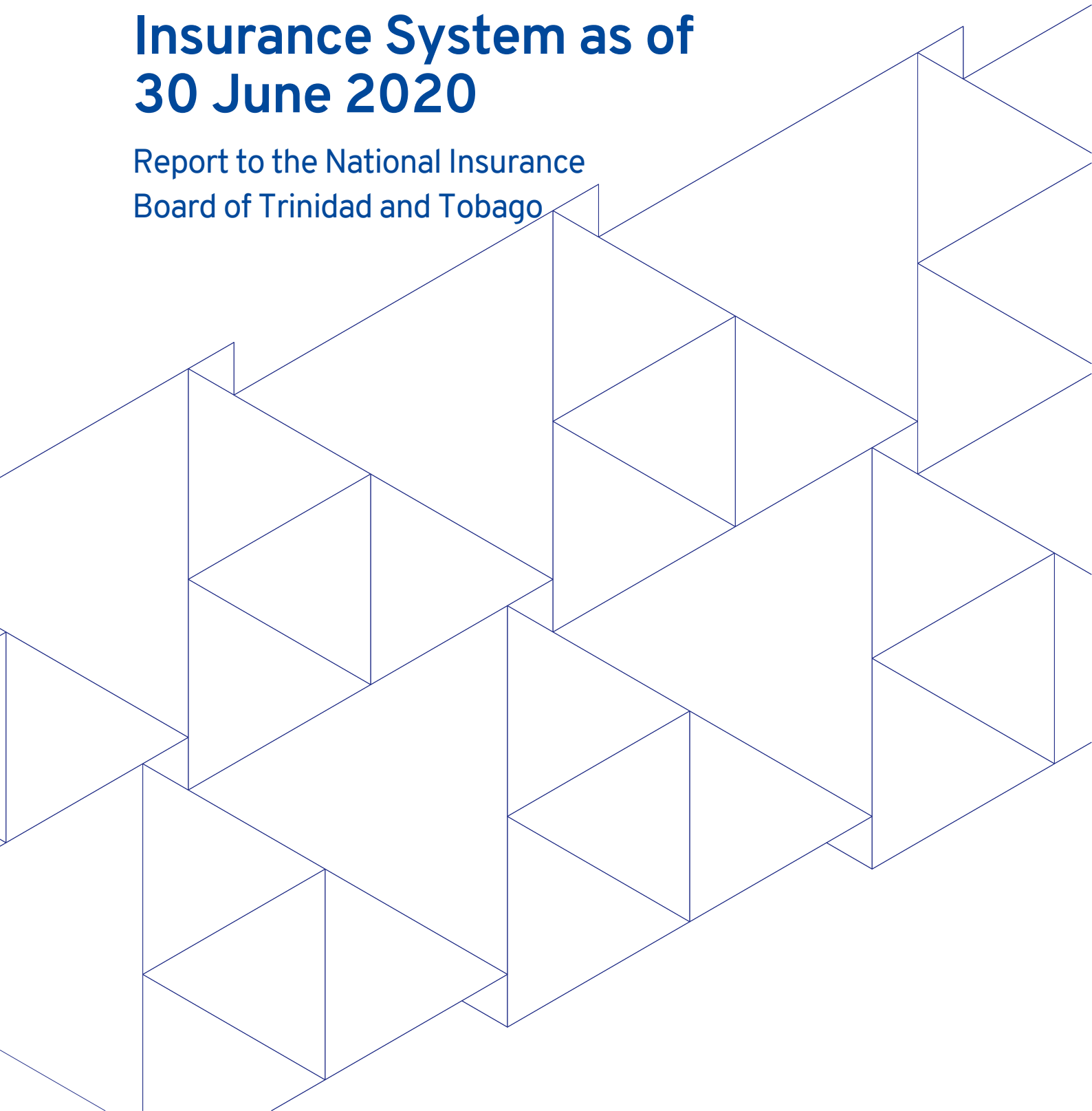
International Labour Organization

Eleventh Actuarial Review of the National Insurance System as of 30 June 2020

Report to the National Insurance Board of Trinidad and Tobago



Eleventh Actuarial Review of the National Insurance System as of 30 June 2020

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ILO Decent Work Team and Office for the Caribbean, Port of Spain

Actuarial Services Unit, Social Protection Department, Geneva

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Abbreviations and acronyms

CPI	Consumer Price Index
CSO	Central Statistical Office
ENAP	Ecole nationale d'administration publique
GAP	General average premium
GDP	Gross Domestic Product
IAA	International Actuarial Association
ILO	International Labour Office
IMF	International Monetary Fund
ISSA	International Social Security Association
NIS	National Insurance System
NIB	National Insurance Board
PAYG	Pay-as-you-go
RER	Reserve to Expenditure Ratio
SCP	Senior Citizens' Pension
TFR	Total Fertility Rate
TT$	Trinidad and Tobago Dollar
UN	United Nations
WCA	Workmen's Compensation Act

Acknowledgements

This report has been prepared in the framework of the Trust-in-Fund project between the National Insurance Board of Trinidad and Tobago (NIBTT) and the International Labour Organization (ILO). It is the eleventh actuarial valuation of the National Insurance System as of 30 June 2020.

The project was coordinated by the ILO Decent Work Team and Office for the Caribbean in Port of Spain (DWT/CO-Port-of-Spain) and carried out under the supervision of Mr Ariel Pino, Specialist in Social Protection and Occupational Safety and Health, DWT/CO-Port-of-Spain. The ILO commissioned Mr Georges Langis, FSA, FCIA, in collaboration with the NIBTT's actuarial services, to undertake this assignment. Mr André Picard, Head of the Actuarial Services Unit (ASU) of the Social Protection Department (SOCPRO), ILO, Geneva, assumed responsibility for the actuarial technical supervision of the project. The report has been reviewed by Ms Luisa Fernanda Carmona Llano, Legal Officer, under the supervision of Ms Maya Stern-Plaza, Social Protection Legal and Standards Officer, both in the Policy Unit of the Social Protection Department. Mr Ariel Pino, reviewed the report for its policy content and assumed responsibility for the editing of the report.

Mr Langis, through virtual meetings, worked in close collaboration with Ms Karlene Noreiga, Manager, Actuarial Services, and the entire staff of the Policy, Planning and Actuarial Services Business Unit for gathering data, discussing various aspects of the valuation and undertaking the projections. Mr Feyaad Khan, NIBTT's Chief Operating Officer Business Services, and Mr Andy Sean Edwards, Executive Manager, Policy, Planning and Actuarial Services, assisted the Actuary to provide information and timely support.

The ILO extends its sincere gratitude to Ms Niala Persad-Poliah, Executive Director of the NIBTT, for her collaboration and assistance throughout the project.

Executive summary

Experience of the NIS

- The number of contributors has decreased from 542,500 in 2015-16 to 475,700 in 2019-20, an average annual decrease of 3.2 per cent.
- Although the number of contributors has declined, the number of pensioners has continued to increase at an average annual rate of 1 per cent. In 2015-16, there were 3.2 contributors for each pensioner. Four years later, this ratio is 2.7.
- The PAYG rate, which is the contribution rate necessary to pay all the expenditure, was 15.6 per cent for the year 2019-20, a 2.4 per cent increase from the rate four years ago (13.2 per cent). This PAYG rate should be compared to the current legal contribution rate of 13.2.

Main assumptions used in the actuarial valuation

The main assumptions used in the actuarial valuation are:

- The total fertility rate (TFR) is expected to be stable at 1.7 throughout the projection period.
- The net migration is expected to be a negative value of 800 persons per year for all the projection years.
- Life expectancy at birth for the general population is expected to increase over the next 50 years from 72.8 to 78.9 years for males and from 79.1 to 84.0 years for females.
- The average annual decrease in the size of the population is 0.3 per cent per year over the projection period, decreasing from 1.4 million in 2020 to 1.2 million in 2070.
- The average decrease in the size of the insured population is 0.8 per cent per year over the projection period, decreasing from 475,700 in 2019-20 to 311,000 in 2069-70.
- For the year 2021, the inflation rate is 1.0 per cent. The inflation rate is expected to increase to reach its ultimate level of 3.0 per cent in 2035.
- It is expected that the average wage will increase by 1.25 per cent over the inflation rate throughout the projection period.
- The return on assets starts at 2.75 per cent in 2021 and will reach 5.25 per cent in 2030.
- The administrative expenses of the system are at 0.66 per cent of the total insurable earnings at the beginning of the projection and will rise slightly to 0.72 per cent at the end.
- The residual life expectancy on the normal retirement age (60 years) increases from 21.3 in 2020 to 24.0 in 2070 for males. For females, the corresponding values are 26.3 and 29.0.
- The average retirement age is stable during the projection period at about 61 for both males and females.
- Pensions are indexed with inflation except for the first nine years where the minimum pension is frozen so that its level will be 80 per cent of the minimum salary in nine years. After the first nine years, the minimum pension is indexed to the salary and inflation. The maximum insurable earnings is indexed according to the wage growth.

Demographic and financial projection of NIS

- The actuarial valuation of the National Insurance System (NIS) was carried out as of 30 June 2020. The methodology used for the pension branch, the employment injury and the short-term benefits is based on an Excel/VBA version of the model developed by the ILO for reviewing the long-term actuarial and financial status of national pension schemes. The model has been adjusted to fit the particular situation of the NIS. The ILO's model is based on methodologies that are appropriate and consistent with accepted actuarial practice.

- The data collected for this actuarial valuation (completeness and quality) is the responsibility of the National Insurance Board of Trinidad and Tobago (NIBTT). On the contributors' side, the data was not complete, but with necessary modifications made to the data, it was possible to undertake this actuarial valuation. It is important to note that incomplete information brings uncertainties in the actuarial valuation process and the results. On the beneficiaries' side, the data is complete and was of good quality to undertake the actuarial valuation. Some modifications where necessary, coupled with the sensitivity analysis, made it possible to analyse the financial soundness of the NIS.

- An actuarial valuation requires many assumptions. The assumptions in this valuation are appropriate both individually and as a whole. They are also consistent when taken together. Assumptions are established to reflect long-term trends rather than giving undue weight to recent experience. For this actuarial valuation, unfavourable experience observed and estimated in the recent evolution of the number of contributors has been forecasted for the first years of the projections. The objective of pension projections is not to forecast the exact development of the system's income and expenditures, but to verify its financial viability over the long term. Most likely, reality will be different from the projections. Therefore, as mandated by the regulations, the NIBTT should continue to undertake frequent actuarial valuations.

- Key moments in the evolution of the Fund in the projections

	Year
System's expenditure exceeds contributions	2020–21
System's expenditure first exceeds contributions plus investment income (assets start to decrease)	2020–21
Assets are exhausted	2033–34

- The current total contribution rate from employers and employees (for retirement, disability, death, employment injury and short-term benefits) is equal to 13.2 per cent. The general average premium[1] (GAP) that would be needed over the 50-year projection period according to the base scenario is 29.3 per cent. Because the GAP is much higher than the current contribution rate, the NIS is unsustainable over the next 50 years. The PAYG rate for the year 2020-21 is estimated at 17.0 per cent. This is also higher than the current contribution rate of 13.2 per cent. This situation is not new, it is the same as the one of the previous actuarial valuations. However, the magnitude and the time passed make this recommendation more urgent today.

- The first steps in making the system sustainable are through an important increase in the contribution rate (from 13.2 to 17.2 as suggested in the actuarial valuation report), a planned goal related to the increase in the effective retirement age through the introduction of early retirement reduction factors and an explicit definition for the adjustment of parameters in the system (freezing of the minimum pension, indexation of pensions, of the wage class). These are the three most important immediate recommendations in this report.

[1] The general average premium (GAP) represents the contribution rate that, with the current reserve, will be sufficient to pay all expenses (benefits and administrative expenses) over the next 50 years.

Recommendations

▶ Recommendation No. 1 – Contribution rate increases should be scheduled in the short term.

It is recommended to increase the contribution rate to at least 17.2 per cent starting in July 2022. This recommended increase in the contribution rate is 1 per cent higher than the one presented in the previous valuation. There is a need to consider the deterioration of the experience since the previous evaluation. This is because the situation is more urgent from the sustainability point of view of the system. With such an increase, the that year the projected reserve is depleted moves from 2033–34 to 2040–41. This recommendation is, however, not enough to restore financial sustainability over the long term.

▶ Recommendation No. 2 – Increasing contribution income.

Increasing the contribution rate is a way to increase the contribution income. It has a positive financial impact on the system. There are other ways to increase contribution income. It is recommended that discussions be initiated on the following approaches to increase cash inflows into the system and ensure current practices are optimal:

- Maximising compliance.
- Increasing the ceiling (Maximum Insurable Earnings).
- Increasing the effective age of retirement (discussed later as a separate recommendation).
- Increasing the redistributive effect.
- Implementing the pension system for the self-employed (discussed later as a separate recommendation).

▶ Recommendation No. 3 – Bringing more equity in the NIS by reducing the pension for those taking their retirement before age 65.

To preserve the equity in the system, reduction factors for early retirement should be introduced in the pension formula. Today's pension formula does not consider that someone retiring at age 60 will receive a pension over a longer period, and in many cases, will contribute over a shorter period than someone taking retirement at age 65. The introduction of such factors would make the system fairer to those members who wait until the age of 65.

It is recommended to reduce the calculated pension, which includes the minimum pension, by 6 per cent for each year before age 65. The normal retirement age remains at its current level of 65 until subsequent studies justify its increase. For example, a future increase in the retirement age may be introduced in the funding policy and linked to the increase in life expectancy. Taken alone, introducing early retirement factors decreases the contribution rate (GAP) from 29.3 percent to 26.0 percent.

Introducing the early retirement factors and increasing the contribution rate to 17.2 per cent, should be viewed as transitory measures to a better reformed pension system. The introduction of these two transitional measures will delay exhaustion of the fund to the year 2042.

It shall be noted that introducing reduction factors for early retirement will also have the impact of increasing the Senior Citizens' Pension for those electing early retirement with a reduced lifetime pension. Alternatively, rather than introducing early reduction factors, the possibility to retire early could be gradually eliminated. This alternative solution could potentially have the opposite impact on the Senior Citizens' Pension due to the higher pension from NIB that people who work for an additional five years will receive.

▶ Recommendation No. 4 – The parameters of the system should be automatically adjusted, and the minimum pension should be frozen to give, at most, 80 per cent of the minimum wage.

There are many parameters in the system for which the future evolution is difficult to assess in the actuarial valuation. Such a situation increases uncertainties about the results of the projections and prevents those insured from appreciating the true value of their benefits. It is recommended that the National Insurance Act be modified to explicitly define the annual adjustment to these parameters. Some of these adjustments could also be in line with the financial performance of the NIS. Table S.E.1 describes the usual practice and what was done in the actuarial valuation. It is also recommended to increase the Maximum Insurable Earnings (MIE) so that high salary earners will continue to finance the system

▶ Table S.E.1. Recommendations related to the adjustment of the parameters

Parameters	Type of adjustment	Comments
Insurable earnings ceiling (class XVI)	Average wage	This is the scenario used in this valuation.
Minimum pension	Combination of inflation and wage growth	The scenario used in this valuation except that the level of the minimum pension is frozen for the first 9 years.
Pensions in payment (excluding the minimum pension)	Lower of inflation and average wage increase	This is the scenario used in this valuation.
Earnings class	Lower of inflation and average wage increase except class XVI (ceiling)	This is the scenario used in this valuation.
Amount of funeral benefit	Increase in funeral cost	Needs to be studied if indexation of the benefit is implemented as policy. Adjustment to Inflation was used in the actuarial valuation.

▶ Recommendation No. 5 – Better integration of the pension system.

The Senior Citizens' Pension is currently at 115 per cent of the minimum wage. The NIS minimum pension is 99 per cent of the minimum wage. In some cases, there is no recognition of additional years of service in the pension paid. About 88 per cent of pensioners receive the minimum pension and there is no mechanism for the self-employed to contribute to the NIS. Additionally, the earnings class system is very complicated to understand and may cause inequity between contributors.

These facts highlight the need for a complete reform of the social security pension system. In the future, as the proportion of the elderly population increases, more financial pressure is going to emerge. It will be necessary to adapt the system to this upcoming reality. For the NIS, even in the short term, financial pressure exists. This actuarial valuation shows that the current contribution rate must be increased, and at least during a transitional period, some modifications to the benefits must be made, but it will not be enough. The problem for the NIS is now imminent, it is structural, and it will require a comprehensive reform. This can be realized together with other reforms such as the integration of the Senior Citizens' Pension and perhaps the promotion of occupational pensions. It is important to keep in mind that a strong financing system should be in place so that current and future generations continue to be well served by their social security system.

To undertake this important reform, it is essential to have a detailed mapping of the financial situation of persons aged 65 and over.

It is also recommended to take the opportunity for a better integration of the system to change the pension formula from the complicated earnings class system to a formula based on a percentage of earnings. It will be important to move to a system that everybody will understand.

In the short to medium term there are elements that can be modified and introduced without waiting for a complete restructure or reform of the system. These elements were presented in the previous recommendations and concern the introduction of the early retirement factors and the increase in the contribution rate to 17.2 per cent.

▶ Recommendation No. 6 – The NIBTT should collaborate with its key stakeholders regarding the establishment of a funding policy that would outline clear objectives to govern the adjustment of parameters. These mechanisms should be firmly established in the legislation.

It is recommended that the NIBTT starts conversations with stakeholders for approval of an explicit written funding policy. The policy should be well thought out and periodically reviewed. This funding policy should not stand alone but should be implemented with other recommendations such as the pension reform aiming at a better integration of the pension system.

Increasing the contribution rate is not going to be sufficient. It should be accompanied by modifications to the benefits. Modifications to the benefits are linked to the next three recommendations: to bring more equity to the NIS, to better integrate the system and to clearly define the role of each component.

▶ Recommendation No. 7 – Extending coverage to the self-employed.

This report revisits the impact of extending coverage to the self-employed. Almost the same conclusions as in the previous reports are discussed in this report.

The success of this extension is, however, dependent on how the pension system is designed and integrated.

The NIBTT should also explore new alternatives regarding the extension to the self-employed based on experiences in other countries such as Argentina, Brazil and Uruguay.

▶ Recommendation No. 8 – Eliminate the dual coverage for accidents and occupational diseases arising in the course of employment.

The integration of coverage regarding work accidents and occupational diseases arising during employment is also another important topic. The current system leads to:

- different benefits for workers depending on the source of compensation;
- over-insurance for the workers receiving dual compensation;
- employers' uncertainty regarding possible legal proceedings by workers; and
- inequity in the access of similar protection and financing systems.

The current approach is highly questionable, from an administrative and consistency point of view, but also in a context where the labour force is going to decrease in coming years. Trinidad and Tobago is going to need employees to face the challenge of an ageing population. Such double compensation is counterproductive.

It is recommended to reinvigorate discussions between stakeholders for a better integrated coverage regarding accidents and diseases arising during employment and to stop this dual coverage.

1. Brief history, legal context, and past financial trends of the NIS, and past demographic and economic context over the last 12 years

1.1 Brief history

The National Insurance System (NIS) provides protection to more than 600,000 insured persons and their beneficiaries. It is administered by the National Insurance Board of Trinidad and Tobago (NIBTT), which was established by Act of Parliament No. 35 of 1971. The NIS was introduced on 10 April 1972.

At its introduction, the NIS offered only two benefits: Retirement Grant and Funeral Grant. From 15 January 1973, Sickness and Maternity benefits were offered. Subsequently, the Survivors' and Invalidity benefits were first paid within financial year 1974, and the Retirement Pension became payable as of 17 February 1975. The NIBTT now offers 23 benefits under the long-term, short-term and employment injury branches.

The Retirement Benefit has been the largest component of the NIS and is calculated based on the participant's number of contributions and the career average income class. Over the years, the number of income classes has grown from eight (8) to sixteen (16).

In the financial year 2004 the minimum pension of TT$1,000 was introduced. From January 2008, this minimum pension increased by 100 per cent to TT$2,000 per month and was further increased by 50 per cent to its current level of TT$3,000 in the 2012 financial year. The minimum pension now represents about 99 per cent of the minimum wage.[2]

From the inception of the social security system, the intention was to provide a universal and compulsory national insurance system covering both salaried employees and self-employed persons (SEP). Despite many attempts to include them, SEP are not yet part of the insured population, except on a voluntary basis. However, voluntary contributions are only allowed within 18 months of leaving salaried employment. According to the Central Statistical Office (CSO), SEP represent about 24 per cent of the total number of workers. As was the case in the previous actuarial valuations, this actuarial valuation will update the impact of extending coverage to SEP.

One peculiarity of the social protection system in Trinidad and Tobago concerns the accidents and occupational diseases arising in the course of employment. There is dual coverage. Employees are protected under the Employment Injury Insurance benefits offered by the NIS. Workers are also covered under the Workmen's Compensation Act (WCA). Chapter 10 of this report addresses this issue.

There is no unemployment insurance in Trinidad and Tobago. Recently stakeholders have raised the possibility that this type of protection be considered for inclusion in the social security landscape. The COVID-19 crisis has raised further interest in the possibility of the introduction of an unemployment insurance scheme. The ILO has been mandated to undertake an actuarial assessment of a proposed unemployment insurance scheme. The study will be undertaken separately from the eleventh actuarial valuation. Like any other contributory plan, the success of the implementation of such benefits depends on a well-thought-out design and on appropriate financing provisions. It is also very important to be sure that the current system is well integrated and adequately financed.

1.2. Review of the legal framework considering international social security standards and principles

This Section contains an assessment of the compatibility of the current provisions of the Government of Trinidad and Tobago's legislation concerning Sickness, Old Age, Employment Injury, Maternity, Invalidity,

[2] Since December 2019, the monthly minimum wage is TT$3,033.

and Survivor's contingencies with the benchmarks and principles set out in the ILO Social Security (Minimum Standards) Convention, 1952 (No. 102). It also contains an assessment of the implementation of these provisions, to the extent that available statistical information and prevailing practice were available. Finally, this review takes into consideration best international practice where appropriate.

The following legislative instruments have been reviewed:

- the National Insurance Act (as amended by Act No. 7 of 2016);
- the National Insurance (Benefits) Regulations (GN 77/1972);
- the National Insurance (Employment Injury) (Payment of Medical Expenses) Order (GN 226/1979); and
- the National Insurance (Prescribed Diseases) Regulations (GN 94/1977)

Convention No. 102 is ILO's landmark instrument that adopts a holistic vision of social security and sets minimum qualitative and quantitative benchmarks with respect to the nine social security contingencies, including sickness, maternity and employment injury benefits as well as old age, invalidity and death of the breadwinner as well as administrative and financial rules for the good governance of social security systems. Over the years, it has become a world reference for the development of adequate and sustainable social security schemes, from policy design to implementation of parameters. In addition to the minimum levels established by Convention No. 102, the ILO has also adopted a set of higher standards for the various branches of social security, aiming at universal coverage and higher benefit levels.[3]

The review undertaken in this Section will provide the Government of Trinidad and Tobago with a picture where its social security legislation stands, as described in Appendix 1, in comparison to the requirements of Convention No. 102 and in particular as, regards Parts II (Sickness Benefits), V (Old-age Benefits), VI (Employment Injury Benefits), VIII (Maternity Benefits), IX (Invalidity Benefits) and X (Survivors Benefits) of Convention No. 102[4]. It will further serve to identify potential gaps in protection and explore possible areas for improvement based on the principles enshrined in international legal frameworks and available best practices. Together with the conclusions and recommendations of the actuarial study, the ILO normative framework constitutes a useful reference for future action. Observing at least the minimum parameters established by Convention No. 102 would contribute to maintaining a sustainable social security system aimed at securing the right of everyone to social security assumed under Article 9 of the International Covenant on Economic, Social and Cultural Rights, 1966, to which Trinidad and Tobago acceded in 1978.

It can be noted that Trinidad and Tobago is party to only one of the ILO Social Security Conventions, the Equality of Treatment (Accident Compensation) Convention, 1925 (No. 19) since 24 May 1963.

1.2.1. Compliance with Convention No. 102

Ratification of Convention No. 102, requires acceptance of at least three of the nine branches set out in Parts II-X, including at least one among the following: Unemployment Benefits (Part IV), Old-Age Benefits (Part V), Employment Injury Benefits (Part VI), Invalidity Benefits (Part IX) or Survivor's Benefits (Part X).

From the analysis detailed in Appendix 6[5], it can be concluded that Trinidad and Tobago would be in a position to ratify **Part II (Sickness), Part V (Old Age) and Part VIII (Maternity)[6]** as it appears that the national

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[3] The Medical Care and Sickness Benefits Convention, 1969 (No. 130) and accompanying Recommendation No. 134, the Invalidity, Old Age and Survivors' Convention, 1967 (No. 128), and its accompanying Recommendation No. 131, Employment Injury Benefits Convention, 1964 [Schedule I amended in 1980] (No. 121) and its accompanying Recommendation No. 121, and the Maternity Protection Convention, 2000 (No. 183) and its accompanying Recommendation No. 191

[4] The International Labour Office remains available to provide technical assistance to ILO member States to further the ratification and application of ILO Conventions, as such it stands ready to assess compliance with other parts of Convention No.102, and notably Parts II (Medical care), IV (Unemployment Benefit), VII (Family Benefit), and XII (Common Provisions), should the Government so request.

[5] Appendix 6 illustrates the legal and statistical requirements of Convention No.102 and assesses the compliance of the national social security law, as well as their practical application, against the requirements of the Convention.

[6] Subject to confirmation that medical maternity care provided through the national health system is provided free of charge in line and to the extent required by Convention No. 102.

legal framework meets or exceeds the minimum parameters established by Convention No. 102 as regards in particular to the:

- definition of the contingency;
- personal scope of coverage;
- qualifying conditions;
- level of the benefit; and
- minimum duration over which the benefit should be provided.

Complementary information was necessary so as to fully assess the compatibility between Convention No. 102 and the national social security framework, as regards the following:

- **Part IX (Invalidity Benefits) and Part X (Survivor's Benefits)**, in order to be considered compatible with the minimum established by Convention No. 102, all persons earnings below the wage of a person deemed typical of skilled labour in the country, determined according to one of the four methods laid down in Article 65(6) of Convention No. 102, (as well as their dependent spouse and children in case of survivors benefits) should receive a benefit equal to at least 40 per cent of their previous earnings following completion of the qualifying periods indicated by the Convention (i.e., 15 years of contributions or employment). In Trinidad and Tobago, according to the schedule and rules, it would appear that only earnings classes I and II, in the case of invalidity benefits, and earning class I, in the case of survivors' benefits, would receive a benefit in compliance with Convention No. 102. On the basis of the information available for the actuarial report, we calculate this reference wage according to Article 65, (6)(d), which provides that a skilled manual male employee is a person whose earnings are equal to 125 per cent of the average earnings of all the persons protected. According to the report, in 2020 the average monthly salary of the contributors was TT$7,128; therefore, the monthly earnings of a standard beneficiary calculated according to the rules prescribed by the Convention would amount to TT$8,910, which falls in the earning class XII. In this configuration, contrary to what is required by the Convention, protected persons whose earnings are equal or below the wage of a skilled manual male employee (those in the earning classes III to XII, in the case of invalidity benefits, and those in the earning classes II to XII, in the case of survivor benefits) would not receive a benefit equivalent to, at a minimum, 40 per cent of their actual previous earnings.

- **Adjustment of pensions in payment:** The adjustment to pension levels appears to be done through an ad hoc mechanism; however, further clarification would be needed regarding the parameters considered for revising the levels of periodical benefits in payment. In particular, complementary information concerning the evolution of the cost-of-living, the index of earnings, and the ad hoc pension increments over the same reference period would be necessary to compare them side by side and determine if the existing adjustment mechanism effectively avoid the erosion of the purchasing power of benefits due to the evolution of the level of earnings when these result from changes in the cost of living. It can be noted that ILO's supervisory bodies have considered that ad hoc revalorization mechanisms are not always the most efficient way of guaranteeing the sustainability of the scheme nor the adequacy of benefits. However, the periodic adjustment of the level of long-term benefits is a fundamental principle recognized both by ILO's social security instruments and also by the human rights bodies, the application of which is not optional. That being said, while closely and periodically monitoring the situation of the level of pensions, the Government could, in accordance with ILO C102, reserve itself the possibility, where the financial situation of the Scheme is unstable, of reviewing these levels only in cases where there have been substantial changes in the national level of earnings triggered by substantial changes in the cost of living. However, the objective of financial equilibrium of pension funds should not be pursued by disregarding the fundamental principle of social security law guaranteeing the periodic revision of long-term benefits.

With respect to other contingencies covered by Trinidad and Tobago's social security legislative framework, the following points should be addressed in order to comply with the above-mentioned minimum standards of Convention No. 102:

- **Part VI (Employment injury):** in order to be considered compatible with the minimum established by Convention No. 102, the injured worker needs to have access to medical treatment and facilities to return to full capacity. No maximum on the amount on the medical benefits should be put in place until this condition is reached. However, the national legislation prescribes a ceiling on the medical benefits provided or reimbursed from the Employment and Injury Insurance (EII) Scheme (i.e., TT$33,750 per injury), which could result in a situation whereby the range of medical care set out in Convention No. 102 is not fully covered. In the case of employment injury, the beneficiary should not be required to participate in the cost of medical care set out in Article 34. In no case, should the victim of an employment injury be led to fall into hardship by reason of paying the cost of medical care rendered necessary by an industrial accident or occupation disease. If the medical costs above the set limit are covered by a national health scheme and/or the employer's liability insurance scheme providing the same level of benefit (no co-payment, no deductible, same medical treatment and facilities with a goal to return the injured worker to full capacity), the EII Scheme could be considered compliant with Convention No. 102. In the negative, the Government could consider amending the national legislation, including the National Insurance (Employment Injury) (Payment of Medical Expenses) Order, with a view to eliminating this cap.

The ILO stands ready to support the Government in undertaking reforms to bring their national legislation in line with the international minimum social security standards set out by Convention No. 102, and in further assessing the compliance between the national legal framework and other branches of Convention No. 102, should the Government consider ratifying this Convention.

1.3. Coverage rate and adequacy of the protection related to the retirement system

The people of Trinidad and Tobago are protected against the old-age risk by a universal retirement system. While there exist some private pension plans, the main sources of income for the average worker come from the Senior Citizens' Pension (SCP) and the NIS.

The Senior Citizens' Pension (formerly Senior Citizens' Grant or Old Age Pension) is a monthly pension given to persons aged 65 years and over, based on an income test. The applicant must have resided in Trinidad and Tobago for 20 years before application, with periods of absence not exceeding five years total. There is no link with employment status. The schedule of payments is shown in Table 1.1. The schedule was changed in 2019 and there are fewer brackets (from 7 brackets down to 4). Generally, the average amount payable has been increased. The average increase between June 2018 and June 2019 is about 5 per cent.

▶ Table 1.1. Schedule of Senior Citizens' Pension

	Other monthly Income(s) –x	SCP ($)
1	x ⩽ 2 500	3 500
2	2 500 <x ⩽ 3 500	2 500
3	3 500 < x ⩽ 4 500	1 500
4	4 500 < x ⩽ 5 500	500

Source: Senior Citizens' Pension (Amendment of Schedule) Order, 2018.

This schedule implies that an applicant whose only source of income is the NIS minimum pension will be eligible to receive $2,500 from the Ministry of Social Development and Family Services. Persons having more than $5,500 from other sources of monthly income are not eligible to receive the SCP. For those with no other sources of income, the SCP is $3,500 which represents 115 per cent of the minimum wage.

Table 1.2 displays the number of recipients of the SCP in June 2019, June 2020, and June 2021.

▶ Table 1.2. Senior Citizens' Pension, number of recipients in June 2019, June 2020, and June 2021

SCP ($)	Number of recipients June 2019	Number of recipients June 2020	Number of recipients June 2021
3 500	70 742	72 698	75 286
2 500	24 540	26 251	28 449
1 500	2 717	3 219	3 708
500	159	534	747
Total	**98 158**	**102 702**	**108 190**

According to UN data, there were 161,000 persons over age 65 living in Trinidad and Tobago in 2020, which represents about 11.5 per cent of the total population. According to information from the Ministry of Social Development and Family Services, in June 2020 there were 102,702 persons receiving the SCP, which represents 64 per cent of the population aged 65 and over.

In 2020, out of the 236,863 persons aged 60 and over, 119,926 were receiving a NIS old-age pension. This represents a proportion of 51 per cent. About 88 per cent of the NIS old-age pensioners were receiving the minimum pension, which is 99 per cent of the minimum wage. On the contributory side, on average, 70 per cent of the workers were contributing in any given month to the NIS. This figure is, however, trending downward. The proportion was 76 per cent in 2016. The trend is worrisome!

The latest official poverty rate in Trinidad and Tobago was 16.7 per cent according to the 2005 Survey of Living Conditions. In the 2005 Survey, the annual poverty line was TT$7,980. If this level is adjusted for inflation to find a proxy of 2020's poverty level, it can be found that the SCP is 2.4 times higher than the estimated poverty line, while for the NIS's minimum pension this multiple is 2.0.

This section shows that in Trinidad and Tobago, there is adequate coverage or level of the pension protection. The base of the system, which is composed of the SCP and the minimum NIS pension, seems high enough to protect the people. Policymakers should start to worry about the downward trend of the covered population in NIS. Mandatory coverage of self-employed persons (SEP) is going to continue to be an important issue and will be analysed in Chapter 12. Integration and sustainability of the pension systems are going to be two of the most important challenges in the future. This report addresses the sustainability of the NIS. The integration challenge, which is addressed in Chapter 9, can be illustrated by the following example:

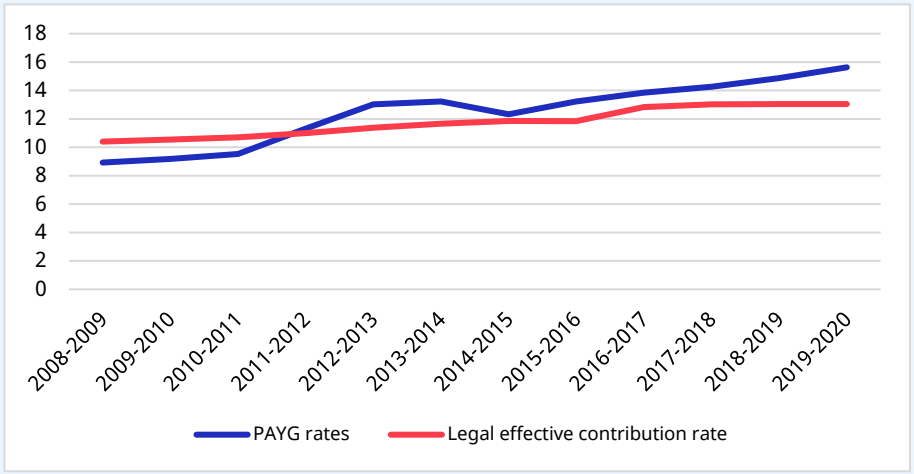
- Someone aged 65, receiving the minimum pension from the NIS (TT$3,000), can also receive the SCP at a level of TT$2,500 for a total pension of TT$5,500. It is important to note that 88 per cent of the current pensioners are receiving the minimum pension. Someone not contributing at the NIS can receive $3,500 from the SCP and an additional $2,500 of personal income for a total of $6,000. Who is going to be interested in paying contributions to a social security system during his entire working life to receive a lower amount at age 65 than the one obtained without such contributions? Contributing, in this situation, is also not attractive knowing that the contribution rate to the NIS is going to increase in the future! Is it possible that the downward trend in the number of contributors is simply a message saying that the system is no longer working?

1.4. Trends in the financial developments of the NIS over the last 12 years

The following charts illustrate the trends of the main indicators of the financial experience of the NIS over the last 12 years. Figure 1.1 compares the legal effective contribution rates (the legal effective contribution rate considers that persons in Class Z are paying a lower contribution rate than other contributors) and the pay-as-you-go rates (PAYG) for the financial years 2008–09 to 2019–20. The PAYG rate is the rate that is necessary to pay all expenditures (benefits and administrative expenditures) in each year. At the beginning of the NIS, this rate was close to zero but has increased with time. In the last 12 years, the PAYG rate has

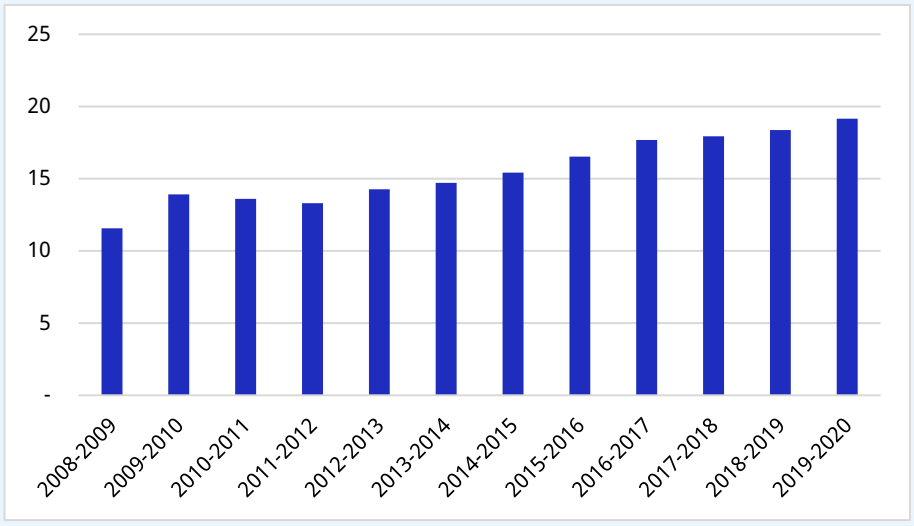
continued its upward trend to reach 15.6 per cent in 2019–20. It is usual that, when a social security system is maturing, the PAYG rate increases year after year as more and more persons retire with more past years of service. The difference between the effective contribution rate and the PAYG rate is used to accumulate a reserve. For the NIS, the difference has been negative over the last nine years, meaning that investment returns are used to pay the expenditure. The first time the PAYG rate exceeded the legal effective contribution rate was during the year 2011–12. During the financial year 2019-20, the total incomes were not enough to pay the total expenditures (Table 2.1). The amount of reserve accumulated at the end of the financial year 2019–20 was TT$28,936 million. The importance of the reserve in relation to the economy is shown in Figure 1.2 where its level is compared to the GDP for the last 12 years. For the year 2019–20, the amount of reserve represented 19.2 per cent of GDP in Trinidad and Tobago. Although a part of the investment income on the reserve is now used to pay the benefits, the ratio of reserve to GDP has continued to grow over the years.

▶ **Figure 1.1. Legal effective contribution rates and PAYG rates, 2008–09 to 2019–20 (percentages)**



Sources: NIBTT, Author's calculation

▶ **Figure 1.2. Amount of reserve (year-end) to GDP, 2008–09 to 2019–20 (percentages)**

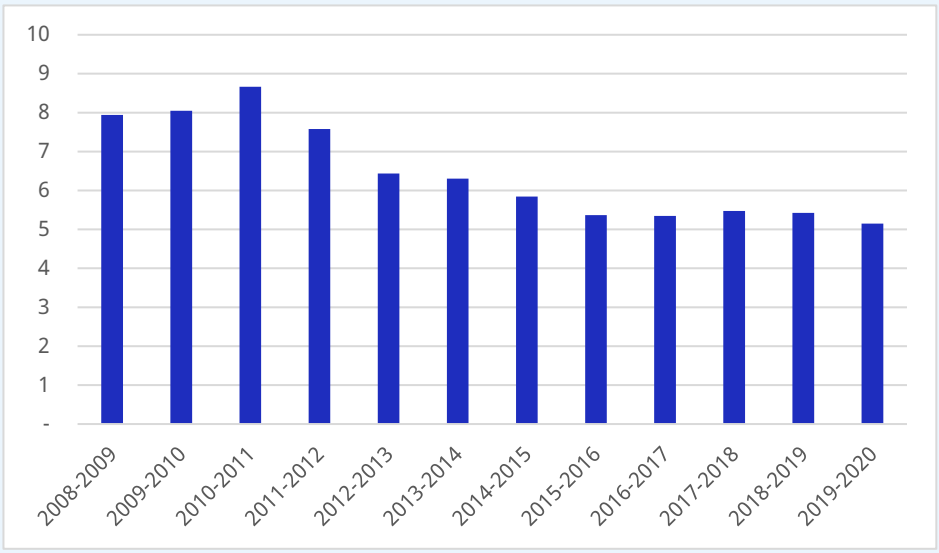


Sources: NIBTT, Author's calculation

Figure 1.3 presents the Reserve-to-Expenditure Ratio (RER) that reflects the size of the year-end reserve relative to that year's total expenditure. It is a useful measure for social security pension plans, indicating the funding level. However, it is not representative of the long-term pattern, especially in the case of a still

immature pension system such as the NIS. The RER has generally trended downwards since 2010–11. Its level was 5.2 at the end of financial year 2019–20.

▶ **Figure 1.3. Reserve-to-expenditure ratio (RER), 2008–09 to 2019–20**

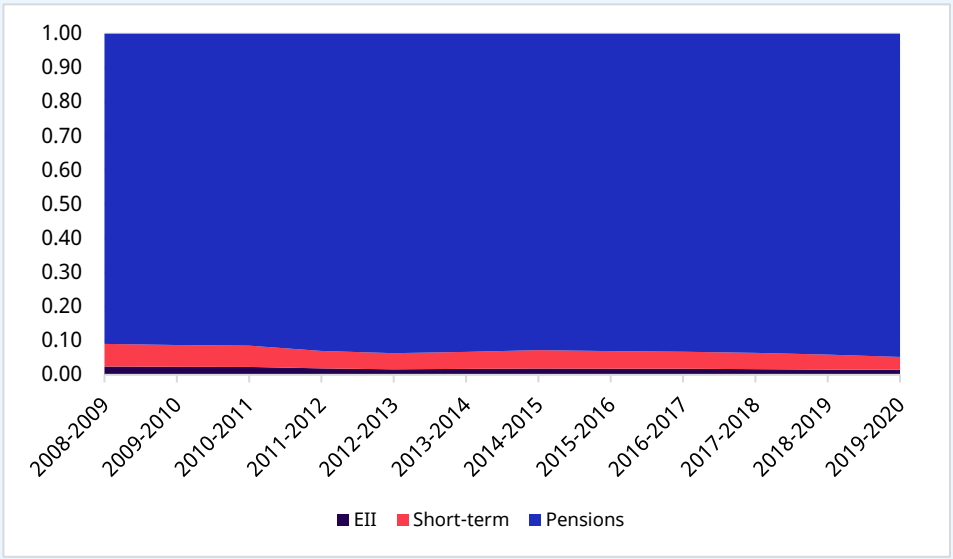


Sources: NIBTT, Author's calculation

Figure 1.4 shows the proportion of each type of benefit paid to the total amount of benefit expenditures. It clearly illustrates that the long-term pension branch is the most important in terms of expenditure paid when compared to other types of benefits.

In 2008–09, long-term benefit expenditure represented 91 per cent of all benefits, while it was 95 per cent in 2019–20 and the proportion should continue to go up in the future, showing that these benefits will continue to drive the total cost of the NIS.

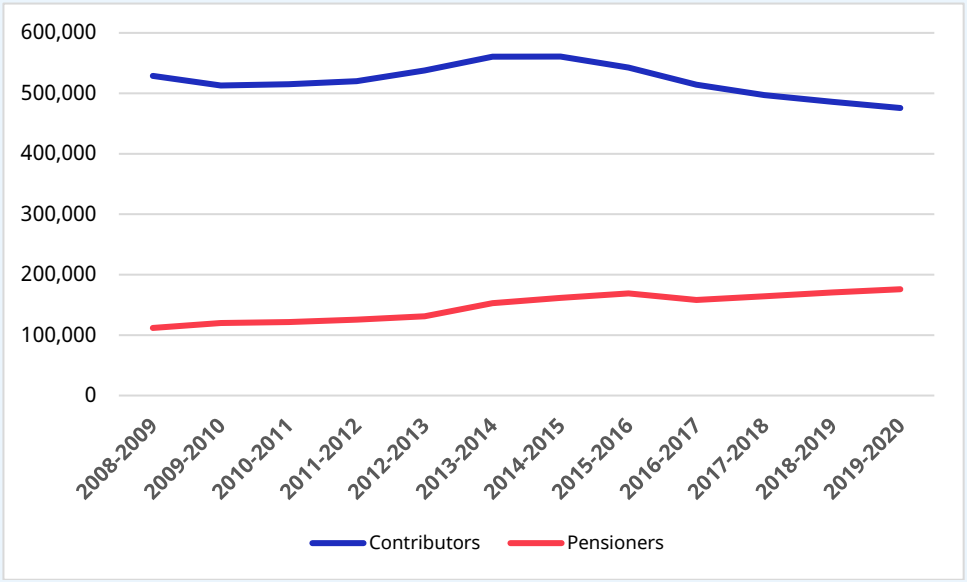
▶ **Figure 1.4. Proportion of benefits paid, 2008-09 to 2019–20**



Sources: NIBTT, Author's calculation

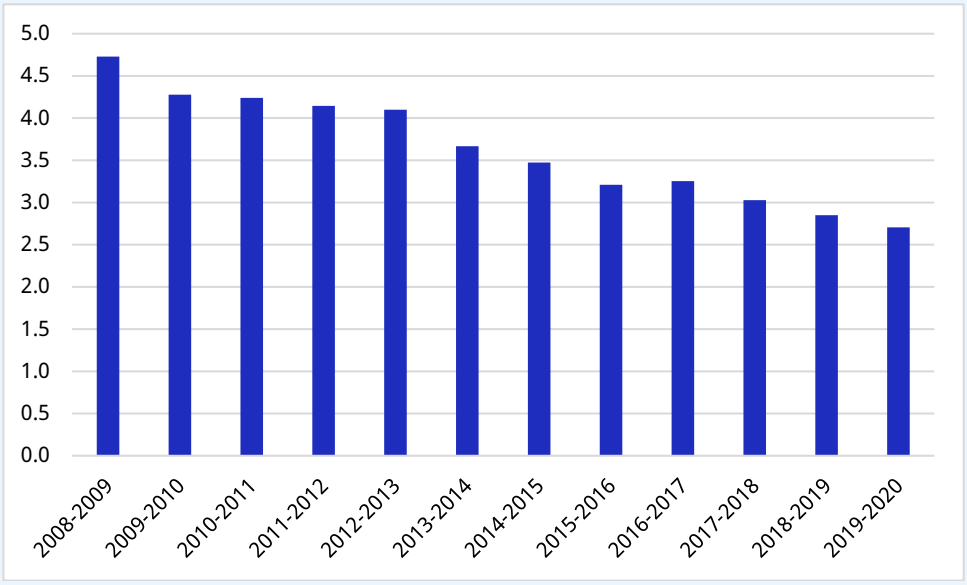
Figure 1.5 shows the evolution of the number of contributors and pensioners over the last 12 years. The number of contributors has decreased by 10 per cent while the number of pensioners has increased by 57 per cent. The reader should be aware, as explained in the Section 2.3, that the number of contributors is based on estimation, not on complete information. It is almost impossible to know with certainty the number of contributors for each year because the information on contributors is not completely recorded in the main database. The future evolution of the financial performance of the NIS will be driven considerably by the ratio of contributors to pensioners. Figure 1.6 shows the evolution of this ratio since 2008–09. In that financial year, there were 4.7 contributors for each pensioner. This ratio is now estimated at 2.7.

