of multiple employment*; and although it is true that there are teachers with few teaching hours during the month, as they do not have a Insured Salary floor, this generates not only a difficulty when accumulating seniority for retirement, but ends up underfunding the Health Insurance.

1.2. Compensation or extraordinary bonuses

It is necessary to exclude the contribution on compensation within the last 36 months of contribution to calculate the amount of retirement, in order for the contribution for retirement to better represent the contributory effort of the worker insured. Although the Pension Directorate currently excludes compensation for the calculation of the pension, the Directorate of Workers' Employer Contribution admits the contribution on total income including compensation. This situation could generate legal demands by the worker insured and would force the IPS to consider compensation for the calculation of pension.

A similar situation occurs with the bonuses that some companies tend to make per termination of the employment relationship. The idea on which the pension scheme is based, is that the benefit to be granted is related to the worker's usual income, so if the worker receives a bonus or annual bonus for performance, this should be included as a basis for the benefits. Thus, if it is an occasional issue or due to the termination of employment, it should not apply.

What is explained here has relevance for the pension scheme, whereas if it is considered for the health system, it may present another situation, considering that it is a model based on the distribution of risk financed by the redistribution of income.

1.3. Contribution as an Independent Worker

Law 4933/13 authorizes the voluntary incorporation of independent workers. Through RCA No. 062-014/13, of 07.30.13 its procedures were regulated, where in article 11 it was established that the Insured Salary floor will not be less than the value corresponding to 1 (one) Legal Minimum Wage for various activities not specified, and will govern until the Definitive Minimum Basis are established, which will be based on compliance with taxable obligations of each category of affiliates; for this purpose, the General Regulations that are necessary will be formulated and presented for approval by the Executive Branch.

Five years after its implementation, it is fitting to conduct a review of the regulations, and especially the methodology, to establish and confirm the Insured Salary floor, since there are contributions based on very high presumed income, that no justification or validation is requested, and they end up generating high benefits not linked to the real income of the worker.

1.4. Contributions during leave of absence

On the side of the contributions that should be taken into account, the insured who are at leave of absence (either due to maternity, common illness or work accidents), do not contribute for their pension nor is this period recognized.

In the case of women in particular, with the new regulation (Law 5508/15), although the period of maternity leave was extended, from 14 to 18 weeks, and 100% of their salary will be paid at the moment of the delivery as a subsidy during the permit, the contributions to the Social Security were not foreseen. And that is how a woman who has 4 rests periods due to maternity during her working life, loses a year and a half of contributions for her pension.

This situation is not foreseen by the current legislation and must be corrected either by means of effective contributions or by the recognition or calculation of the rest time. For any of the options, it must be established through a new law.

2. Portability of Contributions

In Paraguay, depending on the sector in which a worker is, he or she may be contributing to the IPS or another Pension Scheme (Fiscal Fund, Municipal Fund, Banking Fund, etc.). And in an environment of high labour mobility, when changing sector, the worker will be forced to make contributions to another Pension Scheme, unable to perform the portability of his contributions (transfer contributions from one Fund to another).

This problem was solved, in part, through the Inter-Funds Law with which contributions to different Pension Funds in Paraguay can be computed in order to meet the seniority requirement, with the proviso that there is a diversity of requirements (seniority and years of contribution). between the different Funds.

The possibility of converging to standardized requirements of all the Funds should be considered in order to avoid incentives and / or penalties when changing entities. Additionally, the possibility of including Private (Mutual) Funds in the Inter-Funds system should be considered.

3. Requirements for access to benefits and long-term adjustments

Although the minimum age for NRA is 60 years, a significant proportion of workers make use of Early Retirement achieving a minimum benefit of 80% of the average salary with at least 55 years of age and 30 years of contribution. Considering the proportion of people who claim this benefit, it can be classified as a sub-regime and not as a benefit of exceptional use. Few countries in the region still have the possibility of a retirement at such an early age and / or with such high replacement rates.

Considering the life expectancy observed in Paraguay, a person at age 55, not only is far from the decline in work activity, but gradually will live longer. And, as there is no automatic adjustment system that balances the contributions made with the benefits to be received, more funds will be required for the payment of benefits than originally estimated.

Countries that have maintained low retirement ages have made modifications reducing the amount of such benefits in order to maintain the financial sustainability.

Regarding to the Replacement or Substitution Rate, having such high values, especially for Early Retirement, generates a disincentive to contribute to people who have started their working life at an early age. As an example, a person who starts working at age 18, at 48 years old, could already accumulate the maximum amount of contributions required, only waiting to meet the age requirement.