▶ Figure 1.5. Evolution of the number of pensioners and contributors, 2008–09 to 2019–20



Sources: NIBTT, author calculation. Estimation from 2011-12 and on is based on the analysis of the information for this actuarial valuation while for previous years, information in past annual report year has been used to estimate the number of contributors.

▶ Figure 1.6. Ratio of the number of contributors to the number of pensioners, 2008–09 to 2019–20



Sources: NIBTT, author's calculation

1.5. Trends in the main demographic and economic indicators over the last 12 years

This section discusses the demographic and economic context in which the NIS has evolved over the past 12 years. The population of Trinidad and Tobago in 2020 is estimated at 1.4 million. As illustrated in Table 1.3, the growth of the general population has slowed over the last 12 years. The evolution of the population is also characterized by an increasing proportion of persons aged 60 and over and a decreasing one of those aged between 15 and 59. In fact, for the period 2009–11, 13.0 per cent of the population was aged 60 and over. For the period 2018–20, this figure is 17.2 per cent. The proportion of the population that comprises potential contributors to the NIS, persons aged between 15 and 59, however, decreased from 66.4 per cent in 2009–11 to 63.1 per cent in 2018–20. Over the 12-year period, the population aged between 15 and 59 has decreased at an annual rate of -0.1 per cent. The ageing process in Trinidad and Tobago is continuing.

▶ Table 1.3. Evolution of the population, demographic indicators, 2009–20 (percentages)

	2009–11	2012–14	2015–17	2018–20
Proportion of the population 0-14	20.6	20.4	20.2	19.7
Proportion of the population 15-59	66.4	65.3	64.1	63.1
Proportion of the population 60+	13.0	14.3	15.7	17.2
Annual growth of the population	0.6	0.6	0.4	0.3

Source: CSO, UN, Author's calculations.

On the economic side, during the period analysed, real GDP has grown at an annual rate of -1.5 per cent. Global energy prices have driven down the growth of real GDP to negative values. In 2020, the COVID-19 crisis also impacted the growth of the GDP. Further, salaries[7] have increased less than the CPI rate over the period (3.2 per cent vs 4.5 per cent). This situation creates an average negative annual salary increase of about 1.3 per cent over the period. A negative real salary increase usually generates additional pressure on a partially funded social security system. The pressure also depends on the way in which benefits are adjusted compared to the salary increase. The last adjustment to pensions in payment occurred in 2014.

Table 1.4 shows, for the period 2009–20, that the annual CPI core index rate (excluding volatile elements such as food) was considerably lower than the global CPI index rate, except for the last 3 years. This is explained by the fact that food inflation during the period was considerably higher and was the main driver of the high inflation rate. According to recent information, in June 2021, food inflation was 5.1 per cent compared to a CPI of 1.8 per cent. The employed population growth over the period analyzed was – 0.1 per cent. The labour force participation rate for the ages between 15 and 69 has decreased from 66.5 in 2009-11 to 65.5 in 2018-19. With the NIS being a partially funded pension system, the labour outlook for the coming years will have a major impact on its sustainability. The analysis of recent history tells us that the labour market can be a source of increased pressure on the financial situation of the system. Another worrying situation was also observed over the period: the decrease in the salaried population. Currently, workers who are contributing to NIS are those who are salaried. A decreased proportion of the salaried population over the employed population means that a greater proportion of workers is not covered by the system. Such a trend has also been observed when analysing the contributor's data of the NIS. Still, by being a partially funded pension System, the NIS is at risk if the potential contributing population decreases.

[7] All Industries (excl. Oil & Sugar), Index of average weekly earnings as published on the website of Central Bank, statistics: section-g-prices-and-wages_4

▶ Table 1.4. Economic indicators, 2009–20 (percentages)

	2009–11	2012–14	2015–17	2018–20	2009–20 *
Annual real GDP growth	-0.6	0.2	-2.4	-3.1	-1.5
Labour force participation rates 15-69	66.5	66.7	65.9	65.5	66.2
Annual employed population growth	-0.8	1.5	-1.0	0.3	-0.1
Proportion of the salaried population over the employed population	77.7	79.6	77.4	76.2	77.9
Annual labour productivity growth	0.2	-1.2	-1.4	-0.9	-0.8
Annual growth GDP deflator growth	-1.7	2.1	-2.6	2.7	-0.1
Annual CPI rate	7.5	6.7	3.2	1.3	4.5
Annual CPI core index rate	3.4	2.3	1.9	1.1	2.1
Annual average weekly earnings growth	2.1	4.6	4.5	1.0	3.2

Source: CSO, Central Bank, IMF, Author's calculations.

* 2020 GDP comes from IMF/ Annual employed population growth, labour force participation rate, annual labour productivity growth and annual average weekly earnings growth are not available for 2020

1.6. Impact of the global COVID-19 pandemic

All social security pension schemes around the globe have been impacted to some different degrees by the COVID-19 crisis. On the contributors' side, the COVID-19 pandemic has affected the unemployment rates. In many countries, vulnerable workers have been affected more than other workers. In Trinidad and Tobago, complete information on the unemployment rates for 2020 was not available when producing the actuarial valuation. The fact that the actuarial valuation date was in June 2020, made it difficult to observe the full impact of the COVID-19 crisis that would occur in the financial year 2020-21 and beyond. Also, the pandemic happened when the decline in the number of contributors had already started, making it difficult to isolate and analyze the impact.

The impact of the COVID-19 crisis varies according to each type of benefit. For the most important benefit, which is the retirement pension, the COVID-19 pandemic may affect the mortality rates and the age at which people take their retirement in 2020-2021. The effect on the mortality rates may be beneficial to the system, financially speaking, as life expectancy may decrease over a short period of time. The small population of pensioners in Trinidad and Tobago makes it, however, difficult to analyze the kind of impact: in the past, fluctuations in the mortality experience have been observed. At the moment of writing this report, the number of deaths due to the COVID-19 crisis was rising significantly in Trinidad and Tobago. Even if the impact can be measured for one year, it does not mean that the impact will last indefinitely. The unemployment situation due to the pandemic may also incite some people to take their retirement early resulting in shorter contribution periods and liquidity problems for the system. For other benefits, like short-term benefits, the COVID-19 crisis may prevent some workers from meeting eligibility conditions to qualify for benefits (for example: 10 weekly contributions in the 13 weeks immediately preceding the event). As with the numbers of contributors, a downward trend has been observed in the short-term benefits in the recent past.

The approach used in this actuarial valuation is not to place undue importance on the COVID-19 crisis but to continue the long-term vision of an actuarial valuation. Sustainability of a social security scheme should not be analyzed over a short period of time but over a long period of time. The reader should, however, have in mind that the COVID-19 crisis may exacerbate the worrying downward trend in the number of contributors as well as the liquidity problem of the System. Sensitivity analyses are conducted in Chapter 8. It may help the readers who are interested to extrapolate less favorable economic trends over a medium term.

2. Review of the experience of the NIS since the last actuarial report

This Section discusses the evolution of the financial situation of the National Insurance System (NIS) between July 2016 and June 2020 (the financial year of the National Insurance Board of Trinidad and Tobago runs from 1 July to 30 June). The NIBTT's audited financial statements present detailed information for each of the three branches of the social security system: long-term benefits, short-term benefits and employment injury benefits. More detailed information on the reconciliation of financial and demographic data of the NIS over the past four years appears in Appendix 3.

2.1 Amendments since the last actuarial review

There were no changes in the regulations since the last actuarial valuation.

2.2 Experience from July 2016 to June 2020 and comparison with assumptions of the previous actuarial valuation

Table 2.1 presents consolidated revenues and expenditures for all branches. Miscellaneous income and expenditures which represent minor amounts are not included in the Table. The Table shows that, when adding all the principal sources of income and expenditure, the difference between the financial picture from the expectation of the previous valuation and the observed value is very close at TT$-130 million. This finding is also supported by the fact that the reserve projected in June 2020 in the previous valuation and the one observed on that same date are very close (TT$28,744 million vs TT$28,729 million). Observed contributions and benefits are both lower than the expectation while investment income and administrative expenses are close. The overestimation of contributions and benefits almost offset each other. As discussed in the section on data and in Appendix 3, the overestimation of the contributions is mainly due to the decrease in the number of contributors while the one related to the benefits is due to the absence of adjustments to pension in payment over the analysed period as well as smaller increase in the numbers of beneficiaries related to disability, survivors, short-term and employment injury benefits. For the old-age pension, the observed number of pensioners is in line with the projections from the previous actuarial valuation.

The fact that over the period analysed, the overestimation of both the contributions and benefit expenditure offset each other is shown in the Table 2.2. The comparison in Table 2.2 shows that, on average, the emerging experience is in line with the expected experience. In fact, during the four years, the ratio of total benefits expenditure plus the administrative expenses to total earnings was 14.7 per cent compared to an expectation of 14.6 per cent. The RER over the observed period is slightly higher than the one projected in the last actuarial valuation (5.3 vs 5.0).

Table 2.3 presents the main factors explaining the differences between the emerging experience of the last four years and the expectation from the previous actuarial valuation.

All benefit expenditures have been lower than projected, except for the injury allowances and the medical expenses under the employment injury branch. The following comments explain the difference in the evolution of contributions between the expectation (23.5 per cent) and the reality (10.2 per cent):

- According to the previous valuation, the number of contributors was supposed to decline by 1.4 per cent. The decrease was in fact stronger (12.3 per cent). Two elements explain the decrease. First, the number of initial contributors for the year 2015-16 was underestimated. This is due to the quality of the information used for the previous valuation. According to the present analysis, the number of contributors has been increased by 4 per cent. Second, without such adjustment to the number of contributors for the year 2015-16, the decrease in the observed number of contributors would have been 8.3 per cent (-12.3 + 4).

- If the number of contributors in 2015-16 is higher, the reciprocal is that their average salaries are lower by 3.9 per cent. This is necessary to get the same contribution income. Considering the adjustment to the number of contributors for the year 2015-16, the observed increase in the average salary was 14.3 per cent, compared to an expectation of 13.8 per cent.

Table 2.1. Comparison of projected versus actual results of the NIS regarding the different components of revenue and expenditure, 2016–20 (million TT$)

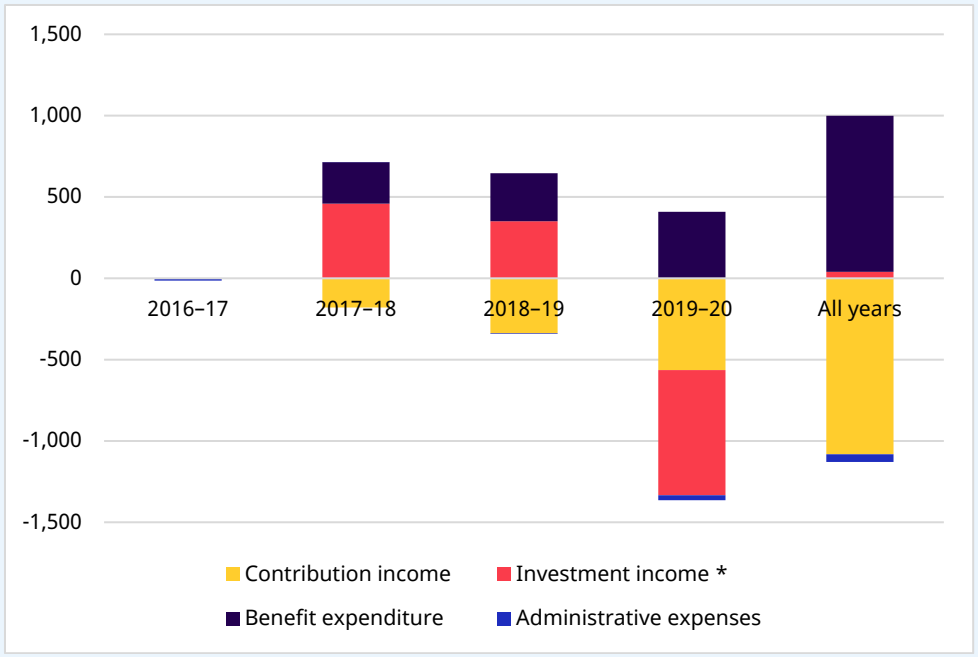
	2016–17	2017–18	2018–19	2019–20	All years
Projections of the tenth actuarial review					
Contribution income	4 608	4 850	5 044	5 250	19 752
Investment income *	1 478	1 372	1 414	1 452	5 716
Benefit expenditure	4 748	5 151	5 434	5 760	21 093
Administrative expenses	214	220	228	237	899
Observed results					
Contribution income	4 608	4 670	4 706	4 686	18 670
Investment income *	1 478	1 831	1 765	682	5 756
Benefit expenditure	4 748	4 896	5 139	5 351	20 134
Administrative expenses	228	219	232	267	946
Contribution to surplus (deficit)					
Contribution income	0	-180	-338	-564	-1 082
Investment income *	0	459	351	-770	40
Benefit expenditure	0	255	295	409	959
Administrative expenses	-14	1	-4	-30	-47
Total	-14	535	304	-955	-130

* Investment income includes realized and unrealized gains.

Source: NIBTT audited financial statements, and Tenth Actuarial Review of the National Insurance System as of 30 June 2016.

Figure 2.1 presents, for each financial year, the contribution of the various components of revenue and expenditure to the deviation in projected assets as at 30 June 2020. As stated previously, globally, the financial experience for the four years is in line with the expectation. Deficits on the contribution side are offset by surpluses on the benefit side.

▶ Figure 2.1. Sources of deviations in the projected increase of assets from 2016–17 to 2019–20



Sources: NIBTT, Author's calculation

▶ Table 2.2. Comparison of observed experience and expectation from the last actuarial valuation, 2013–16 (percentages)

	2016–17	2017–18	2018–19	2019–20	Average
Ratio of total expenses to total insured earnings					
Last actuarial valuation	14.4	14.6	14.8	15.1	14.7
Observed values	13.8	14.3	14.9	15.6	14.6
Ratio of benefit expenses to total insured earnings					
Last actuarial valuation	13.7	14.0	14.2	14.5	14.1
Observed values	13.2	13.6	14.2	14.9	14.0
Ratio of administrative costs to total insured earnings					
Last actuarial valuation	0.7	0.6	0.6	0.6	0.6
Observed values	0.7	0.7	0.6	0.7	0.7
Reserve ratio					
Last actuarial valuation	5.3	5.1	5.0	4.8	5.0
Observed values	5.3	5.5	5.4	5.1	5.3

▶ Table 2.3. Comparison of the emerging experience with the expectation in the last actuarial valuation, selected indicators, variation between, 2015–16 and 2019-20 (percentages)

	Percentages
Increase in contributions	
Expectation from last actuarial valuation	23.5
Observed values	10.2
Evolution in the contribution rate (from 12% to 13.2%)	
Expectation from last actuarial valuation	10.0
Observed values	10.0
Correction to the initial insured population	
Expectation from last actuarial valuation	n/a
Observed values	4.0
Growth of the insured population	
Expectation from last actuarial valuation	-1.4
Observed values	-12.3
Correction to the initial average salary	
Expectation from last actuarial valuation	n/a
Observed values	-3.9
Increase in average salary	
Expectation from last actuarial valuation	13.8
Observed values	14.3
Increase of total benefits paid	
Expectation from last actuarial valuation	27.6
Observed values	18.6
Increase in the number of pensioners	
Expectation from last actuarial valuation	19.0
Observed values	15.3
Annual average inflation rate	
Expectation from last actuarial valuation	3.0
Observed values	1.4
Annual average return on assets	
Expectation from last actuarial valuation	5.4
Observed values	5.7

Table 2.4 presents a comparison of NIS total funds projected according to the Tenth Actuarial Review with the corresponding actual balance sheet data (minor items, namely "Other liabilities and borrowings", are not considered as they are not relevant to actuarial reviews).

▶ **Table 2.4. Evolution of funds as of 30 June, 2016–20 (million TT$)**

	2016	2017	2018	2019	2020
Projections of the Tenth Actuarial Review	25 226	26 401	27 243	28 038	28 744
Observed results	25 226	26 474	27 900	29 042	28 729
Ratio observed/projected (%)	100	100	102	104	100

Source: NIBTT audited financial statements, and Tenth Actuarial Review of the National Insurance System as of 30 June 2016.

Accumulated assets have been in line with projections. Overall, investment income has been slightly higher than expected. The average annual rate of return of the fund over the four-year period since the last review has been 5.70 per cent, compared to the average return of 5.4 per cent assumed for that period in the actuarial review. A comparison of actual versus projected rates of return is presented in Table 2.5.

▶ **Table 2.5. Rate of return of the fund, 2016–20 (percentages)**

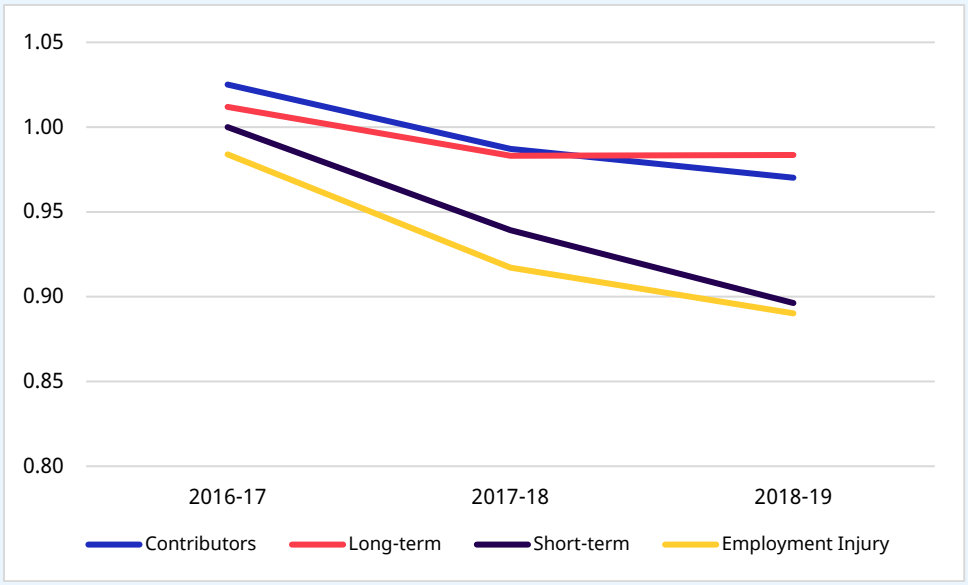
Year	Rate of return	
	Projected	Observed [a]
2016–17	5.89	5.23
2017–18	5.25	6.97
2018–19	5.25	8.13
2020–21	5.25	2.48
Arithmetic average	5.41	5.70

[a] Calculated as 2 x I/(A + B - I), where I is the annual investment income, A is the fund at beginning of the year and B is the fund at the end of the year.

2.2.1. Analysis of NIS demographic data

Figure 2.2 shows the ratio of observed projected numbers of contributors and beneficiaries. The number of contributors has been lower than the projection by about 6.2 per cent over the four-year period. In addition to the explanation given above, the decrease in the salaried population and perhaps lower compliance may explain the decrease. The number of long-term pensioners has been lower than expected over the period for survivors and invalidity. The number of old-age pensioners is in line with the expectation. The observed number of retirement grant benefits over the period has been 20 per cent lower than the expectation. For employment injury, the number of beneficiaries for all types of benefits has been lower than expected. The same observation applies to the short-term benefits branch, except for funeral benefits. Appendix 3 presents more detailed information.

▶ Figure 2.2. Ratio of observed to expected contributors and beneficiaries



Sources: NIBTT, Author's calculation

2.3. Data used in the actuarial valuation

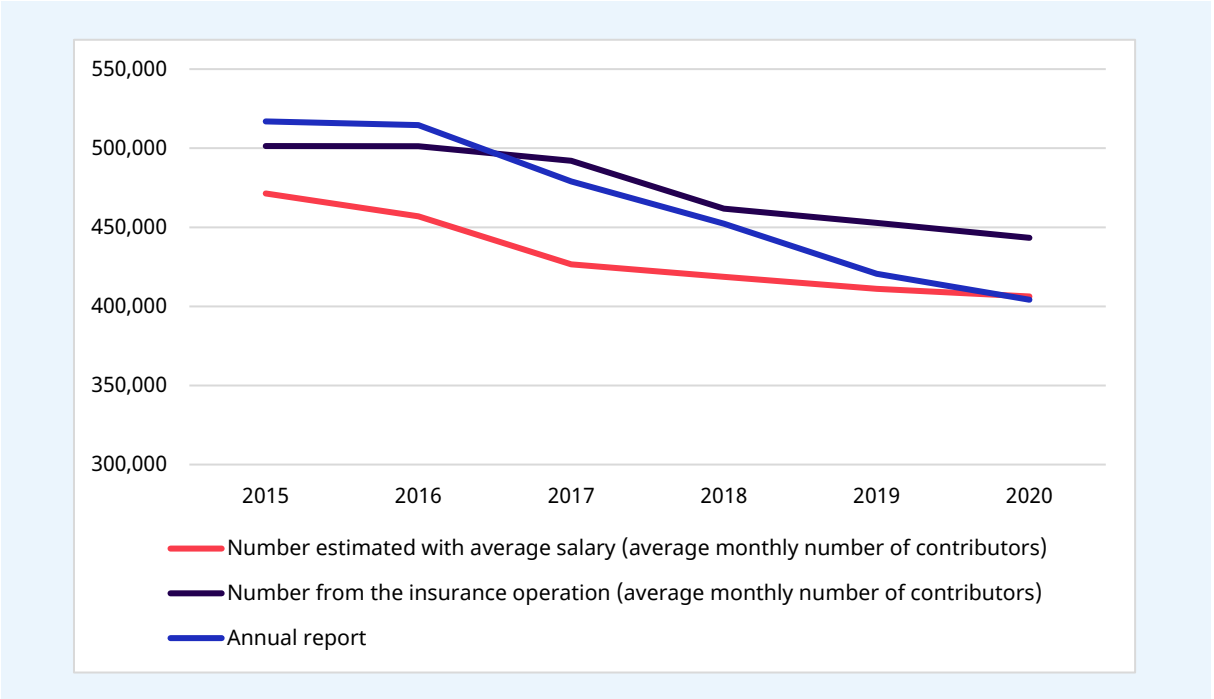
Collection of the data required to perform the actuarial valuation and the quality of the data are the responsibility of the institution being evaluated, based on the data requests made by the actuaries. Data must be accurate, complete (all information about the participants or the pensioners must be available), easily and quickly available. The quality of data is important for the process of the actuarial valuation. It is also essential when making strategic decisions about the evolution of the fund, in the management of human resources (specifically, how many pension officers will be required to handle the flow of current and future applications) or in the present and future processing of pension requests (situations where the information used to calculate the pension is wrong or incomplete should be avoided). For the present actuarial valuation, the information regarding the benefits paid over the previous years is complete and of good quality. It is in line with the information in the financial statement.

As in past valuations, the information regarding the insured population and their contributions was not complete in the computerized system. This situation is mainly due to the rejection of insured data because of errors in the national insurance numbers, among other things. Each month, employers submit contribution payments on behalf of their employees, and when there is an error in the information, the record is rejected until the information is corrected by the employer. Usually, it takes time to bring the corrected data into the system. NIBTT should make sure that the employers are penalized for the absence of information. It is a matter of good governance.

It was impossible to use the number of contributors in the annual report as the starting point of the actuarial valuation. For the last actuarial valuation, the number of contributors from the 2015-16 annual report was used to calibrate the income at the beginning of the projection. According to the information collected for this evaluation, the number of contributors for the year 2015-16 was underestimated by 4 per cent. Figure 2.3 illustrates very well the uncertainties regarding the estimation of the number of contributors. While it is difficult to estimate the number of contributors of a given year and impossible to use the number stated in the annual report, all estimates come to the same conclusion: the insured population is decreasing drastically. This is one of the major risks the NIS is facing. It was also impossible to have the methodology used to calculate the number of contributors in the annual report. The difficulty of estimating the number of contributors is also exacerbated by the fact that the density of contributions extracted from the IT system (how many contributions a person pays in a year) must be increased considerably for the past years 2012 to 2020 to match the contribution income in the financial statements. Both the number of contributors and the

density of contributions are important to be able to estimate the contribution income for a given year. As in previous assessments, the density of contributions needs to be increased to match the contribution income in the financial statements. To say it differently, it means that about 30 per cent of the information is not recorded in the IT system for the year 2012 to 2020.

▶ Figure 2.3. Estimation of the number of contributors according to three methods



Sources: NIBTT, Author's calculation

The data used for the present actuarial valuation have been adjusted and assumptions have been established to replicate the number of contributions reported in the financial statements. Table 2.6 shows the degree of completeness of the information in the computerized system at the moment that the data was gathered. As it was stated in the previous actuarial valuation, this situation creates uncertainties in the actuarial valuation. Usually, data should be of good quality and complete and not based on such important assumptions. It also raises a question: Are data good enough to adopt a mechanism like a funding policy where its success is mainly based on complete and accurate information?

▶ Table 2.6. Degree of completeness of the information used for the actuarial valuation, insured population and contributions, 2012–20

Years	Number of contributors			Contribution Income		
	Estimation of the number of contributors	From data query	Degree of incompleteness (%)	Annual report (Bn$)	From data query (Bn$)	Degree of incompleteness (%)
2012	520 000	508 938	-2.1	2.8	2.3	-18.4
2013	554 091	501 345	-9.5	3.3	2.4	-27.8
2014	560 620	495 868	-11.6	3.6	2.9	-20.3
2015	560 841	495 878	-11.6	4.3	3.1	-26.2
2016	542 507	488 465	-10.0	4.3	3.3	-22.6
2017	514 219	458 037	-10.9	4.6	3.5	-24.4
2018	497 036	444 976	-10.5	4.7	3.2	-32.5
2019	485 823	413 371	-14.9	4.7	2.1	-54.7
2020	475 733	413 415	-13.1	4.7	2.5	-47.1

For this actuarial valuation, information related to the mature year 2012 was used to estimate the most recent years. Checks were made to ensure that the adjustment makes sense from year to year and with the financial statement. The total number of active contributors for the year 2019–20 has been estimated to be 475,733 persons.

Although some adjustments have been made, the data used in this actuarial valuation allow us to provide projections regarding the financial soundness of the NIS. However, the degree of completeness of the information increases the uncertainties in the projections. The NIS is at a stage where expenditures are greater than contributions, and investment income is being used to pay benefits. Good-quality information becomes more important for the short-term projections. Short-term projections are more important when investment income is used to pay benefits as opposed to a young pension system.

In the previous actuarial valuation report, it was stated that the NIBTT Actuarial Services Department:

> *… put in place a well-documented structure so that information used in this actuarial valuation will be accessible for future requests. It is very important that the new actuarial department construct a system to keep track of all the information requested. Controls should be made each time there is an information exchange with another partner, when the information is stored in the data warehouse and when it is extracted to produce reports, studies or analyses. Consistency tests should be made to ensure the quality of the information. Reconciliation of aggregate figures about contributors and pensioners should be made periodically. Any differences should be understood and explained.*

During the process of this actuarial valuation, it proved to be complicated to analyse certain external and internal information mainly related to the employed population and the insured population. The information was not already available at NIBTT and of course not yet analyzed. For NIBTT, the link between the insured population of the NIS and the employed population should be analyzed and understood on an ongoing basis, and not just for the actuarial valuation. The workers in Trinidad and Tobago and the insured population are the principal sources of the financing of the System. Certain risks may emerge from these populations and NIBTT should be aware of them. The NIBTT, as the administrator of the System, has the duty to well understand this context and act appropriately to solve problems when necessary. The Actuarial Services Department should play an important role in gathering on an ongoing basis all the information related to all the risks that the NIBTT may face and their analyses. It is recommended that NIBTT make appropriate efforts to ensure that the environment in which it operates, and its related risk are well measured and understood on an ongoing basis.

3. Investment policy

This Section presents and discusses the NIBTT's investment policy.

3.1. Introduction

Pension plans have long-term liabilities, so that usually a long-term investment policy should be in place. For short-term benefits, such as sickness benefits, a short-term investment strategy like the use of T-Bills is more appropriate. For pensions, there is a long period of time between the payment of contributions on behalf of an individual and the time a benefit will become payable. Assets are normally accumulated for the payment of future benefits. Social security pension systems are usually partially funded, and the importance of assets in the financing may depend on the targeted degree of funding. In a social security plan, the accumulation of assets also has a secondary role of ensuring a fair balance between the level of contributions paid by various generations of contributors. A pension plan should therefore adopt an investment policy with a long-term perspective to maximize the expected return of the fund, given an acceptable level of risk. Variable income investments (for example, stocks, real estate, infrastructure and private equities) have, by nature, a long-term horizon. It has been observed that they produce a higher return than bonds in the long run.

The previous paragraph contains general principles that are applied to pension plans. Other very important factors should also be considered: the maturity of the system, the contribution rate and its expected evolution in the future, and the need for liquid investments when a large proportion of the investment is used to pay the expenditure. For the NIS, all these elements are as important as its long-term nature.

3.2. Brief description of the Investment Policy Statement

A new Investment Policy Statement (IPS) of the NIS has been approved by the Board on 27 May 2021. It is replacing the former IPS of 2017. The IPS has been developed with reference to the First Schedule of The National Insurance Act, Chapter 32:01 (NI Act) which sets statutory limits to regulate the investment of the NIBTT's Investment Portfolio. The IPS was developed by considering outlooks of both domestic and international markets as well as the requirements of the NI Fund to:

(a) Mitigate the Fund's liquidity risk and provide liquidity support to Insurance Operations over the short/medium term; and

(b) Generate cash (targeted cash yield)/overall return in the short/medium term.

The IPS makes a strong statement that structural changes to the NIS are imperative to ensure the long-term sustainability of the Fund. Strategic Asset Allocation was biased towards managing liquidity in the absence of a structural reform of the NIS. Given the current imbalance in the NIS, withdrawals on the Fund currently surpass the income generated by the Fund, consequently affecting the growth of the fund. The IPS shall serve a three-year strategic plan.

More specifically, the Investment Policy Statement of the NIS shall:

- establish reasonable expectations, objectives and guidelines for managing the Board's investment portfolio;
- establish an investment structure detailing permitted asset classes and a prudent basis for the allocation of funds among these asset classes;
- establish the framework for a well-diversified asset mix that can be expected to generate acceptable long-term returns at a level of risk suitable to the NIBTT; and
- encourage effective communication between the Board's Investment Committee and its Investment Business Unit.

An investment policy should take into account the projected cash flow (income and expenditure) of the actuarial valuation. The Investment Policy Statement clearly used the results of the actuarial valuation to analyse the risk. Two scenarios are displayed: one pessimistic and one optimistic. The optimistic scenario

considers an eventual increase in the contribution rate in the short term (from 13.2 per cent to 16.2 per cent), while no such increase is considered in the pessimistic scenario. The Investment Policy Statement has been mainly based on the pessimistic scenario. It should be noted that the proportion of equities in the targeted asset allocation (see Table 3.1) seems risky in a context where NIBTT may have to continue to liquidate assets to pay benefits.

Based on Ministerial Approval on June 30, 2016:

- The Investment Committee shall have the authority to approve all investment recommendations valued of up to TT$100 million.
- All investment recommendations which exceed TT$100 million can only be approved by the Board of Directors.

The IPS specifies some limits to mitigate certain risks. The derogation of most limits may take place when approved by the Board of Directors of the NIBTT. More specifically, the limits are:

A. Investment portfolio risk limits

(a) **Concentration risk**: A corporate entity shall not exceed 20 per cent of the market value of the portfolio.

(b) **Conglomerate exposure risk**: No more than 25 per cent of the market value of the portfolio shall be invested in any one group of companies.

(c) **Sovereign risk**: The domicile country of each issuer must have an investment grade sovereign rating.

(d) **Liquidity risk**: A Cash and Asset Management Liquidity Strategy shall be maintained, sufficient to cover the following six months projected cash outflows with the expectation to meet the liquidity requirements of the NIS in a timely manner.

B. Fixed income risk limits

(a) **Duration**: Weighted average modified duration for the fixed income portfolio should not exceed 15.

(b) **Local Sovereign and Corporate Debt**: subject to an internal credit rating analysis and must have a minimum credit rating of investment grade (greater than or equal to BBB–).

(c) **Foreign Debt**: corporate entity must have a minimum credit rating of investment grade (greater than or equal to BBB–).

(d) **Debt concentration**: Total debt exposure should not exceed 30 per cent of the total debt value of a company or a single group of companies.

(e) **Government and Government Guaranteed Debt Issuances**: Exposure can be up to 100 per cent of any issue size.

(f) All **investment approval decisions** from Investment Committee and/or Board shall have an expiration period of three (3) months.

C. Equity risk limits

(a) **Listed stocks**: No investment in the equity of a listed company should exceed 20 per cent of the market capitalization of that stock.

(b) **Unlisted stocks**: No investment in the equity of an unlisted company should exceed 20 per cent of the market capitalization of that stock.

(b) **Foreign Fund Managers**: Compliance rules must be followed.

(d) All **investment approval decisions** from Investment Committee and/or Board shall have an expiration period of one (1) year.

D. Real estate portfolio limits

(a) Real estate as an asset class is considered as an inflation hedge and therefore the Board shall take a strategic exposure to this asset class.

(b) Real estate investments shall be restricted to real estates or leaseholds in Trinidad and Tobago.

(c) Mortgages are not considered for inclusion in the portfolio.

E. Related party transaction limits

(a) No more than 5 per cent of the NI Fund can be allocated to related party transactions.

The Investment Policy Statement describes the structure, the responsibilities and the duties of the investment committee, the responsibilities of the Board and the role of the investment department, investment consultant and fund manager.

The targeted asset allocation included in the IPS is presented in Table 3.1.

▶ Table 3.1. Asset allocation FY 2021/2022 – 24, (percentages)

Overall portfolio	Current asset allocation*	Target asset allocation	Allowable range	Target cash yield	Target total return
Fixed income (local)	31.34	26.00	20–35	4.25-5.25	4.00-5.00
Fixed income (international)	1.53	0.00	0–10	0	0
Equities (local)	37.44	50.00	40–60	2.00–2.50	6.00-6.50
Equities (international)	16.75	19.00	10–25	2.00	8.00
Mutual funds	1.96	0.50	0–2	0.00	0.00
Real estate	1.17	1.00	0–2	0.00	0.00
Cash & cash equivalents	9.81	3.50	2.5–10	0.05	0.05
OVERALL PORTFOLIO	**100.00**	**100.00**	**–**	**2.50–3.00**	**5.50–6.00**

Source: IPS
*** As of November 30,2020**

3.3. Recent evolution of the investment portfolio

As illustrated in Table 3.2, the proportion invested in fixed-income securities (Government securities, corporate bonds, debentures, mortgages, fixed deposits, money market instruments and cash equivalents) has been almost stable at 45 per cent. The proportion of the portfolio invested in local equities has increased from 27.5 to 31.7 per cent. The proportion of the portfolio invested in international assets has been quite stable over the last three years, from 17.6 to 17.9 per cent.

▶ Table 3.2. Evolution of the NIBTT investment portfolio, 2017–20

Type of investment	Year (%)				Fixed income (F-I) vs equity (E)
	2017	2018	2019	2020	
Local investments					
Fixed deposit/demand deposit	0.5	3.4	2.3	1.9	F-I
TT government securities	21.3	18.9	17.4	17.7	F-I
TT debentures/bonds	9.4	8.9	11.1	8.9	F-I
Subsidiary company bonds	0.6	0.5	0.4	2.7	F-I
Subsidiary company equities	7.8	7.2	6.2	6.2	E
Subsidiary company debentures	0.0	0.0	0.0	0.0	F-I
Mortgages	0.0	0.0	0.0	0.0	F-I
Local equities	27.5	26.3	31.9	31.7	E
Investment properties	1.4	1.2	1.2	1.1	E
Other equity mutual funds	3.3	3.0	2.2	1.8	E
Cash and cash equivalents	10.7	12.3	8.5	10.1	F-I
Sub-total – Local	**82.4**	**81.7**	**81.2**	**82.1**	
Overseas investments					
Regional equity	0.2	0.2	0.2	0.2	E
US$ equity	9.2	12.4	12.9	12.7	E
US$ Foreign Mutual Funds	0.3	0.3	0.2	0.2	E
US$ Foreign Equity Funds	2.0	1.1	0.8	1.0	E
US$ Foreign US Treasury Bonds	0.3	0.4	1.2	0.0	F-I
US$ debentures/bonds	1.1	2.3	2.4	1.9	F-I
US$ cash	0.7	1.6	1.3	1.8	F-I
US$ RBC shares	3.8	0.0	0.0	0.0	E
Sub-total – Overseas	**17.6**	**18.3**	**19.0**	**17.8**	
Total*	**100**	**100**	**100**	**100**	

* Totals not adding to 100.0 is due to rounding.
Source: NIBTT.

4. Level of administrative expenditures

The NIBTT requested that the actuarial valuation consider the administrative expenditures as they relate to Section 22 of the National Insurance Act. This Section stipulates that administrative expenditure should not exceed the actuary's recommendations included in the periodic actuarial review. It states:

22. (1) The revenue of the Board for any financial year shall be applied in defraying the following commitments, that is to say:

(a) the payment of benefits;

(b) the salaries, fees, remuneration and gratuities of the officers, and employees, and technical and other advisers, of the Board;

(c) the remuneration, fees and allowances of the Directors or of any committee of the Board;

(d) any other expenditure or losses or write-off identified by the Board and subject to the approval of the Minister of Finance which are properly chargeable to the Board's Revenue Account,

but the commitments described at *(b)*, *(c)* and *(d)* shall not exceed the amount fixed by the Minister not exceeding the recommendations of the actuary arising out of the periodic review of the National Insurance System.

Table 4.1 shows NIBTT's administrative expenditures, their year-to-year variations and various ratios established for the past three financial years.

Table 4.1. NIBTT administrative expenditure ratios, 2016–20

	2016–17	2017–18	2018-19	2019–20
Administrative expenditures (million TT$)	228	219	232	267
Variation with the previous year (%)	0.7	-3.6	5.6	15.4
Ratio of administrative expenditures to:				
Contribution income (%)	4.9	4.7	4.9	5.7
Total insurable earnings (%)	0.6	0.6	0.6	0.7
Benefit expenditure (%)	4.8	4.5	4.5	5.0
Ratio projected in Tenth Actuarial Review (% of total insured earnings)	0.6	0.6	0.6	0.6

Source: NIBTT

During the three-year period administrative expenditures have represented, on average, 0.66 per cent of total insurable earnings, 5.06 per cent of contributions and 4.69 per cent of benefit expenditure. The experience ratios in the present valuation are in line with those in the Tenth Actuarial Review. The year 2019-20 has been characterized by an important increase in the level of the administrative expenditure (+14.3 per cent). This increase is mainly due to an increase of 3500 per cent in expected credit loss. Without such increase, the overall increase in the administrative expenditure for 2019-20 would have been 5.7 per cent instead of 15.4 per cent.

It is impossible to have a unique benchmark for evaluating whether the administrative expenditures of a social security system are too high, or even to compare its performance with another system. Many elements affect the level of administrative expenditure, including:

- types of benefits provided;
- number of contributors (size of the system);

- number of beneficiaries (maturity);
- degree of contribution compliance; and
- computerized systems for the social security organization.

At NIBTT, the ratio of administrative expenditures in relation to insurable earnings is not high when compared to those observed in other social security systems in the region and in the world. At NIBTT, it is around 0.6 per cent, compared to over 1 per cent in other islands of the region, but higher than for larger countries like Canada (see Table 4.2). The reader should bear in mind that the population of Trinidad and Tobago is higher than those in other islands, except Jamaica.

Table 4.2. Comparison of administrative expenses of social security systems, various countries

Country	Year	Administrative expenses as % of total salary
Antigua-Barbuda	2014	1.0
Bahamas	2017	1.9
Barbados	2014	0.9
Canada	2019	0.1
Dominica	2015	1.1
Guyana	2018	1.4
Saint Kitts and Nevis	2017	1.6
Jamaica	2013	0.4
Trinidad and Tobago	2020	0.7

Source: Annual reports, actuarial valuation reports, Authors' calculations.

As discussed in the previous actuarial valuation report, it is not the role of the actuary to specify the level of the administrative expenditure. It is, however, part of the objectives of the actuarial valuation to analyse whether the level of administrative expenditure is likely to jeopardize the financial sustainability of the NIS. The best way to proceed is to put in place mechanisms to mitigate the risk of high administrative expenditures, such as the introduction of indicators and targets on the administrative fees, and to discuss the issue each year in the financial statement. Keeping the administrative fees low will have a positive effect on the sustainability of the System.

There is a limit established by the Board of Directors of NIBTT on the administrative expenditures: 7.5 per cent of the contribution income. As shown in Table 4.1, the current level of administrative expenditure is lower than this limit. It would be important, however, to adjust the limit to contribution rate increases that are occurring, such as the one that took place in September 2016 when the contribution rate increased from 12 to 13.2 per cent. The new limit should become at most 6.8 per cent of contribution income. In September 2016, the maximum monthly insurable earnings was increased from TT$12,000 to TT$13,600. This increase should also be reflected in the limit. It is therefore recommended to review the limit on administrative expenditures in order to obtain a more robust and reliable indicator.

Some general principles that should guide the construction of such an indicator follow.

4.1. General principles of limit on administrative expenditures

Several useful tools can be considered in order to assess benchmarks that help fully appreciate the size of these expenditures. Ratios are used in many countries as limits that cannot be exceeded. These ratios are:

Administrative costs/contribution income. This ratio is sensitive to the contribution rate. As the contribution rate will probably evolve during the system's lifetime, it has to be used carefully. The ratio is also sensitive to the size of the covered population, or limits to insurable earnings.

Administrative costs/insurable earnings. More robust than the previous ratio, this one is sometimes proposed as a benchmark. However, as insurable earnings usually increase at a higher rate than inflation, this may lead to relatively high administrative costs in relative and absolute value over the long term. This ratio is sensitive to the inclusion/exclusion of new groups of covered persons. It can also be influenced by an eventual limit on insurable earnings.

Administrative costs/total or benefits expenditures. For a system that is not mature, this ratio is not recommended, as benefit payments are very low at the inception of the system, unless very sizeable transitory measures are put in place. This ratio will naturally decrease steeply as benefits grow but this by no means signifies that a more efficient administration exists. This ratio is also affected by adjustments to benefits following, for example, a reform in the pension system.

Annual increase limited to inflation. This option may be interesting several years after the inception of the system. Before this benchmark is considered, any costs related to the inception of the system should be reduced to their minimum, and a careful analysis of relevant expenditures should also be made.

4.2. Projected NIBTT administrative expenditures

For the year 2021, the administrative expenditures are set at 0.66 percent of the average insurable earnings (normal class). Thereafter, it is assumed that administrative expenditures will increase according to wages and inflation. Weights of 50 per cent of the wage growth and 50 per cent of the inflation rate have been used. As illustrated in Table 4.3, this assumption, combined with the fact that the active insured population is going to decrease, has the effect of producing a relatively stable ratio of total expenditure as a percentage of total salary over the projection period.

▶ **Table 4.3. Projected NIBTT administrative expenditures as a percentage of total salary (normal class), 2020–21, 2045–46, 2069–70 (percentages)**

	2020–21	2045–46	2069–70
Ratio	0.66	0.68	0.72

5. Projected demographic and macroeconomic environment of Trinidad and Tobago

In determining the financial sustainability of any social security system, projections of revenue and expenditure are key components. The contributions from the persons covered by the system form the major source of revenue, and in the case of Trinidad and Tobago, only salaried workers are currently covered.

The total possible pool of salaried workers is derived from first projecting the entire population, and then making demographic and economic assumptions that determine the size and composition of the labour force and the total employed population. Projections of gross domestic product (GDP) give us a sense not only of the potential growth in future output, but also of future productivity per worker, a proxy for expected real wage growth, which has a strong bearing on the projections of contribution income over time.

These demographic and macroeconomic variables are projected over a 50-year period based on an analysis of past trends and estimates of plausible future experience obtained from the CSO, the UN, the World Bank or the International Monetary Fund (IMF). Projecting the demography over a 59-year period is necessary to consider the fact that the actuarial valuation year is 2019-20 and that the financial projection of the NIS is done over a 50-year period.

5.1. Population projection

The key components affecting the evolution of a population over time are fertility, mortality and net migration. Fertility rates determine the number of births, while mortality rates determine how many, and at what ages, people are expected to die. Net migration represents the difference between the number of persons who permanently enter and leave Trinidad and Tobago and is the most volatile of the three factors.

As for the previous valuation, the population demographic projection starts in 2011 which is the year of the last census. Emerging information since that year, when available, is used in the projection. In 2011, the resident population was estimated at 1,328,019.

Table 5.1. Population of Trinidad and Tobago, by age and sex, 2011

Age	Males	Females	Total
0–4	47,847	46,275	94,122
5–9	46,378	44,951	91,329
10–14	44,952	43,010	87,962
15–19	49,709	48,670	98,379
20–24	57,408	56,834	114,242
25–29	62,268	61,248	123,516
30–34	53,899	51,681	105,580
35–39	46,862	45,676	92,538
40–44	43,490	42,674	86,164
45–49	48,684	47,429	96,113
50–54	43,981	43,204	87,185
55–59	36,717	36,495	73,212
60–64	29,645	29,002	58,647
65–69	21,585	23,056	44,641
70–74	14,210	16,079	30,289

Age	Males	Females	Total
75–79	9,285	11,463	20,748
80–84	5,982	7,815	13,797
85–89	2,523	4,128	6,651
90–94	724	1,563	2,287
95–100	156	461	617
Total	666,305	661,714	1,328,019
Source: Central Statistical Office, Census 2011.			

5.1.1. Fertility

The total fertility rate (TFR) represents in one year, the average number of children each woman of childbearing age would have if she had all her children. If there is no migration, a TFR of 2.1 is required for each generation to replace itself.

▶ Table 5.2. Historical fertility rates in Trinidad and Tobago, 2000–09

Year	Total fertility rate
2000	1.70
2001	1.70
2002	1.60
2003	1.70
2004	1.60
2005	1.60
2006	1.60
2007	1.70
2008	1.80
2009	1.60
Average	1.70
Source: CSO.	

As shown in Table 5.2, the TFR has been stable in the 2000s, fluctuating between 1.6 and 1.8 children per woman. Also, a fertility rate of 1.7 allows replicating the average number of new-borns for the years 2012-2016[8]. For these reasons, it has been assumed in this valuation that the average TFR of 1.7 will apply in 2011 and will remain constant over the projection period. This assumption is also in line with the long-term projection of the UN World Population Prospect (WPP) of 2019.

Age-specific fertility rates change over the projection period to consider the fact that women are tending to have their babies later. Table 5.3 shows age-specific and total fertility rates in 2011, 2040 and ultimately, 2070.

[8] The average number of new-borns for the years 2012 to 2019 is 16,682 according to the information collected from CSO.

▶ Table 5.3. Age-specific and total fertility rates (TFR), 2011, 2040 and 2070

Age group	2011	2040	2070
15-19	0.0338	0.0190	0.0108
20-24	0.0933	0.0754	0.0567
25-29	0.0945	0.1211	0.1214
30-34	0.0730	0.0792	0.0954
35-39	0.0349	0.0358	0.0450
40-44	0.0094	0.0083	0.0094
45-49	0.0011	0.0015	0.0013
TFR	1.70	1.70	1.70

5.1.2. Mortality

Starting mortality rates for this valuation are based on the information contained in the 2011 census of Trinidad and Tobago. These rates were batched by age group at 5-year intervals and have been transformed into single age mortality rates. According to these data, life expectancy at birth is estimated at 71.4 years for males and 77.8 years for females in 2011. For the future, improvements in mortality are assumed to occur in accordance with United Nations World Population Prospects (UN WPP) of 2019 estimates. Under this pattern, it is projected that life expectancy at birth will reach 78.9 years for males and 81.8 years for females in 2070.

Life expectancy at advanced ages is a key driver of the cost of retirement pensions. At age 60, life expectancy is 19.5 years for males and 23.1 years for females in 2011. It will reach 23.0 years for males and 25.2 years for females in 2070. Table 5.4 shows life expectancy for the years 2011, 2040 and 2070, while Table 5.5 compares for specific ages, mortality rates assumed in the same years.

▶ Table 5.4. Life expectancy by sex and for different ages, 2011, 2040 and 2070

Year	Men				Women		
	At 0	At 20	At 60		At 0	At 20	At 60
2011	71.4	53.2	19.5		77.8	59.4	23.1
2040	74.9	56.0	21.0		78.6	60.2	23.1
2070	78.9	59.6	23.0		81.8	63.0	25.2

▶ Table 5.5 Mortality rates at selected age intervals, 2011, 2040 and 2070 (per 1,000 persons)

Selected ages	Males				Females		
	2011	2040	2070		2011	2040	2070
0	15.1	8.3	4.3		14.0	11.7	6.7
5	0.3	0.2	0.2		0.3	0.5	0.5
10	0.3	0.3	0.3		0.2	0.5	0.5
15	0.7	0.5	0.4		0.2	0.5	0.5
20	2.0	1.4	0.8		0.8	0.5	0.5
25	3.2	2.3	1.4		0.9	0.6	0.5
30	3.1	2.3	1.4		1.2	0.7	0.5
35	3.3	2.4	1.5		1.7	1.0	0.7
40	3.7	2.8	1.8		2.1	1.5	1.0
45	4.7	3.6	2.3		3.0	2.3	1.6
50	6.5	5.0	3.3		4.0	3.5	2.4
55	9.2	7.2	4.9		5.8	5.3	3.7
60	13.8	11.0	7.6		8.4	7.7	5.4
65	21.3	16.9	12.0		13.4	11.2	7.9
70	31.0	25.0	18.4		20.2	18.1	12.8
75	48.6	40.4	31.4		30.9	31.9	24.1
80	75.7	65.0	53.2		49.9	55.7	44.1
85	113.9	100.1	84.6		84.9	95.3	77.3
90	183.7	175.4	159.1		130.5	146.2	123.3
95	264.4	271.2	284.9		195.5	171.0	159.5

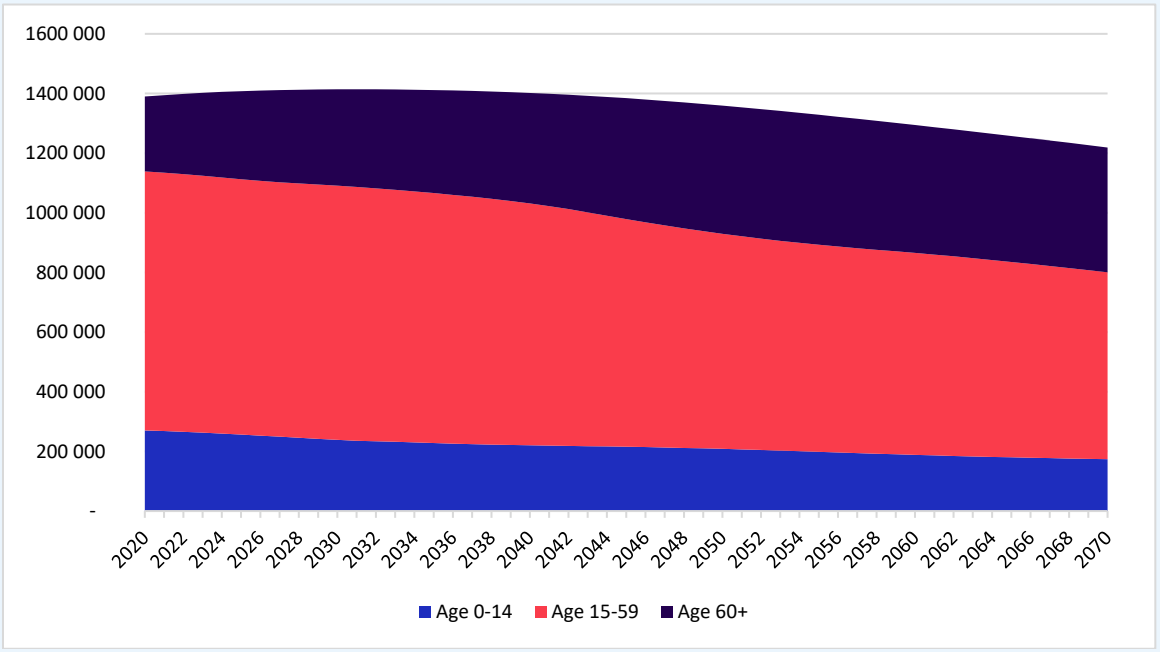
5.1.3. Migration

The latest census information for Trinidad and Tobago was for the year 2011. This census provided information on the total number of persons who emigrated during the period 2000–11, with their age and gender distribution. For this valuation, the net migration is assumed to start in 2011 at a negative value of 800 persons per year, which is the average net migration for the period 2010–15 utilizing UN estimates. This stays at that level throughout the projection period. This assumption is the same as the one used in the 2019 UN WPP. The net migration in relation to the total population produces a net migration rate of –0.06 per cent in 2011 and –0.07 per cent in 2070. The particular situation of Venezuelan migrants in Trinidad and Tobago was not considered in this actuarial valuation because no information was available.

5.1.4. Projected population

Figure 5.1 presents the projected population of Trinidad and Tobago from 2020 to 2070 separated into three age categories: children (0–15), persons who can potentially contribute to the NIS (16–59) and persons at pensionable age (60 and over).

▶ **Figure 5.1. Projected population of Trinidad and Tobago, by age groups, 2020–70**



The evolution of the relative size of each age group (notably the decrease in the population of children and the increase in the number of persons at pensionable age) illustrates the projected ageing of the population of Trinidad and Tobago (Table 5.6).

According to the projection, the total population will increase from 1,389,816 in 2020 to 1,414,190 in 2031 and will then initiate a slow decrease to 1,218,967 in 2070. The number of persons at pensionable age (60 and over) will grow from 250,829 in 2020 to 418,388 in 2070, while the population aged 15 to 59 (the group which potentially supports the retirees though its contributions) will decrease by 28 per cent over the same period. The number of working-age persons for each person aged 60 and over will fall dramatically from 3.5 to 1.5 over the projection period.

▶ Table 5.6. Projected population of Trinidad and Tobago, 2020–70

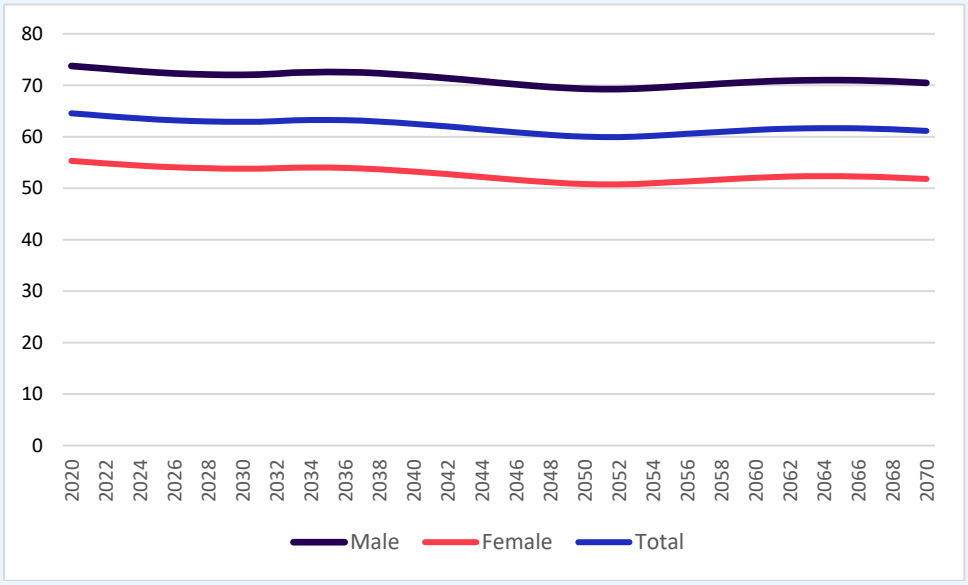
Year	Total	Age			Ratio of persons 15-59 to 60 & over
		0–14	15–59	60+	
2020	1 389 816	270 290	868 697	250 829	3.5
2030	1 414 052	238 678	852 155	323 219	2.6
2040	1 401 952	220 522	811 015	370 415	2.2
2050	1 359 396	208 533	721 156	429 708	1.7
2060	1 294 226	188 477	677 066	428 683	1.6
2070	1 218 967	174 051	626 529	418 388	1.5

5.2. Projected macroeconomic environment

5.2.1. Labour force and employed population

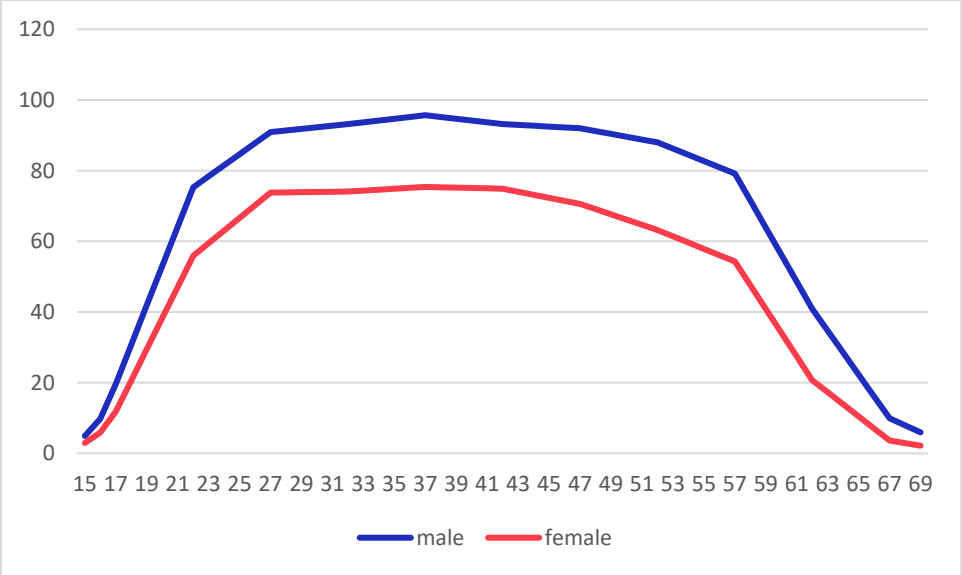
The labour force is derived by applying gender and age-specific labour force participation rates to the population projections. It is assumed that these age- and gender-specific participation rates will remain constant in the future even if a slight downward trend has been observed over the recent years. However, the total participation rate in aggregate and by gender is expected to decrease over time (see Figure 5.2). For males, the global participation rate will decrease from 74 per cent in 2020 to 70 per cent in 2070; while for females, the global participation rate will decrease from 55 per cent in 2020 to 52 per cent in 2070. This decrease is mainly due to the lower participation rate at older ages.

▶ Figure 5.2. Projected global participation rate, people aged 15-69, by sex, 2020–70



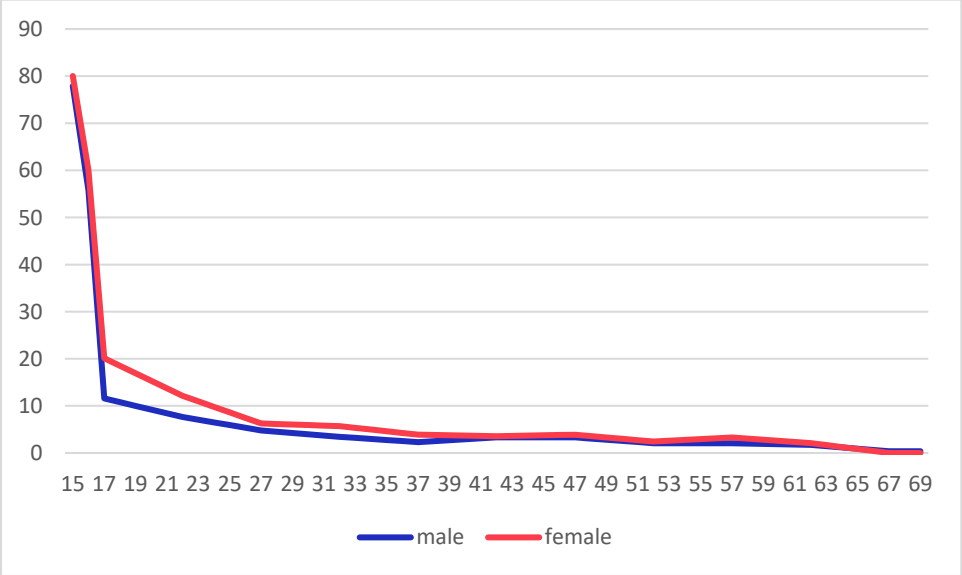
Individual age labour force participation rates used in this actuarial valuation are presented in the Figure 5.3 for both male and female.

▶ Figure 5.3. Assumption related to labour force participation rates by age and sex (as % of population)



According to the information gathered from CSO, the average unemployment rate from 2015 to 2018 was 4.1 per cent, ranging from a minimum of 3.4 per cent and a maximum of 4.8 per cent. For the second quarter of 2020, the unemployment rate was 5.1 per cent. The ILO and the World Bank estimate the unemployment rate for the year 2020 at 6.7 per cent, while the Economic Intelligence Unit estimates it at 12.0 per cent. There was no official value related to the unemployment rate in 2020 when this section of the report was prepared. The unemployment rates in 2018 and 2019, by age and sex, have been used to estimate the long-term unemployment rate assumption. These unemployment rates have been adjusted in 2020, 2021 and 2022 to reproduce unemployment rates of 6.8 per cent, 7.6 per cent, and 6.1 per cent respectively. For 2023, the unemployment rate is 4.4 per cent, using the information of 2018 and 2019. This rate is projected to gradually decrease to 4.3 per cent over the long term. Individual age unemployment rates used in this actuarial valuation for the year 2023 and over are presented in Figure 5.4 for both male and female.

▶ Figure 5.4. Assumption related to unemployment rates by age and sex (2023+)



The projection model splits the projected population in two categories: salaried employees and self-employed. As discussed in Section 1.5, the proportion of salaried workers has decreased over recent years (reciprocally, the proportion of self-employed has increased). This situation is twofold: fewer workers are covered, and fewer workers are available to finance the system. The increase in the self-employed population is presented in the Figure 5.5. For the actuarial valuation, the proportion of the self-employed by age is kept constant for female, while for the male, it increases by 3 per cent for all the ages over the first 5 years of projection (2020 to 2024).

Figure 5.5. Proportion of self-employed, by sex, 2012-2019

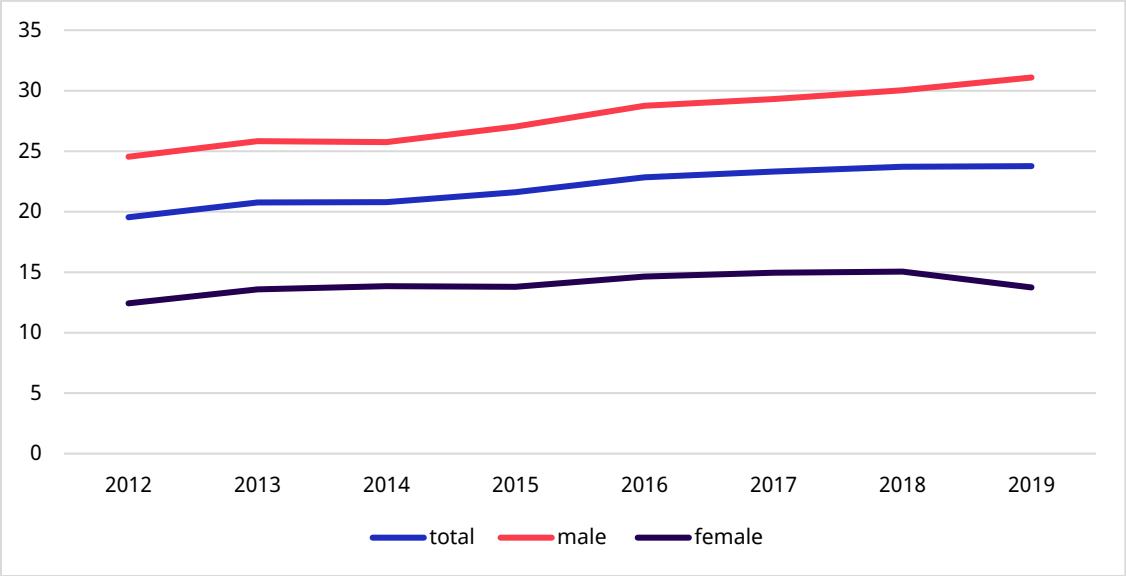


Figure 5.6 presents the proportion of salaried employees.

Figure 5.6. Proportion of salaried employees, by sex, 2012-2019

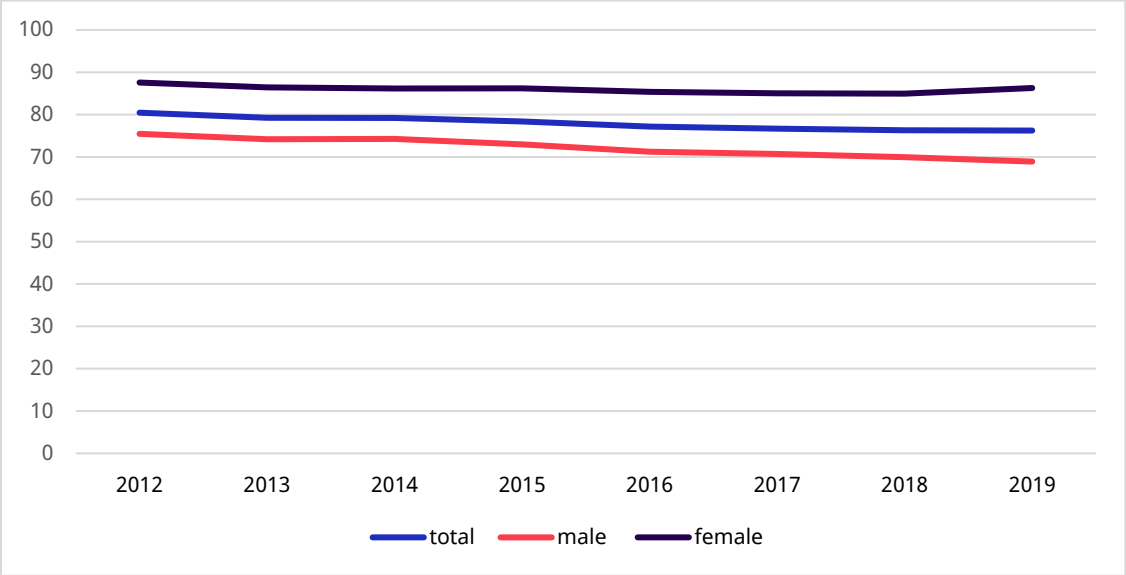


Table 5.7 presents the evolution of the total population, the population aged between 15 and 69, the labour force and the employed population over the projection years. The employed population is also divided between salaried employees and the self-employed.

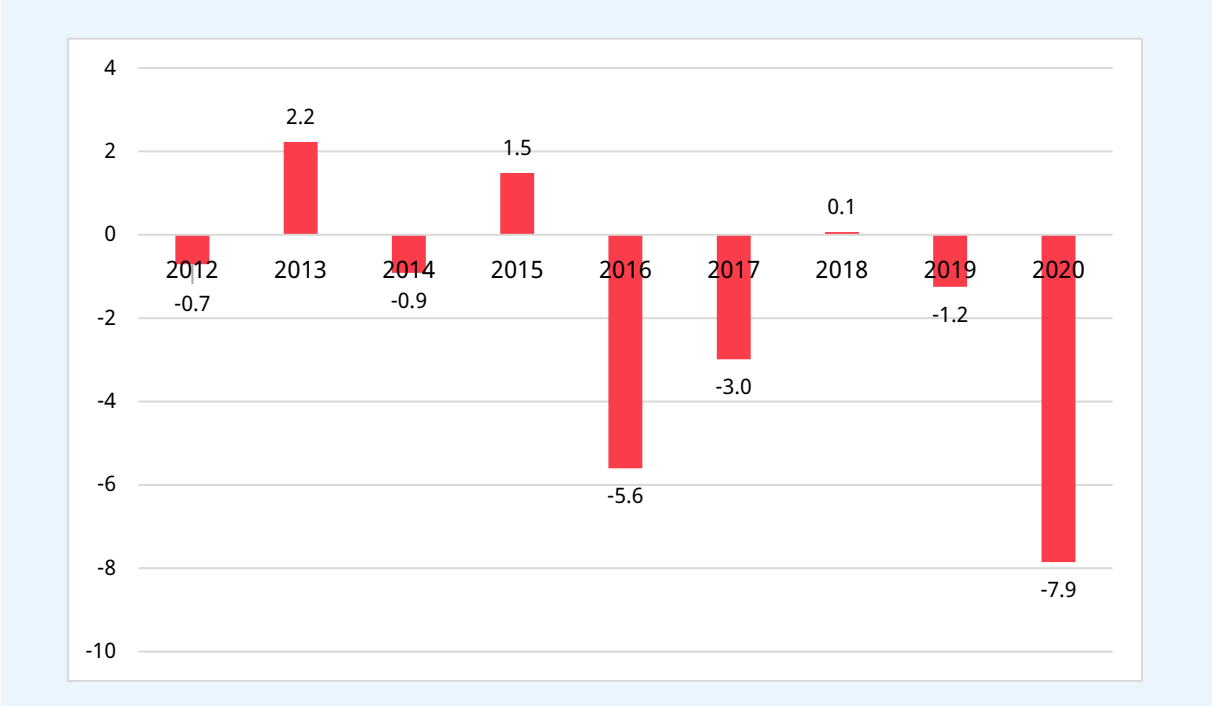
▶ Table 5.7. Labour market balance, 2020–70

	2020	2030	2040	2050	2060	2070
Total population (000)	**1 389**	**1 414**	**1 402**	**1 359**	**1 294**	**1 219**
Male	692	699	687	662	628	591
Female	697	715	715	697	666	628
Population 15–69 (000)	**1009**	**1010**	**974**	**920**	**832**	**779**
Male	506	504	485	457	415	390
Female	503	506	489	463	417	389
Labour force (000)	**651**	**635**	**609**	**552**	**510**	**476**
Male	373	363	349	317	293	275
Female	278	272	260	235	217	201
Total participation rate (%)	**64.5**	**62.9**	**62.5**	**60.0**	**61.3**	**61.2**
Male	73.7	72.0	71.9	69.3	70.7	70.5
Female	55.3	53.8	53.2	50.8	52.0	51.8
Total employed (000)	**607**	**607**	**583**	**528**	**488**	**456**
Male	351	349	336	305	282	265
Female	256	258	247	223	206	191
Salaried (000)	**460**	**444**	**424**	**383**	**354**	**330**
Male	241	224	214	193	180	168
Female	219	220	210	190	175	162
Self-employed (000)	**147**	**164**	**159**	**146**	**134**	**126**
Male	110	126	122	112	103	97
Female	37	38	37	34	31	29
Unemployed (000)	**45**	**28**	**26**	**24**	**22**	**20**
Male	22	14	13	12	11	10
Female	23	14	13	12	11	10
Unemployment rate (%)	**6.9**	**4.4**	**4.3**	**4.3**	**4.3**	**4.2**
Male	5.9	3.8	3.7	3.8	3.8	3.6
Female	8.3	5.1	5.0	5.1	5.1	5.0

5.2.2. Economic growth

For six of the last nine years, the economy of Trinidad and Tobago has been characterized by negative growth in real GDP (see Figure 5.7). Low or negative growth rates have been a feature, the main reason being depressed prices within the energy sector which is the main driver of the country's economy. In 2020, according to IMF, because of the COVID-19 crisis, the real GDP has decreased by 7.9 per cent.

▶ Figure 5.7. Real GDP growth, 2012–20 (percentages)



Source: CSO, and IMF for 2020 (Economic Outlook of October 2021)

Based on projections from the IMF, real GDP growth of minus 1.0 per cent is expected in 2021. Positive GDP growth ranging from 1.6 to 5.4 per cent in the subsequent five-year period is projected by the IMF. The IMF GDP growth rates have been chosen for the assumptions (2020–26). For subsequent years, growth in GDP is set as a function of the growth in the employed population and growth in labour productivity. The long-term GDP growth is below 1 per cent because of the future projected declines in the labour force and modest projected growth in labour productivity in the long term.

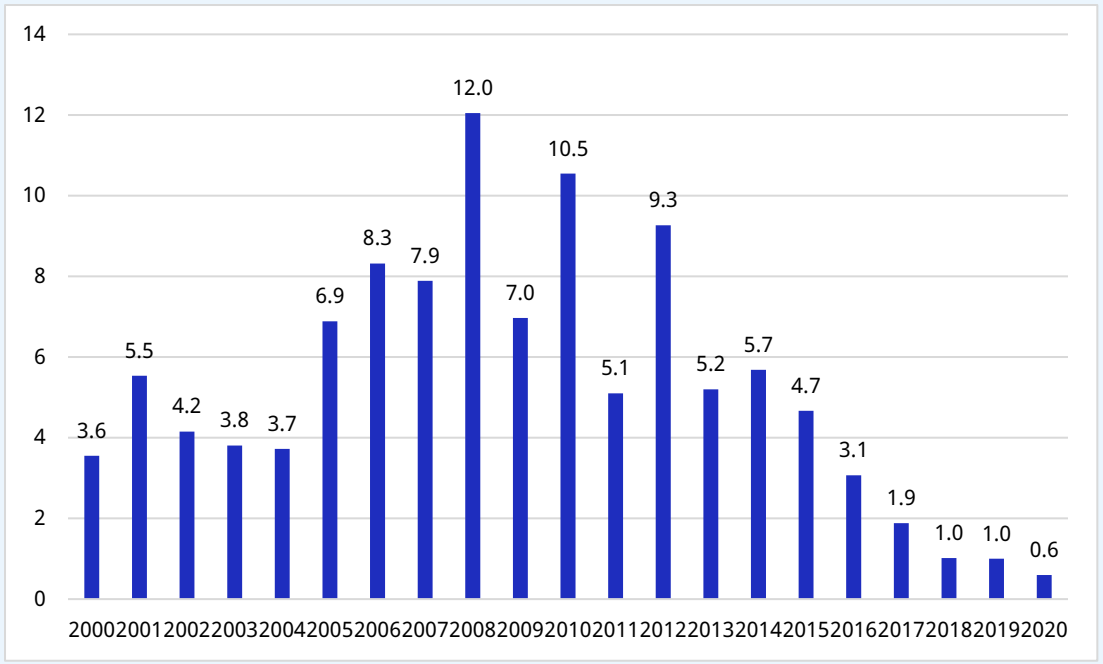
5.2.3. Productivity

Increases in productivity are a key component of real GDP growth and can often be used as a proxy for the change in real wages in the future. As shown in Table 1.4, the average labour productivity was -0.8 per cent from 2009 to 2019. With the drop of the GDP in 2020, labour productivity can be estimated at -5.2 per cent for this year. Based on IMF projected data, productivity is expected to increase between 0.1 and 4.0 per cent over the next six years (2021–26). From 2027 onwards, productivity is assumed to be 1.25 per cent.

5.2.4. Inflation

The inflation rate in Trinidad and Tobago reached its lowest level over the last 21 years in the year 2020, at 0.6 per cent (see Figure 5.8). In fact, the inflation rate over the last 4 years has been much lower than the one observed during the previous years. In the past, the main driver of inflation was food prices.

▶ Figure 5.8. Inflation, 2000–20 (percentages)



Source: CSO and Central Bank

On the website of the Central Bank, the average inflation (Retail Prices Index) for the first five months of 2021 was 1.0 per cent and the ones observed in June 2021 and July 2021 are respectively 1.8 per cent and 2.2 per cent. In June 2021, the food inflation was 5.1 per cent. For the year 2021 and onwards inflation follows IMF's projections which go up to the year 2026. These projections range between 0.0 and 1.4 for these years. Starting in 2027, inflation starts to increase at 0.2 per cent per year to reach its ultimate level of 3.0 per cent in 2035. Inflation stays at this level for the rest of the projection period.

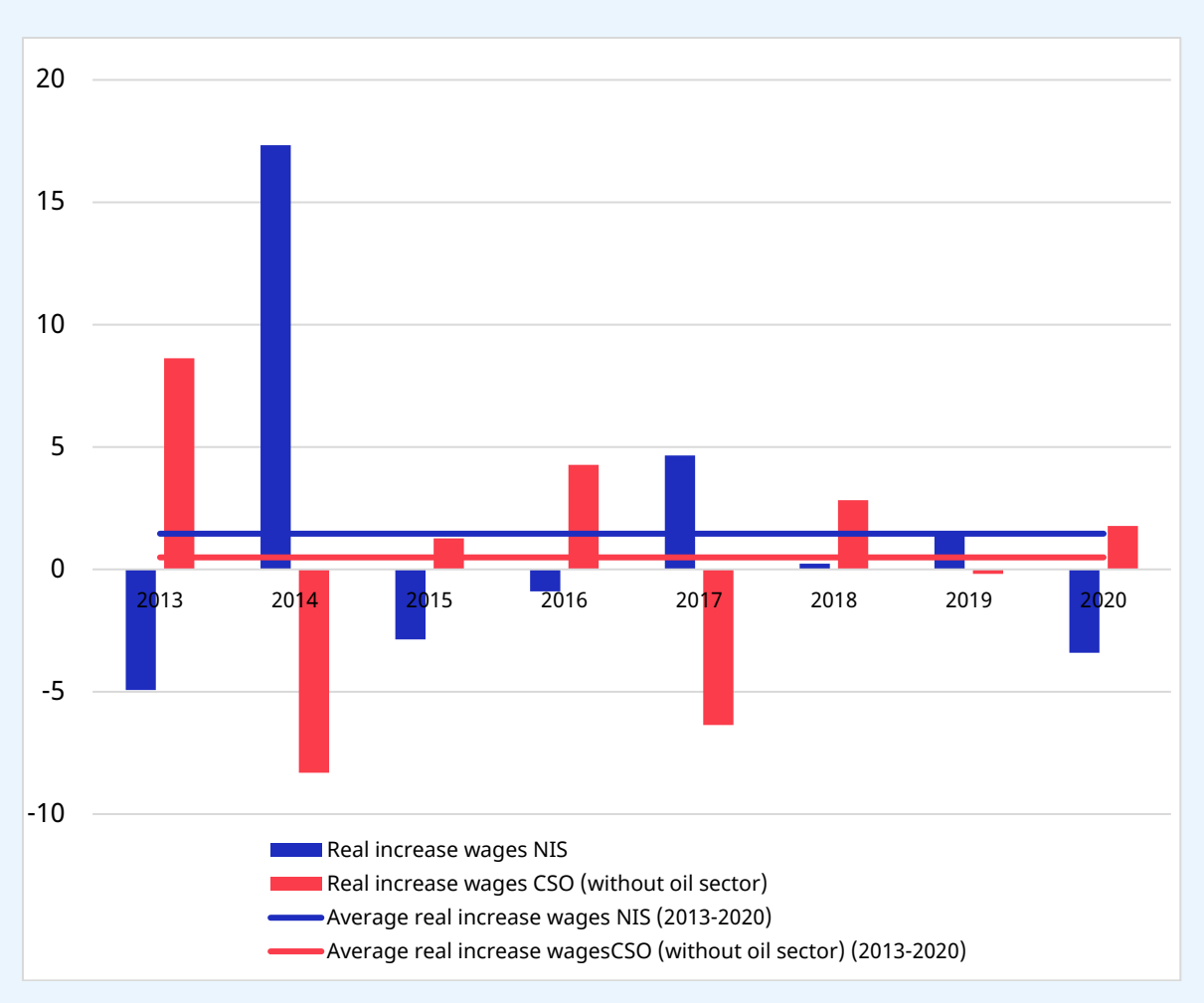
5.2.5. Wage increases

Growth in the level of contribution income is influenced not only by the number of active contributors but also the level of increase in insured earnings. Specifically, real wage growth (the difference between nominal wage increase and the inflation rate) has a significant impact on the financial evolution of the system.

Available information on wages in Trinidad and Tobago is difficult to use to get a clear picture of the level of wages. There is the information from the NIBTT, but the class structure and the ceiling (class 16) do not permit a complete picture. On the other side, there is the information from the CSO based on an index. We can use this information to follow the evolution of the salary, but it is difficult to have a complete picture of the level of wages because the information is an index, not the average wage. Also, information for some sectors is not included in the index. The CSO also provides information on salary by broad sectors, but the information is incomplete and the higher bracket (like it is the case for the last salary class of NIS) makes it difficult to get a complete idea of the evolution of all salaries.

Figure 5.9 presents average real wages growth in Trinidad and Tobago based on information from the NIS and the CSO for the years 2013 to 2020. The information used from the CSO is the one without the oil sector. The average real wages growth in Trinidad and Tobago, based on the data from the NIS, is 1.5 per cent while the one from the CSO is 0.5 per cent. The reader should be careful when using the information from the NIS because in 2014, there was an increase the maximum insurable earnings giving the impression of a high salary increase. Table 1.4 also reminds us that over a longer period (from 2009 to 2019) the average real wage increase from CSO data was negative.

▶ Figure 5.9. Real salary increases, 2013–20 (percentages)



Source: CSO and NIBTT, Authors' calculations.

The real wage growth is assumed to 1.25 per cent for all the projection years. This is the same assumption as the one used in the previous valuation. Sensitivity analysis on this assumption is presented in Chapter 8 to show how sensitive the results are regarding this assumption.

5.2.6. Interest rates and return on assets

Although past performance is not necessarily indicative of future results, the analysis of the Fund's past performance remains useful in the process of determining the appropriate investment return assumption.

The average annual rate of return of the NIS Fund over the last nine years ending on 30 June 2020 is 5.7 per cent, which is in line with the long-term assumption used in the previous valuation. If we exclude the effect of inflation, the average real return is 1.9 per cent. Table 5.8 shows the historical rates for the last nine years.

▶ Table 5.8. Historical rates of return on invested assets, 2012–20 (percentages)

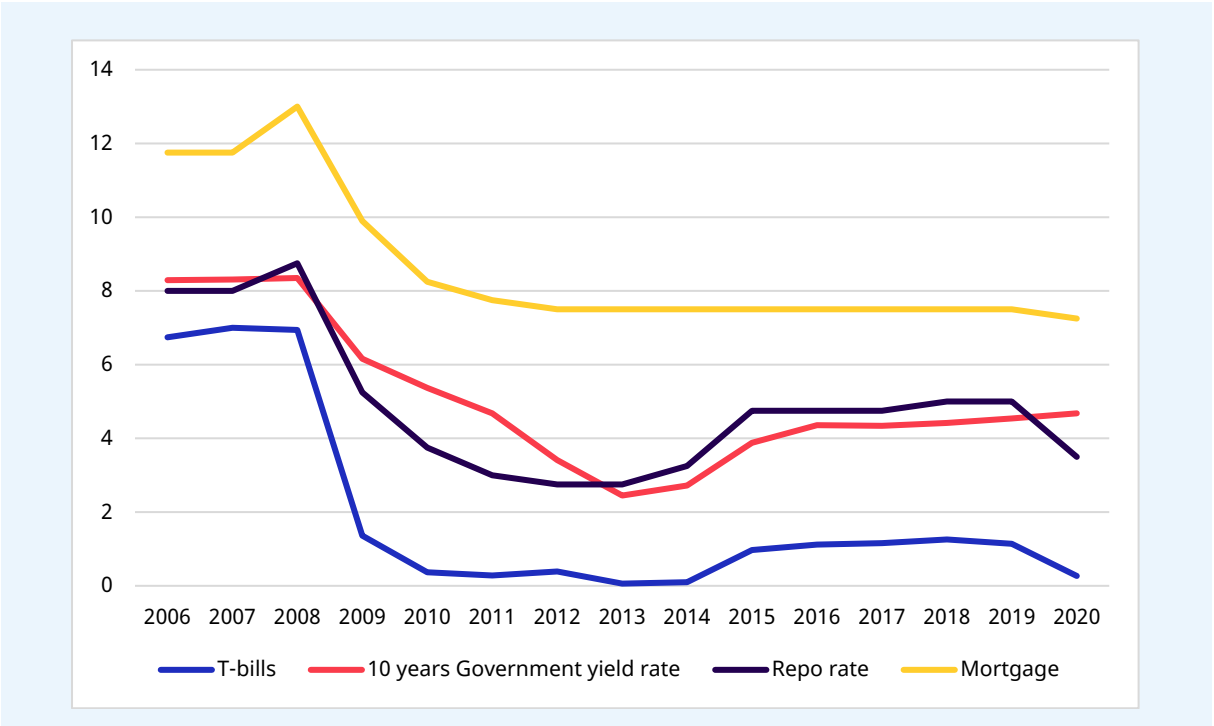
	Nominal return	Inflation	Real return
2012	5.0	7.2	-2.2
2013	14.6	7.2	7.4
2014	8.7	5.4	3.3
2015	0.4	5.2	-4.8
2016	0.2	3.9	-3.7
2017	5.2	2.5	2.7
2018	7.0	1.5	5.5
2019	8.1	1.0	7.1
2020	2.5	0.8	1.7
Average	5.7	3.9	1.9

Source: NIS, last actuarial valuations.

However, in order to establish the assumption of the expected rate of return on assets, one should take into account not only what happened in the past, but short-term trends and mainly long-term expectations. Assumptions concerning the expected rate of return on assets should also be driven by the degree of risk that the system (or stakeholders) is willing to accept as well as the environment of the country.

As in many other countries, interest rates have decreased in Trinidad and Tobago over the last 15 years (see Figure 5.10). The evolution of these interest rates has been almost stable over the last 5 years.

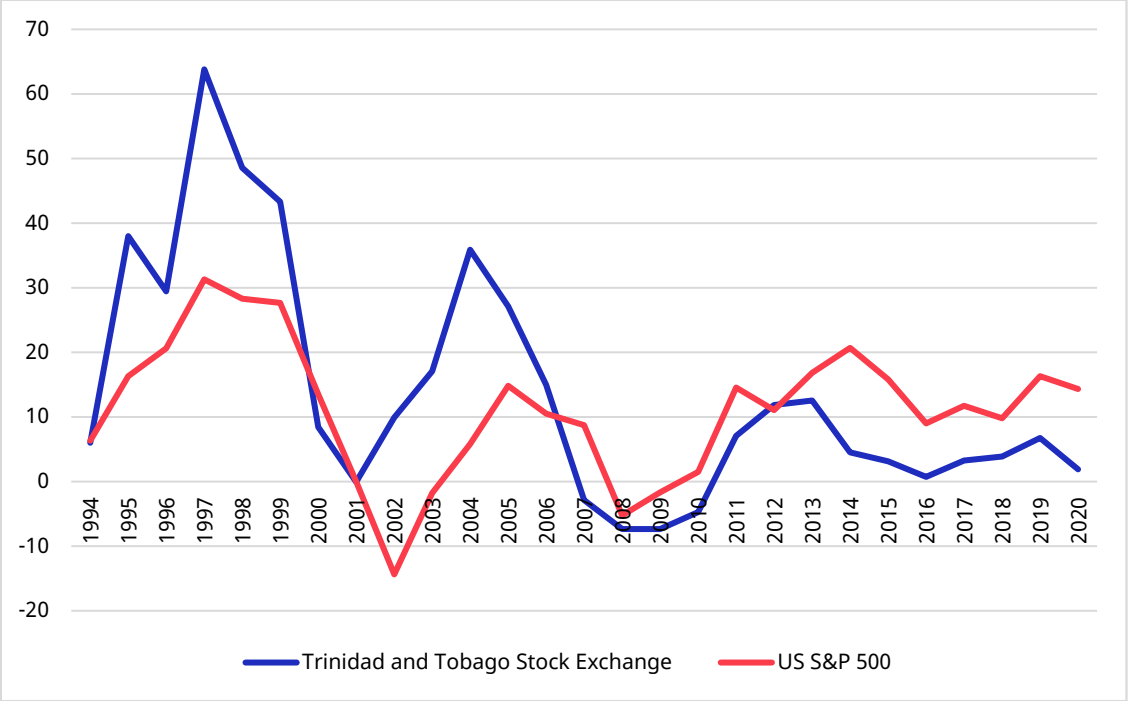
▶ Figure 5.10. Different interest rates, 2006–20 (percentages)



Source: Central Bank

The stock market has fluctuated in line with the US markets, but returns have been lower over the last 15 years (see Figure 5.11).

▶ **Figure 5.11. Stock market returns, three-year moving average, 1994–2020 (percentages)**



Source: Central Bank

The target assets allocation is about 30 per cent in fixed income products and 70 per cent in variable income investments. The exercise of making a long-term forecast of expected returns is a challenging task that requires many assumptions. The most appropriate assumption depends on the risk tolerance, the funding policy objectives and the System's capacity to manage such a long-term portfolio.

There are two main considerations which add complexities in formulating an assumption regarding the return on assets in Trinidad and Tobago:

- The size of the local stock exchange and its lack of liquidity:

  Even if the stock market is producing 7 per cent per year, if it is difficult to sell and buy assets at the right moment; there is a part of the investment return that will probably not be materialized.

- The absence of a clear road map related to future contribution increases or benefit modifications to bring equilibrium between income and expenditure also causes uncertainty regarding the return. The proportion of the assets that can be invested long-term, and the liquidity needs, are all related to the way surplus and investment proceeds are going to evolve in the future.

The expected return is divided in two. The long-term assumption, starting in 2026, is 5.25 per cent, the same as the one used in the previous actuarial valuation. This assumption is based on the expected return for each broad category of income as shown in Table 5.9. For the first year of projection, the expected return of 2.75 per cent is based on the expected realised return on assets (coupon, dividends). The expected return is increased from 2021 to reach its ultimate level in 2026. Since the investment return is a key assumption that has a strong impact on the System, sensitivity analyses are performed in this report.

▶ Table 5.9. Expected rates of return, by asset class (percentages)

	Proportion	Expected return 2021	Expected return 2026
Fixed income (Local)	25%	4.75%	4.50%
Equities	70%	2.25%	6.00%
Other assets (Cash & cash equivalents and others*)	5%	0%	0%
Total portfolio	100%	2.76%	5.38%
Total assumption used		2.75%	5.25%

* Includes real estate and mutual funds.

Table 5.10 summarizes the main economic and financial assumptions used in this valuation.

▶ Table 5.10. Main economic and financial assumptions, 2021–70 (percentages)

Year	Real GDP growth	Increase in productivity	Increase in the number of workers	Real increase in salary	Inflation	Return on assets
2021	-1.02	0.08	-1.12	1.25	1.04	2.75
2022	5.42	4.01	1.39	1.25	-0.04	3.25
2023	2.07	0.56	1.54	1.25	1.38	3.75
2024	1.57	1.85	-0.28	1.25	1.38	4.25
2025	1.56	1.84	-0.28	1.25	1.38	4.75
2030	1.02	1.25	-0.22	1.25	2.18	5.25
2040	0.55	1.25	-0.68	1.25	3.00	5.25
2050	0.19	1.25	-1.04	1.25	3.00	5.25
2060	0.61	1.25	-0.61	1.25	3.00	5.25
2070	0.40	1.25	-0.81	1.25	3.00	5.25

6. Demographic and financial projections of NIS

This valuation deals with the ability of the NIS to meet its future obligations at the time when they fall due. The same methodology is used in this valuation as the one used in the previous valuation[9]. All the branches, short-term, employment injury and long-term benefits, are included in the projections. This is done under an open-group approach. It is assumed that workers will continue to be insured with the NIS indefinitely, thus paying contributions and accruing benefit entitlements, and later receive benefits in accordance with the current practice of the NIS. Future contributions and benefits are calculated according to the demographic and economic assumptions presented in Chapter 5 and on NIS-specific assumptions presented in Appendix 2.

Long-term benefits will attain a mature state only after the youngest persons of the first generation of contributors have become pensioners, have died and all survivors' pensions paid on their behalf have ceased. This requires that the financial situation of the System be analysed over a long period in the future. For the current valuation, the projection period is 50 years, from 2019–20 to 2069–70. The number of years used in the projection is the same as the one used in the previous actuarial valuation. It is long enough to see the ultimate cost of the System on a PAYG approach, which is the methodology usually used for social security pension systems.

The general methodology of the valuation is described in Appendix 4. For the current actuarial valuation, a base scenario was produced based on best-estimate assumptions. Also, additional scenarios were performed to better understand major factors that can have an impact on the financial soundness of the NIS and to assess uncertainties concerning possible modifications to the System that could be part of a future potential reform of pensions.

There are assumptions and methodologies used in this valuation that need to be explained because of their impact on the results of the valuation or because there are no explicit provisions in the Act and the regulations that are backing the practices:

- All the parameters of NIS (funeral benefits, brackets of the classes) except the minimum pension and the maximum earning (ceiling), are indexed to the lower of the inflation and the average salary increase. This way of indexing the parameter was recommended in the last two actuarial valuations and is used in this valuation as well.