Although it can be argued that having a Replacement or Substitution Rate for low-wage workers would reduce the quality of life of the retiree, this rate should not necessarily be fixed. That is, for those with lower incomes it may be high, for those with higher incomes it might be low and / or have caps on what the maximum pension should be. It is advisable to not give high replacement rates, then to cheat with indexing adjustments.

For these reasons, it would be convenient to seek or establish a convergence towards a single retirement age for NRA and Proportional Retirement that reflects the effects of a longer life expectancy, as well as to analyse the possibility of establishing a points system between years of contribution and retirement age to determine the Substitution Rate taking into account the suggestions of the preceding paragraph, where the maximum benefit in terms of the Substitution Rate must be granted to the person who has the greatest number of years of contributions and age at the time of retirement.

4. Regulatory Base

Both the update of salaries and the increase from 36 to 120 months in the term considered as Regulatory Base (BR), are the main innovations introduced by Law 4370/11, restricted in principle to a specific group of contributors such as Teachers of the Private Sector Schools (DP), through its recent inclusion in old age insurance. However, the implementation to all groups is something that has been discussed at a technical level for quite some time and would be done gradually, so it is very important to study the techniques of adjustment of wages and the effect of extension of the period considered.

Currently in the formula of the benefits granted by the IPS, the last wages of the worker are considered in nominal terms, that is, without any adjustment that recognizes the loss of purchasing power over time throughout the working life. But, the fact of considering the salaries contributed during the last years prior to retirement, in the case of retirement through old age, causes an overvaluation, generating inequity for those who have made an equal or greater contributory effort in previous years to those considered for the BR, but who have stopped contributing a short time before the time of retirement age.

The first problem that occurs with a BR that takes a few years is that it weighs only the end of the career in the average salary, which can encourage evasion when making contributions on the total salary during the period that it is not considered at the time of calculating the retirement, generating inequities and underfunding the system. Likewise, it may imply that some workers

exaggerate the workload over the last few years, declaring several jobs or promotions that imply increases in the payroll, in order to achieve a better benefit. Although there is a rule in current legislation that limits such situations, in practice it is difficult to apply.

Law 4370/11 seeks to mitigate the effect of inflation when the years in the BR increase, avoid overvaluation in the final value of the pension, and that there is a relationship between contributions and benefits. In short, it seeks that retirements are enough to satisfy personal needs with funding sources that support them and reflect the contributory effort.

In view of the above mentioned, it is especially suggested in Retirement through Old Age, the use of a minimum period of 20 years and that it may even cover most of the work career for the Regulatory Base, which would imply a lower volatility to determine the benefit for the worker and greater incentives to contribute. The introduction of this type of modifications could be carried out gradually, for example, incorporating one year in the consideration of the average for each calendar year lapsed, until reaching the total value required.

5. Update and Adjustment by Salary Index

Currently, there is no update on wages for the determination of the benefit and they are considered in nominal terms; which, in a scenario of low inflation and few years in the BR, would not have a significant impact if the wages considered are close to the date of retirement. On the other hand, for cases in which the time between the last contribution and the retirement date is considerable, the benefit that results would already have a significant impact; as it has happened with many retirements with the introduction of Proportional Retirement.

If the period of years considered in the BR to 20 years or more is increased, it will be important that they use updates as long as it is accompanied by a decrease in the Substitution Rate.

In the case of adjustments to Retirements and Pensions, there is a distribution that is not equal to the current Retirement and Pension Adjustment System. This occurs because all Retirements and Pensions receive the same percentage of the increase, but the contributions do not all increase in the same proportion when the Legal Minimum Wage is in force.

In both cases the importance of updating was discussed, but not what type of index to use to do it. An alternative would be an Index of Salaries Declared to the System, since variables such as Inflation or the Minimum Wage are outside the sphere of influence of the Retirement System and collections do not necessarily have a proportional impact when the Inflation or the Minimum Wage varies.

6. Widows under 40 years of age - Current situation

Art. 62, which refers to the chapter on pensions, of Law 98/92, in subsection b) states that ... "The widow or partner or widower under 40 (forty) years of age shall be entitled to compensation equivalent to 3 (three) annuities of the pension that would have corresponded to him or her".

With this article, the payment of a Pension to the Widow or Widower who was less than 40 years old is restricted, regardless of the years of contributions that the titular spouse has made. As an example, a worker who started contributing at 18 years of age and died at 43 years of age could already have 25 years of contributions and the widow, if she was under 40 years of age, could not receive a pension without considering whether or not you have income to survive.