- As it is explained in the Chapter 2 on the analysis of experience, a very worrying decreasing trend in the number of contributors has been observed during the data analysis process (which was not observed in the previous valuation). The problem in the availability of the information makes it also difficult to analyse. One thing is however very possible: this trend may continue for the first projection years at a magnitude that is similar than the one observed in recent years. Sensitivity analysis is going to be performed on the evolution of the insured population.

- The minimum pension is not indexed for the first nine years of projection. The period of nine years has been chosen so that at the end of this period, the minimum pension will be about 80 per cent of the minimum wage. It is part of the recommendations of this report that each parameter of the NIS be defined to reach an objective or target. The one chosen for the valuation is 80 per cent of the minimum wage, which is lower than the current level of 99 per cent. After the nine-year period, the minimum pension is indexed to the salary for new pensioners and to the lower of wage growth or inflation during the retirement period. This is necessary so that for each generation, the minimum pension plays the same role in terms of income replacement. Indexation to the lower of wage growth and inflation is necessary not only to maintain purchasing power, but also to decrease the pressure on the System when inflation is too high when compared to the salary increase, as happened in the past. It is important to

[9] The previous valuation report highlighted that for employment injury, a change in the financing methodology from a partially funded methodology (PAYG) to a methodology that can better consider some fundamental financing principles of EII is preferable. Because there is no progress related to the problematic dual source of compensation for employment injuries (see Chapter 10) and because the part of the total cost of NIS related to the employment injury branch is very low, it has been decided to use the same methodology as the one of the previous valuations for employment injury. Once the integration of the accidents and occupational diseases will be done, a more appropriate methodology could be adopted, if necessary.

bear in mind that the different targets should also be defined considering the entire pension system, which includes the SCP. This is discussed in Chapter 9.

- Even if there is no clear indication in law, in the base scenario, the calculated pension is indexed each year starting in the financial year 2022–23, according to the lower of inflation and wage growth. This is the approach usually used in the actuarial valuations. Discussions with NIBTT actuaries have however raised the issue that indexation of future benefits will become more and more complicated considering the financial sustainability of the NIS. For this reason, another scenario is presented, in the sensitivity analysis section, where the pensions will never be indexed. It is however important to note that by not indexing the pension, NIS will not respect the principle of Adjustment of Pensions included in ILO Conventions.

- The maximum insurable earning (salary of the class XVI) is increased each year according to the increase in wages.

The main purpose of the valuation is to determine whether the financing of the NIS is on course over the long term, not to exactly forecast numerical values. Absolute figures include a high degree of uncertainty. Therefore, results should be interpreted carefully, and future actuarial reviews will have to be undertaken on a regular basis to revise actuarial assumptions in light of the actual experience of the NIS.

6.1. Demographic projections

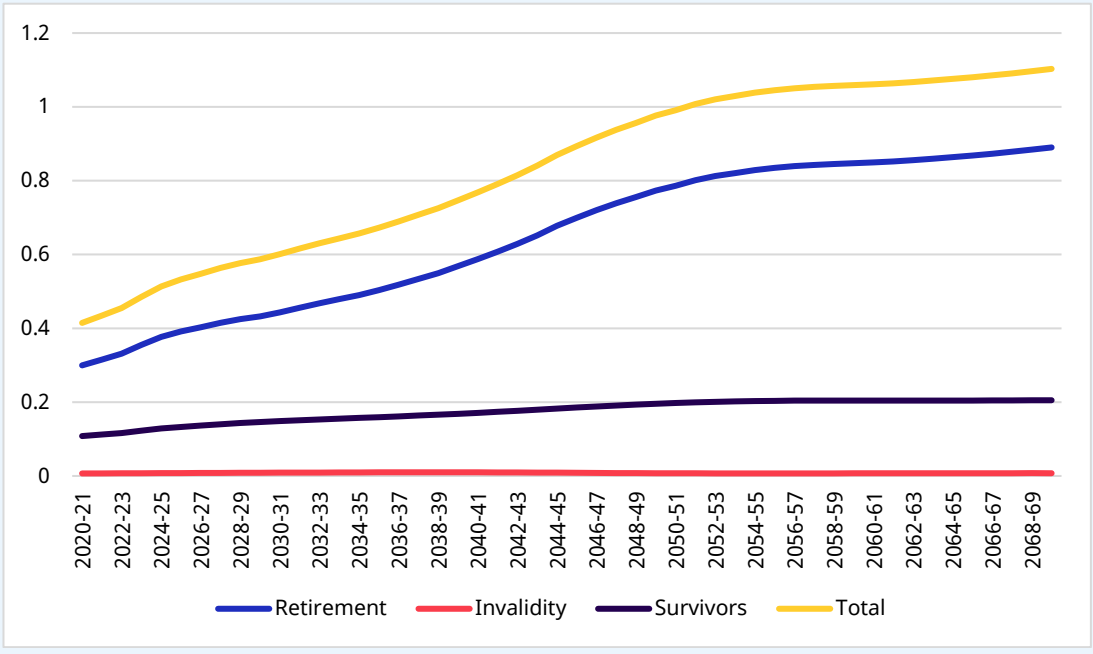
To better understand the demographic patterns of the NIS, projections of the demographic ratios for Retirement, Invalidity and Survivors' benefits are shown in Tables 6.1, 6.2 and 6.3, and in Figure 6.1. The demographic ratio is the ratio of pensioners to active participants. The total number of contributors follows a rate of growth derived from the projection of the general population, the employed population, and the salaried population, as described in the preceding chapter. The number of pensioners grows rapidly during the projection period. This is because the System is not yet mature, as well as because life expectancy is increasing. As a result, the ratio of pensioners to contributors (demographic ratio) grows from 40 to 110 per cent in 2070 (a demographic ratio can also be translated in the form of a ratio of contributors to pensioners: in 2021 there are 2.4 contributors for each pensioner and this figure is 0.9 in 2070). Four years ago, according to the information used in the previous valuation, the ratio was 3.2 for the year 2017. Now it is 2.4. This is a drastic and dramatic decrease over a short period of time. This mainly explains the difference between the results of the two valuations.

The same conclusion can be drawn from Figure 6.1, showing that the NIS will become more mature over the next 50 years. Toward the end of the projection period, the retirement benefit demographic ratio becomes more stable as the System enters a more mature stage. The ratio of pensioners to contributors is normally a good indicator of the increasing cost of a partially-funded social security system like the NIS. This directly affects the PAYG cost of the NIS, as presented in the next Section.

▶ Table 6.1. Projected number of contributors and pensioners, long-term benefits, 2021–70

Year	Number of contributors	Number of pensioners			Total number of pensioners	Ratio of pensioners to contributors	Ratio of contributors to pensioners
		Retirement	Invalidity	Survivors			
2020-21	446 050	133 675	3 082	48 241	184 998	0.4	2.4
2021-22	441 215	139 093	3 100	49 581	191 774	0.4	2.3
2022-23	436 491	144 685	3 133	50 765	198 583	0.5	2.2
2023-24	423 249	150 313	3 159	51 983	205 455	0.5	2.1
2024-25	413 132	155 740	3 171	53 227	212 138	0.5	1.9
2025-26	411 026	160 988	3 231	54 620	218 839	0.5	1.9
2026-27	409 435	164 915	3 300	55 998	224 213	0.5	1.8
2027-28	408 275	169 519	3 367	57 259	230 145	0.6	1.8
2028-29	407 410	173 156	3 464	58 432	235 052	0.6	1.7
2029-30	406 643	175 813	3 575	59 434	238 822	0.6	1.7
2034-35	401 051	196 571	3 863	63 063	263 497	0.7	1.5
2039-40	389 276	221 304	3 881	65 570	290 755	0.7	1.3
2044-45	369 679	250 629	3 298	67 523	321 450	0.9	1.2
2049-50	349 136	269 988	2 635	68 292	340 915	1.0	1.0
2054-55	334 355	277 040	2 337	67 829	347 206	1.0	1.0
2059-60	324 496	274 990	2 347	66 347	343 684	1.1	0.9
2064-65	314 359	271 566	2 367	64 259	338 192	1.1	0.9
2069-70	301 850	268 678	2 293	61 927	332 898	1.1	0.9

▶ Figure 6.1. Projected ratio of the number of pensioners to the number of contributors, long-term benefits, 2021–70



▶ Table 6.2. Projected number of beneficiaries, short-term benefits, 2021–70

Year	Sickness benefit	Maternity benefit	Special maternity grant	Funeral grant
2020-21	7 623	6 288	860	7 728
2021-22	7 549	6 230	849	7 808
2022-23	7 489	6 172	840	8 026
2023-24	7 269	5 959	808	8 252
2024-25	7 094	5 745	777	8 475
2025-26	7 067	5 645	764	8 700
2026-27	7 047	5 544	751	8 926
2027-28	7 032	5 444	740	9 159
2028-29	7 018	5 349	729	9 390
2029-30	7 005	5 261	721	9 624
2034-35	6 889	4 967	698	10 796
2039-40	6 628	4 869	688	11 833
2044-45	6 254	4 781	667	12 599
2049-50	5 928	4 585	633	13 103
2054-55	5 708	4 326	597	13 420
2059-60	5 540	4 099	569	13 645
2064-65	5 347	3 937	550	13 831
2069-70	5 120	3 815	534	14 009

▶ Table 6.3. Projected number of beneficiaries, employment injury benefits, 2021–70

Year	Disability pension	Disability grant	Death benefit
2020-21	3 199	66	434
2021-22	3 284	64	434
2022-23	3 363	62	428
2023-24	3 436	61	426
2024-25	3 503	59	423
2025-26	3 564	58	420
2026-27	3 621	58	421
2027-28	3 676	58	417
2028-29	3 728	58	415
2029-30	3 777	58	412
2034-35	3 986	57	376
2039-40	4 128	55	339
2044-45	4 200	52	302
2049-50	4 206	49	265
2054-55	4 174	47	232
2059-60	4 128	46	201
2064-65	4 077	44	175
2069-70	4 007	43	153

6.2. Financial projections

Table 6.4 shows the evolution of the replacement ratio of the long-term branch by benefit type. This ratio is defined as the average pension of pensioners over the average salary of active members.

▶ Table 6.4. Projected systemic replacement ratios, long-term benefits, 2021–70

Year	Retirement	Invalidity	Survivors
2020-21	46.2	30.6	12.8
2021-22	46.3	31.5	12.9
2022-23	45.6	32.4	13.1
2023-24	44.9	32.9	13.1
2024-25	44.2	33.3	13.1
2025-26	43.5	33.5	13.2
2026-27	43.0	33.8	13.2
2027-28	42.2	33.8	13.3
2028-29	41.6	33.8	13.3
2029-30	41.3	33.8	13.3
2034-35	39.7	33.2	13.6
2039-40	39.6	33.6	14.2
2044-45	40.0	34.0	15.0
2049-50	40.5	34.6	15.8
2054-55	40.7	34.9	16.6
2059-60	40.6	35.2	17.2
2064-65	40.6	35.4	17.6
2069-70	40.6	35.5	17.8

As shown in Table 6.5 and Figure 6.2, the total expenditures as a percentage of insurable earnings (which is called the pay-as-you-go (PAYG rate), rose from 17.0 per cent in 2021 to 42.1 per cent in 2070. The PAYG rate represents the contribution rate that would be required to pay all the expenditures of the NIS (benefits, administrative and other expenses), year after year, in the absence of a reserve. This high increase in the PAYG rate is mainly due to the increase in the demographic ratio, as explained in the previous Section. In fact, there are more and more pensioners receiving benefits, while the number of contributors does not grow as rapidly. The reader should keep in mind that the current contribution rate, to pay all the expenditures, is 13.2 per cent. All the contribution rates presented in this Section are much higher than this level.

▶ Table 6.5. Projected NIS expenditure, 2021–70 (thousand TT$)

Year	Benefit expenditure					Admin. expenses	Total expenditure	Expenditure as % of	
	Long-term			Short-term	Employment injury			Ins. earnings	GDP
	Retirement	Invalidity	Survivors						
2020-21	4 769 889	72 506	475 405	220 369	75 742	226 204	5 840 115	17.0	4.0
2021-22	5 121 703	76 568	500 745	220 377	81 870	228 752	6 230 016	18.0	4.1
2022-23	5 395 569	81 464	532 263	224 845	86 609	231 713	6 552 462	18.7	4.1
2023-24	5 674 132	85 468	561 078	225 621	90 128	236 349	6 872 776	19.8	4.2
2024-25	5 953 156	89 043	590 089	226 078	93 664	241 079	7 193 109	20.6	4.3
2025-26	6 218 650	93 637	622 332	229 709	97 051	245 903	7 507 282	21.1	4.3
2026-27	6 470 719	99 258	659 172	234 123	101 183	251 069	7 815 524	21.4	4.4
2027-28	6 742 895	104 531	696 709	239 227	105 309	256 846	8 145 517	21.7	4.4
2028-29	6 981 036	110 827	735 242	244 777	109 560	263 270	8 444 713	21.9	4.5
2029-30	7 254 250	118 183	774 691	250 934	113 995	270 381	8 782 434	22.1	4.5
2034-35	9 450 781	152 262	1 014 788	295 095	141 180	317 777	11 371 882	23.9	4.9
2039-40	13 112 326	190 070	1 363 255	358 500	178 367	379 704	15 582 222	27.4	5.6
2044-45	18 450 981	201 660	1 824 448	430 973	222 220	453 699	21 583 981	32.5	6.5
2049-50	24 523 464	201 794	2 393 198	509 116	271 810	542 113	28 441 495	36.7	7.3
2054-55	31 002 632	223 015	3 070 060	596 178	329 330	647 758	35 868 973	39.3	7.9
2059-60	37 800 377	277 948	3 836 185	698 860	397 866	773 990	43 785 227	40.1	8.1
2064-65	45 856 018	346 815	4 676 620	822 261	480 281	924 822	53 106 816	40.9	8.2
2069-70	55 965 692	414 306	5 618 539	969 448	576 975	1 105 047	64 650 007	42.1	8.4

▶ Figure 6.2. Projected pay-as-you-go rates, 2021–70 (percentages)

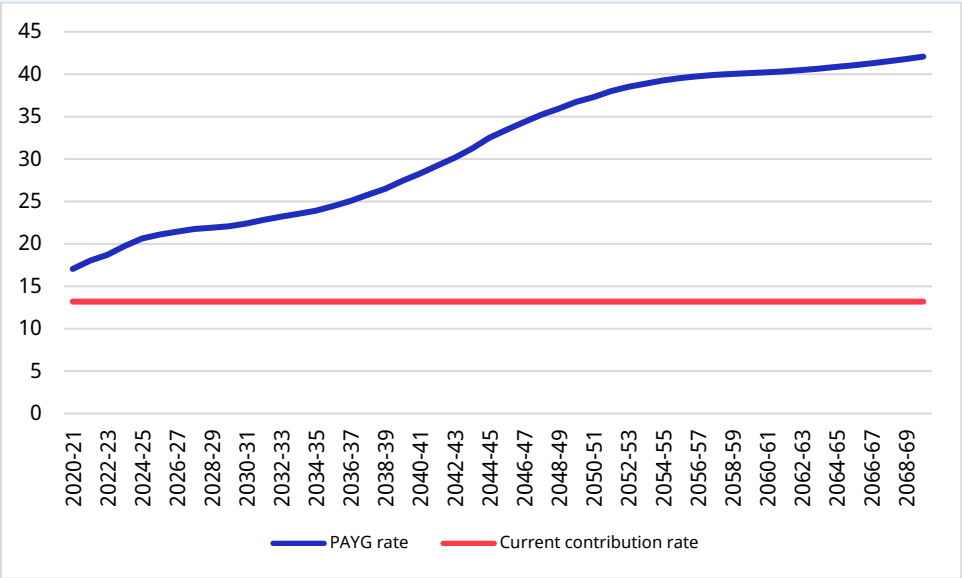


Table 6.6 displays the PAYG rates by branch.

▶ Table 6.6. Projected pay-as-you-go rates, by branch, 2021–70 (percentages)

	Long term benefits	Short-term benefits	EII benefits	Administrative	Total
2021	15.5	0.6	0.2	0.7	17.0
2030	20.5	0.6	0.3	0.7	22.1
2040	25.8	0.6	0.3	0.7	27.4
2050	35.0	0.7	0.3	0.7	36.7
2060	38.4	0.6	0.4	0.7	40.1
2070	40.4	0.6	0.4	0.7	42.1

A summary of key moments in the future evolution of NIS assets is shown in Table 6.7.

▶ Table 6.7. Key moments of the future evolution of NIS assets in the projections

	Year
System's expenditure exceeds contributions	2020–21
System's expenditure first exceeds contributions plus investment income (assets start to decrease)	2020–21
Assets are exhausted	2033–34

Table 6.8 shows the results of the financial projections for cash flows and reserves. In the base scenario, the contribution rate for the pension branch is 13.2 per cent. The main observations are as follows:

1. In all years, annual contributions plus investment income are no longer sufficient to pay for all annual expenditures. The reserve starts to decrease.
2. During the year 2033–34, the reserve drops to zero. This is two years earlier than the results shown in the previous valuation.
3. Starting in 2033–34, the required annual contribution rate to pay for all expenditures becomes the PAYG rate. As an illustration, this rate is 23.6 per cent in 2033–34 and 42.1 per cent in 2069–70.
4. The reserve ratio, which is the ratio of the end-of-year reserve over the annual expenditures for the year, moves from 4.8 to 0 between 2020–21 and 2069–70. This ratio can be interpreted as the number of years for which annual expenditures could be paid by the reserve if there were no contribution, no investment income and no other income.

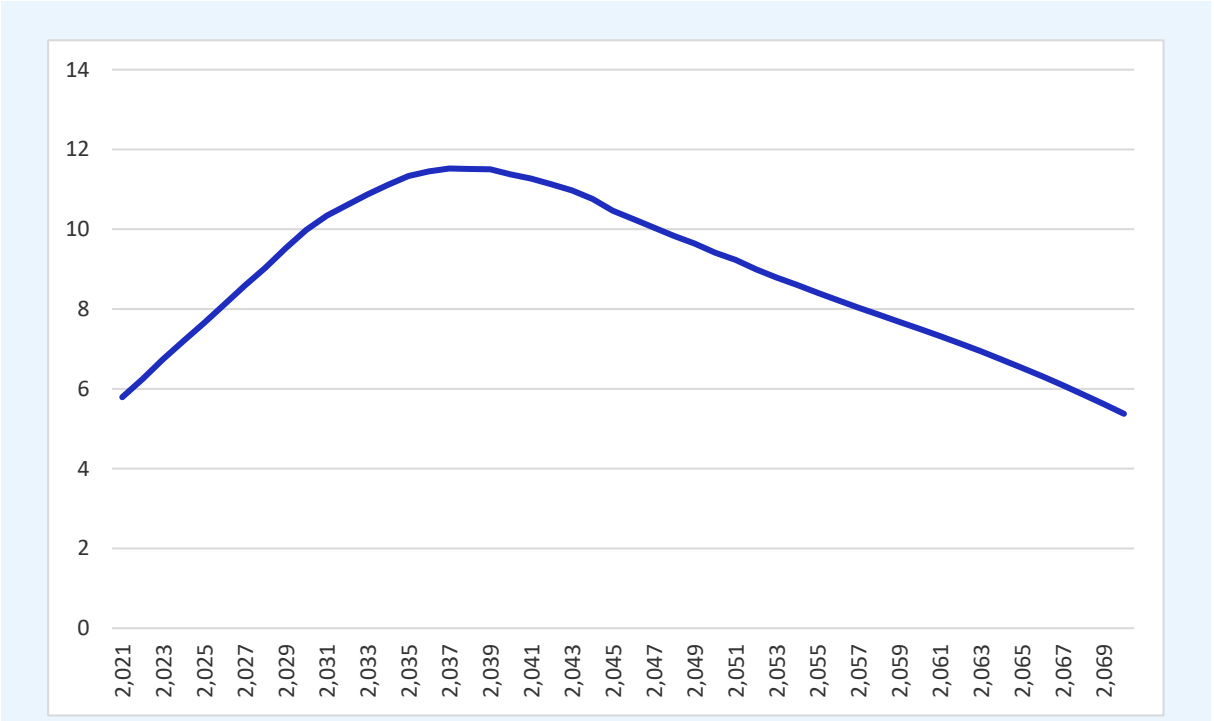
▶ Table 6.8. Projected revenue, expenditure and assets, 2021–70 (thousand TT$), contribution rate= 13.2%

Year	Revenue			Expenditure			Assets	
	Contribution income	Investment income	Total	Benefits	Administrative expenses	Total	Year-end	Number of times current year's expenditure
2020-21	4 522 951	771 944	5 294 895	5 613 911	226 204	5 840 115	28 184 050	4.8
2021-22	4 563 104	888 894	5 451 998	6 001 264	228 752	6 230 016	27 406 033	4.4
2022-23	4 619 811	991 489	5 611 300	6 320 749	231 713	6 552 462	26 464 870	4.0
2023-24	4 595 066	1 076 356	5 671 421	6 636 427	236 349	6 872 776	25 263 516	3.7
2024-25	4 601 830	1 138 474	5 740 304	6 952 030	241 079	7 193 109	23 810 711	3.3
2025-26	4 700 945	1 176 396	5 877 341	7 261 380	245 903	7 507 282	22 180 769	3.0
2026-27	4 815 188	1 085 732	5 900 920	7 564 455	251 069	7 815 524	20 266 165	2.6
2027-28	4 945 587	979 975	5 925 563	7 888 671	256 846	8 145 517	18 046 210	2.2
2028-29	5 091 889	859 414	5 951 304	8 181 443	263 270	8 444 713	15 552 801	1.8
2029-30	5 253 226	723 880	5 977 107	8 512 053	270 381	8 782 434	12 747 474	1.5
2030-31	5 429 010	569 970	5 998 980	8 932 582	278 225	9 210 806	9 535 647	1.0
2031-32	5 619 672	393 045	6 012 717	9 430 962	286 852	9 717 814	5 830 550	0.6
2032-33	5 825 951	190 322	6 016 273	9 940 379	296 321	10 236 701	1 610 122	0.2
2033-34	6 049 080		6 049 080	10 482 021	306 696	10 788 717		
2034-35	6 279 413		6 279 413	11 054 106	317 777	11 371 882		
2035-36	6 514 698		6 514 698	11 737 095	329 296	12 066 391		
2036-37	6 754 385		6 754 385	12 477 187	341 233	12 818 420		
2037-38	7 000 055		7 000 055	13 320 292	353 603	13 673 895		
2038-39	7 250 097		7 250 097	14 178 276	366 421	14 544 697		
2039-40	7 501 978		7 501 978	15 202 519	379 704	15 582 222		
2044-45	8 770 898		8 770 898	21 130 282	453 699	21 583 981		
2049-50	10 223 872		10 223 872	27 899 382	542 113	28 441 495		
2054-55	12 068 759		12 068 759	35 221 215	647 758	35 868 973		
2059-60	14 411 466		14 411 466	43 011 237	773 990	43 785 227		
2064-65	17 164 929		17 164 929	52 181 994	924 822	53 106 816		
2069-70	20 294 572		20 294 572	63 544 960	1 105 047	64 650 007		

Another very important result of the financial projection is the general average premium (GAP). The GAP can be calculated in two ways:

1. The annual contribution, as a percentage of insurable earnings, necessary to pay for all expenditures over the entire projection period, without considering the reserve. In the current valuation, this GAP is 29.3 per cent (see Table 6.9). Figure 6.3 shows the evolution of the RER if a contribution rate of 29.3 per cent is used throughout the projection period. At the end of the projection, the reserve ratio is positive at 5.4.
2. The annual contribution, as a percentage of insurable earnings, necessary to pay for all expenditures over the entire projection period, but assuming that the initial reserve will be exhausted at the end of the period. In the current valuation, this GAP is 26.6 per cent. The problem with this definition of the GAP is that by financing the NIS at a contribution rate of 26.6 per cent, there would be no reserve left in 2070, meaning that the contribution rate would have to increase instantly to around 42.3 per cent (the PAYG rate). Such an increase would not be viable for the NIS.

▶ **Figure 6.3. Projection of the reserve-to-expenditures ratio (RER), 2021–70, contribution rate = 29.3%**



The GAP rates for each branch are display in the following Table.

▶ **Table 6.9. GAP, by branch, 2021–70 (percentages)**

Long term benefits	Short-term benefits	EII benefits	Administrative	Total
27.70	0.64	0.31	0.69	29.34

Table 6.10 shows the actuarial balance of the NIS, based on the second definition above. Taking into account the initial reserve and the present value of future contributions and benefits, there is a cumulative shortfall, in present value, of TT$140,835 million. By increasing the contribution rate by 13.4 per cent (i.e., a total contribution rate of 26.6 per cent) there would be no shortfall, as the present value of future contributions and the initial reserve would be sufficient to pay for the present value of future benefits.

▶ Table 6.10. Financial projections: Actuarial balance, 2021–70 (million TT$)

	2020 Year-end Reserve	28 729
Plus	Present value of future contributions	138 592
Minus	Present value of future expenditures	308 156
Equal	Present value of future surplus (shortfall)	-140 835
	Actuarial balance (% of PV of future insurable earnings) (%)	-13.4

7. Reconciliation with previous actuarial valuation

The long-term projected cost of NIS in this valuation is different from that obtained in the last report as of 30 June 2016. The GAP in this report, without considering the reserve, is 29.3 per cent, while in the previous report it was 25.5 per cent. There are elements related to the methodology and the assumptions that, when taken alone, produce different results from those in the previous valuation. This Chapter explains these differences based on a comparison of the GAP in the 2016 valuation versus the GAP in the 2020 valuation. The effect of the GAP over 50 years is used, rather than other indicators of the cost, to capture the long-term impact and the magnitude of the changes between the two valuations.

The most important factors are explained below:

1. The period of valuation has moved by four years. Because the System is not mature (the PAYG rate has an upward trend), the displacement of the projection period has increased the GAP by 2.04 per cent.

2. The initial active insured population is different from the one that was expected in the previous actuarial valuation in terms of number of members and their distribution by age and sex. This is responsible for an increase of the GAP of 1.22 per cent.

3. The assumptions regarding the retirement rates have been modified to consider emerging experience. The modification to the assumptions has decreased the GAP by 0.60 per cent.

4. The projected covered population of the 2020 valuation compared to that in the previous actuarial valuation considerably affects the results. The net impact of this element is an increase of 1.84 per cent of the GAP.

5. There is no change in the real salary assumption. The assumption related to the inflation has been lowered for the first 15 years of the projection when compared to the previous valuation. This new assumption impacts the duration that the minimum pension will have to be frozen to reach 80 per cent of the minimum salary. The net impact of these elements is a decrease of 0.65 per cent of the GAP.

6. The observed movement in the initial salary scale assumed in this valuation is responsible for an increase in the GAP of 0.69 per cent.

7. The population of initial pensioners of this valuation, when compared to the expectation in the previous one, decreases the GAP by 0.17 per cent.

8. Modifications to the assumptions related to the family have decreased the GAP by 0.27 per cent.

9. The distribution of past credited services for the active population is responsible for a decrease in the GAP of 0.19 per cent.

10. The modifications to the assumptions related to the inactive population is responsible for an increase in the GAP of 0.50 per cent.

11. The assumptions regarding the density of contributions have been modified, based on experience. This modification slightly decreases the GAP by 0.05 per cent.

12. Modifications to the invalidity incidence rates decrease the GAP slightly by 0.04 per cent.

13. Modifications to the sickness and maternity incidence rates, and the incidence rates (injury and disability) regarding employment injury insurance have decreased the GAP by of 0.20 per cent.

14. The assumption regarding the return on assets is lower in this actuarial valuation than that used in the previous actuarial valuation in the first years of projection. This has decreased the GAP by 0.04 per cent.

15. Modification to the mortality assumptions is responsible for an increase of 0.25 per cent in the GAP.

16. Modification to the administrative expenditure is responsible for an increase of 0.07 per cent in the GAP.

17. Modification was introduced to improve the projection model to better match the short-term cash-flows. This will allow more precision in the establishment of the funding policy, if any. The result of the modification is a decrease of 0.56 per cent in the GAP.

Table 7.1 summarizes these elements.

▶ **Table 7.1. Reconciliation between the last two actuarial valuations, 2016 and 2020, impact on the GAP (percentages)**

50-year GAP 30 June 2016	**25.50**
Displacement of the projection period	2.04
Initial active insured population	1.22
Retirement rates	-0.60
Projected covered population	1.84
Inflation and duration of minimum pension to reach 80% of the minimum salary	-0.65
Initial salary structure	0.69
Initial pensioners	-0.17
Family assumptions	-0.27
Past credited services of the active	-0.19
Inactive population	0.50
Density of contributions	-0.05
Incidences rates invalidity	-0.04
Short-Term and EII benefits	-0.20
Return on assets	-0.04
Mortality assumptions	0.25
Administrative expenditure	0.07
Modification to the model	-0.56
50-year GAP 30 June 2020	**29.34**

8. Sensitivity analysis

It has been seen that, under the base scenario, a contribution rate of 29.3 per cent is necessary to pay all the expenditures of the NIS for the next 50 years, without considering the initial reserve. This contribution rate is called the GAP. Actuarial projections use extensive demographic, economic and system-specific assumptions. Actual experience will inevitably differ from what was projected. Carrying out a sensitivity analysis also helps in assessing some other scenarios to better understand the risks and stakes for the NIS.

The scenarios in this Chapter are divided into two sections: section 8.1 concerns sensitivity analyses on different actuarial assumptions, while section 8.2 presents effects of modifications to certain parameters of the system. Only the long-term branch has been considered in these sensitivity analyses due to its financial importance relative to the short-term branch and employment injuries branch. In the base scenario, the long-term branch represents 97 per cent of the cost.

It is important, therefore, to consider the effect of alternative assumptions or modifications on the valuation results. This Section analyses how changes to the following variables affect the GAP and year of reserve exhaustion:

1. Return on assets;
2. General population growth;
3. Covered population growth;
4. Mortality;
5. Wage increase;
6. Inflation;
7. Initial insured active population and density of contributions;
8. Indexation of the pension;
9. Contribution rate increase;
10. Introduction of early retirement reduction factors;
11. Minimum pension; and
12. Indexation of the maximum insurable wage (ceiling).

Before going through this Section, the reader should keep in mind that, in all the scenarios presented, the system remains unsustainable. These sensitivity analyses not only display information on the risks the system may face but the urgency of the situation.

8.1. Sensitivity analyses on actuarial assumptions

8.1.1. Rate of return of the fund

The base scenario assumes a nominal investment yield of 2.75 per cent for the first year of projection moving after five years to a long-term assumption of 5.25 per cent. Sensitivity tests were performed assuming a yield of 1 per cent higher and 1 per cent lower than the base scenario (see Table 8.1). Under the lower yield test, the GAP increases from 29.3 to 30.5 per cent, and the reserve is exhausted one year earlier, in 2033. Under the higher yield test, the GAP decreases to 28.3 per cent and the reserve is exhausted one year later, in 2035.

The minimum annual return on assets that would avoid a negative level of reserve before the end of 50 years is 13.8 per cent, which is considerably higher than the best-estimate assumption. This scenario shows that even if the NIBTT performs very well in terms of investment returns, it will not be sufficient to eliminate the growing financial pressure. During the writing of this report, it was transmitted to the actuaries that the return on assets of the fund for the financial year 2020-21 has been 14.2 per cent. Considering this information in the actuarial valuation would delay the moment the reserve is depleted by one year (2035 instead of 2034). The reader should also keep in mind that for the start of calendar year 2022, financial markets are moving significantly in the opposite direction to that observed in calendar year 2021.

▶ Table 8.1. Sensitivity tests on the rate of return of the fund

Scenario	GAP (% of insurable earnings)	Year of reserve exhaustion
Sensitivity test (L-T yield 6.25%)	28.3	2035
Base scenario (L-T yield of 5.25%)	29.3	2034
Sensitivity test (L-T yield of 4.25%)	30.5	2033

8.1.2. Growth of the general population

The base scenario of the actuarial valuation projects a negative net migration of 800 per year and a constant fertility rate of 1.7. These assumptions directly impact the number of active insured persons. The migration has an immediate impact on the results while the fertility rate takes about 20 years to start to materialize. Under the base scenario, the annual average growth of the insured population is -0.85 per cent.

Two sensitivity analysis have been performed: one having a lower growth of the general population than the one obtained in the base scenario, while the other is in a context of a higher growth. Under the low growth scenario, the negative net migration is 1,600 per year and the fertility rate is 1.5. Under the high growth scenario, the migration is 0 per year and the fertility rate is 2.1. Under the low growth scenario, the annual average growth of the insured population is -1.15 per cent while it is -0.34 per cent under the high growth scenario. The effects on the GAP and the reserve are presented in Table 8.2.

▶ Table 8.2. Sensitivity test on the growth of the general population

Scenario	GAP (% of insurable earnings)	Year of reserve exhaustion
Low population growth	30.1	2034
Base scenario	29.3	2034
High population growth	27.7	2034

8.1.3. Growth of the covered population

In the base scenario of the actuarial valuation the coverage rate in relation to the employed population starts at 76 per cent and drops to 66 percent at the end of the projection period[10]. This assumption directly impacts the number of active insured persons. Under the base scenario, the annual average growth of the insured population is -0.85 per cent.

Two sensitivity analysis have been performed: one where the coverage rate drops more than in the one illustrated in the base scenario, while in the other the coverage rate increases rather than decreases. Under the low growth scenario, the coverage rate reaches 54 per cent at the end of the projection period. Under the high growth scenario, the coverage rate at the end of the projection period is 81 per cent. Under the low growth scenario, the annual average growth of the insured population is -1.25 per cent while it is -0.45 per cent under the high growth scenario. The effects on the GAP and the reserve are presented in Table 8.3. This

[10] The coverage rate discussed in this Section is expressed as a function of the employed population. To establish the assumption, the salaried population was also used.

scenario clearly illustrates how a high coverage rate is beneficial to the System. NIBTT should make sure that the current coverage rate is at its maximum.

▶ Table 8.3. Sensitivity test on the growth of the covered population

Scenario	GAP (% of insurable earnings)	Year of reserve exhaustion
Low covered population growth	32.6	2033
Base scenario	29.3	2034
High covered population growth	26.3	2037

8.1.4. Mortality

Two sensitivity tests were carried out for mortality rates. The first test considered a 15 per cent increase in the mortality rate from the base scenario. With this higher mortality (lower life expectancy), the GAP decreased from 29.3 to 28.6 per cent. Under this test, the residual life expectancy at age 60 decreases by 1.2 years.

The second test considered a 15 per cent decrease in mortality rate (higher life expectancy). The GAP increased from 29.3 to 30.2 per cent (see Table 8.4). Under this test, the residual life expectancy at age 60 increases by 1.4 years.

▶ Table 8.4. Sensitivity tests on mortality

Scenario	GAP (% of insurable earnings)	Year of reserve exhaustion
Sensitivity test (mortality rates 15% higher)	28.6	2034
Base scenario	29.3	2034
Sensitivity test (mortality rates 15% lower)	30.2	2033

8.1.5. Wage increase

The increase in real wage is given by the difference between the average wage increase and the inflation rate. In the base scenario, the real wage increase is 1.25 per cent. Two scenarios are produced: one assumed a lower real wage increase of 0.75 per cent per year while the other a 1.75 per cent increase. Under the lower salary growth sensitivity test, the GAP increased from 29.3 to 31.2 per cent and the reserve was depleted one year earlier in 2033 (see Table 8.5). The results are very sensitive to real wage increase.

▶ Table 8.5. Sensitivity test on wage increase

Scenario	GAP (% of insurable earnings)	Year of reserve exhaustion
Low scenario (real wage increase of 0.75%)	31.2	2033
Base scenario (real wage increase of 1.25%)	29.3	2034
High scenario (real wage increase of 1.75%)	27.7	2034

8.1.6. Inflation

In the base scenario, inflation rate starts according to the IMF's projection and is increased to reach, after 15 years, the long-term annual inflation assumption of 3 per cent. Two scenarios are produced: one assumed a 1 per cent lower inflation while the other a 1 per cent higher inflation rate. The results are displayed in Table 8.6. In this sensitivity analysis, modifications to the inflation assumption affect the other variables like the salaries and the nominal return on assets.

▶ Table 8.6. Sensitivity test on inflation

Scenario	GAP (% of insurable earnings)	Year of reserve exhaustion
Low inflation (inflation of 2%)	30.3	2033
Base scenario (L-T inflation of 3%)	29.3	2034
High inflation (inflation of 4%)	28.5	2035

8.1.7. Initial number of contributors and density of contributions

In the base scenario, an initial number of active insured has been set at 475,000 individuals. This assumption was necessary to overcome the problem of the maturity of the information on contributors, as explained in Section 2.3. In the actuarial valuation process, it is a standard practice to reconstitute, at the beginning of the projection period, the financial statement in terms of contributions and benefits. It is called calibrating the model. The contribution income depends on the number of contributors but also on the average number of month of contributions paid by contributors, i.e., the density of contributions. In these sensitivity tests, the number of contributors and the density of contributions are modified so that, overall, they do not affect the contribution income. The aim of the sensitivity analysis is to show the sensitivity of the results to the assumptions regarding the number of contributors and their density of contributions. Two tests have been made (see Table 8.7):

- Higher number of active contributors: the number of active contributors has been increased by 5 per cent and their corresponding density of contributions divided by 1.05.
- Lower number of active contributors: the number of active contributors has been decreased by 5 per cent and their corresponding density of contributions divided by 0.95.

▶ Table 8.7. Initial number of contributors and density of contributions

Scenario	GAP (% of insurable earnings)	Year of reserve exhaustion
Sensitivity test (insured population –5%, density +5%)	28.7	2034
Base scenario	29.3	2034
Sensitivity test (insured population +5%, density –5%)	30.0	2033

8.2. Sensitivity analyses on modifications to key system parameters

8.2.1. No indexation of the pensions

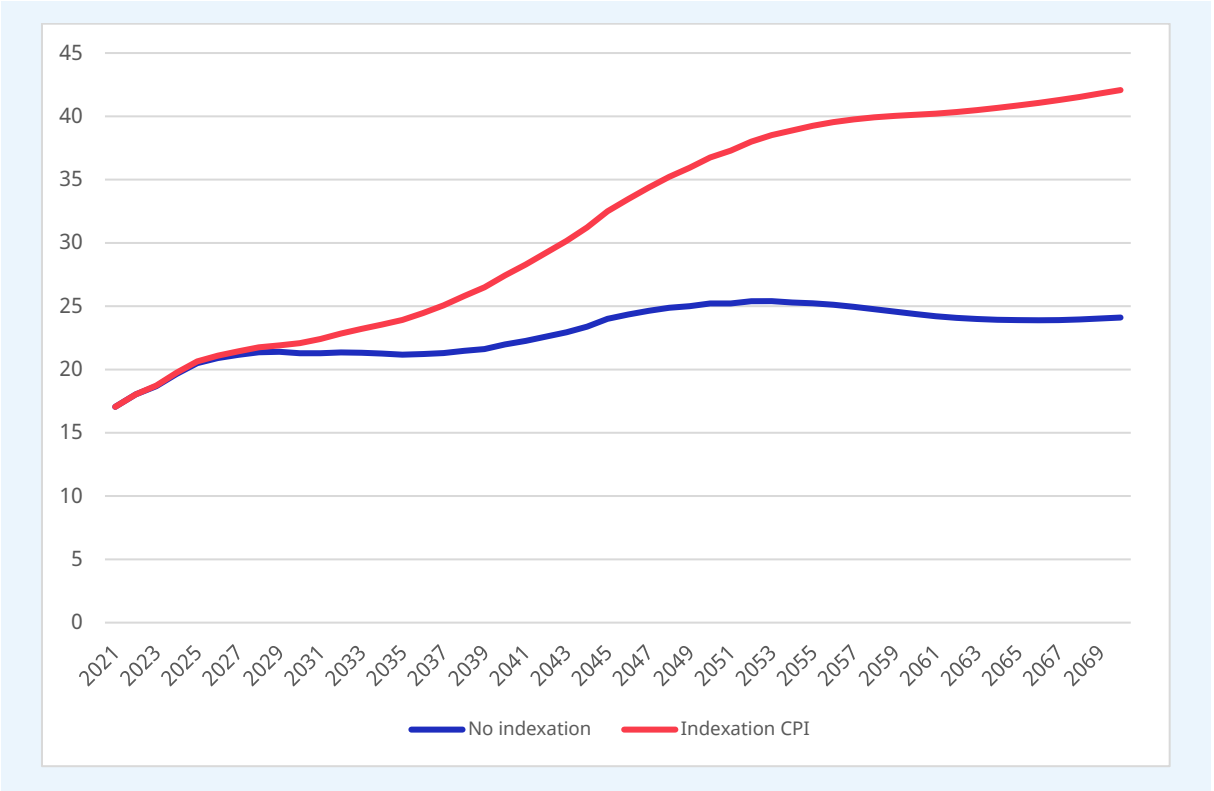
The base scenario assumes that the pensions in payment are adjusted each year to the lower of the inflation rate and the salary increase, which in fact is always the inflation because in the projection, the inflation is always lower than the salary increases. Indexing the pensions to the inflation is the usual way of doing actuarial valuation. By increasing the pensions in payment according to the inflation, the pensioners keep their purchasing power throughout their retirement. Indexing the pension to the inflation also makes sure that the income replacement that a new retiree gets on retirement, will continue for the entire duration of his/her retirement. For example, without indexing the pension, in a 3 per cent inflation rate environment, a 60 percent income replacement at the retirement age of 60 would be in fact an effective income replacement rate of 44 per cent for the entire retirement period, if the pension is never indexed. The following sensitivity analysis shows the results of the actuarial valuation without indexing the pension. Figure 8.1 also compares the PAYG rates of this scenario to the ones of the base scenario. Never indexing the pension may be a partial solution to the unsustainability of the System. Decision makers must, however, make sure that no pensioners are going to be negatively affected by such decision. Not indexing the pension would make the NIS not in compliance with ILO Convention No. 102 which states that "*The rates of current periodical payments in respect of old age, employment injury (except in case of incapacity for work), invalidity and death of breadwinner, shall be*

reviewed following substantial changes in the general level of earnings where these result from substantial changes in the cost of living"[11]. Without indexing the pensions, inflation risk would be on the shoulder of each pensioner and integration of the System would become more important (see Chapter 9). As shown in the Figure 8.1, not indexing the pension will have an impact in the long run, not in the short-term. Two elements explain this: the fact that in the base scenario, the minimum pension is not indexed for the first 9 years, and that the inflation rate assumption is lower in the short run.

▶ Table 8.8. Not indexing the pensions in payment

Scenario	GAP (% of insurable earnings)	Year of reserve exhaustion
Base scenario (pensions indexed to inflation)	29.3	2034
Alternative scenario (pension not indexed)	22.4	2035

▶ Figure 8.1. Comparison of PAYG rates, pensions indexed to inflation and pensions not indexed (percentages)

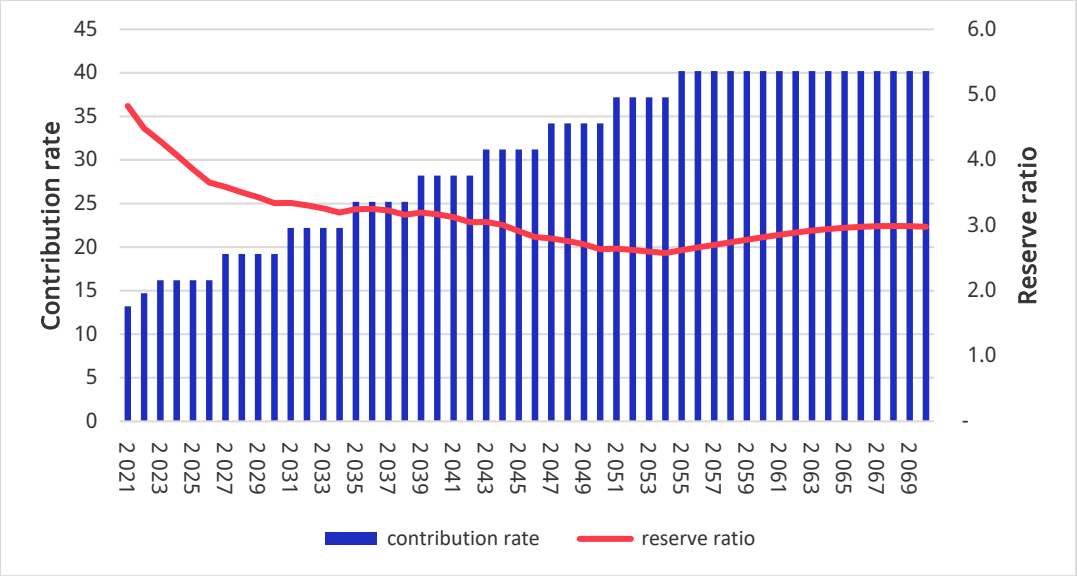


8.2.2. Contribution rate increase

The NIBTT has discussed with its key stakeholders the possibility of increasing the contribution rate to 16.2 per cent, which is the recommendation of the previous actuarial valuation. Such an increase, if applied starting in July 2022, will delay the moment the reserve is depleted by five years. The reserve will be zero in 2039. This is of course not sufficient to restore sustainability to the NIS over the long term. One way to adjust the contribution rate for a social security system is to change it step by step, called the scaled premium approach. Figure 8.2 illustrates a scenario approach where a reserve ratio of 3 should be preserved at all times. It also shows that changing the contribution rate alone is not going to be the solution; contribution rates would be increased to a very high level.

[11] ILO Convention No. 102. Article 65, paragraph 10.

▶ Figure 8.2. Scaled premium approach, minimum reserve ratio of 3, 2021–70



It should be noted, however, that for the current contribution rate to be maintained and the NIS to be sustainable over the projection period, benefits will have to be reduced. Care should be given to make sure that a reduction in the benefit will not lead to benefits that are below the ILO's minimum standards as set out in the Social Security (Minimum Standards) Convention, 1952 (No. 102). Internal discussions with NIBTT staff have highlighted that reducing benefits will not be accepted by the population and controlling indexation is a better way to address the sustainability issue (see previous point).

8.2.3. Introducing early retirement reduction factors

Increasing the retirement age is a key consideration when seeking to improve the sustainability of any social insurance system. This measure is also used to mitigate the risk when a decreasing workforce is foreseen or/and when life expectancy is increasing. In Trinidad and Tobago, the normal retirement rage (NRA) is set at age 65 in the NI Act. This means that persons can unconditionally take his retirement at age 65. Before that age (ages 60 to 64), individuals must leave their job to get a retirement pension. There is, however, inequity in the system, since someone taking retirement at age 64 receives the same pension as someone asking for the pension at age 60, all other things being equal. In Trinidad and Tobago, the fact that someone can receive a pension over a longer period by retiring early is not considered in the pension formula. In Canada, The Bahamas, Barbados and Saint Lucia it is possible to take early retirement, but at a reduced pension. The reduction considers that someone retiring one year earlier will receive the pension over a one year longer period. For example, in Barbados, someone who leaves 5 years before the NRA sees their pension payments decreased by 30 per cent. In Canada, for the same period before retirement, the reduction is 36 per cent. This brings more equity into the System and will contribute to increasing the average retirement age, which is currently 61 years.