This represents an inequity, so it would be advisable to review its application and see the possibility of applying a formula that considers not only the age of the beneficiary, but also the years of contribution and whether the person has a source of income or not.

7. Assets - Real Estate

The Pension Fund has a portfolio of real estate properties that has been acquired in part, as real estate investments, and, most of it, as payment for unpaid loans or unpaid worker-employer contributions.

In the 1992 reform of IPS's By-laws, there were two situations that directly affect the administration of real estate investments. First, it is required that the average profitability be equal to the actuarial rate; and, second, it omitted the article that had explicitly established the IPS's right to dispose of the properties owned by the IPS, which followed the line of thought where it is no longer possible to perform the sale of real estate.

The points above, in addition to the fact that the IPS does not have professionals specialized in property management and marketing, generate restrictions when seeking the highest return with the lowest risk.

Legal mechanisms should be sought to introduce a reform of the Law and again provide the IPS with the possibility of disposing of real estate, not only as an instrument to improve the management of investment property of the Pension Fund, but also to provide the possibility of obtaining liquidity when required.

8. National Budget

Regarding the required contribution to support the tri-member entity (gov't, employers and workers), it is worth mentioning that, although the legislation passed in the 1940's (when the IPS By-laws were enacted) ,establishes a 1.5% government contribution on the salaries declared to the IPS, until now the government has never made such a contribution, while the other parties to the scheme (employers and workers) have regularly fulfilled their contribution obligations. Alternatives should be sought out; for instance, the National Budgets should not be linked to a variable that it does not control, such as market wages.

In several countries of the region, the government contribution to the Pension System through specific sources of financing such as: some points of the Value Added Tax or a percentage of the taxes collected on cigarettes or alcohol.

9. Equating the contribution of ANDE

The National Electricity Administration (ANDE for its acronym in Spanish) has its own Pension Scheme, which at the time was instituted as a complementary one to the pension granted by the IPS, where they can retire with 750 (seven hundred and fifty) weeks of contribution and 60 years of age, corresponding to 42.5% of the average salary for the last 36 (thirty-six months) and for every 50 (fifty) weeks that exceed the indicated length, it will be increased by 1.5% (one and a half percent) up to 25 years of contribution (maximum substitution rate of 57.5%).

Subsequently, the IPS Pension Scheme was reformed and the replacement rate reached 100%, but ANDE's Pension Scheme maintained the conditions and the workers continue contributing to both Pension Schemes.

Considering that the unification of criteria and contribution rates for retirement should be sought, ANDE workers should comply with the conditions of the General Scheme and maintain the Complementary Fund in search of a higher substitution rate, considering the salary level and the restriction of maximum retirement that the IPS has.

10. Unearned Profitability

Resolution C.A. N ° 036-014/18 dated 05.06.18 in its article 1 "Authorizes the generation of Complementary Worksheets of those Employers that require to enter the Workers Employer Contribution for the period of time that they did not enter contribution in favour of workers, for having omitted the communication of the income from the beginning of the employment relationship, or other reasons and that they show their agreement regarding the liquidation practiced".

A possible consequence of this regulation would be to encourage employers to wait a long time to register their employees to Social Security, because the rate charged for unearned profitability is low; therefore, charging higher rates to discourage this situation in employers should be discussed as an alternative.

On the other hand, it is important to remember that during the period that employees were not enrolled in Social Security they could not enjoy any social protection.

And one of the main characteristics of this modality is that it depends on the predisposition of the employer to take care of the situation. Therefore, there should be an analysis of the prospect of establishing, by law, the incorporation of greater fines for contributions during the time worked that is not registered (as it happens in other countries) and interest rate to be applied to the unearned profitability.

Additional Annual Benefit

A clear definition must be adopted regarding the Annual Additional Benefit (BAA), which is an amount equivalent to one twelfth of the remunerations accrued during the calendar year (similar

to the definition of "Aguinaldo" 16), and a definitive norm must be established that does not require an annual discretionary treatment by the Board of Directors.

A Pay-as-you-go System uses the valuations to predict in advance the need to make changes in the contributions and / or in its formula to determine the benefits, in order to maintain the financial equilibrium of the system, and to seek financing alternatives or modify this benefit, since it is not coherent to not pay during the active condition and collect the BAA as a liability.

An alternative would be for active workers to contribute 12.5% (twelve and a half percent) of the bonus to the BAA. The discount would affect the worker directly, and all proceeds would go to the Pension Fund. To achieve it, legislative changes should be promoted, such as the By-laws of the IPS where it defines the Salary and expressly excludes the Aguinaldo as a ensured salary, as well as the necessary modifications to the Labour Code that are issued on these matters.