A sensitivity analysis was done to determine the impact of such an approach on the sustainability of the NIS. The introduction of reduction factors for ages below 65, over a relatively short period of 10 years, starting in the year 2029. Note that this scenario does not consider any other modification to the NIS. In this scenario the reduction for retirement before age 65 is calculated the following way:

- The calculated pension is reduced by ½ per cent for each month before age 65. The reduction is also applied to the minimum pension.
- It will be no longer be necessary to stop work to receive the NIS pension.

In the sensitivity test, the average retirement age increases by about 1 year. As seen in Table 8.9, this scenario has a significant impact in reducing the cost of the NIS, while there is no impact on the exhaustion of the fund. The effect of these measures in delaying the exhaustion of the fund is hampered by the proximity to

exhaustion in which the NIS already finds itself. Please note that this measure (if implemented over a 10-year period), when combined with the increase in contribution rate to 16.2 per cent as discussed in the previous Section, will delay fund exhaustion to 2042. The combination of these measures has a greater delaying impact than the sum of the individual effects.

▶ Table 8.9. Introducing early retirement factors

Scenario	GAP (% of insurable earnings)	Year of reserve exhaustion
Base scenario	29.3	2034
Sensitivity test (introducing early retirement factors over 10 years)	26.08	2034

It is important to note as well that since the retirement age, as given in the National Insurance Act, is already 65, an increase in "retirement age" is only hypothetical from the standpoint of the NIBTT and effectively just functions to delay how pensions are actuarially reduced over the implementation period.

In the case where the early retirement factors are introduced, it must be determined if people must stop work before the age of 65 when claiming their old-age pension.

Moreover, the introduction of early retirement factors will most likely have an impact on the Senior Citizens' Pension. Indeed, those who will retire early with a reduce lifetime pension may be entitled to a higher pension from the Senior Citizens' Pension Plan when they will reach age 65. Those entitled to a Senior Citizens' Pension may therefore see their retirement income from age 65 not impacted by the early retirement reduction. On the other hand, those who are not entitled to a Senior Citizens' Pension would receive a reduced retirement income for life.

Alternatively, rather than introducing early reduction factors, the possibility to retire early could be gradually eliminated. Under this alternative approach, the impact on the Senior Citizens' Pension could be a reduction of these pensions given the higher pensions that people working and contributing to NIBTT for up to 5 additional years would receive from NIBTT.

8.2.4. Minimum pension

In the base scenario, it is assumed that the minimum pension will be frozen for the first nine years of projection, so that in 2030 its level represents 80 per cent of the minimum wage. Depending on the analysis of the overall System and on the possible modifications to the Senior Citizens' Pension, its level may be further reduced.

▶ Table 8.10. Minimum pension

Scenario	GAP (% of insurable earnings)	Year of reserve exhaustion
Base scenario	29.3	2034
Sensitivity test (minimum pension = 60% of minimum wage)	28.1	2034
Sensitivity test (no more minimum pension)	27.1	2035

Two sensitivity tests are shown in Table 8.10. In the first, the minimum pension is frozen for an additional eight years so that its level is 60 per cent of the minimum wage, and in the second scenario the minimum pension is eliminated completely, leaving the SCP playing the role of the minimum pension.

8.2.5. Indexation of the ceiling (salary of the Class XVI)

In the base scenario, it is assumed that the ceiling increase with the level of salaries, as it should be usually done in practice. It was one of the recommendations of the previous valuation. In the System, the ceiling is the salary of the class XVI. Indexing the ceiling to the salary is the appropriate way to manage the Pension

System (like indexing all the parameters). The following sensitivity analyses present two tests. In the first scenario, the ceiling is indexed to the inflation while in the other one, the ceiling is not indexed.

▶ Table 8.11. Ceiling

Scenario	GAP (% of insurable earnings)	Year of reserve exhaustion
Base scenario	29.3	2034
Sensitivity test (ceiling indexed to inflation)	31.6	2033
Sensitivity test (ceiling not indexed)	38.6	2033

Two sensitivity tests are shown in Table 8.11. Both have considerable impact on the financial sustainability of the Pension System. By not adjusting the ceiling (salary of the class XVI), decision makers accelerate the time to reserve depletion. This is the worst situation for the System. By indexing the ceiling to the inflation, workers who have high salary are participating more in the financing of the System. Of course, they will receive a higher pension in the future. If it is a concern for the decision makers, it is better to introduce a maximum on the pension.

9. Integration of the pension system

This part of the report deals with the proposed relationship between the state-administered Senior Citizens' Pension (SCP) and the NIS minimum pension, as well as the current level of harmonization between the two. To pursue such an exercise, it is important to review the objectives behind an old-age social security pension system. Box 9.1 gives some indications.

Box 9.1. What is an old-age pension system?

1. An old-age pension plan is an instrument that permits an individual to **smooth** his or her consumption throughout life. It can be a Defined Benefit plan (DB) such as the one provided by the NIS.
2. A pension plan is also an **insurance** product that offers protection against old-age longevity, disability and death.
3. The terms **smooth** and **insurance** are very important. Taken together they mean that no one should profit from a social security pension system. In using a pension plan, people are primarily seeking protection, not profit. There are, however, some exceptions:
   - Social security systems can be used for wealth redistribution or a poverty reduction strategy. The wealthy should pay for the poor rather than the opposite. Those who are living longer should be protected. There are transfers in a pension system (between generations and between the people of the same generation).
   - In discussing pension plans a distinction must be made between the societal and the individual objectives. Individuals can target generous pensions beginning at a younger age, but it is up to them to finance this strategy, not society.
   - When analysing the consumption smoothing objective, one should look not only at the level of benefits, but also at the duration (the relationship between active life and life after retirement).
4. Once the objectives of adequacy and redistribution have been chosen, a way of financing the system must be found, considering financial principles (PAYG, GAP or full funding system) and questions such as equity among generations (fairness) should be answered. It is at this stage that people should think about the risks and the diversification of a pension system. Multi-pillar systems are popular (composed of tax-based universal pension and mean-tested income, social insurance, occupational pension plans and individual savings).
5. In thinking about this pension system, some words are key: **affordability** (what individuals and society are able to pay); **sustainability** (over which period the system will be in equilibrium); **development** (use of the system to promote economic and financial developments); **equity** (importance of thinking about both the present and future generations, about the rich and the poor); **measurability** (always being able to measure the performance of the system in terms of the cost as well as in terms of the protection it provides to the people); **integration** (a pension system should take into account the economic, demographic, labour and financial contexts of a country); and **coherence** and **coordination** between the different pillars of the old-age pension system.

9.1. Targeting an income replacement level – the minimum benchmarks of ILO Convention 102

Table 9.1 represents a good starting point concerning the minimum income replacement level that should be provided by a pension system: the minimum income replacement level of ILO Convention No. 102 for the old age benefit, disability benefit and survivors' benefit, the eligibility conditions and the duration of benefits. The NIS provisions for old age fully achieve these minimum benchmarks of ILO Convention No. 102. For example, under ILO Convention No. 102, the minimum replacement rate for old age is 40 per cent after 30 years of contributions. Under the current provisions of NIBTT the minimum income replacement rate after 30 years of contribution is about 46.8 per cent. Compliance with the ILO standard is, however, is less clear in the case of the income replacement level for Disability and Survivors' benefit. For example, in some cases, after 15 years of contributions the income replacement level is 30 per cent, which is lower than the ILO's minimum of 40 per cent. All eligibility conditions for long-term benefits respect the ILO minimum standards.

▶ Table 9.1. Minimum standards, Convention No. 102, old age, disability and survivor's benefits

Type of benefits	Income replacement level (%)	Condition of eligibility	Duration of benefits
Old age	40	30 years	Lifetime
Disability	40	15 years	Lifetime or until old-age pension is paid
Survivors	40	15 years	Lifetime

In the case of pension reform, when there is a need to reduce the generosity of a pension system, at least the ILO minimum standards should be met.

9.2. Income replacement rate in Trinidad and Tobago

The following figures show the old-age income replacement rate of the Pension System in Trinidad and Tobago, taking into consideration not only the retirement pension offered by NIB, but also the SCP. The income replacement rate is represented by the salary level according to the NIB earnings classification. Four Figures (9.1–9.4) are presented according to the number of years of contribution. The case where there are no years of contributions represents the situation of someone having only the SCP and never having contributed to the NIB. Additionally, in 2020, the average monthly salary of the contributors was TT$7,128[12] which is in the salary class IX. Upon reading these figures, it appears that:

- Today, an average worker having never contributed to the NIB may expect to replace about 50 per cent of his/her salary at age 65. For someone having earnings at the level of the minimum wage, the income replacement rate is 118 per cent.
- An average worker with 15 years of contribution may expect to replace 79 per cent of his/her salary, the same income replacement as someone having 25 years of service.
    - The reason why the income replacement rate does not increase with 10 additional years of service is due to the minimum pension. Once the pension has been calculated using the reference salary and the pension formula, the result is compared to the minimum pension. If the calculated pension is lower than the minimum pension, the retiree receives the minimum pension. The minimum pension is so high that almost everybody receives it. Someone having contributed 25 years is not rewarded for additional contributions compared to someone having contributed 15 years. Replacing 79 per cent of the salary for 25 years of contribution gives a yearly accrual rate of 3.2 per cent. However, it is 5.3 per cent for someone having contributed over 15 years! The shorter the length of the career, the higher the reward! As seen in the Chapter 8 on the sensitivity analysis, in addition to being a strange, questionable, and counterproductive design, the minimum pension also represents an additional cost that puts pressure on the NIS.
- For an average worker with 35 years of service, the income replacement rate falls to 74 per cent, lower than someone having 25 years of service. The minimum pension is still responsible for this result, but so is the integration of the System. In this example, the additional number of years of service increases the NIS pension over the minimum pension, resulting in a lower SCP for a lower overall income replacement rate.

[12] Calculated from the reference salary for each salary class.

Figure 9.1. Income replacement rate, 0 years of contribution

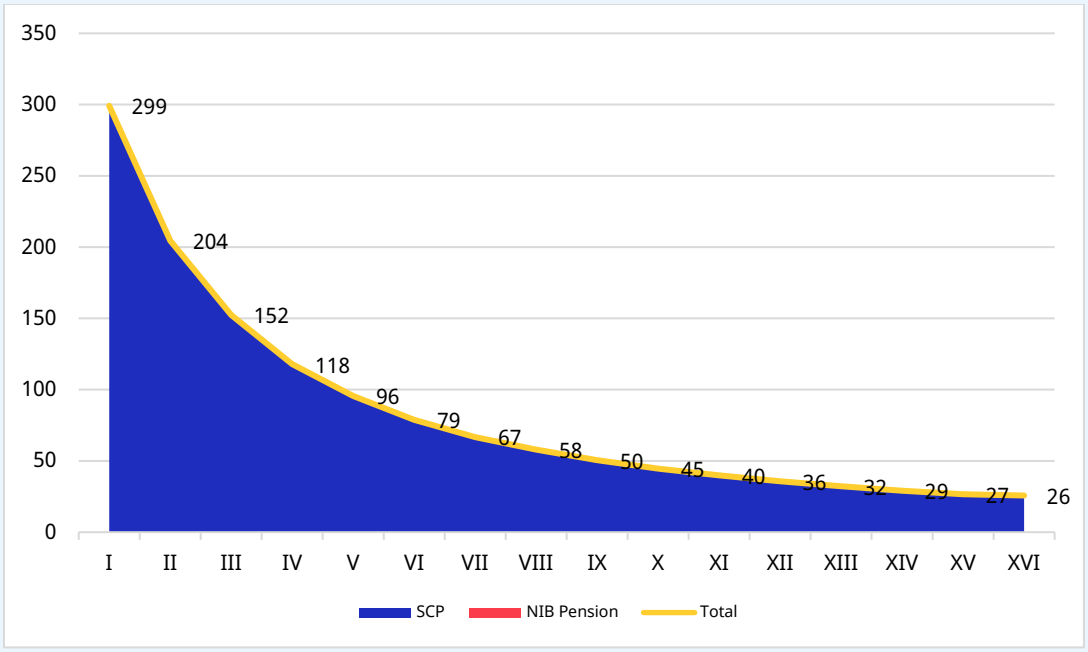
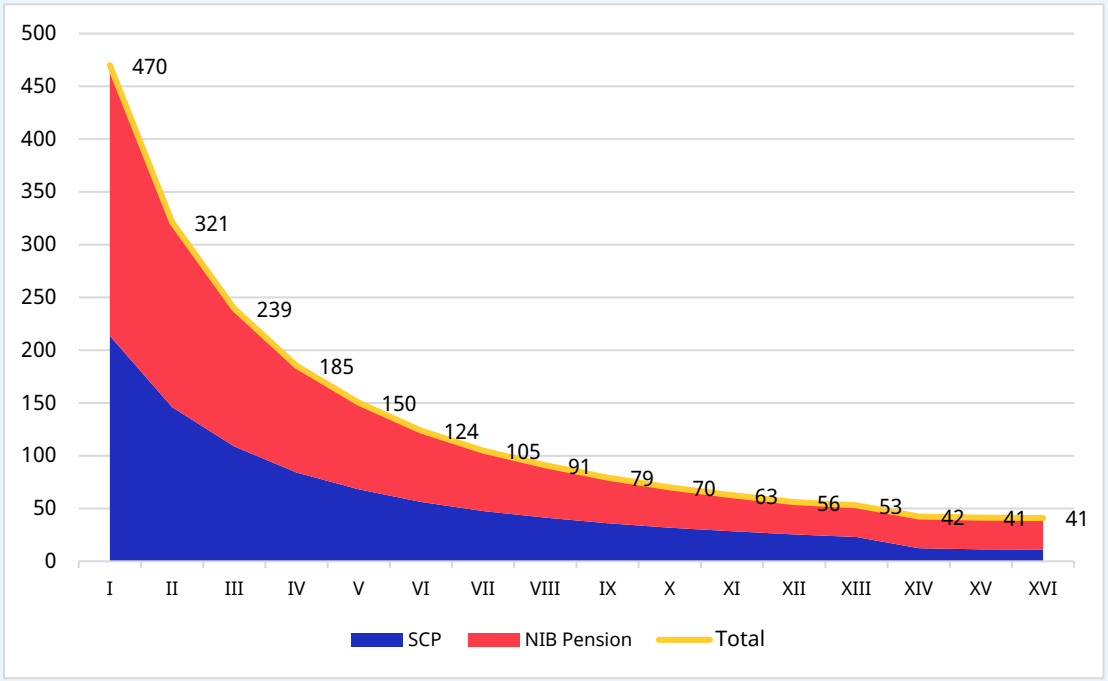
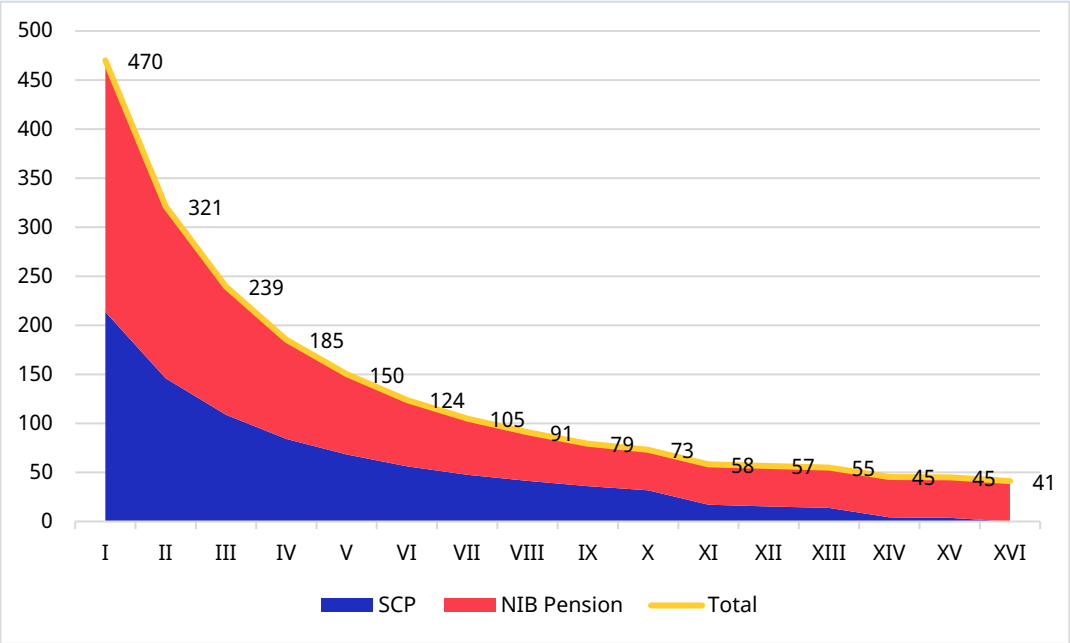


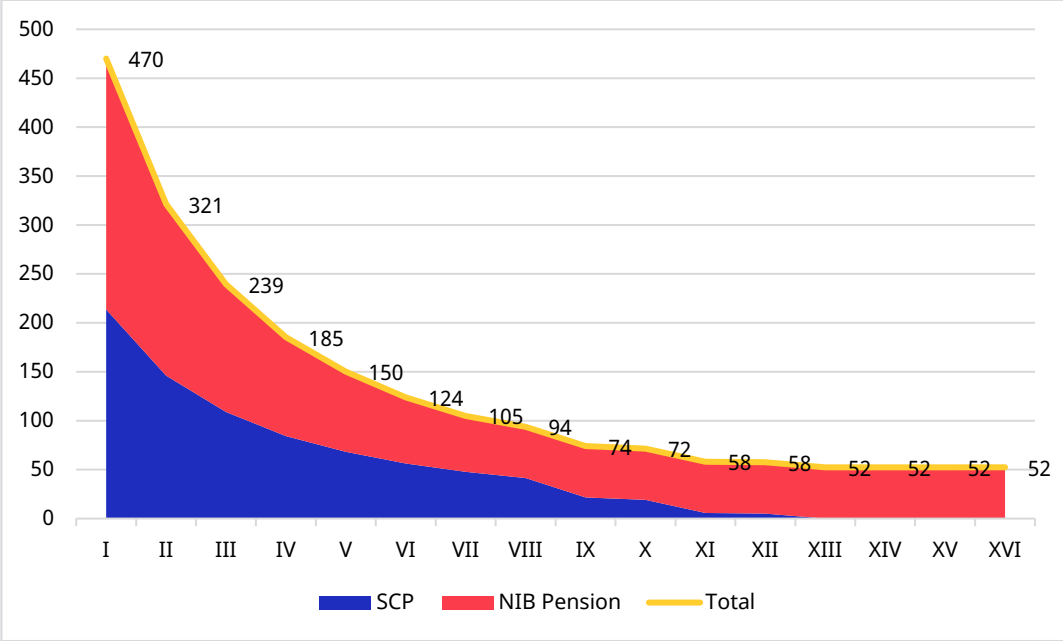
Figure 9.2. Income replacement rate, 15 years of contribution



▶ Figure 9.3. Income replacement rate, 25 years of contribution



▶ Figure 9.4. Income replacement rate, 35 years of contribution



9.3. Discussion

Usually, a minimum pension should not be designed for most of the participants, but only for those who receive a very low pension.

In many societies, to live comfortably at retirement and to be in line with the objective of smoothing the level of consumption, an income replacement rate from 60 to 80 per cent may be targeted. When the targeted

income replacement level that will enable people to live comfortably and out of poverty is known, a way to provide it should be found. Is the income replacement rate provided through a generous social security system? What about a universal pension? What is the role that private pension plans should play in the pension system? At this stage, the income replacement should be allocated among the different pillars.[13] This multi-pillar structure already exists in Trinidad and Tobago. The SCP represents the first pillar and is almost universal. All workers, except the self-employed, are covered by the NIS, which is the second pillar. The third pillar is composed of occupational pension plans. According to the Central Bank, the assets of this sector represent a significant portion of the total assets of the financial sector of Trinidad and Tobago. As of 30 December 2020, pension plan assets totalled approximately TT$54.8 billion[14]. In 2015, about 51,500 workers in the private sector were covered by an occupational pension plan. This number, combined with the number of workers in the public sector (who are also covered by the public sector pension plan) gives a coverage rate of 15 per cent of the employed population (18 per cent of the salaried population).

A social pension that is mean tested represents an efficient way to fight against poverty. Further, the existence of a universal non-contributory plan considerably reduces the need for a minimum pension in the contributory system (NIS). In fact, a well-thought-out universal pension has a redistributive effect on the population. The need to have another level of redistribution is of lesser importance. So, one of the first questions to ask is: Do people in Trinidad and Tobago really need two redistributive pension systems, the SCP and the minimum pension? Is there a better way to allocate resources?

It is going to be important to define the role of each part of the social security system: universal pension, mandatory contributory social security system and occupational plans or savings. A pension system is a dynamic system, not a static one, so the way that the different parameters are going to evolve will also be very important. The role of each part of the system is twofold:

1. Its relationship to the income level or the income replacement rate; and
2. Its relationship to the poverty line.

Currently, there is no official poverty line in Trinidad and Tobago. In the first chapter an attempt to update this figure has been presented, but it is only an estimate. There is a need for a real value.

During this exercise of integration, the risks that each stakeholder, the Government, the employers and the employees will bear should be defined. It is also during this exercise that the financing mechanisms will be put in place and organized. Of course, in a pure PAYG system some risks are transferred from one generation to another, while in a fully funded system these risks tend to be allocated to each generation, when surpluses and deficits are amortized over an appropriate period of time. The pension system should also be designed to meet economic, financial and labour market developments and objectives.

Here are some technical elements for a better integration of the System:

- It is recommended to always put a target or objective on each part of the System. In the section regarding the results of this actuarial valuation, it has been recommended, at least as a temporary measure, to freeze the minimum pension so that it is equal to 80 per cent of the minimum wage for all generations. The same kind of objective should be applied to a universal pension, with an additional component: the impact of the universal pension on the poverty level and on the income security guarantee. As illustrated in the preceding figures, both the SCP and the pension offered by the NIS should be considered in calculating the retirement objective. Objectives for income replacement rate should be found for each category of income. It is also possible to integrate and finance part of the universal pension into the contributory pension plan.
- It is recommended to always adjust parameters of the system to the economy and the demography using the prescribed formula in the law. Such adjustments should be automatic. Various parameters such as the level of the earnings brackets or the maximum insurable earnings are frequently frozen for a period and increased on an ad hoc basis. Such increases are not always the most efficient for the

[13] In determining the income replacement level, it is important to bear in mind the fiscal system of the country. For example, the income replacement level can be dependent on the tax incentives before and after retirement. So, defining the global income replacement rate and the allocation should be done at the same time, resulting in an iterative process.

[14] There are 182 pension plans.

sustainability of the NIS. Other factors such as the inclusion of automatic adjustments that depend on the performance of the System should also be considered and discussed.

- Currently, the normal retirement age is 65 for both the universal pension and the NIS. For the NIS, the retirement age is defined in law as 65 years or any age less than 65 years but not less than 60 years at which an insured person ceases to be engaged in insurable employment. In some cases, the age of retirement is an individual choice. If someone decides to retire before age 65, there is however, no reduction in the pension compared to those who have decided to retire at age 65. Like the SCP, which is not available before 65, it will be important to make the pension payable by the NIS less attractive before age 65. It is recommended to reduce the pension for those who take their pension before age 65. It is also recommended to remove the condition requiring persons to stop working in order to claim a pension before age 65. The impact of increasing the retirement age is discussed in Section 8.2.3.
- It is important to consider the impact of the Pension System on the labour force participation rates. It was illustrated in Section 1 regarding the decreasing number of contributors that this trend is expected to continue over the projection period. This situation affects mainly the pension plans financed on a PAYG basis. In this context, having a low retirement age without reduction and a high minimum pension are two measures that are putting more financial pressure on the NIS. The dual coverage by the employment injury insurance benefits offered by the NIS and the Workmen Compensation Act (WCA) should also be eliminated, as discussed in the next Chapter.
- It is desirable to make the NIS attractive to contributors in all circumstances. An SCP that is too high or a too high minimum pension is a counterproductive approach regarding this objective. This suggestion is very important in the context of the extension of coverage to the self-employed population. Today, they have little incentives to contribute.
- Be as simple as possible. If a survey on the understating of the NIS's pension formula by the workers was carried out, the overall score would probably be very low. Probably, few people understand it and few people know their income replacement rate on retirement.
- It is important to always bear in mind the financing objectives. For the NIS, this translates into adopting a funding policy. Further, the SCP, should be subject to an actuarial valuation at least every three to five years.

It is recommended that the NIBTT starts to discuss with stakeholders the role of each part of the social security system for a better integration of the system. Such discussions should be based on an objective Survey of Living Conditions of the elderly, and lead to a better pension design.

10. Dual source of compensation for employment injuries[15]

In Trinidad and Tobago there is dual coverage regarding accidents and sickness arising during employment. Employees are protected under the employment injury insurance benefits offered by the NIS. Workers are also covered under the Workmen's Compensation Act (WCA). According to the WCA, the coverage should apply to employees for whom the salary is lower than TT$5,000 per year. This is a very low salary in relation to the monthly minimum wage of $3,033.

It is in fact understood that employers are paying insurance premiums to private insurance companies to cover all employees under the WCA. This over-insurance is explained mainly by cases that have been settled in court (jurisprudence). Employees have sued employers because of work-related accidents for which they have not received the benefits prescribed under the WCA, and as a result received this benefit, even if they were covered by the NIS. According to the cases, protection under the WCA and the EII benefits offered by the NIS are two separate things. For fear of litigation, employers buy insurance contracts, which has led to dual payment for a similar benefit; employees are receiving two sources of compensation. This approach is highly questionable from an administrative and consistency point of view, but also in a context where the labour force is going to decrease in coming years. Trinidad and Tobago is going to need employees to face the challenge of an ageing population. Such double compensation is counterproductive.

The problem is not only an issue of integration or over-insurance; it is also a problem of different kinds of protection offered by different legislations. Under the WCA, some benefits are not provided for life. This is the case, for example, for permanent disability. Workers injured in the course of employment should receive at least the same minimum benefit.

The cost of buying an insurance contract to provide protection for work injuries is usually dependent on the size of the employer, as well as on the sector of activity. Such distinction does not exist for contributions paid to the NIS – still another problem of integration.

It seems also that under the current system, employees can sue their employer in the case of work injury. It is well known that occupational injuries have a considerable impact on the individual (social and financial situation) as well the economy (loss of an experienced worker). The implementation of an optimal employment injury system would be beneficial to all stakeholders. Globally, it could decrease the cost of production and by extension, the price of goods and services. An employment injury system is a social compromise between employers and employees. At the basis of this social contract, employers are required to pay benefits to injured workers whether they were negligent or not. Traditionally, it was the sole employers' obligation to the workers.

In today's environment, it is also a fundamental right for a worker to work in a safe environment. It is also a right and a matter of dignity for a worker who suffers an employment injury or occupational disease to have access to rehabilitation and return-to-work programmes. Preventative activities and the commitment of employers and workers to the early return to work of injured workers can also have an impact on the experience of individual employers relative to employment injury. Prevention, rehabilitation, and reintegration should also be part of a newly integrated system.

Table 10.1 compares the benefits provided by WCA and the NIS.

[15] This Section is the same as the one of the previous actuarial valuation since there has been no new developments concerning the dual source of compensation for employment injuries.

▶ **Table 10.1. Employment injury benefits provided by the NIS and WCA: A comparison**

Type of benefits	NIS	WCA
Temporary disability (Injury allowance)	66⅔% of weekly earnings for a maximum of 52 weeks.	66⅔% of weekly earnings for a maximum of 5 years.
Permanent disability	▶ *For those at least 20 per cent disabled:* 66⅔% of weekly earnings payable for life or until disability ceases ▶ *For those at less than 20% disabled:* Lump sum equal to the product of: • degree of disablement; • expected number of weeks; • 50% of the average weekly earnings.	▶ Where permanent total disability results from injury: • in case of an adult, a sum equal to 48 months earnings; • in case of a minor, a sum equal to 96 months earnings. ▶ Where permanent partial disability results from injury, benefits paid for permanent total disability multiplied by degree of incapacity.
Death	▶ Proportion of retirement or invalidity pension to which the spouse/child/orphan/parent was entitled, as follows: • *Widow/widower:* 60% (min. TT$600 per month) • *Child:* 30% (min. TT$600 per month) • *Orphan:* 60% (min. TT$1,200 per month) • *Parents:* 30% (min. TT$600 per month to be shared between the two parents if both alive). If one parent dies, the surviving parent receives the total amount of dependent parents' benefit. *Maximum family benefit:* 100%.	▶ Lump sum of 36 months earnings for dependants wholly dependent. ▶ If dependants not wholly dependent: such sum not exceeding 36 months as may be agreed upon or as determined by Commissioner to be reasonable and proportionate. ▶ If no dependants, funeral expenses not exceeding TT$500.
Medical expenses	Maximum of TT$33,750 per injury.	Limited to TT$500.

There has been an attempt in the past to solve some of the problems of the WCA, mainly the low level of salary for WC eligibility. A Draft Policy on Employment Injury Benefits was released. In the draft report, the following solutions were considered by the then Ministry of Labour and Small and Micro Enterprise Development (MLSMED) for the coverage of employment injury benefits:

(1) compulsory employers' liability insurance;

(2) a fund, administered by tripartite partners, with financial contributions from employers;

(3) exclusive coverage by the National Insurance Board under an expanded programme; and

(4) a combination of compulsory employers' liability insurance alongside the existing coverage by the National Insurance Board.

The draft paper states:

The MLSMED considered these options on the basis of efficiency, effectiveness and administrative convenience and has opted for the combination of compulsory employers' liability insurance alongside the coverage by National Insurance Board. In terms of efficiency and administrative convenience, the MLSMED was attracted to the option of exclusive coverage by National Insurance Board under an expanded programme. However, the MLSMED is mindful

that, unlike many other Caribbean countries, the National Insurance Board does not fall under its remit. The MLSMED has found the Special Fund to be unattractive in that it would involve the creation of a costly and unnecessary bureaucracy.

Given the extended and improved coverage of benefits under this policy and the implications for the viability of employers' businesses and the competitiveness of Trinidad and Tobago, the benefits enshrined in this policy and legal framework comprise the total of both the NIB benefits and benefits due under the employers' compulsory insurance scheme. It should be noted that only employers' financial contributions are to fund both NIB employment injury benefits and employers' liability insurance. The need for workmen's compensation insurance required by the Workmen's Compensation Act is no longer necessary; it is to be replaced by employers' liability insurance.

Employers and insurance companies are cautioned that the employers' liability insurance must, as a minimum, be consistent with the provisions of the new legislation that would emerge from this policy framework. The liberal exclusions in current employers' liability insurance contracts must be reconciled with the requirements of this policy. In addition, employers should consider the inclusion of coverage for pain and suffering caused by employment related injuries.

The solution considered in the draft policy paper moves from the dual coverage NIB-WCA to a dual coverage of NIB-employers' liability insurance. The problem of dual coverage seems to be still there. Under which circumstances must one purchase an insurance contract or make contributions to the NIB? The draft policy paper is silent on this.

Trinidad and Tobago is the only country in the region that has an Occupational Safety and Health Agency (OSHA). An analysis of the role that this Agency could play in relation to EII may be beneficial to the whole System. This analysis could be part of the work related to the elimination of the dual structure. Important questions such as the integration of the policies and practices on prevention, compensation, rehabilitation and return to work into one institution only, such as the OSHA, should be addressed.

It is recommended to avoid the dual structure regarding protection against of the accidents and illness arising as a result of employment. A review of the structure should take into account efficiency, administrative burdens, protection adequacy and the upcoming demographic landscape. An analysis of the role that OSHA could play in relation to EII may also be beneficial to the whole System.

11. Modifying the calculation of the pension from an earnings class system to a formula based on a percentage of earnings

In the last three actuarial valuation reports a section was produced on the conversion of the earnings class system to a pension system based on a percentage of earnings. The options presented in the 2010 and 2013 actuarial valuations were not very different in terms of the cost to the System over the projection period, when compared to the current System. The advantage of such a move lies in the simplicity of the new system. The current earnings class system is overly complex, not only from the standpoint of the administration of the system but also in terms of the understanding of the population about how the NIS pension is calculated.

The earnings class system also creates some inequity, especially for persons who qualify for a pension close to the end of a class band. Table 13.1 shows the difference between the basic pensions in each class. For example, the difference between the base pensions for someone being awarded a pension in class XIV as opposed to class XIII is TT$351. Therefore, persons on the brink of class XIV would be awarded TT$351 less on a monthly basis.

The inequity lies in the fact that, because of the way the class system is defined, someone may move from one bracket to another for only a few dollars more of contributions. The following example explains the situation:

> Justin has contributed 15 years in class VI and 15 years in class VII for an average weekly contribution of TT$147.45. With this average weekly contribution, he will receive an average weekly basic pension of TT$363.00. Charles has contributed 16 years in class VI and 14 years in class VII, for an average weekly contribution of TT$146.64. He will receive a basic pension of TT$307.50. Both have contributed 30 years. The inequity is defined in the following way: For having contributed 0.6 per cent more, Justin is going to receive a basic pension 18 per cent higher, all other things being equal. It can be argued that the existence of the minimum pension may eliminate this kind of situation. As explained in Chapter 9, the minimum pension creates another kind of inequity. These kinds of inequities should not exist in a well-designed pension social security system.

Table 11.1. Difference in basic pensions between two adjacent classes (monthly basis, current class system)

Classes	Difference in basic pension between adjacent classes
II–I	167.11
III–II	136.35
IV–III	140.89
V–IV	124.05
VI–V	197.38
VII–VI	240.50
VIII–VII	240.50
IX–VIII	266.50
X–IX	273.00
XI–X	279.50
XII–XI	305.50
XIII–XII	318.50
XIV–XIII	351.00
XV–XIV	330.50
XVI–XV	141.40

Another pitfall of the class system is that it makes the analysis of the pension benefits, the contributions, and their relation more difficult and this can lead to situations that are not optimal. The links between the evolution of the salary, the pensions and the earnings class are not always easy to understand. For example, not indexing the salary classes is financially beneficial for the system because people move from high income replacement classes (low salary classes) to lower income replacement classes (high salary classes). This is because salaries increase at higher rate than the brackets of the classes. On the other hand, not indexing the bracket of the class XVI is not beneficial. As illustrated in the sensitivity analysis 8.2.5, non-adjustment of the last salary class is financially bad for the system.

In the ninth actuarial review three pension formulae were proposed:

1. reproduction of the present pension formula (2 per cent per year for the first 15 years and 1.1 per cent thereafter).
2. fixed rate per year of contribution of 1.6 per cent per year; and
3. redistributive formula putting more weight on low earnings (1.8 per cent per year for earnings below 50 per cent of the MIE, plus 1.2 per cent per year for earnings above 50 per cent of the MIE).

Each approach has some merit but should be analysed in the context of the entire system. Having a redistributive characteristic in a pension formula is valuable and should be considered and analysed in the context where a minimum pension and a universal pension both have a redistributive effect. The role played by each part of the system is also very important. While various approaches can be taken in converting the current earnings class system to a percentage of earnings system, looking at any one approach without consideration for the sustainability of the entire system is also probably not the right approach. A percentage of earnings system should look at the integration of the entire social security system (SCP and NIS) in Trinidad and Tobago, as discussed in Chapter 9.

It is recommended that the NIBTT moves to a percentage of earnings system to facilitate administrative ease and greater understanding of retirement benefits by ordinary citizens, and to eliminate the inherent inequities of the current system. Any new percentage of earnings pension formula should consider the integration of the entire social security system (SCP and NIS) in Trinidad and Tobago.

12. Extension of coverage to self-employed persons

12.1. Background

The coverage of self-employed workers has been a part of the National Insurance Act No. 35 of 1971, since the inception of the NIS. However, the relevant social security provisions regulating contributions and benefits under the Act have not yet been implemented.

On 27 February 2014, a High-Level Working Committee (HLWC) was established to review the proposal for the introduction of Self-Employed Persons (SEP) to the NIS. The scope of the work of this Committee involved a review of the NIBTT's recommendations as identified in the document "the design of the system of incorporation of self-employed persons into the National Insurance System of Trinidad and Tobago". This document outlined the key provisions for the introduction of SEP. The report of the Committee was reviewed by Cabinet, and they agreed in a letter dated 6 July 2015 to the introduction of the SEP, in addition to the provision of age credits and the co-payment of contributions for low-income SEP. Despite the agreement at the level of the Government, no steps were taken to advance the inclusion of SEP into the NIS.

In keeping with the recommendations of the 10th Actuarial Review of the NIS as at the end of June 2016, in January 2019, Cabinet re-appointed the HLWC to:

i. Provide an update to the costs previously provided on the co-funding of age credits and co-payment of contributions for low-income SEP's (inclusive of savings to the GORTT);
ii. Provide a design model for the incorporation of SEP's in Trinidad and Tobago inclusive of the benefits to be provided as well as the attendant contribution rates; and
iii. Outlay a potential strategy for the incorporation of SEP's into the NIS along with the required structures and proposed budget for these strategies.

This Section aims at reproducing the financial projections of the implementation of coverage for SEP as well as discussing the recent developments. For the purpose of the projections, it is assumed that the application of specific provisions concerning self-employed persons (SEP) would be introduced on 1 July 2025.

Three previous assessments have been done regarding the full introduction of self-employed persons into the NIS. The first was done by the International Labour Office (ILO), who produced an actuarial review regarding the extension of coverage to the self-employed persons. This was a separate report done as part of the scope of the 7th Actuarial Review. A second assessment, completed as part of the 9th Actuarial Review, was done by Ecole Nationale d'administration Publique (ENAP) of Québec, Canada. The third was completed by the ILO as part of the 10th Actuarial Review.

The analysis presented hereunder is consistent with the findings of all three reports.

12.2. Key Provisions

The key provisions of the implementation of SEP presented in this Section come from the document entitled "Report of the High-Level Working Committee on the incorporation of Self-Employed persons into the National Insurance System – (June 2020)" and can be categorized under four headings: Design of the SEP System – registration, benefits, contributions financing provisions and governance issues; and Roll-Out strategies. Theoretically, the programme should mirror as much as possible the programme available to salaried workers. However, this is not always possible or even desirable and certain adjustments are necessary to ensure sustainability at a reasonable cost.

12.3. Design of the SEP

12.3.1. Registration

Registration will be mandatory for any self-employed who satisfies certain conditions of age and earnings in a calendar year. It is well understood that significant operational efforts will be needed to attain this

objective. Registration will be mandatory for all at the inception date, but specific groups will be targeted at different times, starting with those being presumably easier to identify.

12.3.2. Benefits

There is consensus that the long-term benefits branch should mirror those of the existing system (retirement, invalidity and survivor's benefits) and that the benefits package under the short-term benefits branch should include maternity benefits and funeral grants. To reduce incidences of anti-selection, the eligibility criteria for short-term benefits have been modified when compared to that of salaried workers.

A. Long-term benefits:

- **Retirement**. They would have access to a retirement pension from age 60 (as for salaried employees) with mandatory retirement at age 65. The contribution requirements and pension formula would be the same as for salaried workers. A retirement grant would be paid if there are insufficient contributions to receive the monthly pension.
- **Invalidity**. The definition of invalidity, contribution requirements and pension formula would be the same as for salaried workers.
- **Survivorship**. Benefits would include survivors' pensions and a remarriage grant. Contribution requirements, pension formula and conditions of payment to survivors would be the same as for salaried workers.

B. Short-term benefits

- **Incapacity**. The benefit would be paid in case of incapacity (illnesses/injuries included in a prescribed list) lasting at least 7 days if the person has paid contributions for at least 20 weeks during the last 26 weeks. The benefit would represent 60 per cent of the earnings of the best 20 of the last 26 weeks and it would be paid retroactively from the first day of incapacity.
- **Maternity**. The benefit would include a Maternity grant of TT$3,750 plus 60 per cent of earnings for 14 weeks. For eligibility, they would need 39 weekly contributions in the year preceding the 6th week before the expected date of confinement.
- **Funeral grant**. The amount would be the same as for salaried workers (TT$7,500).

12.3.3. Contributions

As the protection offered in the Long-term branch is the same as the one that is available to salaried workers, equity suggests using the same contribution rate for both salaried workers and SEP even if the benefits-to-earnings ratio (PAYG) of the SEP increases very slowly in the first two decades. SEP may switch during their career from one status to another. Fairness suggests that these workers should pay the same number of contributions for the same benefits, irrespective of their status.

Concerning Short-term benefits, the cost is stable throughout the projection period. Hence, the contribution rate determined at the onset is not subject to structural changes. Consequently, the rate for Short-term benefits should be in line with the expected cost.

Based on these considerations, it is recommended that:

- the contribution rate for Long-term benefits should be identical to that for salaried workers;
- the contribution rate for Short-term benefits should adequately cover the benefit and administrative expenditures of the branch.

On that basis, the SEP contribution rate for Long-term benefits would be 11.7 per cent (89 per cent of the total contribution rate of 13.2 per cent). The expected cost of Short-term benefits is 0.3 per cent. Therefore, the total SEP contribution rate would thus be 12 per cent. It is recommended that this contribution rate be adjusted in the future to consider any adjustment of the contribution rate for long-term benefits applicable to salaried workers.

12.3.4. Financing provisions

Two measures – Age Credits and Co-payment of contributions for low-income SEP's specific to the process of incorporation are proposed to be introduced. These measures should be adopted because extending mandatory coverage to informally employed and low-income persons will be challenging.

An age credit provision, which is aimed to assist older insured SEP to qualify for the basic pension, has been designed to be applied at the onset of the implementation process. It is different from the table of age credits that is set out in the Second Schedule of the National Insurance Regulations. Each age credit is in effect an implicit weekly contribution payment to the SEP's NIS account, to a maximum of 300 for those who qualify. It is assumed that a SEP can/should make 50 weekly contribution payments per year (irrespective of his/her actual earnings pattern). From this it follows that 50 age credits are attached to each "credit year", and with a maximum of 300, this provides for six creditable years per eligible SEP.

Consequently, eligibility for age credits is restricted to SEP who have attained the age of 50 years and who at the commencement of NI coverage for the SEP will have less than 15 full years to the age of 65. This in effect provides an opportunity for the SEP with 9 to 14 contributory years to age 65 to benefit from the granting of age credits and so qualify for the minimum retirement pension. Age credits are utilized to encourage initial participation. The SEP must have registered in the three months prior to and the three months following the commencement date. Table 12.1 shows the applicable number of age credits and the eligibility status of the SEP depending on age. The Committee agreed that age credits will not be granted to persons already registered as salaried workers.

▶ Table 12.1. Age Credit Eligibility and NIS status at age 65

Age	Years to age 65	Contributions	Age credits (ACs)	NIS status
56	9	450	300	750
55	10	500	250	750
54	11	550	200	750
53	12	600	150	750
52	13	650	100	750
51	14	700	50	750
50	15	750	0	750

The NIS contributions rate for the self-employed population will comprise the sum of employer and employee contributions and is set at the same level as that of the current salaried population for an equivalent package of benefits. The burden on low-income SEP of paying the entire contribution has been considered, and it has been agreed that the Government provide the additional incentive to participation by co-payment of contribution income for this segment of the SEP. This co-payment will only be available for a 5-year window, starting at the commencement of the SEP into the NIS, and only for persons who earn less than TT$3,000 per month, since they will be unlikely to participate without an initial incentive. Table 12.2 shows the extent of the co-payment for each year in the proposed 5-year period.

▶ Table 12.2. Co-payment schedule

	Year 1	Year 2	Year 3	Year 4	Year 5
Co-payment %	100%	67%	50%	50%	33%

In order for the self-employed system to be financially sustainable over the long-term, its financing should rely on the contribution income and the investment income from the built-up reserve. The present actuarial review assesses how the current level of contribution would affect the long-term financial sustainability of the self-employed system and the effects of bringing in the self-employed on the NIS financial statement. It will also look at the cost of both the age credits and the co-payments, cost that will have to be borne by the Government of Trinidad and Tobago.

12.4. Profile of self-employed persons

Self-employed persons may be divided into two groups: ***Employers*** (sole proprietors who may have staff) and ***Own account workers*** (who operate on their own). Employers are considered more likely to be operating formally and are relatively easy to identify. According to data provided by the CSO, ***Employers*** account for about 20 per cent of the self-employed population.

The number of self-employed persons is estimated at 146,497 in 2020. They represent 22 per cent of the total labour force. Among SEP, 50,713 are aged 50 and over. Only 80 per cent of the self-employed population is considered in this study, since the CSO data included a category where data on income was unavailable. The unavailability of the data on income is explained by the fact that some people didn't declare income but also that some people are not really engaged in economic activities (mainly Own account workers).

Employers generally earn higher incomes than Own account workers. By using various target coverage rates and estimating the number of employers vs Own account workers covered, the average earnings of SEP are estimated at TT$6,940 per month for males and TT$6,230 for females.

▶ **Table 12.3. Estimated number and average earnings of self-employed persons (in this valuation), by age and sex (2020*)**

Age	Male		Female		Total	
	Number	Average Monthly Earnings (TT$)	Number	Average Monthly Earnings (TT$)	Number	Average Monthly Earnings (TT$)
15-19	845	2,979.01	123	2,276.11	968	2,889.70
20-24	3,757	5,019.13	863	4,296.43	4,620	4,884.13
25-29	7,322	6,148.48	2,166	4,436.29	9,488	5,757.61
30-34	10,074	6,467.17	3,596	6,267.32	13,670	6,414.60
35-39	12,075	6,843.53	3,975	6,597.22	16,050	6,782.53
40-44	11,783	7,158.46	3,892	5,879.46	15,675	6,840.88
45-49	11,556	7,479.15	4,129	6,260.01	15,685	7,158.23
50-54	10,978	7,573.82	4,040	7,217.58	15,018	7,477.99
55-59	10,714	7,385.43	3,315	6,995.44	14,029	7,293.28
60-64	6,830	7,121.67	1,801	5,926.88	8,631	6,872.40
65-69	1,997	7,181.47	649	5,771.80	2,646	6,835.71
	87,932	6,939.67	28,549	6,229.91	116,481	6,765.71

* Based on 2018 data projected in 2020.

The determination of earnings for contribution purposes will be a major administrative challenge for the NIBTT. In cases where a person produces enough valid evidence for a particular level of annual earnings, such earnings shall be used for determining contributions. However, it is anticipated that assessment problems and/or unreliability of declared income will impede this process. In such cases, each SEP shall be assigned a minimum level of earnings based on his or her occupation. The NIBTT would then have to generate and regularly review the minimum earnings' categories so that they correctly reflect the reality of each occupation.

12.5. Projected evolution of SEP coverage

For the purposes of this review, it is anticipated that the first contributions will be paid from 1 July 2025. Usually, despite intensive efforts of implementation, the registration of SEP is gradual. Two coverage rate

scenarios are analysed. The first is with a gradual registration. In this scenario, coverage should increase significantly over the first five years of implementation and will slowly reach maturity over time. It is expected that the full subsidization (instead of two-thirds) of contributions for low-income SEP during the first year of application will encourage SEP to become NIS contributors. However, despite these incentives, the non-contributory Senior Citizens' Pension (SCP) of TT$3,500 at age 65 still provides a disincentive to participation. The coverage of the self-employed population is also dependent on the administrative capacity of the NIBTT to absorb this new group of contributors. The coverage rate under the first scenario is presented in Table 12.4.

Under the second scenario, a stable coverage rate of 60 per cent is used. This scenario reflects a better SEP implementation strategy but also a scenario where the ultimate cost is to be higher.

▶ Table 12.4 Assumed self-employed coverage rates

Year	Gradual coverage rate
2025-26	15%
2026-27	20%
2027-28	30%
2028-29	35%
2029-30	40%
- - -	Linear increase
From 2069-70	60%

It should be noted that these were the scenarios utilised in the previous actuarial valuation. The NIBTT considers these scenarios to be reasonable and has decided to maintain them although they do not achieve the target number of SEP proposed in the HLWC's report, before the end of the projection period.

12.6 Demographic projections

The number of SEP pensioners will slowly increase through the projection period. By the end of the projection period, the ratio of contributors to pensioners will reach a level below 2 (see Table 12.5). These projections consider the granting of age credits to SEP between the ages of 50 and 57 over, at the inception date.

▶ Table 12.5. Projected number of self-employed contributors and pensioners – long-term benefits 2020-70

Year	Gradual coverage rate			60% coverage rate		
	Number of contributors	Total number of long term beneficiaries	Ratio of contributors to pensioners	Number of Contributors	Total number of long term beneficiaries	Ratio of contributors to pensioners
2020-21	-	-		-	-	
2021-22	-	-		-	-	
2022-23	-	-		-	-	
2023-24	-	-		-	-	
2024-25	-	-		-	-	
2025-26	19,035	-		76,139	-	
2026-27	25,351	45	558.6	76,053	408	186.6
2027-28	37,979	453	83.8	75,959	917	82.8
2028-29	44,258	756	58.5	75,871	1,567	48.4
2029-30	50,540	1,013	49.9	75,809	2,066	36.7
2034-35	53,516	2,610	20.5	75,552	4,489	17.2
2039-40	55,420	5,504	10.1	73,893	13,192	5.7
2044-45	55,954	8,546	6.5	70,679	20,009	3.5
2049-50	55,496	15,329	3.6	66,596	29,783	2.2
2054-55	55,587	22,354	2.5	63,528	38,364	1.7
2059-60	56,472	28,087	2.0	61,606	44,401	1.4
2064-65	57,518	32,836	1.8	60,019	48,531	1.2
2069-70	57,907	37,241	1.6	57,907	51,626	1.1

Table 12.6 presents the projected number of benefit recipients for short-term benefits. The number of beneficiaries of Incapacity and Maternity benefits is relatively stable after the period of implementation. The number of funeral grants is affected by population ageing and thus continuously increases over time.

▶ Table 12.6. Projected number of self-employed benefit recipients – Short-term benefits 2020-70

Years	Gradual coverage	60% Coverage
2020-21		
2021-22		
2022-23		
2023-24		
2024-25		
2025-26	329	1,317
2026-27	522	1,649
2027-28	765	1,645
2028-29	926	1,642
2029-30	1,059	1,639
2034-35	1,139	1,638
2039-40	1,199	1,690
2044-45	1,243	1,735
2049-50	1,333	1,861
2054-55	1,476	2,047
2059-60	1,669	2,292
2064-65	1,876	2,517
2069-70	2,070	2,642

12.7 Financial Projections

Benefit expenditures relative to SEP for a gradual increase in coverage rates are presented in Table 12.7. The benefits-to-earnings ratio increases very slowly but reaches a level that is significant at the end of the projection period. After the first year of implementation, during which administrative costs would be higher, the total PAYG rate would slowly increase from 0.8 per cent to 2.5 per cent in 2034-35 and will reach 26.5 per cent in 2069-70. Total GAP of the SEP system is 11.16 per cent (10.91 percent for Long-term benefits and 0.25 per cent for Short-term benefits)

▶ **Table 12.7. Projected benefit expenditure, self-employed persons (2020 – 2070) – Gradual increase in coverage rates**

	Benefit expenditure						Expenditure as % of	
	Long-term			Short-term	Admin. expenses	Total expenditure	Ins. earnings	GDP
Year	Retirement	Invalidity	Survivors					
2020-21	-	-	-	-	-	-		
2021-22	-	-	-	-	-	-		
2022-23	-	-	-	-	-	-		
2023-24	-	-	-	-	-	-		
2024-25	-	-	-	-	-	-		
2025-26	-	-	-	2 744	-	10 339	0.8	0.0
2026-27	-	107	375	4 298	-	13 746	0.9	0.0
2027-28	-	204	1 345	6 166	-	20 130	0.9	0.0
2028-29	10 858	491	2 832	7 467	-	23 545	1.3	0.0
2029-30	18 616	1 052	4 792	8 577	-	27 124	1.5	0.0
	-			-				
2034-35	59 330	8 497	18 026	10 885	-	34 514	2.5	0.1
2039-40	210 012	20 331	34 627	13 875	-	43 536	4.8	0.1
2044-45	404 142	35 061	56 282	17 359	-	54 785	6.9	0.2
2049-50	945 150	51 627	88 657	22 174	-	68 315	11.8	0.3
2054-55	1 776 263	70 191	140 052	29 020	-	85 279	17.1	0.5
2059-60	2 744 613	92 579	220 103	38 642	-	106 811	20.9	0.6
2064-65	3 888 389	122 150	340 959	51 031	-	133 925	23.6	0.7
2069-70	5 359 161	160 821	514 434	66 067	-	166 935	26.5	0.8

Benefit expenditures with a 60 per cent coverage rate is presented in Table 12.8. The benefits-to-earnings ratio increases very slowly but reaches a level that is significant at the end of the projection period. After the first year of implementation, during which administrative costs would be higher, the total PAYG rate would slowly increase from 0.8 per cent to 2.4 per cent in 2034-35 and will reach 35.4 per cent in 2069-2070. Total GAP of the SEP system is 13.75 per cent (13.48 per cent for Long-term benefits and 0.27 per cent for Short-term benefits).

▶ Table 12.8. Projected benefit expenditure, self-employed persons (2020 – 2070) – 60% coverage rate

Year	Benefit expenditure				Admin. expenses	Total expenditure	Expenditure as % of	
	Long-term			Short-term				
	Retirement	Invalidity	Survivors				Ins. earnings	GDP
2020-21	-	-	-	-	-	-		
2021-22	-	-	-	-	-	-		
2022-23	-	-	-	-	-	-		
2023-24	-	-	-	-	-	-		
2024-25	-	-	-	-	-	-		
2025-26	-	-	-	10 977	-	41 354	0.8	0.0
2026-27	-	420	1 499	13 555	-	41 397	0.9	0.0
2027-28	-	799	4 623	13 243	-	40 543	1.2	0.0
2028-29	24 228	1 900	7 914	13 235	-	40 659	1.4	0.0
2029-30	29 649	3 736	11 377	13 282	-	41 171	1.6	0.1
	-			-		-		
2034-35	75 289	16 214	31 126	15 640	-	50 564	2.4	0.1
2039-40	537 684	33 120	54 934	19 458	-	58 725	7.8	0.3
2044-45	1 002 758	52 824	88 687	23 920	-	69 202	11.9	0.4
2049-50	1 889 974	73 774	141 649	30 254	-	81 978	18.6	0.6
2054-55	3 027 732	95 539	224 744	38 990	-	97 462	24.8	0.8
2059-60	4 244 101	120 011	349 908	50 991	-	116 521	29.1	0.9
2064-65	5 568 810	150 721	530 871	65 402	-	139 748	32.2	1.0
2069-70	7 157 971	189 257	773 544	80 486	-	166 935	35.4	1.1

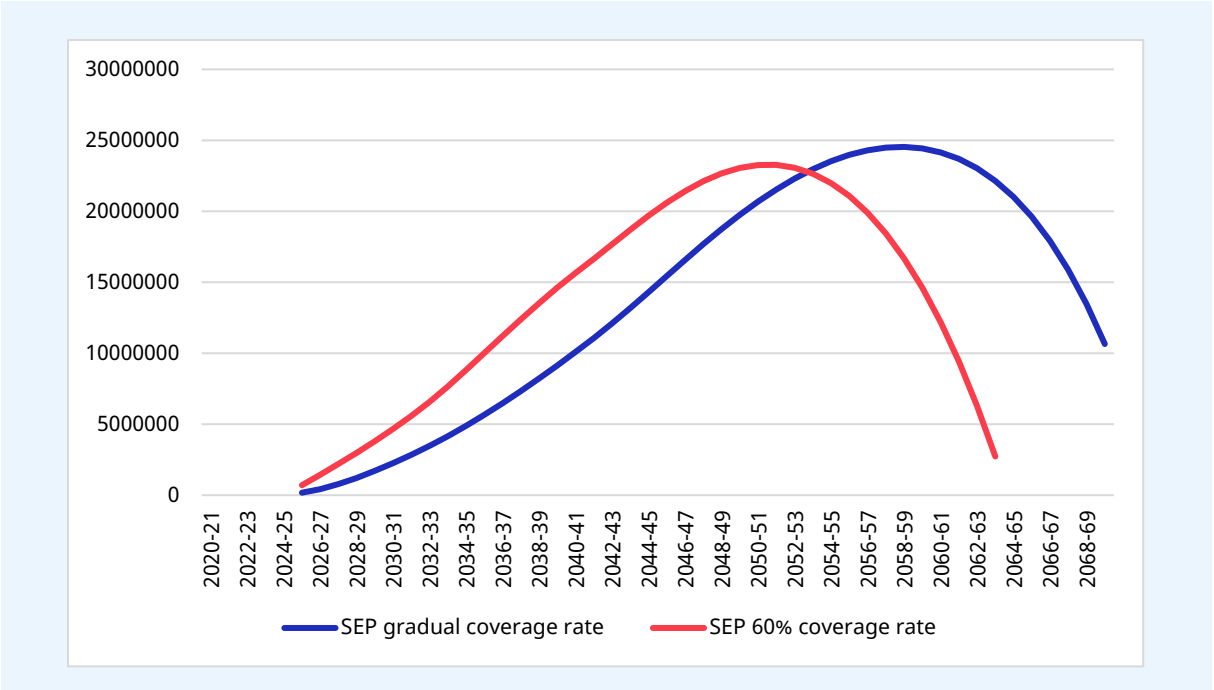
▶ Table 12.9. Key moments of the future evolution of assets under different coverage rates

	Year (Gradual coverage)	Year (60% coverage)
System's expenditure first exceeds contributions	2050-51	2045-46
System's expenditure first exceeds contributions plus investment income (assets start to decrease)	2059-60	2052-53
Assets are exhausted	>2070	2064-65

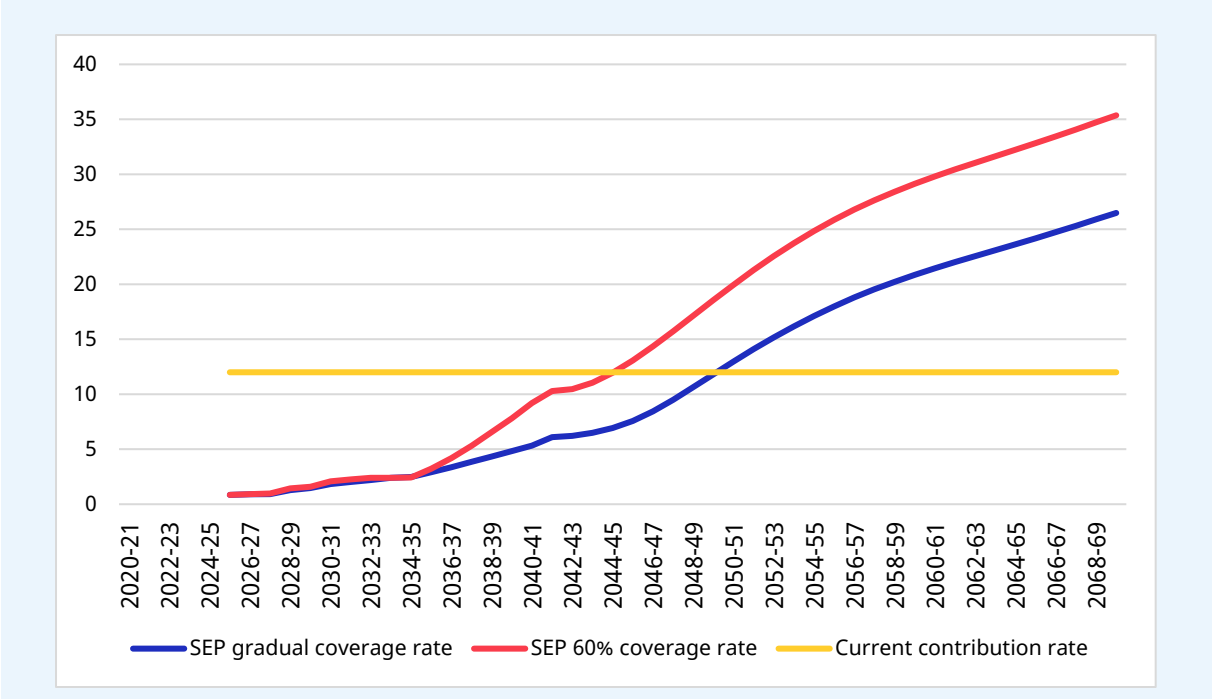
Table 12.9 highlights that if there are no changes to the current parameters of the system, that fund exhaustion will occur after 2070 under the gradual coverage scenario and 2064-65 with the 60 per cent coverage scenario. Note that this assumes that the SEP is administered as a separate fund, as discussed with stakeholders.

It is important to note that regardless of the coverage rate, there is no significant change in the results (see Figure 12.1). The depletion of the fund progresses rapidly in both cases once the maximum level of assets is attained. This is because the benefits-to-earnings ratio begins to increase much faster than the contribution rate during the latter part of the projection period (see Figure 12.2). It is understood here that any increase of the contribution rate of long-term benefits applicable to salaried workers (that could follow the recommendations of this actuarial valuation) would bring a similar increase of the SEP contribution rate and would improve the financial condition of this System.

▶ Figure 12.1. Fund projections for different coverage rate scenarios, 2020-2070 (thousands TT$)

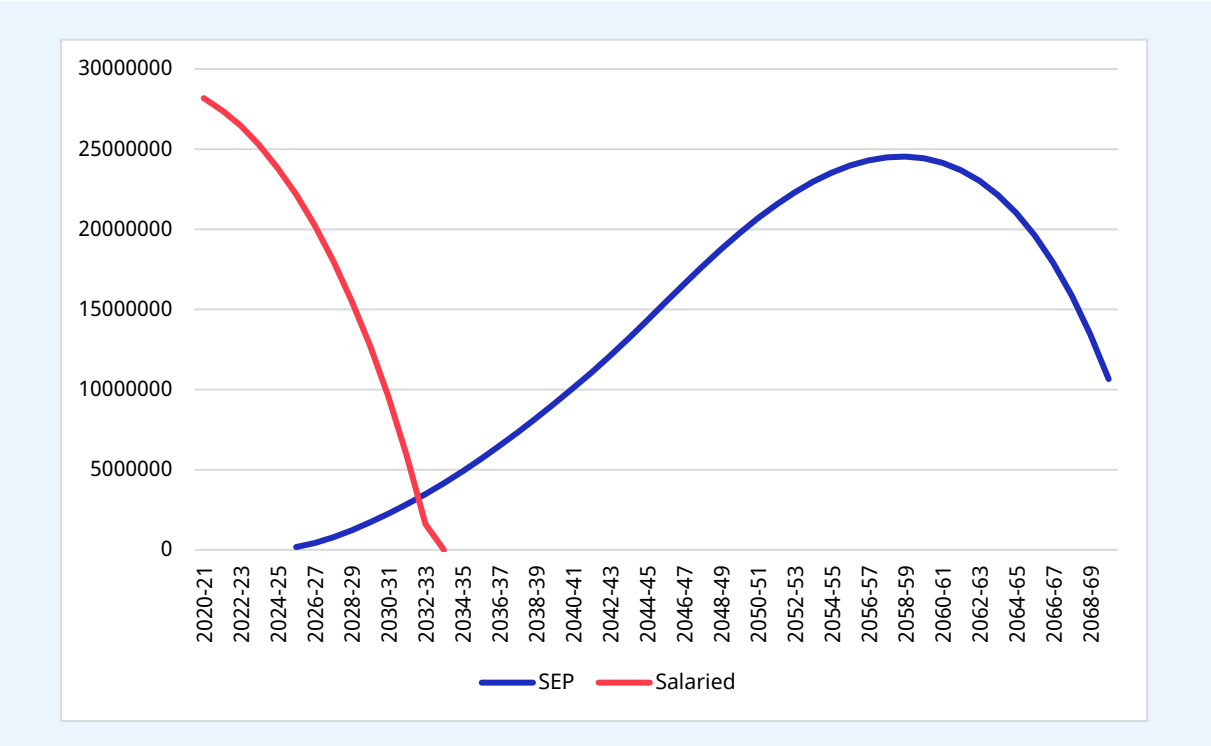


▶ Figure 12.2. PAYG rate, SEP, 2020-70 (percentages)



It is interesting to compare the size of the projected fund for SEP (with gradual coverage rate increase) to the projected fund for salaried workers. Figure 12.3 shows that the SEP fund will reach the peak of its fund level 30 years later than the fund of salaried workers.

▶ **Figure 12.3. Comparison of fund projections, SEP with gradual coverage rate increase versus salaried employees 2020-70**



Detailed financial projections regarding the SEP system assuming a gradual coverage rate increase are presented in Table 12.10.

For investment purposes, revenues generated on behalf of the SEP would be pooled with that received from employees into one investment portfolio. However, investment income as well as unrealized gains and losses would be distributed by funds (salaried versus self-employed) according to rules that are generally applicable in such circumstances.

▶ Table 12.10. Projected revenue, expenditure and assets self-employed persons, 2020-70 (thousands TT$), Gradual increase in coverage

Year	Revenue			Expenditure			Assets	
	Contribution income	Investment income	Total	Benefits	Administrative expenses	Total	Year-end	Number of times current year's expenditure
2020-21	0	0	0	0	0	0	0	
2021-22	0	0	0	0	0	0	0	
2022-23	0	0	0	0	0	0	0	
2023-24	0	0	0	0	0	0	0	
2024-25	0	0	0	0	0	0	0	
2025-26	184 743	4 506	189 249	2 744	10 339	13 083	176 166	13.5
2026-27	246 380	15 230	261 610	4 780	13 746	18 526	419 250	22.6
2027-28	362 204	30 788	392 992	7 715	20 130	27 845	784 396	28.2
2028-29	425 518	51 164	476 682	21 649	23 545	45 194	1 215 885	26.9
2029-30	492 397	75 180	567 577	33 038	27 124	60 162	1 723 301	28.6
2034-35	636 517	231 365	867 882	96 737	34 514	131 251	4 890 943	37.3
2039-40	801 178	444 232	1 245 410	278 844	43 536	322 380	9 145 201	28.4
2044-45	984 071	703 063	1 687 134	512 844	54 785	567 629	14 302 957	25.2
2049-50	1 195 100	984 705	2 179 805	1 107 608	68 315	1 175 923	19 750 571	16.8
2054-55	1 472 690	1 189 387	2 662 077	2 015 526	85 279	2 100 805	23 530 314	11.2
2059-60	1 843 000	1 252 503	3 095 503	3 095 938	106 811	3 202 749	24 429 833	7.6
2064-65	2 303 060	1 104 117	3 407 177	4 402 528	133 925	4 536 453	21 018 214	4.6
2069-70	2 839 538	616 972	3 456 510	6 100 483	166 935	6 267 418	10 654 882	1.7

12.8 Cost of specific SEP provisions

Two measures specific to SEP (age credits and co-payment of contributions for low-income SEP) are proposed to be introduced. The Government (at that time), in a letter dated 6 July 2015 through the Permanent Secretary of the Ministry of Finance and the Economy, had committed to inject funds to support the financing of these additional provisions.

New cost estimates of these two measures have been performed based on the most recent SEP profile and the actuarial bases and assumptions of this valuation. Note that no agreement was made with the Government with respect to the payment of benefits, only for contributions in these two cases.

The new cost estimates are as follows:

- **Age credits**. It is estimated that the cost of the age credits will be between TT$80 million to TT$319 million, depending on the coverage rate achieved.

Coverage rates gradual (15% to 60%)	Coverage rate (Constant at 60%)
TT$ 80 million	TT$ 319 million

- **Co-payment of contributions for low-income SEP**. It is estimated that the cost of the subsidy to low-income SEP (earning less that TT$3,000 per month) will be between TT$58 million to TT$140 million in total for the first 5 years. This includes the cost of the full subsidy during the first year.

Coverage rates gradual (15% to 60%)	Coverage rate (Constant at 60%)
TT$ 58 million	TT$ 140 million

It must be mentioned that these cost estimates are based on a series of assumptions on the actual earnings' profile of low-income SEP and their behaviour regarding coverage under the NIS. Hence the actual costs could significantly vary from these estimates. The fact that implementation of the fund for the SEP starts in 2025 also increases the uncertainties of the projections.

13. Actuarial opinion

This report was prepared as mandated by the Trinidad and Tobago National Insurance Act 35 of 1971. In our opinion,

- Except for the data on the contributors, the data on which this report is based are sufficient and reliable. There is some information regarding the contributors that is not complete which creates uncertainties in the projections.
- the assumptions used are, individually and in aggregate, reasonable and appropriate; and
- the methodology employed is appropriate and consistent with accepted actuarial practice.

Based on the results of this valuation, we hereby certify that the National Insurance System of Trinidad and Tobago is not financially sustainable over the period covered by the projections in this report. This means that in considering applicable financing rules and the future demographic and economic environment in which it will operate, the current assets of the NIS, together with future contributions, will not be sufficient to pay all future benefits and administrative and operational expenses over the period covered by the projections in this report.

This report has been prepared, and our opinions given, in accordance with internationally accepted actuarial practice as provided by the *Standard of Practice APS 3: Social Security Programs of the Caribbean Actuarial Association (CAA)*.

31 May 2022

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14. Conclusion

The actuarial valuation of Trinidad and Tobago's National Insurance System was carried out as at 30 June 2020. The methodology used is based on models developed for the previous actuarial valuation by the Ecole Nationale d'Administration Publique (ENAP) of Québec. These models are adaptations of the ILO's Excel/VBA version of the generic model modified to fit the specific case of Trinidad and Tobago and the NIBTT. The data related to the NIS (contributors, beneficiaries, financial statements) used in this actuarial valuation are the responsibility of the NIBTT and, despite some insufficiency, are complete enough to undertake this actuarial valuation and obtain a good picture of the financial soundness of the NIS. As stated in the Section 2.3 related to the data, there are uncertainties in the valuation which come from information on the salaries and on the insured population (the information regarding the insured population and their contributions was not complete in the computerized system). The incomplete level of data may also raise some questions on the treatment of the insured when it is time to claim benefits. Are all the contributions considered in the calculation of the benefits?

An actuarial valuation requires many assumptions. The assumptions in this valuation are appropriate both individually and as a whole. They are also consistent when taken together. Assumptions are established to reflect long-term trends rather than giving undue weight to recent experience. It is not the objective of pension projections to forecast the exact development of the System's income and expenditures, but to verify its financial viability over the long term.

The conclusion of this actuarial valuation is the same as the one of the previous valuation but with more urgency to take action. Since the NIS of Trinidad and Tobago has not been certified as financially sustainable over the projection period, the following eight recommendations are given with the aim of improving the sustainability of the System over the long term. The first five recommendations are directly related to system sustainability. It is therefore important to note that no single recommendation should be taken in isolation. Given the significant efforts that must be made to redress the financial situation, it will be important to include all the social partners in the solution.

Recommendation No. 1 – Contribution rate increases should be scheduled in the short term.

This actuarial valuation shows that the contribution rate required to pay the benefits and administrative expenditures over the next 50 years should be increased to 29.3 per cent. At this level, a reserve ratio of 5.4 is maintained at the end of the projection period. This contribution rate is considerably higher than the current legal contribution rate of 13.2 per cent. This conclusion is not new, it is the same as the one of the previous actuarial valuations. However, the magnitude and the time passed make this recommendation more urgent today. As a point of comparison, for the first year of projection (2020-21), the contribution necessary to pay all the expeditions is estimated at 17.0 per cent. Four years ago, it was 13.9 per cent. Financial pressure on the System in the coming years will be so high that current contribution rates need to be increased to make it viable and to protect the System for future generations.

It is recommended to increase the contribution rate to at least 17.2 per cent starting in July 2022. This recommended increase in the contribution rate is 1 per cent higher than the one presented in the previous valuation. There is a need to consider the deterioration of the experience since the previous evaluation. This is because the situation is more urgent from the sustainability point of view of the System. With such an increase, the year that the projected reserve is depleted moves from 2033–34 to 2041.

This recommendation is however not enough to restore financial sustainability over the long term. Further contribution increases will be necessary. The ultimate level of contribution rate will depend on the approach of the decision makers related to the modifications to the benefits. It should be noted that this recommendation takes into account only the necessity to make the System more sustainable. Such an important increase in the contribution rate should be accompanied by a study related to its economic impact.

Recommendation No. 2 – Increasing contribution income.

Increasing the contribution rate is a way to increase the contribution income. It has a positive financial impact on the System. There are other ways to increase contribution income. It is recommended that discussions be initiated on the following approaches to increase contribution income into the System and to ensure current practices are optimal:

- **Increasing the compliance:** as explained in the report, the number of contributors is decreasing considerably. The NIBTT should make sure that all people who have the obligation to contribute are effectively contributing to the System.
- **Increasing the ceiling:** No adjustments were made to the parameters of the System, although it was recommended in the previous valuation to explicitly adjust them. The ceiling (salary of the class XVI) must be adjusted to keep pace with salary increase since the last time it has been adjusted. Good information on salary increase will make the adjustment easier. It is estimated that a 15 per cent increase in the ceiling (class XVI) will decrease the PAYG rate by about 0.5 to 1.0 per cent. The increase in the ceiling can also be done by adding a higher salary class.
- **Increasing the effective age of retirement:** recommendation 3 discusses the necessity to introduce early retirement reduction factors. If people effectively delay their retirement to avoid the reduction in the pension, it will bring more contributions in the System. If retirement age is not delayed, it will also have a positive impact since the pensions will be lower.
- **Increasing the redistributive effect:** It is possible to increase the redistributive effect of the Pension System and bring more money in the System without altering the level of benefits. For example, the ceiling on the salary may be removed for calculating the contributions and kept for calculating the benefits. Discussion should start on this kind of approach.
- **Implementing the Pension System for the self-employed:** as is discussed in recommendation no. 7, this will bring new money in the System. Equity between the categories of workers will be important to consider.

▶ Recommendation No. 3 – Bringing more equity in the NIS by reducing the pension for those taking their retirement before age 65.

This report also presents possible modifications to the benefits of the NIS. To preserve the equity in the System, reduction factors for early retirement should be introduced in the pension formula. Today's pension formula does not consider that someone taking retirement at age 60 will receive a pension over a longer period, and in many cases will contribute over a shorter period than someone taking retirement at age 65. The introduction of such factors would make the System fairer to those members who wait until the age of 65. This higher degree of fairness in the System also has another virtue. It may increase the average retirement age, currently at about 61 years old, and will decrease the financial pressure in the coming years.

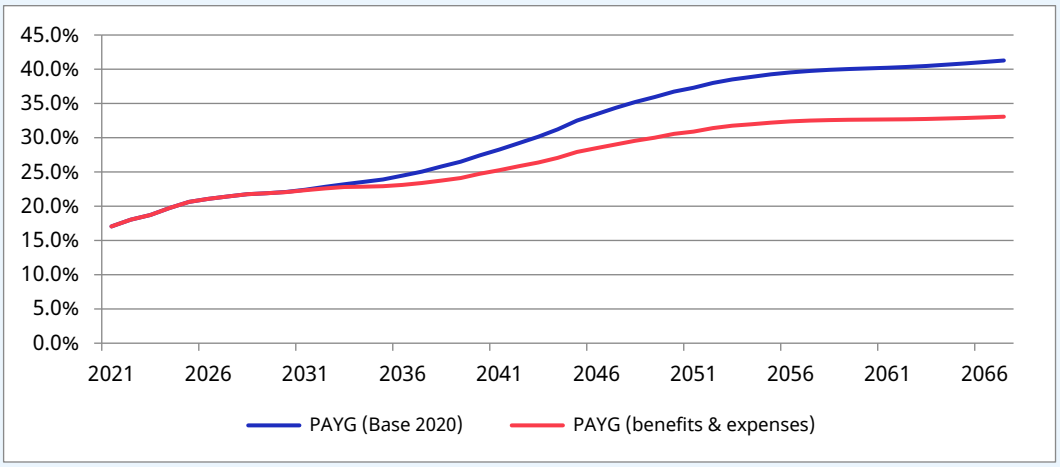
It is recommended to reduce the calculated pension, which includes the minimum pension, by 6 per cent for each year before age 65. The normal retirement age remains at its current level of 65 until subsequent studies justify its increase. For example, a future increase in the retirement age may be introduced in the funding policy and linked to the increase in life expectancy.

The introduction of early retirement factors will affect only new retirees. The previous recommendation regarding the increase in the contribution rate will affect the contributors. Since everybody should participate in restoring the financial sustainability of the System, it should be discussed how current pensioners should also be part of the equation. Freezing the adjustments to the pension in payment is one solution. It is becoming imperative that decision makers be explicit on the way to adjust pensions in payment in the future. The absence of clear rules on pension indexation increases uncertainties for everyone.

Introducing the early retirement factors and increasing the contribution rate to 17.2 per cent, should be viewed as transitory measures to a better reformed Pension System. The introduction of the funding policy with a better integrated Pension System is going to be necessary for the long-term sustainability of the NIS.

The introduction of these two transitional measures will delay exhaustion of the fund to the year 2042. It will also have the impact of lowering the overall cost of the System over time (see Figure 14.1).

▶ Figure 14.1. PAYG, base scenario and transitional measures (introduction of early retirement factors and 4 per cent increase in the contribution rate), 2021–70 (percentages)



It shall be noted that introducing reduction factors for early retirement will also have the impact of increasing the Senior Citizens' Pension for those electing early retirement with a reduced lifetime pension. Alternatively, rather than introducing early reduction factors, the possibility to retire early could be gradually eliminated. This alternative solution could potentially have the opposite impact on the Senior Citizens' Pension due to the higher pension from the NIB that people who will work up to five additional years will receive.

▶ Recommendation No. 4 – The parameters of the System should be automatically adjusted, and the minimum pension should be frozen to give at most 80 per cent of the minimum wage.

There are many parameters in the System for which the future evolution is difficult to assess in the actuarial valuation. This report clearly shows, for example, how sensitive the results of the projections are to the evolution of the minimum pension. Such a situation increases uncertainties about the results of the projections, and also prevents those insured from appreciating the true value of their benefits. The parameters to be adjusted (see Table 14.1) include:

- the insurable earnings ceiling;
- the minimum pension;
- pensions in payment;
- earnings class; and
- the amount of funeral benefit.

In the base scenario, some assumptions were made to overcome the fact that the law is not explicit regarding provisions such as the adjustments to pensions in payment or other parameters. One of the assumptions made is to not index the minimum pension until its level is equal to 80 per cent of the minimum wage. According to the assumptions, this should be done over a nine-year period. Today its level is 99 per cent of the minimum wage. This assumption of freezing the minimum pension for the next nine years is also a recommendation. This is the transition toward a better integrated System with the Senior Citizens' Pension, which is discussed in Recommendation No. 5.

▶ Table 14.1. Recommendations related to the adjustment of the parameters

Parameters	Type of adjustment	Comments
Insurable earnings ceiling (class XVI)	Average wage	This is the scenario used in this valuation.
Minimum pension	Combination of salary and inflation	The scenario used in this valuation except that the level of the minimum pension is frozen for the first 9 years.
Pensions in payment	Lower of inflation and average wage increase	This is the scenario used in this valuation.
Earnings class	Lower of inflation and average wage increase. Except class XVI (ceiling)	This is the scenario used in this valuation.
Amount of funeral benefit	Increase in funeral cost	Needs to be studied. Adjustment to Inflation was used in the actuarial valuation.

It is recommended that the National Insurance Act be modified to explicitly define the annual adjustment to these parameters. Some of these adjustments could also be in line with the financial performance of the NIS. This is the case of the adjustment to pensions in payment. In some pension systems, for example, high pensions are adjusted to a greater extent than low pensions when the experience of the fund is worse than expected. The funding policy normally describes adjustments that are linked to the performance of the System. It is also recommended to increase the salary of the class XVI so that high salary earners will continue to finance the System.

▶ Recommendation No. 5 – Better integration of the Pension System.

The Senior Citizens' Pension is currently at 115 per cent of the minimum wage. The level of the NIS minimum pension is 99 per cent of the minimum wage. In some cases, there is no recognition of additional years of service in the pension paid. About 88 per cent of pensioners receive the minimum pension and there are few incentives for the self-employed to contribute to the NIS. Additionally, the earnings class system is very complicated to understand and may cause inequity among contributors.

These facts highlight the need for a complete reform of the Social Security Pension System. In the future, as the proportion of the elderly population increases, more financial pressure is going to emerge. It will be necessary to adapt the System to this upcoming reality. For the NIS, even in the short term, financial pressure exists. This actuarial valuation shows that the current contribution rate must be increased and at least, during a transitional period, some modifications to the benefits have to be made. But it will not be enough. The problem for the NIS is now imminent, it is structural and it will require a comprehensive reform. This can be realized together with other reforms such as the integration of the Senior Citizens' Pension and perhaps the promotion of occupational pensions. It is important to keep in mind that a strong financing system should be in place so that current and future generations continue to be well served by their social security system.

To undertake this important reform, it is essential to have a detailed picture of the financial situation of persons aged 65 and over.

It is also recommended to take the opportunity of a better integration of the System to change the pension formula from the complicated earnings class system to a formula based on a percentage of earnings. It will be important to move to a system that everybody will understand.

In the short to medium term there are elements that can be modified and introduced without waiting for a complete restructure or reform of the System. These elements are presented in the previous recommendations and concern the introduction of the early retirement factors and the increase in the contribution rate to 17.2 per cent.

▶ Recommendation No. 6 – The NIBTT should collaborate with its key stakeholders regarding the establishment of a funding policy that would outline clear objectives to govern the adjustment of parameters. These mechanisms should be firmly established in the legislation.

The magnitude of increases in the contribution rate and benefits in the System should depend on clear financing and funding objectives. Such objectives do not exist at the NIBTT. It is therefore recommended that the NIBTT adopt a funding policy in order to:

- formalize the long-term funding objectives of the NIS;
- better understand the risks and advantages of the financing options;
- adjust the System when due to avoid delays which will make the situation worse; and
- enhance corporate governance by increasing transparency.

Funding rules must address the interests of stakeholders:

- plan participants and former participants, as beneficiaries of and often as contributors to the financing of the System;
- employers, as one of the parties bearing responsibility for financing the Pension System; and
- the general public and the Government.

The funding policy would specify:

- Contribution rates;
- Risks faced by the NIS and how these risks can be managed;
- Risk tolerance;
- Allocation of risks among participants and employers;
- Funding objectives (such as contribution stability or a targeted level of reserve);
- Frequency of actuarial valuation;
- Methods of actuarial projection, including actuarial assumptions and parameters of the NIS;
- Funding methods;
- Goals related to intergenerational equity;
- Automatic adjustments to the system;
- All other funding issues.

We suggest that the NIBTT starts conversations with stakeholders for approval of an explicit written funding policy. The policy should be well thought out and periodically reviewed. This funding policy should not stand alone but should be implemented with other recommendations such as the pension reform aiming at a better integration of the pension system.

Increasing the contribution rate is not going to be a sufficient solution. It should be accompanied by modifications to the benefits. Modifications to the benefits are linked to the next three recommendations: to bring more equity to the NIS, to better integrate the system and to clearly define the role of each component.

▶ Recommendation No. 7 – Extending coverage to the self-employed.

This report presents, once again, the impact of extending coverage to the self-employed. Almost the same conclusions as in the previous reports are discussed in this report.

The success of this extension is however dependent on how the Pension System is designed and integrated.

The NIBTT should also explore new alternatives regarding the extension to the self-employed based on experiences in other countries such as Argentina, Brazil and Uruguay.

▶ Recommendation No. 8 – Eliminate the dual coverage for accidents and occupational diseases arising in the course of employment.

It is not only the integration of the Pension System that is necessary in Trinidad and Tobago. The integration of coverage regarding work accidents and occupational diseases arising during employment is also another hot topic and is crucial. The current System leads to:

- different benefits for workers depending on from where the compensation comes;
- over-insurance for the workers receiving dual compensation;
- employers' uncertainty regarding possible legal proceedings by workers; and
- inequity in the access of similar protection and financing system.

The current approach is highly questionable from an administrative and consistency point of view, as well as in a context where the labour force is going to decrease in coming years. Trinidad and Tobago is going to need employees to face the challenge of an ageing population. Such double compensation is counterproductive.

It is recommended to re-start discussions between stakeholders for a better integrated coverage regarding accidents and sickness arising during employment and to stop this dual coverage.

Trinidad and Tobago is the only country in the region that has an Occupational Safety and Health Agency (OSHA). An analysis of the role this Agency could play in relation to EII may be beneficial to the whole System. This analysis can be part of the work related to the elimination of the dual structure.

Appendix 1. Overview of the legal provisions of the National Insurance System

This Appendix provides a general overview of the key coverage, contribution and benefit provisions of the National Insurance System (NIS) as of 30 June 2016, as established by the national social security legal framework and in particular: National Insurance Act (hereafter NIA) as amended by Act No. 7 of 2016; National Insurance (Benefits) Regulations (GN 77/1972) (hereafter NIR-Benefits); National Insurance (Contribution) Regulations (GN 63/1972) (hereafter NIR-Contribution), National Insurance (Medical Expenses) Regulations (GN 95/1977) (hereafter NIR-Medical Expenses); National Insurance (Employment Injury) (Payment of Medical Expenses) Order (GN 226/1979) (hereafter NIR-EI Medical Expenses); National Insurance (Prescribed Diseases) Regulations (GN 94/1977) (hereafter NIR-Prescribed Diseases).

A1.1. Contingencies covered

These funds provide for the following benefits:

- *Long-term benefits:* retirement pension, invalidity pensions and survivors' pension;
- *Short-term benefits:* sickness benefit, maternity benefit, maternity grant and funeral grant;
- *Employment injury benefits:* injury allowance, disablement pension, disablement grant, death benefit and medical expenses.

Section 43 of the National Insurance Act establishes three funds:

- Long-term fund;
- Short-term fund;
- Employment injury fund.

These funds are operated and managed by the National Insurance Board of Trinidad and Tobago for the purpose of providing monies required for the payment of benefits. The funds are credited with contributions paid by employers, employed persons and voluntary contributors.

A1.2. Coverage

The NIS covers all employed persons aged 16 to 64 who are in insurable employment. Insurable employment means any employment that is not explicitly excluded according to Section 29(2) of the National Insurance Act. Insurable employment excludes:

- Persons who earn less than TT$200 per week (increased from TT$180 on 5 September 2016). However, a person who was employed on 4 September 2016 and continues in such employment on and after 5 September 2016 and earns between TT$180 and TT$200 per week is regarded as an employed person or insured person for the purposes of the Act and such employed person will continue to pay contributions as specified in Class I.
- Persons employed by international organizations that are granted specific exemptions.

Employed persons under the age of 16 or over the retirement age (i.e., age 65 or 60–64 if the person ceases to be engaged in insurable employment), and unpaid apprentices are covered only for employment injury benefits.

Persons under the age of 60 who cease to be in insurable employment may elect to become voluntary contributors. Voluntary contributors may qualify only for retirement benefits, survivors' benefits and funeral grants.

A1.3. Maximum insurable earnings

On 30 June 2020, earnings covered for determining contributions and benefits are limited to TT$3,138 per week or TT$13,600 per month.

A1.4. Financing

Contributions payable by employers and employed persons are based on the earnings class of the insured person. On 30 June 2020, total contributions on behalf of an employed person represent 13.2 per cent of average weekly insurable earnings. Contributions are shared between employer and employee in a proportion of 2 to 1. For voluntary contributions, the earnings class is determined with reference to the average weekly insurable earnings of the person over the two-year period preceding the application for voluntary contribution. The earnings classes and respective contribution rates in application on 30 June 2020 are set out in Table A1.1.

Income from contributions is allocated to the three benefit funds according to the following proportions:

- *Long-term fund:* 89 per cent;
- *Short-term fund:* 6 per cent;
- *Employment injury fund:* 5 per cent.

Reserves held for each fund are established as follows:

- The short-term fund is maintained at two times the annual benefit expenditure.
- The employment injury fund is maintained at 10 times the annual benefit expenditure.
- The remaining excess of income over expenditure is allocated to the long-term fund.

Table A1.1. Earnings classes and contributions in application on 30 June 2020 (based on a contribution rate of 13.2%)

Earnings class	Weekly earnings	Monthly earnings	Assumed average weekly earnings	Employee's weekly contribution	Employer's weekly contribution	Total weekly contribution	Class Z weekly contribution
I	200–339.99	867–1 472.99	270.00	11.90	23.80	35.70	1.79
II	340–449.99	1 473–1 949.99	395.00	17.40	34.80	52.20	2.61
III	450–609.99	1 950–2 642.99	530.00	23.30	46.60	69.90	3.50
IV	610–759.99	2 643–3 292.99	685.00	30.10	60.20	90.30	4.52
V	760–929.99	3 293–4 029.99	845.00	37.20	74.40	111.60	5.58
VI	930–1 119.99	4 030–4 852.99	1 025.00	45.10	90.20	135.30	6.77
VII	1 120–1 299.99	4 853–5 632.99	1 210.00	53.20	106.40	159.60	7.98
VIII	1 300–1 489.99	5 633–6 456.99	1 395.00	61.40	122.80	184.20	9.21
IX	1 490–1 709.99	6 457–7 409.99	1 600.00	70.40	140.80	211.20	10.56
X	1 710–1 909.99	7 410–8 276.99	1 810.00	79.60	159.20	238.80	11.94
XI	1 910–2 139.99	8 277–9 272.99	2 025.00	89.10	178.20	267.30	13.37
XII	2 140–2 379.99	9 273–10 312.99	2 260.00	99.40	198.80	298.20	14.91
XIII	2 380–2 629.99	10 313–11 396.99	2 505.00	110.20	220.40	330.60	16.53
XIV	2 630–2 919.99	11 397–12 652.99	2 775.00	122.10	244.20	366.30	18.32
XV	2 920–3 137.99	12 653–13 599.99	3 029.00	133.30	266.60	399.90	20.00
XVI	3 138 and over	13 600 and over	3 138.00	138.10	276.20	414.30	20.72

Contributions payable by an employer in respect of employment injury coverage for an employed person who has not yet attained the age of 16 years, who is in receipt of a retirement pension or who has attained the age of 65 are as set out in Class Z of the above Table. For unpaid apprentices, the contribution is TT$1.00 per week.

A1.5. Benefit provisions

A1.5.1. Long-term benefits

Retirement pension

Contribution requirement: 750 weeks of contributions paid or credited (Regulation 16, NIR-Benefits).[16]

Age requirement: Age 60 or over and retired from the workforce, or age 65 and over regardless of whether the person is retired (Regulation 16, NIR-Benefits).

Amount of benefit: 30 to 48 per cent of average weekly earnings over the whole period for which contributions are paid or credited, based on the 16 earnings classes, plus 0.56 to 0.71 per cent of average weekly earnings for each 25-week period of contributions (not including age credits) exceeding 750.

Monthly Basic Retirement Pension, TT$566.72 for earning class I (48 per cent of average weekly earnings) and TT$4,079.40 for earning class XVI (30 per cent of average weekly earnings) (Table B7 Schedule 3 NIA, modified by Act No.7 of 2016).

Increments range from TT$8.28 for earning class I and TT$76.14 for earning class XVI) (Table B7 Schedule 3 NIA, modified by Act No. 7 of 2016).

Minimum basic pension: TT$3,000 per month (Section 54B (5A) NIA).

Duration of pension: Payable for life of the recipient (Regulation 14(d), NIR-Benefits)

Retirement grant

Contribution requirement: Less than 750 weeks of contributions paid or credited (Regulation 17 NIR-Benefits).

Eligibility: The person is ineligible for the retirement pension.

Age requirement: Same as retirement pension.

Amount of benefit: Three times total employee and employer contributions (*min.:* TT$3,000).

Invalidity pension

Eligibility: The insured persons must be aged less than 60, suffer from an incapacity not caused by employment and have medical certification that the person is likely to remain incapable of work for a period of at least 12 months *and* have a minimum of 150 contributions, 50 of which must have been made during the 3 years preceding the contingency; or have 250 contributions in the 7 years preceding the contingency; or have 750 contributions or more (Regulation 14 (c)(ca) and 24, NIR-Benefits) *Amount of benefit:* Same as retirement pension, but not subject to the minimum pension (Regulation 24A, NIR-Benefits).

Duration of pension: Payable until age of 60 (or until recovery from invalidity) and then converted to a retirement pension of the same amount whether or not 750 weeks of contributions have been paid or credited (Regulation14(c) NIR-Benefits).

Survivors' pension

Eligibility: Death not caused by employment injury. Benefit not paid where the deceased insured who received or would have been entitled to a Retirement grant. A

[16] According to the National Insurance (Contribution) Regulations, "week" means the period from midnight on Sunday to midnight the following Sunday and includes any part of a week and the number of weeks in a month shall be calculated according to the number of Mondays in that month (Regulation 1 and 3).

minimum of 50 weeks of contributions paid (Regulation 47(2) NIR-Benefits, Section 46(1)(g)(h) NIA):

- *Widow or widower:* legal or common law spouse (Section 46(2), NIA).
- *Child:* less than age 19, including an unborn child, unmarried and unemployed or disabled (i.e., child is unable to work by reason of mental or physical disability) (Regulation 45(1) NIR-Benefits, Section 46(2), NIA). In the case of an orphan, when only one of the deceased parents was an insured, this orphan is considered as a child.
- *Orphan:* less than age 19 (Section 46(2), NIA).
- *Parent:* wholly or mainly maintained by deceased insured (Section 46(2), NIA).