Another alternative would be to pay a uniform BAA for all, that is not linked to the amount of benefits received during the passive stage; that is, paying the benefit depends on the actuarial and financial gains that may exist and not the contributions made.

Investments – Good Governance

The technical report 15 of the International Social Security Association (AISS for its acronym in Spanish) "Financial management and risk management of social security" states that:

"Social security institutions are vulnerable to certain very long-term risks that concern financial obligations such as real income growth, structural changes in the economy, unemployment, disability, the future increase in health care costs and the general improvements in the longevity of the entire population. For social security institutions, some large risk sectors are operational risks, liquidity risks, liability risks, economic risks, investment risks, catastrophe risks and political risks.

Each organization must design its own processes to assess, monitor and manage risks. The process must be official, regular and continuous, completed from time to time by special studies and investigations on exposures to particular risks. A summary of the risk assessment and a report on the measures taken to manage the risks should be disclosed regularly. "

In the Investment Funds, the risk policy to be assumed depends a lot on the people who are in charge of managing them, their risk tolerance, knowledge and experience. It is necessary to have regulations that clearly limit the possibility of investment depending on the risks. The impact of

¹⁶ "Aguinaldo" it is a compulsory benefit granted by the Labor for dependent workers, equivalent to one twelfth of the remunerations accrued during the calendar year, paid at the end of the year.

economic conditions is one of the factors to be taken into account, along with the levels of employment, coverage, salaries and life expectancy.

Currently, the Pension Fund of the IPS requires a greater diversification in terms and instruments, investment periods, target market, etc., which, although the investment policy must be established by the Institute, this must be within the framework of rules that establish the limits and prohibitions, in addition to constant supervision by entities specialized in the subject such as a Pension Superintendency currently non-existent in Paraguay.

Regulations seek the safety and profitability of investments, which is why it is about inducing investment decisions to be based on risk minimization (diversification, guarantee, security, and prudence) and the professionalism of decision makers.

New financial instruments were used in the process of risk diversification such as Bonds issued by Gov`t entities, and Loans to banks/private sector 100% guaranteed by Bonds of Multilateral Organizations (i.e IADB), the Investment Department was created, but the Investment Committee and the Investment Policy Advisory Committee were eliminated, and no progress was made with the Risk Committee or the ALM (Asset Liability Management), contrary to what is recommended by the AISS Guidelines on the Investment of Social Security Funds.

Through the implementation of article 4 of Law 5655/16 that allows real estate investments in their own assets, in any of the funds managed by the Social Security Institute, only in case of clear economic and social convenience for the Institution ... up to a limit equivalent to 40% (forty percent) of the income obtained from the investments and financial placements corresponding to the previous fiscal year. ", the Securitization and Administration and Payment Trust "IPS - Sickness Health Fund - Maternity" was created for the construction of hospitals.

The implementation of this regulation requires a strict control, both to determine that the investments have economic convenience and so that the real needs of infrastructure are met at market prices. That is, the decision to make these investments must be considered in the context of opportunity cost, risk and profitability.

The Ministry of Finance and the Central Bank of Paraguay have been talking for a long time about the possibility of establishing the Pension Superintendence and a Regulatory Framework for the investments of Pension Funds, which is viewed with good technical eyes. Despite its evident need, and despite several unsuccessful efforts, no substantial progress has been attained due mainly to lack of agreement among the different sectors. Thus a much stronger and faster effort is required.

Sole Independent Fund

Presently, the current legislation of the IPS contemplates the existence of two Funds for the Pension Scheme: the "Common Fund for Retirement and Pensions" and the "Prevision Fund for the Adjustment of Retirement and Pensions". Additionally, the existence of a Contingency Fund

is also contemplated so that it may be used when the needs or special circumstances justify them, without specifying whether it refers to the Pension Fund or Health Insurance.

From a conceptual and actuarial point of view, there is no justification for the existence of two Funds for the same purpose, which is to meet the obligations derived from pensions. It would be an aberration if it came to the situation that there are no funds to meet the payment of pensions and there are to make adjustments.

Until 2017, there were management reports by funds (Pension, Health and Administration), and, as of 2018, they are no longer issued, making analysis by fund more difficult. Although, as a single entity, it should be possible to have management reports individualized by fund.

It is for these reasons that progress must be made in the legal separation of the Pension Fund from administrative and health resources; and manage it as a Trust with independent Financial Statements. This will not only provide greater transparency to the administration of the Fund but will also shield the resources from potential claims of another nature (Health Insurance, Administrative issues).