Amount of benefit: Proportion of retirement or invalidity pension, to which the spouse/child/orphan/parent was entitled, as follows (Tables C7 and B7, Schedule 3 NIA, modified by Act No. 7 of 2016, 54C (9) NIA):

- *Widow/widower:* 60 per cent (min.: TT$600 per month)
- *Child:* 30 per cent (min.: TT$600 per month)
- *Orphan:* 60 per cent (min.: TT$1,200 per month)
- *Parents:* 30 per cent (min.: TT$600 per month to be shared between the two parents if both alive). If one parent dies, the surviving parent receives the total amount of dependent parents' benefit.
- Maximum family benefit: 100 per cent.

Duration of benefit:

- *Widow or widower:* the pension is paid for life or until remarriage.
- *Child/orphan:* Payable up to age 19. If the child/orphan was mentally or physically disabled before age 19, the benefit is paid until the incapacity ceases.
- *Parents:* the pension is paid for life or until remarriage (Regulation 14(e) NIR-Benefits).

Remarriage grant

Eligibility: Payable at remarriage of widow or widower.

Amount of benefit: Lump-sum equal to 52 weeks of widow/widower pension (Regulation 42, NIR-Benefits).

A1.5.2. Short-term benefits

Sickness benefit

Contribution requirement: A minimum of 10 weekly contributions in the 13 weeks immediately preceding the week in which illness began (Regulation 18(3)(a), NIR-Benefits).

Eligibility: The insured person must have been in insurable employment at the time of illness and *rendered temporarily incapable of work by reason of sickness caused otherwise than by employment injury (Regulation 18(1) NIR)*

Amount of benefit: 60 per cent of the insured average weekly earnings over the best 10 out of the 13 weeks immediately preceding the illness, based on the 16 earnings classes (Regulation19 NIR-Benefits).

Min.: TT$162.00 per week for earning class I (Table A7, Schedule 3 NIA, modified by Act No.7 of 2016).

Max.: TT$1,882.80 per week (for earning class XVI (Table A7 Schedule 3 NIA, modified by Act No.7 of 2016).

Waiting period: Three days.

Duration of benefit: Payable for a maximum of 52 weeks (Regulation 14(a) NIR-Benefits).

Where two or more periods of incapacity during which sickness benefits are paid are separated by less than 10 weeks, these are treated as a single period (the daily rate payable is the same across periods) (Regulation 20, NIR-Benefits)

Maternity benefit

Contribution requirement: A minimum of 10 weekly contributions in the 13 weeks immediately preceding the sixth week before the expected week of confinement (Regulation 22 NIR-Benefits).

Eligibility: The insured woman is not in insurable employment during the period of leave and pregnant for a minimum of 26 weeks or delivered a live child as certified by a medical practitioner. The benefit is not dependent upon loss of earnings (Regulation 22 NIR-Benefits).

Amount of Benefit: 60% of the insured average weekly earnings over the best 10 out of the 13 weeks immediately preceding the illness, based on the 16 earnings classes.

Min.: TT$162.00 per week for earning class I (modified by Act No.7 of 2016).

Max.: TT$1,882.80 per week for earning class XVI (modified by Act No.7 of 2016).

Duration of benefit: Paid as a lump-sum equivalent to a maximum of 14 weeks of the weekly benefit, starting not earlier than 6 weeks before the expected date of delivery and continuing until the expiration of 14 weeks (Regulation 27A NIR-Benefits).

Maternity grant

Eligibility: A woman who satisfies the contribution requirement for maternity benefit (Regulation 22A NIR-Benefits). Where the mother does not qualify in her own right, based on father's contributions (i.e., insurable employment for not less than 10 contribution weeks) (then named Special maternity grant) (Regulation 53 NIR-Benefits). Payable for each birth in case of multiple births.

Amount of benefit: TT$3,750 (Regulation 51 NIR-Benefits).

Funeral grant

Eligibility: Death of an insured person. The deceased insured must have made a minimum of 25 contributions or have been in receipt of employment injury benefit at the time of death or would have been entitled to receive employment injury benefit but for death (Regulation 49 NIR-Benefits).

Amount of benefit: TT$7,500 (Regulation 51, NIR-Benefits).

A1.5.3. Employment injury benefits

Injury allowance

Eligibility: At least one contribution paid. Incapable of work as a result of an accident arising out of insured employment, or as a result of a prescribed disease. This includes employed insured persons who are under 16 or over 65 years. The benefit is not dependent upon loss of earnings.

Amount of benefit: 66⅔% of weekly earnings related to the contributions paid for the week during which the accident occurred, or the disease was diagnosed.

Min.: TT$180.00 per week for earning class I (Table D7 Schedule 3 NIA, modified by Act No.7 of 2016).

Max.: TT$2,092.00 per week for earning class XVI (Table D7 Schedule 3 NIA, modified by Act No.7 of 2016)).

Duration of benefit: Payable for a maximum of 52 weeks (Regulation 14(f)) NIR-Benefits).

Disablement pension

Eligibility: At least one contribution paid. Disablement resulting from an accident at work, or a prescribed disease and the insured person is certified to be at least 20 per cent disabled.

Amount of benefit: Percentage of the amount of employment injury allowance, proportional to the degree of disability (Regulation29, NIR-Benefits).

Duration of benefit: After injury allowance has ceased, payable for life or until disablement ceases (Regulation 14(f)) NIR-Benefits).

Disablement grant

Eligibility: At least one contribution paid. The insured person must be ineligible for disablement pension i.e., the insured person is certified to be less than 20 per cent disabled (Regulation 30 NIR-Benefits).

Amount of Benefit: A lump sum equal to the product of the degree of disablement (minimum of 3 per cent) times the number of weeks it is expected that the disablement will last (maximum of 365) times 50 per cent of the average weekly earnings that would be used for injury allowance (Regulation 30(2)(3) NIR-Benefits).

Death benefit

Eligibility: At least one contribution paid. The death of an insured person in the course of insurable employment as a result of an accident or a prescribed disease.

Amount of Benefit: Pension payable to widow, widower, a child, an orphan and dependent parents, subject to similar conditions as survivors' benefits. Death benefits are the same percentages of injury allowance as survivors' benefits are of the retirement pension (Table D7, Schedule 3 NIA, modified by Act No.7 of 2016).

Duration: Survivor's benefits are paid to the widow/widower for life or until they remarry; Child benefits are provided until age of 19 or if disabled; Parents pensions are paid for life or until the parent remarries (Regulation 14(f), NIR-Benefits)

Medical expenses

Eligibility: An insured person who incurs the cost of medical treatment for the personal injury or prescribed industrial disease arising out of insured employment.

Expenses covered: Doctor's fees, drugs, private hospital, operations, attendance allowances.

Amount of benefit: Maximum of TT$33,750 per injury.

A1.6. Benefit indexing

There is no automatic indexing of pensions in payment and benefit amounts. In practice, pensions in payment and benefit amounts are adjusted every three years, following the recommendations of the periodic actuarial review.

Appendix 2. NIS methodology, data and assumptions

A2.1. Projection of NIS income and expenditure

This actuarial review addresses all NIS revenue and expenditure items. For employment injury and occupational disease benefits, long-term benefits (pensions), funeral benefits and grants and short-term benefits, projections are performed following a year-by-year cohort methodology. For each year up to 2070, the number of contributors and pensioners, and the value of contributions, benefits and administrative expenditure, are estimated. Once the projections of the insured (covered) population, as described in the next Section, are complete, contribution income is then determined from the projected total insurable earnings, the contribution rate, contribution density and the collection rate. Benefit amounts are obtained through contingency factors based primarily on plan experience and applied to the population entitled to benefits. Investment income is based on the assumed yield on the beginning-of-year reserve and net cash flow in the year. The NIS' administrative expenses are modelled as a function of inflation and wage increase. Finally, the year-end reserve is the beginning-of-year reserve plus the net result of cash inflow and outflow.

Based on recent experience, the administrative expenses assumption at the beginning of the projection is 0.66 per cent of total insurable earnings, and 0.72 per cent at the end, with some slight fluctuations between 2020 and 2070.

A2.2. NIS population data and assumptions

The projection of the insured population requires a certain amount of information and a number of assumptions. Projections start with the number of contributors as at the date of the analysis. There is no explicit assumption regarding the growth of this population because the population is directly linked to the evolution of the employed population and the salaried population. Several other assumptions of decrement are required, namely retirement rates by age and sex, prevalence rate of disability and mortality rates. The number of new entrants into the covered population is determined implicitly by the coverage rate.

A2.2.1. Insured population as of the valuation date

Data on the insured population was obtained from the NIB. These distributions of the contributors come from an extraction from the NIS' computerized system. The information transmitted was validated to ensure that all the data are comprehensive and consistent. Some adjustments have been made to better fit the data to the model, to take into account the lack of information for some contributors and to fit the financial statement. Section 2.3 of the report discusses the data. Table A2.1 shows the estimated number of members who contributed during the last financial year preceding the valuation date (2019–120) for the long-term and short-term benefits, by age and sex, while Table A2.2 shows the number of insured who contributed during the last financial year preceding the valuation date (2019–20) for the EII.

▶ Table A2.1. Distribution of active members (contributors), long-term and short-term branches, by age and sex, 2019–20

Age	Males	Females	Total
15-19	3 726	3 829	7 555
20-24	17 080	18 318	35 398
25-29	26 778	29 948	56 726
30-34	33 694	38 484	72 178
35-39	35 817	40 227	76 044
40-44	29 629	32 762	62 391
45-49	26 285	26 856	53 141
50-54	22 785	23 003	45 788
55-59	23 552	22 551	46 103
60-64	6 820	6 426	13 246
65-69	499	401	900
Total	**226 665**	**242 805**	**469 470**

▶ Table A2.2. Distribution of active members (contributors), EII branch, by age and sex, 2019–20

Age	Males	Females	Total
15-19	3 727	3 829	7 556
20-24	17 083	18 325	35 408
25-29	26 782	29 949	56 731
30-34	33 697	38 491	72 188
35-39	35 821	40 231	76 052
40-44	29 639	32 766	62 405
45-49	26 289	26 863	53 152
50-54	22 791	23 010	45 801
55-59	23 563	22 561	46 124
60-64	8 524	8 033	16 557
65-69	2 036	1 723	3 759
Total	**229 952**	**245 781**	**475 733**

A2.2.2. Projection of the insured population

The projection of the insured population constitutes the basis for projections of the System's costs. In order to forecast the NIS' costs, the initial insured population has to be projected over the long term. These projections require the use of assumptions pertaining specifically to the population, such as retirement rate by age and sex. To undertake the projection, the employed population has been divided into two categories: salaried employees and self-employed (Table A2.3). The insured population was projected by applying coverage rates of the initially insured population to the salaried population (Tables A2.4 and A2.6)[17]. The coverage rates have been adjusted during the first 5 years of projection to reproduce a decreasing covered population of a similar magnitude as the one observed during the last five years preceding the actuarial valuation. In fact, for the first five years of the projection the average annual decrease in the number of contributors is 2.5 per cent while the one observed for the last five years before the actuarial valuation is 3.2 per cent. The total growth of the insured population (Table A2.6) is however not based on an explicit assumption but on the results of applying the coverage rate to the projection of the employed population.

[17] For the contributors of the class Z, the covered population is in relation to the employed population, not the salaried population.

▶ Table A2.3. Proportion of salaried employees and self-employed, by age and sex (percentages of employed population), 2020

Ages	Male salaried	Female salaried	Male self-employed	Female self-employed
15–19	85.2	96.3	14.8	3.7
20–24	82.9	94.0	17.1	6.0
25–29	77.4	91.2	22.6	8.8
30–34	74.8	88.1	25.2	11.9
35–39	72.2	87.8	27.8	12.2
40–44	67.1	85.5	32.9	14.5
45–49	62.4	81.7	37.6	18.3
50–54	61.3	79.6	38.7	20.4
55–59	59.9	80.9	40.1	19.1
60–64	46.2	73.8	53.8	26.2
65–69	35.2	51.6	64.8	48.4
Total	**68.7**	**85.7**	**31.3**	**14.3**

▶ Table A2.4. Proportion of salaried employees and self-employed, by age and sex (percentages of employed population), 2025

Ages	Male salaried	Female salaried	Male self-employed	Female self-employed
15–19	83.6	96.2	16.4	3.8
20–24	80.8	94.0	19.2	6.0
25–29	74.6	91.2	25.4	8.8
30–34	71.6	88.1	28.4	11.9
35–39	68.6	87.7	31.4	12.3
40–44	63.0	85.5	37.0	14.5
45–49	57.7	81.7	42.3	18.3
50–54	56.5	79.5	43.5	20.5
55–59	54.7	80.9	45.3	19.1
60–64	39.4	73.7	60.6	26.3
65–69	27.0	51.6	73.0	48.4
Total	**64.3**	**85.5**	**35.7**	**14.5**

▶ Table A2.5. Coverage rate, long-term and short-term benefits, proportion of the salaried population, by age and sex, (percentages)

Ages	Male 2020	Male 2025+	Female 2020	Female 2025+
15–19	61.2	55.1	94.4	88.0
20–24	74.9	67.7	105.9	96.2
25–29	85.6	77.4	104.6	94.6
30–34	90.2	81.6	113.0	102.1
35–39	91.4	82.7	110.2	99.6
40–44	98.5	89.0	111.2	100.5
45–49	109.6	99.0	113.5	102.6
50–54	104.7	94.6	114.2	103.1
55–59	117.7	107.1	125.2	113.9
60–64	40.7	64.7	47.1	68.8
65–69	15.3	18.3	20.3	22.1
Total	**92.2**	**84.2**	**109.1**	**99.4**

Note: Coverage rate may be over 100 per cent because of the density of contributions or the use of a different basis to calculate the employed population.

▶ Table A2.6. Coverage rate, EII, proportion of the salaried population, by age and sex, (percentages)

Ages	Male 2020	Male 2025+	Female 2020	Female 2025+
15–19	61.2	55.1	94.4	88.0
20–24	74.9	67.7	106.0	96.2
25–29	85.6	77.4	104.6	94.6
30–34	90.2	81.6	113.0	102.2
35–39	91.4	82.7	110.2	99.6
40–44	98.5	89.1	111.3	100.5
45–49	109.6	99.0	113.5	102.6
50–54	104.7	94.6	114.2	103.1
55–59	117.7	107.2	125.2	114.0
60–64	63.9	92.4	71.9	93.8
65–69	128.8	166.0	169.1	170.7
Total	**93.6**	**85.9**	**110.5**	**100.9**

Note: Coverage rate may be over 100 per cent because of the density of contributions or the use of a different basis to calculate the employed population.

▶ Table A2.7. Insured population growth assumptions, by sex and 25-year period (percentages)

	2020–45	2045–70	Average
Males	-1.0	-0.8	-0.9
Females	-0.7	-0.8	-0.8
Total	**-0.9**	**-0.8**	**-0.8**

Disability incidence rates

Table A2.8 shows the expected incidence rates of insured persons qualifying for invalidity benefit which is assumed for all projection years. The rates are based on the experience of the NIS.

▶ Table A2.8. Disability rates, by age and sex (per 100 insured)

Age	Males	Females
15	0.000	0.000
20	0.000	0.000
25	0.007	0.005
30	0.013	0.009
35	0.025	0.018
40	0.048	0.034
45	0.090	0.066
50	0.171	0.126
55	0.325	0.243

Persons with disabilities generally have a higher mortality rate than active participants. Mortality rates of the disabled have been adjusted to consider the higher mortality. The adjustment decreases with age.

Disability incidence rates for EII

Table A2.9 shows the expected incidence rates of insured persons related to the disablement pension. The rates are based on the experience of the NIS.

▶ Table A2.9. Disablement pension incidence rates, by age and sex (per 100 insured)

Age	Males	Females
15	0.0000	0.0000
20	0.0010	0.0009
25	0.0097	0.0035
30	0.0224	0.0096
35	0.0353	0.0132
40	0.0470	0.0238
45	0.0522	0.0295
50	0.0713	0.0298
55	0.0778	0.0296
60	0.1098	0.0551
65	0.1338	0.0290

Incidence rates for short-term benefits

Tables A2.10 and A2.11 show the expected incidence rates of insured persons related to the maternity benefits and the sickness benefits. The rates are based on the experience of the NIS.

▶ Table A2.10. Maternity benefits incidence rates, by age and sex (per 100 insured)

Age	Maternity benefit	Special maternity benefit
15	0.16	0.06
20	1.39	0.34
25	3.30	0.69
30	4.83	0.79
35	5.13	0.62
40	3.46	0.31
45	1.20	0.08

▶ Table A2.11. Sickness benefits incidence rates, by age and sex (per 100 insured)

Age	Males	Females
15	0.9530	2.0168
20	1.3140	2.8554
25	1.1784	2.6498
30	1.1744	2.5843
35	1.1163	2.2061
40	1.1578	1.9274
45	1.2935	1.8582
50	1.4740	1.8136
55	1.2833	1.3978
60	0.6098	0.6548

Duration of benefits for short-term benefits

For maternity benefits, an average duration of 97 days is used for the projection for all maternity cases. Tables A2.12 shows the average duration of benefits for sickness benefits. The average durations are based on the experience of the NIS.

▶ Table A2.12. Sickness benefits average duration of benefits, by age and sex, in days

Age	Males	Females
15–19	21.7	17.8
20–24	25.0	19.0
25–29	29.9	25.4
30–34	33.2	29.1
35–39	35.1	32.0
40–44	40.4	36.2
45–49	45.3	39.2
50–54	55.2	45.1
55–59	59.9	49.4
60–64	58.1	48.0

Mortality rates of the insured population

Mortality rates used in the projections for the participants of the pension system are different from, and lower than, those of the general population, especially for those who receive a pension. Mortality rates have been based on the analysis of the experience of the NIS. Same improvement rates have been used as the ones applying to the mortality of the general population. Table A2.13 presents the life expectancy calculated using the mortality rates of the insured population, while Table A2.14 compares, for specific ages, mortality rates assumed for the years 2020, 2045 and 2070.

▶ Table A2.13. Life expectancy by sex and for different ages, 2020, 2045 and 2070

Year	Men		Women	
	At 20	At 60	At 20	At 60
2020	55.5	21.3	62.7	26.3
2045	57.7	22.4	64.7	27.5
2070	60.7	24.0	66.8	29.0

▶ Table A2.14. Mortality rates at selected age intervals, insured population, 2020, 2045 and 2070 (per 1,000 persons)

Selected ages	Males			Females		
	2020	2045	2070	2020	2045	2070
15	0.6	0.4	0.4	0.2	0.2	0.2
20	1.7	1.2	0.8	0.7	0.6	0.6
25	2.7	2.0	1.3	0.8	0.6	0.6
30	2.6	2.0	1.3	1.0	0.8	0.6
35	2.8	2.1	1.4	1.4	1.1	0.8
40	3.1	2.4	1.6	1.8	1.4	1.0
45	4.0	3.1	2.1	2.6	2.0	1.4
50	5.7	4.4	3.1	3.5	2.7	1.9
55	8.2	6.4	4.5	5.2	3.9	2.9
60	9.6	7.7	5.6	3.8	3.0	2.2
65	16.1	13.3	9.8	8.2	6.4	4.7
70	25.0	21.1	16.1	13.9	10.9	8.1
75	40.9	35.7	28.5	22.0	18.0	14.1
80	65.0	58.5	48.9	35.4	30.0	24.6
85	97.1	89.3	76.7	59.3	51.2	42.8
90	153.3	152.7	138.5	95.2	87.5	75.5
95	207.5	226.2	231.7	161.5	167.2	156.3

Retirement rates

Table A2.15 shows the retirement rates in 2021, 2026 and 2031 for males and females. Starting in 2031, the retirement rates are kept constant for the period of the projection.

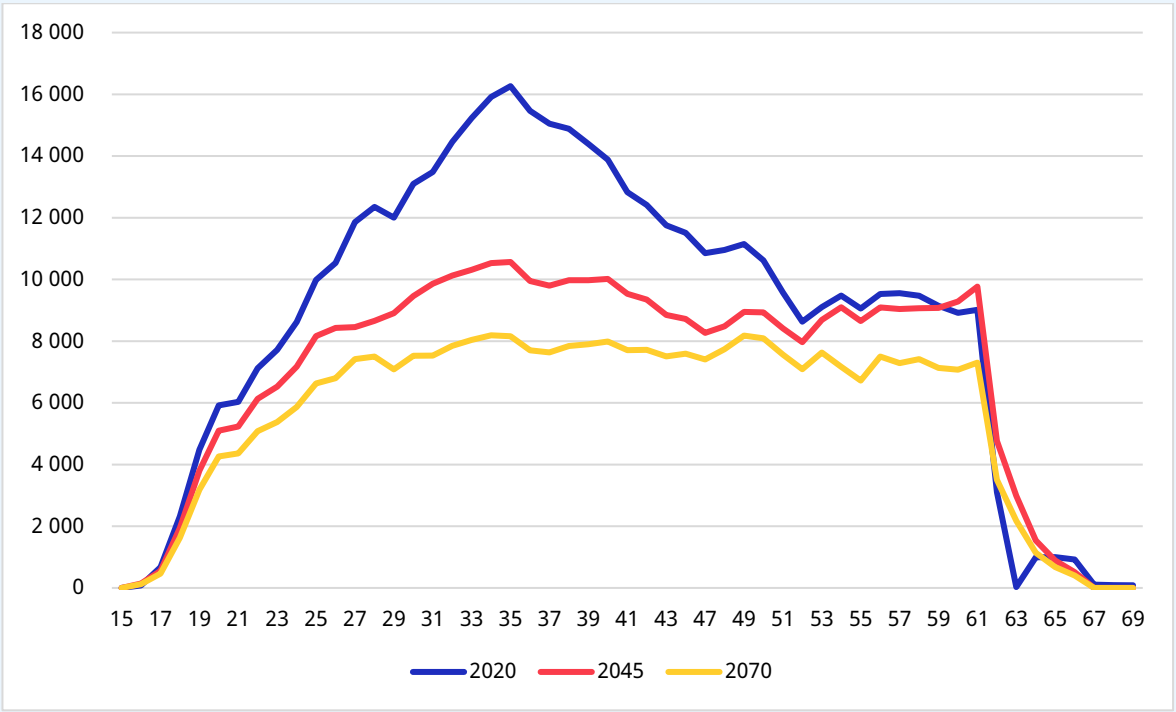
▶ Table A2.15. Retirement rates, by age, 2021, 2026 and 2031 (percentages)

	MALE			FEMALE		
AGE	2021	2026	2031	2021	2026	2031
60	51	54	55	47	49	50
61	35	35	35	40	40	40
62	50	50	50	45	45	45
63	40	40	40	40	40	40
64	40	40	40	40	40	40
65	40	40	100	40	40	100
66	40	40	100	40	40	100
67	40	40	100	40	40	100
68	40	40	100	40	40	100
69	40	40	100	40	40	100
70	100	100	100	100	100	100

Structure of the insured population

Figure A2.1 shows the age structure of the initial insured population together with those projected as prevailing in 2020, 2045 and 2070. At the beginning of the projection period, the average age is 39.9 years old while at the end of the projection it is 41.2 years old.

▶ Figure A2.1. Distribution of the insured population by age, 2020–70



A2.2.3. Salary scale and density of contribution

Table A2.16 shows the salary scale used at the beginning of the projection period. Earnings are projected using the assumptions described earlier.

For the purpose of projection, the actuarial model distributes average wages into three sections (low, medium, high) with the aim of measuring the effect of the minimum pension and the ceiling. It is estimated that the dispersion observed in the distribution of earnings will remain constant throughout the projection period. For this actuarial valuation, the assumptions that the maximum insurable wage will increase, starting in 2023, according to the wage growth is made even if there is no explicit intention to increase the ceiling in future years according to the wage. Generally speaking, increasing the ceiling with salaries is in line with good design practice in a social security system.

▶ Table A2.16. Distribution of monthly earnings by age and sex, 2020 (TT$)

Age	Males	Females	Both sexes
15–19	4 652	4 043	4 343
20–24	6 016	5 237	5 613
25–29	7 576	6 733	7 131
30–34	8 361	7 555	7 931
35–39	8 612	7 822	8 194
40–44	8 686	7 772	8 207
45–49	8 604	7 435	8 013
50–54	8 236	6 924	7 577
55–59	7 914	6 323	7 136
60–64	7 654	5 499	6 609
65–69	7 654	5 499	6 695
Average	8 059	7 052	7 538

The density of contributions represents the proportion of the year during which participants pay contributions to the System. A high contribution density means that participants will accumulate pension benefits quickly and that the proportion of those entitled to a pension will increase, to the detriment of those entitled only to a grant benefit. In the private sector, it is normal that the density of contribution is less than the one observed in the public sector, due to less stability in employment. The contribution density assumed in this actuarial valuation is shown in table A2.17 and is firstly based on the experience of the NIS but is also adjusted to balance the contribution income with the financial statements.

▶ Table A2.17. Density of contributions, by age and sex (percentages)

Age	Males	Females
15–19	43	42
20–24	64	63
25–29	78	80
30–34	83	85
35–39	85	87
40–44	87	88
45–49	88	89
50–54	90	91
55–59	94	95
60–64	70	71
65–69	52	50

A2.2.4. Inactive insured population

The structure of the inactive population has been analysed (those who have not contributed during 2019–20, but have contributed to the System before that year, and have never received a benefit). The experience of the inactive population related to the mortality pattern has also been analysed. Based on these analyses, an assumption regarding the inactive population used in this actuarial valuation has been established and is shown in Table A2.18. Caution is necessary in establishing the inactive population to not materially underestimate or overestimate the cost of the System. During the process of establishing the assumption regarding the inactive population, consistency checks have been performed. Inactive insured having few years of services have been eliminated for calibrating purpose.

▶ Table A2.18. Distribution of inactive members, by age and sex, 2019–20

Age	Males	Females	Total
15–19	10	7	17
20–24	1 784	1 734	3 518
25–29	8 116	7 894	16 010
30–34	15 612	14 345	29 957
35–39	21 186	18 141	39 327
40–44	19 328	16 916	36 244
45–49	17 435	14 443	31 878
50–54	16 210	12 495	28 705
55–59	18 106	13 448	31 554
60–64	6 460	4 360	10 820
65–69	2 333	1 378	3 711
Total	**126 580**	**105 161**	**231 741**

A2.2.5. Past service

Credited service for the active and inactive insured populations was transmitted by the NIS. Tables A2.19 and A2.20 show, for active and inactive members respectively, the total number of years of contributions as of the valuation date. Numbers are shown by age and sex.

▶ Table A2.19. Average past contribution years for active insured persons, by age and sex, June 2020

Age	Males	Females
15–19	1.1	1.2
20–24	2.3	2.3
25–29	4.8	4.9
30–34	8.2	8.3
35–39	11.3	11.2
40–44	13.7	13.3
45–49	16.1	15.0
50–54	18.8	16.8
55–59	23.2	20.5
60–64	25.6	21.4
65–69	27.9	27.1

▶ Table A2.20. Average past contribution years for inactive insured persons, by age and sex, June 2020

Age	Males	Females
15–19	1.2	1.2
20–24	2.3	2.3
25–29	3.2	3.2
30–34	4.4	4.4
35–39	5.7	5.7
40–44	6.6	6.6
45–49	7.8	7.8
50–54	9.1	9.1
55–59	12.2	12.2

A2.2.6. Pensioners at the valuation date: Long-term branch

Tables A2.21 to 27 show the distribution of pensioners used for this actuarial valuation as at the valuation date.

▶ Table A2.21. NIS average monthly retirement pensions in payment, by age and sex, June 2020 (TT$)

Age	Male		Female	
	No. of pensions	Average amount	No. of pensions	Average amount
0–4			–	–
5–9			–	–
10–14			–	–
15–19			–	–
20–24			–	–
25–29			–	–
30–34			–	–
35–39			–	–
40–44			–	–
45–49			–	–
50–54			–	–
55–59			–	–
60–64	19 591	3 192	13 931	3 238
65–69	20 305	3 017	13 230	3 080
70–74	15 098	2 982	8 854	3 069
75–79	9 252	2 979	5 355	3 065
80–84	5 118	2 987	2 990	3 029
85–89	2 410	2 994	1 563	3 013
90–94	984	2 998	690	3 000
95+	313	3 000	242	3 000
Total	**73 071**	**3 049**	**46 855**	**3 116**

▶ Table A2.22. Invalidity monthly pensions in payment, by age and sex, June 2020 (TT$)

Age	Male		Female	
	No. of pensions	Average amount	No. of pensions	Average amount
0–4				
5–9				
10–14				
15–19				
20–24	2	1 234		
25–29	7	1 713	4	1 584
30–34	24	1 925	28	1 606
35–39	81	2 097	59	1 848
40–44	128	1 982	113	1 781
45–49	227	2 071	168	1 683
50–54	408	1 960	275	1 661
55–59	975	1 997	563	1 588
60–64	184	2 024	104	1 510
65–69				
70–74				
75–79				
80–84				
85–89				
90–94				
95+				
Total	**2 036**	**2 001**	**1 314**	**1 638**

▶ Table A2.23. Survivors' monthly pensions in payment, by age and sex, June 2020 (TT$)

Age	Male		Female	
	No. of pensions	Average amount	No. of pensions	Average amount
0–4				
5–9				
10–14				
15–19				
20–24				
25–29	84	998	9	974
30–34	254	1 126	34	981
35–39	519	1 106	75	1 032
40–44	783	1 083	143	984
45–49	1 132	1 063	205	974
50–54	1 908	1 001	267	976
55–59	3 159	998	391	963
60–64	4 016	968	529	984
65–69	4 485	895	511	1 019
70–74	4 588	797	431	1 003
75–79	4 049	705	300	882
80–84	3 168	646	219	800
85–89	2 453	616	115	715
90–94	1 469	603	49	633
95+	688	602	12	609
Total	**32 755**	**834**	**3 290**	**952**

▶ Table A2.24. Orphans and parents' monthly pensions in payment, by age, June 2020 (TT$)

Age	No. of pensions	Average amount
0–4	353	680
5–9	1 511	678
10–14	3 028	663
15–19	4 373	646
20–24	46	621
25–29	17	593
30–34	41	629
35–39	31	600
40–44	29	683
45–49	33	680
50–54	28	604
55–59	61	517
60–64	92	460
65–69	92	459
70–74	76	432
75–79	111	368
80–84	86	374
85–89	60	351
90–94	23	351
95+	9	367
Total	**10 100**	**643**

A2.2.7. Pensioners at the valuation date: EII

Tables A2.25–27 show the distribution of pensioners used for this actuarial valuation for the EII branch as at the valuation date.

▶ **Table A2.25. Disablement average monthly pensions in payment, by age and sex, June 2020 (TT$)**

Age	Male		Female	
	No. of pensions	Average amount	No. of pensions	Average amount
0–4				
5–9				
10–14				
15–19				
20–24			1	2 720
25–29	9	2 054		
30–34	38	1 598	16	1 733
35–39	90	1 706	26	1 112
40–44	129	1 698	51	1 476
45–49	181	1 677	66	1 541
50–54	289	1 456	76	1 548
55–59	435	1 437	110	1 321
60–64	461	1 374	108	1 445
65–69	373	1 188	68	1 270
70–74	253	1 014	62	1 129
75–79	132	949	20	1 264
80–84	62	872	20	776
85–89	20	786	4	572
90–94	6	922	2	538
95+	1	646		
Total	**2 479**	**1 345**	**630**	**1 359**

▶ Table A2.26. Survivors' monthly pensions in payment (EII), by age and sex, June 2020 (TT$)

Age	Male		Female	
	No. of pensions	Average amount	No. of pensions	Average amount
0–4				
5–9				
10–14				
15–19				
20–24				
25–29	1	2 418		
30–34	3	3 805		
35–39	11	3 282		
40–44	21	3 019		
45–49	28	2 531		
50–54	37	2 540	1	4 801
55–59	39	2 231	1	3 103
60–64	54	1 901		
65–69	42	1 768	1	1 855
70–74	35	1 659		
75–79	15	1 412		
80–84	5	1 196		
85–89	2	1 291		
90–94	1	1 291		
95+	1	1 291		
Total	**295**	**2 144**	**3**	**3 253**

▶ Table A2.27. Orphans and parents' monthly pensions in payment (EII), by age, June 2020 (TT$)

Age	No. of pensions	Average amount
0–4	4	1 773
5–9	15	1 801
10–14	25	1 701
15–19	45	1 785
20–24	2	1 729
25–29		
30–34		
35–39		
40–44		
45–49		
50–54	1	784
55–59	5	962
60–64	4	1 102
65–69	10	1 632
70–74	7	953
75–79	12	700
80–84		
85–89		
90–94		
95+		
Total	**130**	**1 553**

A2.2.8. Family structure

Information on the family structure of the insured population is necessary for the projection of survivors' benefits. Assumptions have to be established on the probability of being married at death, the average age of spouses, the average number of orphans and their average age. These assumptions were obtained from the data collection process. Examples of the assumptions appear in Table A2.28.

▶ Table A2.28. Family statistics

Age	Probability of being married (%)		Average age of spouse		Average number of dependent children		Average age of the children	
	Males	Females	Males	Females	Males	Females	Males	Females
15	1.2	0.5	15	22	0.00	0.00	0.00	0.00
20	0.9	4.6	20	26	0.04	0.11	0.00	0.00
25	7.4	12.8	24	31	0.34	0.51	3.00	3.00
30	17.9	20.4	28	36	0.74	0.78	5.00	5.00
35	29.7	26.8	33	40	0.98	1.03	8.00	8.00
40	36.7	31.4	37	44	0.98	0.83	10.00	10.00
45	43.2	33.6	41	49	0.84	0.64	11.00	11.00
50	47.4	33.5	46	54	0.57	0.32	12.00	12.00
55	48.7	31.2	50	59	0.32	0.13	13.00	13.00
60	46.1	27.0	54	63	0.13	0.01	13.00	13.00
65	44.0	21.6	58	67	0.05	0.00	13.00	13.00
70	42.3	15.6	63	72	0.03	0.00	13.00	13.00
75	42.9	9.7	67	77	0.01	0.00	13.00	13.00
80	41.2	5.0	71	82	0.00	0.00	13.00	13.00
85	41.8	2.1	76	86	0.00	0.00	13.00	13.00
90	46.5	1.2	80	90	0.00	0.00	13.00	13.00
95	49.9	0.6	84	95	0.00	0.00	13.00	13.00

A2.3. Initial reserve

For the purpose of this actuarial valuation, as in the previous actuarial valuation, all the branches have been combined. A different model has been used to project the expenditure of each branch. At the beginning of the projection period, the portion of total net assets available for each branch has to be determined. The initial reserve is TT$28,729 million for all branches.

▶ Appendix 3. Detailed NIS results (1 July 2016 to 30 June 2020)

This appendix presents a detailed reconciliation of financial and demographic data of the NIS over the period 1 July 2016 to 30 June 2020.

A3.1. Reconciliation of financial results

Internal accounting procedures allow for proper monitoring of experience and of the different financing methods, consistent with the fact that each type of benefits has its specific characteristics and funding objectives. Each branch is also expected to meet its expenditures from its own income and accumulated reserves.

▶ Table A3.1. Long-term benefits fund (million TT$)

	2016–17	2017–18	2018–19	2019–20
Fund at start of year	**23 876**	**24 840**	**26 542**	**27 718**
Contribution income	4 101	4 156	4 236	4 217
Investment income *	1 445	1 791	1 720	669
Miscellaneous income	45	40	40	(61)
Transfer from short-term and EI funds	-	486	219	218
Total revenue	5 591	6 473	6 215	5 043
Retirement pension	3 778	3 939	4 137	4 354
Retirement grant	203	170	201	201
Invalidity pension	73	75	77	77
Survivors' pension	368	392	415	436
Administration expenses	204	196	209	242
Transfer to short-term and EI funds	-	-	-	-
Total expenditure	**4 627**	**4 771**	**5 039**	**5 309**
Revenue – Expenditure	**964**	**1 702**	**1 176**	**(266)**
Fund at year-end	**24 840**	**26 542**	**27 718**	**27 452**

* Includes realized and unrealized gains and losses.

Table A3.2. Short-term benefits fund (million TT$)

	2016–17	2017–18	2018–19	2019–20
Fund at start of year	**468**	**502**	**480**	**461**
Contribution income	276	280	282	281
Investment income *	10	12	14	4
Miscellaneous income	-	-	-	-
Transfer from Long-term fund	-	-	-	-
Total revenue	**287**	**293**	**297**	**285**
Sickness benefit	59	54	49	43
Maternity benefit	123	124	118	97
Special Maternity grant	4	4	4	3
Funeral grant	55	58	59	62
Administration expenses	13	13	13	15
Transfer to Long-term fund	-	63	72	119
Total expenditure	**253**	**315**	**316**	**338**
Revenue - Expenditure	**34**	**(23)**	**(19)**	**(53)**
Fund at year-end	**502**	**480**	**461**	**408**

* Includes realized and unrealized gains and losses.

▶ Table A3.3. Employment injury benefits fund (million TT$)

	2016–17	2017–18	2018–19	2019–20
Fund at start of year	**900**	**1 059**	**806**	**790**
Contribution income	230	233	188	187
Investment income *	23	28	31	9
Miscellaneous income	1	1	1	(1)
Transfer from Long-term fund	-	-	-	-
Total revenue	**254**	**262**	**220**	**196**
Disablement benefit	52	51	52	53
Disablement grant	2	2	1	2
Injury allowance	21	17	16	15
Medical expenses	-	-	-	-
Survivors' benefits	10	10	10	10
Administration expenses	11	11	9	10
Transfer to Long-term fund	-	423	147	99
Total expenditure	**96**	**515**	**235**	**189**
Revenue - Expenditure	**158**	**(253)**	**(15)**	**6**
Fund at year-end	**1 059**	**806**	**790**	**797**

* Includes realized and unrealized gains and losses.

A3.2. Comparison of demographic data

▶ Table A3.4. Comparison of expected and observed number of contributors and beneficiaries

	2016–17	2017–18	2018–19	2019–20
	Expected			
Contributors	**512 130**	**511 225**	**509 378**	**507 327**
Retirement pensioners	106 077	112 231	117 593	122 964
Retirement grants	5 677	7 455	6 567	6 429
Survivor pensioners	42 812	45 430	47 501	49 607
Invalidity	3 966	3 814	3 925	4 010
Total long-term	**158 532**	**168 930**	**175 586**	**183 010**
Sickness	10 360	11 401	11 363	11 316
Maternity benefits	7 321	7 935	7 858	7 762
Special maternity grants	998	1 046	1 035	1 023
Funeral grants	7 355	7 571	7 765	7 979
Total short-term	**26 034**	**27 953**	**28 021**	**28 080**
Injury allowances	1 547	1 543	1 538	1 533
Medical expense payments	104	103	103	103
Disablement pensioners	3 284	3 307	3 406	3 504
Disablement grants	81	81	81	81
Death benefits	458	469	472	470
Total employment injury	**5 474**	**5 503**	**5 600**	**5 691**
	Observed			
Contributors	**514 219**	**497 036**	**485 823**	**475 733**
Retirement pensioners	108 116	112 795	117 747	122 228
Retirement grants	5 526	5 110	5 334	4 680
Survivor pensioners	42 812	44 305	45 859	46 886
Invalidity	3 966	3 868	3 763	3 616
Total long-term beneficiaries	**160 420**	**166 078**	**172 703**	**177 410**
Sickness	10 360	10 338	9 318	7 749
Maternity benefits	7 321	7 142	6 824	5 709
Special maternity grants	998	1 084	1 037	754
Funeral grants	7 355	7 690	7 935	8 232
Total short-term beneficiaries	**26 034**	**26 254**	**25 114**	**22 444**
Injury allowances	1 581	1 282	1 269	1 079
Medical expenses payments	63	67	58	39
Disablement pensioners	3 184	3 180	3 155	3 159
Disablement grants	100	66	64	48
Death benefits	458	452	439	434
Total employment injury beneficiaries	**5 386**	**5 047**	**4 985**	**4 759**

	2016–17	2017–18	2018–19	2019–20
	Ratio observed/expected			
Contributors	**1.004**	**0.972**	**0.954**	**0.938**
Retirement pensioners	1.019	1.005	1.001	0.994
Retirement grants	0.973	0.685	0.812	0.728
Survivor pensioners	1.000	0.975	0.965	0.945
Invalidity	1.000	1.014	0.959	0.902
Total long-term beneficiaries	**1.012**	**0.983**	**0.984**	**0.969**
Sickness	1.000	0.907	0.820	0.685
Maternity benefits	1.000	0.900	0.868	0.736
Special maternity grants	1.000	1.036	1.002	0.737
Funeral grants	1.000	1.016	1.022	1.032
Total short-term beneficiaries	**1.000**	**0.939**	**0.896**	**0.799**
Injury allowances	1.022	0.831	0.825	0.704
Medical expenses payments	0.606	0.650	0.563	0.379
Disablement pensioners	0.970	0.962	0.926	0.902
Disablement grants	1.235	0.815	0.790	0.593
Death benefits	1.000	0.964	0.930	0.923
Total employment injury beneficiaries	**0.984**	**0.917**	**0.890**	**0.836**

* Included in disablement pensioners.

Source: Tenth actuarial review and NIBTT's annual reports.

Appendix 4. Methodology of the actuarial valuation

This actuarial valuation is based on long-term projections. These were mainly performed using the Excel/VBA version of models developed by the ILO and by the Ecole nationale d'administration publique (ENAP) of Québec. These models are adaptations of the ILO's Excel/VBA version of the generic model modified to fit the specific case of Trinidad and Tobago and the NIS.

The following pages provide a brief overview of the models that were used, dividing the projection process into two sequential steps:

- Demographic projections
- Projection of salaries, benefits and financial results

For each of these steps, a figure (diagram) illustrates the process. These show the interrelationship between the models, the data sources and the results generated. The assumptions as well as the details about the data are not dealt with here but rather in Chapter 2, Chapter 5, and Appendix 2.

A4.1. Demographic projections

Figure A4.1 illustrates the demographic projection process. The population of Trinidad and Tobago is first projected. In the process of establishing the employed population, it is necessary to project the general population using the fertility, migration, and mortality assumptions. Next, the focus is on the insured population of the NIS. The models used are briefly described below.

A4.1.1. General and employed population model (ILO-POP-LAB)

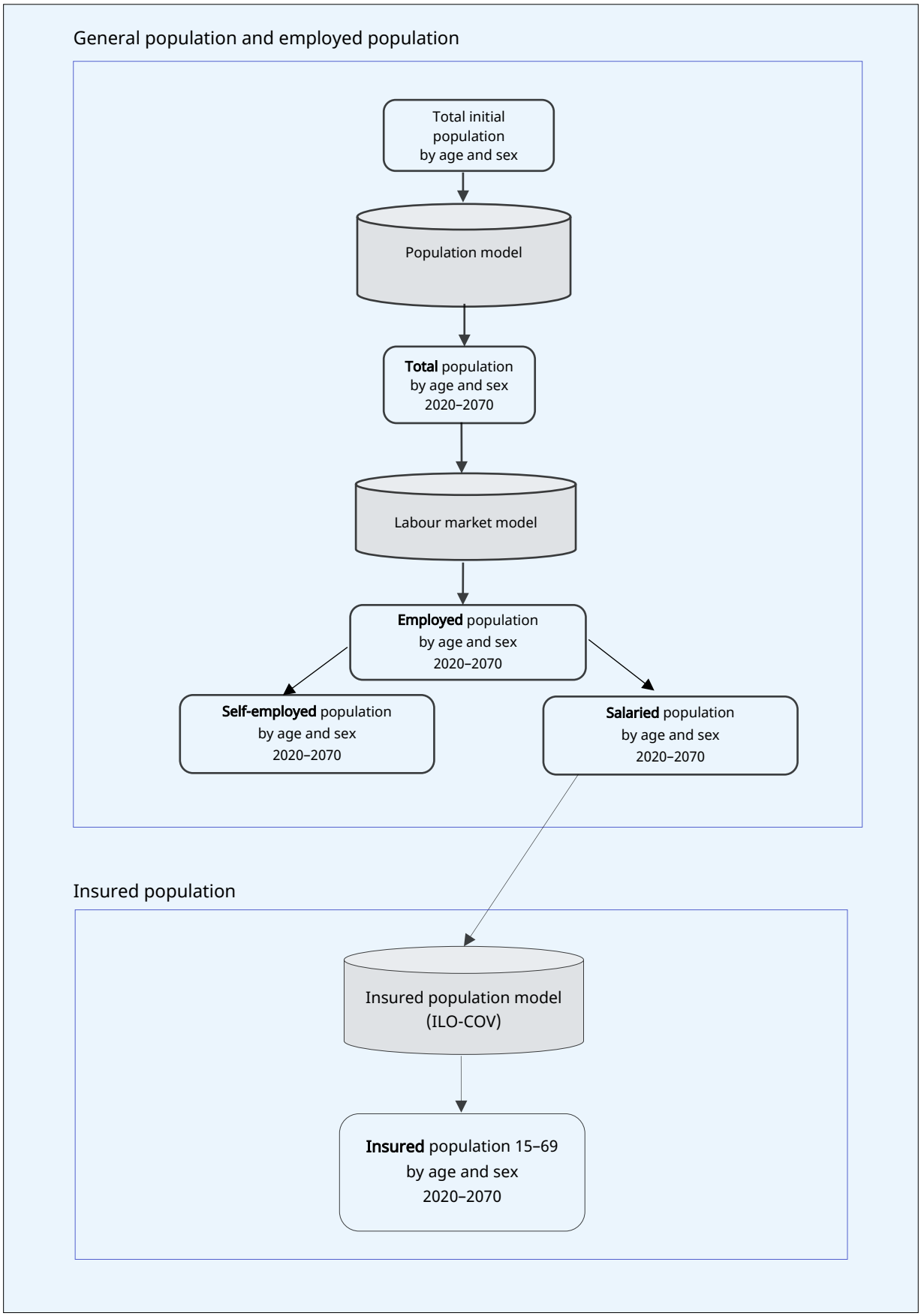
The general population model was adapted by the ILO to make it compatible with its other models, but it is largely based on the methodology developed by the Population Division of the United Nations Department of Economic and Social Affairs.

The general population projection is performed using a methodology based on cohorts by sex and by age. The main variables considered are fertility, migration, and mortality. Chapter 5 presents more details about this. From the initial population by age and by sex in 2011, the model projects its evolution from 2012 to 2070. Only the years 2020 to 2070 are retained for this valuation because it corresponds to the financial projection period of NIS.

Once the general population is established, the model projects the active population, that is, the number of people available to work. This is done by applying labour force participation rates by age, sex and for each future year to the total population previously projected.

Then, the unemployed are removed from the active population, thus obtaining the employed population. The number of unemployed is calculated by applying to the active population unemployment rates by age and sex for each year of the projection. The employed population is split in two: self-employed and salaried.

▶ Figure A4.1. Demographic model



A4.1.2. Insured population (ILO-COV)

In order to project the insured population of each group, the ILO-COV model is based on the coverage rates by age and by sex. For each projection year, and separately for males and females, the approach can be summarized as follows:

- First, the coverage rates by age and sex, are established for the initial population. The coverage rate is the ratio of the initial insured population over the salaried population. This ratio is calculated for each gender and for each individual age.
- Next, assumptions related to the evolution of the coverage rates are established. For this actuarial valuation, the coverage rates are decreased by about 2 per cent per year for the first five years to match the recent experience.
- Finally, the insured population by age and sex are calculated by applying the coverage rates derived in the preceding step to the salaried population.
- This model is based on a cohort approach. The insured population obtained is an input to the ILO-PENS model. This is at the level of the ILO-PENS model that the effects of the mortality, disability and retirement rates assumptions are going to be considered. Evolution of new entrants into the System is going to be determined by the combined effect of the evolution of employed population, salaried population, and the coverage rates.

A4.2. Projection of salaries, benefits, and financial results

Figure A2.2 outlines the process of projecting salaries, benefits, financial results, and the establishment of different indicators. A short description of each of the models used is presented below.

A4.2.1. Salary distribution and projection

In order to reproduce the reality as much as possible, projection models cannot be based solely on average earnings by age and sex. They should also consider their distribution around the average to reflect adequately, for example, factors such as minimum or maximum pensions.

In this model, the earnings data on participants provided by the NIBTT were classified in three categories: the lowest 30 per cent, the highest 30 per cent and the 40 per cent falling between the other two categories. The results of this classification were then used to break down the projected average salaries into three groups: “Low”, “Medium” and “High". The weighted average (30–40–30 per cent) of the average earnings of each of these groups reproduces the overall average earnings of each age/sex cell.

A4.2.2. Pension model (ILO-PENS)

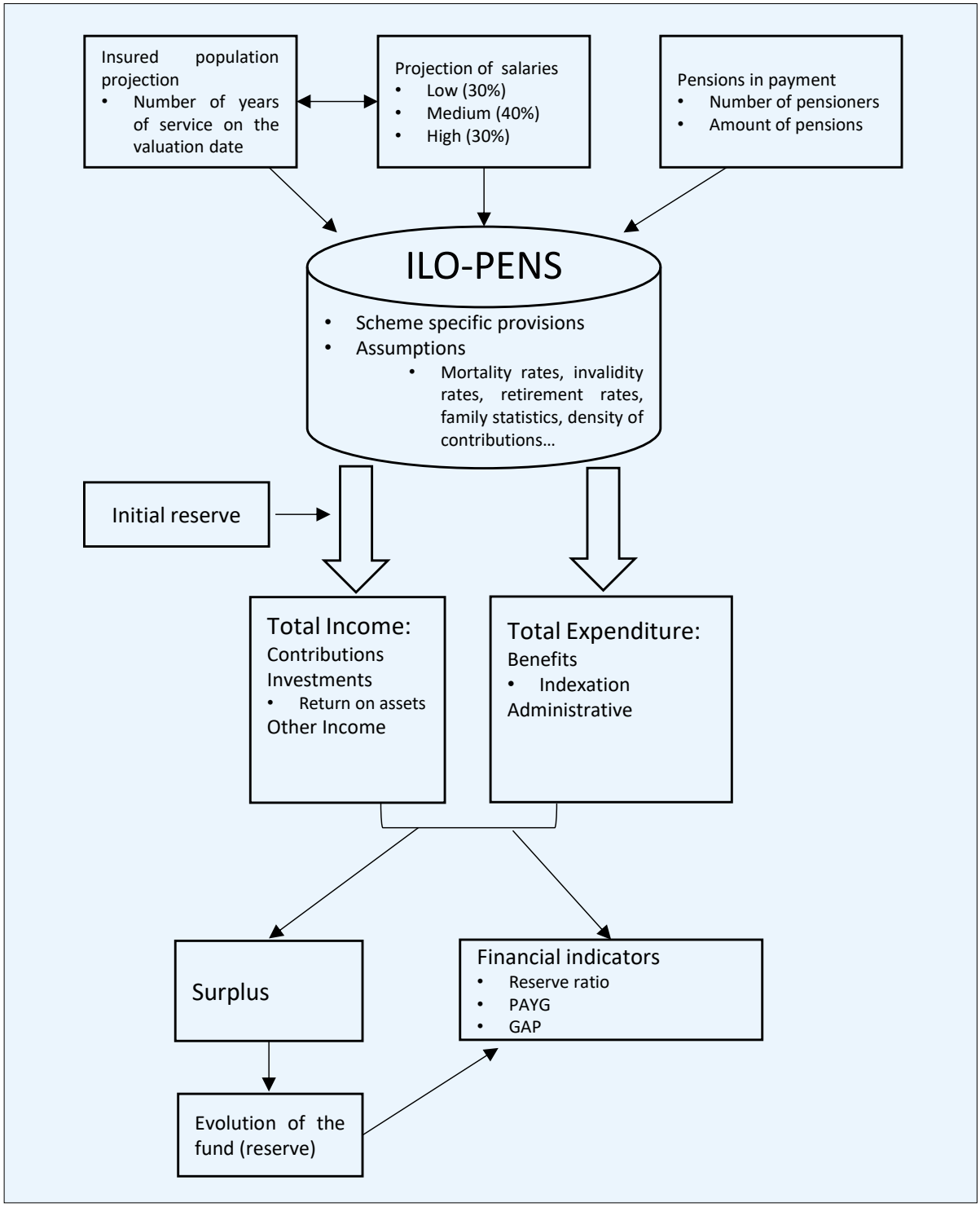
The ILO-PENS model allows the long-term projection of the benefits and insured salaries for both the pension branch and the employment injury branch. This model uses a methodology based on cohorts by age and sex to project, over the next 50 years, the population of actives, retirees, invalids, surviving spouses and orphans, as well as their benefits, years of service and salaries (as appropriate). Based on these populations and their characteristics, the model generates the numbers of beneficiaries and the amounts paid for each type of benefit, and also the insured salaries. The outputs are used to calculated different financial indicators (Reserve ratio, PAYG rates and GAP). In addition to the assumptions this model uses the following main sources of data as its starting point:

- The insured population by age (15–69) and sex, projected for each future year using the ILO-COV model.
- The distribution of the number of years of credited service of the initial insured population, for each age/sex combination.
- The total pensions in payment on the actuarial valuation date for each combination of age, sex and type of pension (old-age, invalidity, widows, orphans).

- The average salaries by age and sex, as well as their distribution for all projection years.
- The provisions of the system (as described in Appendix 1).

All the projections described above are finally combined, and supplemented by the calculation of some additional elements, in order to produce the final results of the valuation. This process is illustrated in Figure A4.2.

Figure A4.2. Projection of financial results



A4.2.3. Short-term models

This actuarial valuation also used short-term models to project sickness and maternity benefits. This model uses a methodology based on cohorts by age and sex to project, over the next 50 years, the population of actives and the beneficiaries. Based on these populations and their characteristics, the model generates the numbers of beneficiaries and the amounts paid for each type of benefit, and also the insured salaries. The outputs are used to calculated different financial indicators (Reserve ratio, PAYG rates and GAP). In addition to the assumptions, which are discussed in the sections 3 and 4, this model uses the following main sources of data as its starting point:

- The insured population by age (15–69) and sex, projected for each future year using the ILO-COV model.
- The incidence rates related to short-term benefits for each combination of age, sex.
- The average salaries by age and sex, as well as their distribution for all projection years.
- The average duration of benefits.
- The provisions of the system (as described in Appendix 1).

Appendix 5. Concepts on the funding of social insurance

A5.1. Pure assessment – pay-as-you-go system

Under this financial System, the contribution rate during a given period, for example, one year (annual assessment) or a few years, is determined in such a way that income from contributions during a period will just cover the expenditure of the System during the same period, with a small margin to allow the constitution of a contingency reserve. This is the system usually applied to finance short-term benefits such as sickness and maternity cash benefits. Annual benefit expenditure is expected to remain at a relatively constant level once the System has attained a certain maturity, unless the benefit provisions themselves have been changed. The contingency reserve enables coverage of unexpected expenditure due to temporary fluctuations of the risk factors involved. The reserve should, therefore, be maintained in a sufficiently liquid form so that it can be readily resorted to when necessary. If a pure assessment system was applied to a new pension system, it would involve frequent revisions of the contribution rate. The annual expenditure under a new pension system would begin at a comparatively low level and increase continuously over a long period of time. This is because there will be an increasing number of surviving pensioners. Another reason for escalating annual expenditure is that each new group of pensioners will be drawing higher rates of pension due to longer insurance periods compared to the previous generations of pensioners. Pure assessment is not appropriate for a new pension system. For a mature system, however, this financial system could be adopted.

A5.2. General average premium system

A general average premium (GAP) system provides for a theoretically constant rate of contribution ensuring financial equilibrium ad infinitum. At any time, the present values of all probable future contributions income plus accumulated reserves should be equal to the present value of all probable future outlays, both in respect of the initial population and of future entrants. The contribution rate determined under this system would be relatively high and would lead to the formation of high reserves. Though theoretically constant, the contribution rate is likely, in practice, to be revised at periodic actuarial reviews. If this system was applied to a new pension system from the start, the rate of contribution would be relatively high and this could cause an undue burden on the economy and on the contributing parties.

A5.3. Scaled premium system

It is possible to devise many intermediate systems of finance between the basically unfunded (PAYG) pure assessment system and the GAP system. The following factors frequently lead to the adoption of an intermediate system of finance:

1. The contribution rate must not be excessive (with respect to the capacities of the members and the economy in general).
2. The initial, and any subsequent contribution rates established under the system of finance applied to the system, should remain relatively stable for reasonable periods of time. Increases in the contribution rate should be gradual, particularly when they are not accompanied by an improvement in benefits.

An example of an intermediate level of funding is the scaled premium system of finance. Under this system, a contribution rate is established so that during a specified period, which is known as the period of equilibrium, the contribution income and the interest income on the reserves of the System will, in each year, be adequate to meet the expenditure on benefits and administration in that year. In order to avoid a decrease in the reserves after the end of a period of equilibrium, the contribution rate must be revised prior to this and a new higher contribution rate applied during a new period of equilibrium. Thus, the financial equilibrium would be assured for limited periods, such as 20, 15 or 10 years, within each of which the contribution rate is supposed to remain stable. Subsequently, it would be increased by stages – 20, 15 or 10 years, respectively. There would be a moderate accumulation of funds, the amount of which depends on the length of the period of equilibrium. A short period of equilibrium would result in a low contribution rate, which would have to be increased rather frequently, and would bring about a low degree of accumulation of

funds, thus approaching the system of annual assessment. However, a long period of equilibrium would result in a relatively high initial contribution rate and a larger accumulation of funds, and consequently approaches the GAP system. The scaled premium system is flexible, as it permits adaptation to changes in the conditions determining the financing of the System. It should be emphasized, however, that the System requires periodic increases of the contribution rate, which are not accompanied by benefit improvements. Although the contribution rate during the initial period of equilibrium will be lower than that under the GAP system, eventually a stage will be reached when it will exceed the contribution rate required under the latter financial system.

A5.4. Fully funded system

A fully-funded system is a system where liabilities are fully funded. Instead of relying on younger generations of workers to pay the benefits, each generation is required to set aside enough money to pay their own benefits. At each moment during the life of the pension plan, accumulated contributions and investment income should be enough to pay all the promises. If not, deficits should be amortized over a stated period. This kind of financing system is more prevalent in the private pension world because it protects workers if the pension plan ends, whereas a public pension system is supposed to be in place forever.

Appendix 6. Legal compliance with the ILO Social Security (Minimum Standards) Convention, 1952 (No. 102)

This Section presents a comparative legal analysis between the main parameters of Convention No. 102 and the national legal framework in force on June 30, 2020, applicable to the following social insurance benefits: Old-sickness, maternity, retirement, employment injury, invalidity and survivors.

Legend

✔ = In compliance with the requirements of relevant ILO standards.

☑ = Appears to be in compliance with the requirements of relevant ILO standards (subject to verification).

☑ = Compliance subject to a minor parametric adjustment.

✘ = Not in compliance with the requirements of relevant ILO standards.

? = Additional information needed to assess compliance

NIA = National Insurance Act (as amended by Act no. 7 of 2016)

NIR-Benefits = National Insurance (Benefits) Regulations (GN 77/1972)

NIR-EI Medical Expenses = National Insurance (Employment Injury) (Payment of Medical Expenses) Order

NIR-Prescribed Diseases = National Insurance (Prescribed Diseases) Regulations (GN 94/1977).

Sickness (Part III of Convention No. 102)

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Contingency	Incapacity for work resulting from a morbid condition and involving suspension of earnings.	*Para. 18(1) NIR*-Benefits: The insured person must have been in insurable employment at the time of illness and rendered temporarily incapable of work by reason of sickness caused otherwise than by employment injury. *Para. 18(2) NIR*-Benefits: An insured person who is required to abstain from work because he is under observation as a suspected carrier of a contagious disease or because he has had contact with a case of infectious disease, shall for the purposes of this regulation be treated as a person rendered temporarily incapable of work by reason of illness	✔
Assessment	**In compliance with Convention No. 102, the national legislation covers the loss of earnings resulting from a temporary incapacity for work other than caused by employment injury.**		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Coverage	At least: ▶ 50% of all employees; *or* ▶ Categories of active population (forming not less than 20% of all residents); *or* ▶ All residents with means under prescribed threshold.	Art. 29 in conjunction with Art. 36(2), NIA: The NIS covers all employed people aged 16 to 64 who are in insurable employment. Insurable employment further means any employment that is not explicitly excluded according to Section 29(2) of the National Insurance Act including persons who earn less than TT$200 per week, and people employed by international organizations.	✔
Assessment	**The national legislation is in line with Convention No. 102, as it covers all employed persons in insurable employment aged 16 to 64. According to the report, there were 469 472 contributors for the long-term and short-term benefits (in 2019/2020). Therefore, it is estimated that 93.1% of all employees in Trinidad and Tobago, including unemployed persons, were covered in 2019/2020, exceeding the minimum 50% required by Convention No. 102 (where the total number of employees in 2020 was 460,000 and there were roughly 44,000 unemployed persons).**		
Benefit	*Periodic payment:* ▶ *Earnings-related benefit:* at least 45% of former earnings; ▶ *Flat-rate benefit:* at least 45% of wage of unskilled worker; ▶ *Means-tested benefit:* means and benefit together must amount to at least 45% of wage of unskilled worker.	The benefit is equal to 60% of the insured average weekly earnings over the best 10 out of the 13 weeks immediately preceding the illness, based on the 16 earnings classes (Art. 54E (2) NIA in conjunction with Table A7 Schedule 3 NIA, modified by Act No.7 of 2016) The daily rate of sickness benefit shall be one seventh of the amount payable (Para. 19(1) NIR-Benefits). Since September 2016, the following ceilings on the earnings subject to contributions and the level of benefits apply: ▶ Maximum insurable earnings: TT$3,138 per week or TT$13,600 per month (Table A9 Schedule 3 NIA). ▶ Maximum benefit: TT$1,882.80 per week (for earning class XVI (Table A7 Schedule 3 NIA).	✔
Assessment	**The national legislation provides sickness benefits at a level that is in compliance with the requirements of Convention No. 102 which requires that a benefit of at least 45% of previous earnings be guaranteed in case of sickness.** **It can be noted that the national legislation establishes a ceiling on the insurable earnings for contribution purposes (TT$3,138 per week or TT$13,600 per month for salary class XVI), which affects the reference earnings for calculating benefits (Table A9 Schedule 2 NIA). Article 65 of the Convention permits the establishment of an upper limit on the earnings that may be considered when calculating the benefit, in so far as this ceiling is set in such a way that a skilled manual male employee, determined according to the provisions of the Convention, would still receive a benefit equal to at least 45 per cent of their previous earnings. For earnings-related benefits, the Convention offers member States the flexibility of choosing a standard beneficiary (i.e., a skilled employee with dependent spouse and two dependent children) according to four different options laid down in Article 65(6). On the basis of the information available to us, we have calculated this according to Article 65 (6)(d), i.e., a person whose earnings are equal to 125% of the average earnings of all the persons protected. According to the report, in 2020 the average monthly salary of the contributors was TT$7,128, therefore, the monthly earnings of a standard beneficiary would amount to TT$8,910.** **The current ceiling on monthly insurable earnings (TT$13,600) would not prevent the skilled manual male employee from receiving a benefit at a replacement rate above the minimum required by Convention No. 102 (i.e., 40% of previous earnings).**		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
	As recommended in the report, the ceiling on insurable earnings should be adjusted in line with the evolution of the general level of earnings in the economy so as not to prejudice the levels of income replacement established by Convention No. 102, in particular for the categories of workers earning as much or less than skilled labour (as determined pursuant to the Convention).		
Qualifying period	No longer than period considered necessary to preclude abuse. Left to national legislation to prescribe a period needed in the national context to preclude abuse.	Para. 18(3)(a) NIR-Benefits: A minimum of 10 weekly contributions in the 13 weeks immediately preceding the week in which illness began.	✔
Assessment	**The qualifying period provided in the national legislation (i.e., 10 weeks of contributions in the 13 weeks preceding the contingency) is not overly restrictive and can be considered in line with the requirements of Convention No. 102.**		
Benefit duration	At least 26 weeks in each case of sickness; possible waiting period at most 3 days.	Para. 14(a) NIR-Benefits: Sickness benefits are payable for a maximum of 52 weeks. Para. 7(7) NIR-Benefits: The Board shall not entertain any claim for sickness benefit or injury benefit submitted before the fourth day of the insured person's incapacity caused by sickness or employment injury but so long as incapacity continues for more than three days sickness benefit or injury benefit as the case may be, shall be calculated and paid as from the first day.	✔
Assessment	**The national legislation provides sickness benefits for a maximum of 52 weeks, in line with Convention No. 102, which provides that sickness benefits shall be granted throughout the contingency but permits that the benefit may be limited to 26 weeks in each case of sickness.** **The waiting period (i.e., three days) is in line with the requirements of the Convention which allows for such a maximum waiting period.**		

Old age (Part V of Convention No. 102)

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Contingency	Survival beyond a prescribed age (65 or higher according to working ability of elderly persons in country)	Para. 16, NIR-Benefits: Age 60 or over and retired from the workforce, or age 65 and over regardless of whether or not the person is retired.	✔
Assessment	**At age 60 of age, the prescribed minimum age for entitlement to an old age pension is in line with Convention No. 102 which provides that an old-age pension should be provided, upon reaching 65 years of age to all beneficiaries meeting the qualifying conditions (see below).**		
Coverage	At least: ▶ 50% of all employees; *or* ▶ categories of active population (forming not less than 20% of all residents); *or*	Art. 29, NIA: The NIS covers all employed people aged 16 to 64 who are in insurable employment. Insurable employment further means any employment that is not explicitly excluded according to Section 29(2) of the National Insurance Act including persons who earn less than TT$180 per week, and people employed by international organizations.	✔

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
	▶ all residents with means under prescribed threshold	Employed people under the age of 16 or over the retirement age (i.e., age 65 or 60-64 if the person ceases to be engaged in insurable employment), and unpaid apprentices are covered only for employment injury benefits. People under the age 60 who cease to be in insurable employment may elect to become voluntary contributors. Voluntary contributors may qualify only for retirement benefits, survivors' benefits and funeral grants (Para. 11 NIR-Benefits)	
Assessment	**The national legislation is in line with Convention No. 102, as it covers all employed persons in insurable employment aged 16 to 64. According to the report, there were 469 472 contributors for the long-term and short-term benefits (in 2019/2020). Therefore, it is estimated that 93.1% of all employees in Trinidad and Tobago, including unemployed persons, were covered in 2019/2020, exceeding the minimum 50% required by Convention No. 102 (where the total number of employees in 2020 was 460,000 and there were roughly 44,000 unemployed persons).**		
Benefit	Periodic payments: at least 40% of former earnings of the insured worker after 30 years of contributions (for contributory schemes) or 20 years of residence (for non-contributory schemes)	Between 30% to 48% of average weekly earnings over the whole period for which contributions are paid or credited, based on the 16 earnings classes (the lower the salary, the higher the replacement rate), plus 0.56% to 0.71% of average weekly earnings for each 25-week period of contributions (not including age credits) exceeding 750 (Table B7 Schedule 3 NIA, modified by Act No.7 of 2016) Applying the schedules in the law (Part I and II, Table B7 Schedule 3 NIA), a person who has contributed for 30 years would receive between roughly 47% (earning class XVI) and 70% (earning class I) of their previous earnings depending on their earning class. Notwithstanding the benefits rates, the Board pays the sum of TT$3000 monthly to each person qualifying for or in receipt of a retirement pension of less than TT$3000 (Art. 54B(5A) NIA) In addition, it is noted that in Trinidad and Tobago, a monthly non-contributory pension -the Senior Citizen's Pension- is granted to persons above 65 years of age based on a means test. Based on the current schedule, anyone with earnings below TT$5,500 is entitled to receive a monthly pension varying from TT$500 to TT$3,500. In effect, persons receiving a NIS minimum pension are entitled to receive TT$2,500 from the SCP.	✔
Assessment	**The national legal framework exceeds the minimum replacement rate established by Convention No. 102, i.e., 40% of previous earnings after an employment period of 30 years, for all earnings classes.** **It can be noted that the national legislation establishes a ceiling on the insurable earnings for contribution purposes (TT$3,138 per week or TT$13,600 per month for salary class XVI), which affects the reference earnings for calculating benefits (Table A9 Schedule 2 NIA). Article 65 of the Convention permits the establishment of an upper limit on the earnings that may be considered when calculating the benefit, in so far as this ceiling is set in such a way that a skilled manual male employee, determined according to the provisions of the Convention, would still receive a benefit equal to at least 45% cent of their previous earnings. A skilled manual male employee, determined according to Article 65 (6)(d), is a person whose earnings are equal to 125% of the average earnings of all the persons protected. According to the report, in 2020 the average monthly salary of the contributors was TT$7,128, therefore, the monthly earnings of a standard beneficiary calculated according to the rules prescribed by the Convention would amount to TT$8,910. Therefore, the current ceiling on monthly insurable earnings (TT$13,600) would not prevent the skilled manual male employee from receiving a benefit at a replacement rate above the minimum required by Convention No. 102 (i.e., 40% of previous earnings).**		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
	As recommended in the report, the ceiling on insurable earnings should be adjusted in line with the evolution of the general level of earnings in the economy and in particular, as per Convention No. 102, the earnings of skilled labour. **It is noted in the report that given the design of the minimum pension, an average worker in Trinidad and Tobago with 15 years of contributions would thus be expected to replace 79% of their previous earnings, the same income replacement as someone having 25 years of contributions. As there is little incentive to contribute beyond 15 years since the minimum pension is high and accessible: about 88% of NIS old-age pensioners are receiving it. Therefore. as recommended in the report, the design of the old-age pension system should be reviewed.** **When determining the minimum pension, the Convention provides that the level could be set at about 40% of the reference wage of a person deemed typical of unskilled labour in the country after 30 years of contributions or 20 years of residence.**		
Qualifying period – reduced pension	Maximum of 15 years of contribution or employment (for contributory schemes) for entitlement to a reduced pension	Para 16 NIR-Benefits: 750 weeks of contributions paid or credited A week means the period from midnight on Sunday to midnight the following Sunday and includes any part of a week and the number of weeks in a month shall be calculated according to the number of Mondays in that month (National Insurance (Contributions) Regulations.	✔
Assessment	**The national legal framework, which provides access to an old-age pension after a contributory period of just under 15 years, equal between 30% (earning class XVI) and 48% (earning class I) depending on the earning class, is in compliance with the requirements of Convention No. 102, which establishes that a reduced old-age pension should be paid to a beneficiary at least after completion of 15 years of contributions. It can be further noted that if the calculated pension is lower than the minimum pension set at TT$3,000 per month (Section 54B (5A) NIA), persons protected receive the minimum pension, which means that, in practice, an average worker in Trinidad and Tobago with 15 years of contributions would be expected to receive an actual replacement rate that is higher than the 30% and 48% mentioned above.**		
Benefit duration	From the prescribed age to the death of beneficiary	Para. 14(d) NIR-Benefits: The pension is payable for life	✔
Assessment	**In accordance with Convention No. 102, the national legal framework grants the old-age pension throughout the contingency.**		
Adjustment of pensions in payment	Adjustment of pensions in payment following substantial changes in general level of earnings and/or cost of living	The law does not explicitly provide for the adjustment of pensions. In practice it appears that the level of benefits are increased by amendment to the National Insurance Act, the most recent one was by Act no. 7 of 2016. Amendments appear to have taken place every 2 to 1 years between 2004 and 2016.	?
Assessment	**According to the Convention, pensions should be reviewed following substantial changes in the general level of earnings where these result from substantial changes in the cost of living. The objective is that the purchasing power of pensions should not erode over time due to substantial increases in the cost of living and that whenever wages have evolved to catch up with inflation, the consequent additional contributions provide the financial means to also adjust pensions without compromising the sustainability of the scheme.** **In Trinidad and Tobago, adjustment to pension levels appears to be done through an ad hoc mechanism. Indeed, according to the report, pensions in payment were last adjusted in 2014, except for the minimum pension, which was last revised in 2012. It would be important to understand what has happened in terms of the general level of earnings and cost of living since 2014 in order to determine whether adjustments to old-age benefits have followed these in line with the requirements of the Convention. Typically, the periodic actuarial reports could also provide information on the purchasing power of benefits in view of the evolution of the level of earnings in the country where these result from changes in the cost of living since the last actuarial valuation.**		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
	It can be noted that ILO's supervisory bodies have considered that ad hoc revalorization mechanisms are not always the most efficient way of guaranteeing the sustainability of the scheme nor the adequacy of benefits. However, the periodic adjustment of the level of long-term benefits is a fundamental principle recognized both by ILO social security instruments but also by the human rights bodies the application of which is not optional. That being said, while closely and periodically monitoring the situation of the level of pensions, the Government could, in accordance with ILO C102, reserve itself the possibility, where the financial situation of the scheme is unstable, of reviewing these levels only in cases where there has been substantial changes in the national level of earnings triggered by substantial changes in the cost of living. However, the objective of financial equilibrium of pension funds should not be pursued by disregarding the fundamental principle of social security law guaranteeing the periodic revision of long-term benefits.		

Employment Injury (Part VI of Convention No. 102)

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Contingency	An accident or a prescribed disease resulting from employment: (a) A morbid condition; (b) Incapacity for work involving suspension of earnings; (c) Total loss of earning capacity or partial loss, likely to be permanent, or corresponding loss of faculty; and (d) The loss of support suffered by the widow or child as the result of the death of the breadwinner.	Art. 46(8), NIA: An accident arising in the course of an employed person's employment shall be deemed in the absence of evidence to the contrary, also to have arisen out of the employment. Industrial disease: Insurance against personal injury arising out of and in the course of employment shall include insurance against any prescribed disease and against any prescribed personal injury not so caused being a disease or injury caused by the nature of the employment (Art. 47(1), NIA). The schedule appended to NIR-Prescribed Diseases establishes the list of occupational diseases recognized in relation to the workers concerned trade or nature of employment. Benefits include: ▶ Reimbursement for the medical expenses required (Art. 46(4) NIA). ▶ Injury benefit in case the insured person is rendered incapable of work (Art. 46(3)(a) NIA). ▶ Disablement pension: payable in case of severe loss of physical or mental faculty. (Art. 46(3)(b) NIA). ▶ Disablement grant: If the loss of faculty is less than 20 per cent (Para. 30(1) NIR-Benefits). ▶ Death benefits (i.e., Survivors' pension) payable to the deceased widow or widower, orphans, and dependent parents (Art. 46(3)(b) NIA).	✔

Assessment	**The national legislation is in compliance with Convention No. 102 because it encompasses medical expenses, an injury benefit provided in case of temporary incapacity for work due to a work-related accident or prescribed industrial disease, a disablement pension in case of severe disabilities likely to be permanent, and benefits for dependents in case of death of the breadwinner.**		
Coverage	At least: ► Classes of employees, not less than 50% of all employees; and ► In case of death of the breadwinner, their wives and children.	Art. 37(1) NIA: Every employed person and every unpaid apprentice shall be insured in the manner provided by this Act and the Regulations against personal injury caused on or after the appointed day by accident arising out of and in the course of that person's employment and there shall be payable in the prescribed circumstances to or in respect of every such person the type of benefit (hereinafter called "Employment Injury Benefit") specified in section 46(3). Art. 36(2) NIA: An employed person who has not yet attained the age of sixteen years or who has attained the age of sixty-five years shall not be insured against any contingency other than employment injury. Art. 46, NIA: Section (3)(c) stipulates that a death benefit is payable to the widow, children and parents of the insured persons that dies following the results of a work injury.	✔
Assessment	**The national legislation is in line with Convention No. 102, as it covers all employed persons in insurable employment, including people under age 16 and over age 65 and unpaid apprentices. According to the report, there were 475,733 contributors to the Employment Injury Insurance branch (in 2019/2020). Therefore, it is estimated that 94.3% of all employees in Trinidad and Tobago, including unemployed persons were covered in 2019/2020, exceeding the minimum 50% required by Convention No. 102 (where the total employed population in 2020 was 460,000 and there were roughly 44,000 unemployed persons).**		

Benefit	In case of a morbid condition: ▶ Adequate medical care benefits. In case of incapacity for work or invalidity: ▶ Periodic payment/ pension: • *Earnings-related benefit:* At least 50% of former earnings; • *Flat-rate benefit:* At least 50% of wage of unskilled worker. In case of death of the breadwinner: ▶ *Pension:* at least 40% of former earnings or of wage of unskilled worker.	***Medical care:*** Art. 46, NIA: Section (4) mentions that medical expenses shall be paid in relation with the work injury. However, Section (6) states that a maximum can be set by the Minister. The latest Minister Order (NIR-EI Medical Expenses) sets the maximum medical expense payable at TT$33,750 effective 3 March 2014 (section 3(1)). ***Cash benefits:*** Art. 46, NIA: Section (3) stipulates that a pension must be paid to the injured worker if s/he is rendered incapable of work. Employment injury benefits are calculated based on the insured's earnings class in the week immediately prior to the week during which the injury was received or the disease discovered; or the week during which the injury occurred or the disease was discovered, whichever is higher (Para. 36(2) NIR-Benefits). The weekly and monthly amounts of disability benefits (Injury Pension) and death benefits (survivor's benefits) payable by earning class to persons who qualify for benefits as of September 5th, 2016, are specified in Table D7 Schedule 3 NIA as modified by Act No.7 of 2016. A comparison of the replacement rate for all earnings classes and situations was performed. The replacement ratio for a fully disabled member ranges from 53 to 90% of previous earnings; the replacement ratio for a standard beneficiary (a widow with two orphans) also ranges from 53 to 90% of the deceased former earnings.	☑ ✔
Assessment	**The replacement rate of the disability and survivor pension payable to a standard beneficiary (i.e., a man with wife and two children, in the case of disability benefits, and a widow with two children, in the case of death of the insured) ranges from 53% to 90% of previous earnings, depending on the insured's earnings class, which in all cases exceeds the minimum rates specified in the Convention, that is 50% in case of permanent disability and 40% in case of death of the breadwinner.** **However, the cap on the reimbursement of medical expenses in all cases of employment injury and disease (i.e., TT$33,750 per injury) could result in a situation whereby the range of medical care set out in Convention No. 102 is not fully covered. In the case of employment injury, the beneficiary should not be required to participate in the cost of medical care set out in Article 34. In no case, should the victim of an employment injury be led to fall into hardship by reason of paying the cost of medical care rendered necessary by an industrial accident or occupation disease** **If the medical cost over the limit is covered by a national health scheme and/or employer liability insurance scheme providing the same level of benefit (no co-payment, no deductible, same medical facilities and treatment with a goal to return the injured worker to a full capacity), the EII scheme could be considered compliant with Convention No. 102. In the negative, the Government could consider amending the national legislation with a view to eliminating this cap.**		
Qualifying period	Prohibition to prescribe qualifying period.	Art. 37, NIA: all covered workers are insured on the day of the proclamation of the Law by the President or the day they start to work, whichever is the latest.	✔
Assessment	**The national legislation is in line with Convention No. 102 because it does not require a qualifying period for employment injury benefits.**		

Benefit duration	As long as the person is in need of health care or remains incapacitated. No waiting period except for temporary incapacity to work for a maximum of three days.	Para. 28, NIR-Benefits: This article mentions the conditions that must be met in order to stop the payment of any employment injury benefits. These conditions include a self-inflicted injury, behaviour from the injured that prevents or retard his/her recovery, return to work, the injured refuses to submit to a medical test (including re-examination). Maximum duration of employment injury benefits as per Para. 14(f) of NIR-Benefits: ▶ ***Injury benefit:*** for a maximum of fifty-two calendar weeks commencing from the date the insured was first rendered incapable of work as a result of an accident or prescribed disease. At the end of said period the Board may arrange for a medical re-examination and an assessment of his disability in order to determine his eligibility for disablement pension or disablement grant. ▶ ***Disablement pension:*** payable until the cesser of the insured person's disablement; ▶ ***Death benefit***: • To a widow or widower: for life or until remarriage • to an orphan: until reaching age 19 of for as long as their incapacity for work continues if disabled before age 19. • To a dependent parent: for life or until remarriage. The legislation examined does not specify a waiting period for the payment of the benefits; it is payable as soon as the injury occurs.	✔
Assessment	**Convention No. 102 requires that the benefit should be provided throughout the contingency. By providing for the payment of benefits from the first day of any continuous period of incapacity for work and for up to 52 calendar weeks or until the award of a disablement pension, and that the disablement pension is provided for as long as the disability continues, the national legislation is in line with the Convention. The national legislation also complies with the Convention regarding the duration of benefits provided in case of loss of support since benefits are provided to the deceased widow(er) for life or until remarriage and to children until they reach age 19, in line with the minimum standard, which requires, at a minimum, that survivors' pensions be provided to orphans until 15 years of age or school leaving age and to widows until remarriage.** **The national legislation does not prescribe a waiting period and is therefore in line with Convention No. 102, which only allows for a three-day waiting period in the case of temporary incapacity for work.**		
Adjustment of pensions in payment	Adjustment of pensions in payment following substantial changes in general level of earnings and/or cost of living.	See comments in the corresponding section in old-age benefit.	?
Assessment	**According to the Convention, pensions should be reviewed following substantial changes in the general level of earnings where these result from substantial changes in the cost of living. The objective is that the purchasing power of pensions should not erode over time due to substantial increases in the cost of living and that whenever wages have evolved to catch up with inflation, the consequent additional contributions provide the financial means to also adjust pensions without compromising the sustainability of the Scheme.** **In Trinidad and Tobago, adjustment to pension levels appears to be done through an ad hoc mechanism. Indeed, according to the report, pensions in payment were last adjusted in 2014, except for the minimum pension, which was last revised in 2012. It would be important to understand what has happened in terms of the general level of earnings and cost of living since 2016 in order to determine whether adjustments to employment injury pensions have followed these in line with the requirements of the**		

	Convention. Typically, the periodic actuarial reports could also provide information on the purchasing power of benefits in view of the evolution of the level of earnings in the country where these result from changes in the cost of living since the last actuarial valuation. **It can be noted that ILO's supervisory bodies have considered that ad hoc revalorization mechanisms are not always the most efficient way of guaranteeing the sustainability of the scheme nor the adequacy of benefits. However, the periodic adjustment of the level of long-term benefits is a fundamental principle recognized both by ILO social security instruments but also by the human rights bodies the application of which is not optional. That being said, while closely and periodically monitoring the situation of the level of pensions, the Government could, in accordance with ILO C102, reserve itself the possibility, where the financial situation of the scheme is unstable, of reviewing these levels only in cases where there have been substantial changes in the national level of earnings triggered by substantial changes in the cost of living. However, the objective of financial equilibrium of pension funds should not be pursued by disregarding the fundamental principle of social security law guaranteeing the periodic revision of long-term benefits.**

Maternity (Part VIII of Convention No. 102)

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Contingency	Pregnancy and confinement and their consequences and resulting suspension of earnings.	**Cash benefits:** Sec. 46(1)(b) The insured woman is entitled to receive maternity benefits, in the case of pregnancy or confinement during the period of maternity leave **Medical care**: The Ministry of Health provides antenatal healthcare to all pregnant women, free of charge. It is available at all nation's health facilities, with the exception of the St. Ann's Hospital.	✔
Assessment	**Maternity benefits in Trinidad and Tobago are provided in accordance with the requirements of Convention No. 102.**		
Coverage	▶ Women in classes of employees, not less than 50% of all employees and for medical benefit also the wives of men employees in these classes; *or* ▶ Women in classes of the economically active population, not less than 20% of all residents and for medical benefit, the wives of men in these classes.	**Cash benefits**: Art. 29, NIA: The NIS covers all employed people aged 16 to 64 who are in insurable employment. Insurable employment further means any employment that is not explicitly excluded according to Section 29(2) of the National Insurance Act including persons who earn less than $180 per week, and people employed by international organizations. **Medical care**: The Ministry of Health provides antenatal healthcare to all pregnant women, free of charge.	✔
Assessment	**The national legislation is in line with Convention No. 102, as it covers all employed persons in insurable employment aged 16 to 64. According to the report, there were 469 472 contributors for the long-term and short-term benefits (in 2019/2020), which corresponds to 93.1% of all employees, including unemployed persons (where the total number of employees in 2020 was 460,000 and there were roughly 44,000 unemployed persons).Therefore, the effective coverage of cash maternity benefits exceeds the minimum requirements of the Convention; that is, that maternity benefits shall cover at least 50 per cent of all employed women).** **Regarding medical care, it is understood that all pregnant women, insured or not, are entitled to antenatal health care at local health centres and public hospitals.**		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Benefit	*Medical care benefit*: ▶ Pre-natal, confinement and post-natal care either by medical practitioners or by qualified midwives; and ▶ Hospitalisation where necessary; must be provided at no cost for the beneficiaries. *Earnings-related benefit*: ▶ Periodic payment; ▶ At least 45% of former earnings. *Flat-rate benefit*: ▶ At least 45% of wage of unskilled worker.	**Medical care**: As per the Booklet "Routine Antenatal care Part 1, published by the Ministry of Health of Trinidad and Tobago, the Ministry of Health provides antenatal healthcare to all pregnant women, free of charge. It is available at all nation's health facilities. ▶ Routine prenatal care is offered at the local health centres located throughout Trinidad and Tobago. ▶ Hospitals provide care for patients with complications of pregnancy. This service is led by specialist doctors supported by midwives. According to the Booklet "Routine Antenatal care Part 3", hospitals provide universal access to emergency care services, including to woman in labour (available also for foreign nationals). **Cash benefits**: 60% of the insured average weekly earnings over the best 10 out of the 13 weeks immediately preceding the illness, based on 16 earnings classes (Art. 54E (2) NIA in conjunction with Table A7 Schedule 3 NIA, modified by Act No.7 of 2016).	✔
Assessment	**Maternity medical care appears to be provided to all pregnant female residents free of charge at local health facilities or public hospitals, which provide emergency care services led by medical practitioners or by qualified midwives in case of pregnancy complications. Compliance with the Convention is subject to confirmation by the Government that hospitalization, where necessary, is also provided free of charge.** **The national legislation guarantees maternity cash benefits at a level of 60% of insured average weekly earnings to all insured women which is in compliance with the requirements of Convention No. 102 which requires that a benefit of at least 45% of previous earnings be guaranteed in case of maternity.**		
Qualifying period	No longer than period considered necessary to preclude abuse.	**Cash benefits**: Para. 22(2) NIR-Benefits: Insurable employment for a period of not less than 10 weeks in the 13 weeks immediately preceding the sixth week before the expected delivery **Medical care**: is provided through the public health system and therefore not subject to a minimum contributory period.	✔ ? ?
Assessment	**The qualifying period to access maternity cash benefits, i.e., at least 10 weeks in the 13 weeks preceding the last 6 weeks prior to the expected date of delivery, is in line with Convention no. 102 as not overly restrictive. The national law is also in line with Convention No.102 as regards medical maternity care, subject to confirmation from the Government that the period of residence to access maternity medical care is only as long as considered necessary to preclude abuse.**		
Benefit duration	*Medical care*: Throughout the contingency. *Cash benefit*: At least 12 weeks.	**Medical care**: There is no available information in this regard. **Cash benefits**: The benefit is paid as a lump sum equivalent to a maximum of 14 weeks, starting not earlier than 6 weeks before the expected date of delivery and continuing until the expiration of 14 weeks (Para. 27(A) NIR-Benefits).	? ✔
Assessment	**The national legislation, which provides a cash benefit for a maximum 14 weeks is in line with the Convention which requires that maternity cash benefits be provided for at least 12 weeks.** **As regards medical care, the Government should confirm that medical maternity care is provided throughout the contingency, i.e., during pregnancy, birth and post-natal period.**		

Invalidity (Part IX of Convention No. 102)

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Contingency	Inability to engage in any gainful activity, likely to be permanent, or that persists beyond sickness benefit (total invalidity)	Art. 46(1)(c), NIA: An invalidity benefit in the form of periodic payments is provided to an insured person who is likely to remain incapable of work for a period of not less than twelve months where such incapacity is caused otherwise than by way of employment injury. Para. 24 NIR-Benefits: The insured person must be invalid for a period of not less than 52 weeks by a certified medical practitioner, aged less than 60, and meet the qualifying period prescribed. It can be noted that sickness benefits are provided for a maximum 52 weeks.	✔
Assessment	**The national legislation provides for invalidity pensions in case an insured person remains incapable of working for a period of at least 12 months due to a non-work-related incapacity (bodily or mental). Therefore, the national legislation complies with Convention No. 102, which requires that disability benefits are provided in case of an inability to engage in any gainful activity to a prescribed extent, likely to be permanent or persist after the exhaustion of sickness benefits.**		
Coverage	At least: ▶ 50% of all employees; *or* ▶ categories of active population (forming not less than 20% of all residents); *or* ▶ all residents with means under prescribed threshold	See comments in the corresponding section in old-age benefit.	✔
Assessment	**The national legislation is in line with Convention No. 102, as it covers all employed persons in insurable employment aged 16 to 64. According to the report, there were 469 472 contributors for the long-term and short-term benefits (in 2019/2020). Therefore, it is estimated that 93.1% of all employees in Trinidad and Tobago, including unemployed persons, were covered in 2019/2020, exceeding the minimum 50% required by Convention No. 102 (where the total number of employees in 2020 was 460,000 and there were roughly 44,000 unemployed persons).**		
Benefit	Periodic payments: at least 40% of former earnings of the insured worker after 15 years of contributions (for contributory schemes) or 10 points lower if secured at least for a person protected who has completed 5 years of contribution, employment or residence.	Benefits are calculated the same way as retirement pensions but not subject to the minimum pension. Benefits vary between 30% to 48% of average weekly earnings over the whole period for which contributions are paid or credited, based on the 16 earnings classes, plus 0.56% to 0.71% of average weekly earnings for each 25-week period of contributions (not including age credits) exceeding 750 (Table B7 Schedule 3 NIA, modified by Act No.7 of 2016) Applying the schedules in the law (Part I and II, Table B7 Schedule 3 NIA), a person who has contributed for 15 years would receive between roughly 30% (earning class XVI) and 48% (earning class I) of their previous earnings depending on their earning class.	✘

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Assessment	**According to the benefit levels established by law, it would appear that only persons from earning classes I and II would receive a benefit compliant with Convention No. 102, i.e., an invalidity pension that amounts to at least 40% of their former earnings after a contributory period of 15 years; the other 14 earning classes would receive an invalidity pension varying between 30 and 38% of previous earnings after a contributory period of 15 years, below the minimum level established in Convention No. 102.** **For earnings-related benefits, the Convention No. 102 requires that all persons whose earnings are below those of a typical male skilled employee should receive at least 40% of their previous earnings if they become invalid and have contributed for 15 years. On the basis of the information available for the actuarial report, we calculate the reference wage of a typical male skilled employee according to Article 65, (6)(d), which provides that a standard beneficiary is a person whose earnings are equal to 125% of the average earnings of all the persons protected. According to the report, in 2020, the average monthly salary of the contributors was TT$7,128; therefore, the monthly earnings of a standard beneficiary calculated according to Article 65 (6)(d) of the Convention would amount to TT$8,910, which falls in the earning class XII. Given that only employees in earnings classes I and II would comply, it appears that such a beneficiary (those in earnings classes III to XII) would not receive a benefit equivalent to at a minimum 40% of their previous earnings, as required by the Convention.**		
Qualifying period – reduced pension	Maximum of 5 years of contribution or employment (for contributory schemes) for entitlement to a reduced pension.	Persons must have a minimum of 155 contributions, 50 of which must have been made during the 3 years preceding the contingency; or have 250 contributions in the 7 years preceding the contingency; or have 750 contributions or more (Para. 14 (c) and (ca) in conjunction with Para. 24, NIR-Benefits)	✔
Assessment	**The national legal framework establishes the right to an invalidity pension after 3 years provided that the insured has contributed at least 1 year in the 3 years preceding the contingency. This is therefore in compliance with the Convention which requires that a reduced invalidity pension should be paid after a contributory period of at least 5 years.**		
Benefit duration and suspension	As long as the incapacity to earn a sufficient income remains or until old age benefit becomes payable. The causes for suspensions are listed at art 69.	Para.14(c) and (ca) NIR-Benefits: the invalidity pension is payable until age of 60 (or until recovery from invalidity) and then converted to a retirement pension of the same amount whether or not 750 weeks of contributions have been paid or credited. Para. 26(a) and (b) NIR-Benefits: An insured person entitled to receive invalidity benefit may be disqualified from receiving such benefit if— a) he fails without good cause to comply with a notice issued in writing by the Executive Director requiring him to attend for and submit himself to a medical examination; or b) works in employment for which remuneration is or would ordinarily be payable.	✔
Assessment	**In compliance with Convention No. 102, invalidity pensions are provided for as long as the disability disables a beneficiary from engaging in any gainful employment or until the old-age pension becomes payable.** **The causes for the suspension of disability pensions prescribed in the national legislation are also in conformity with the Convention, which permits that benefits may be suspended where the person concerned fails to comply with rules prescribed for verifying the occurrence or where the person concerned has made a fraudulent claim (Art. 69).**		
Adjustment of pensions in payment	Adjustment of pensions in payment following substantial changes in general level of earnings and/or cost of living	See comments in the corresponding section in old-age benefit.	?
Assessment	**According to the Convention, pensions should be reviewed following substantial changes in the general level of earnings where these result from substantial changes in the cost of living. The objective is that the purchasing power of pensions should not erode over time due to substantial increases in the cost**		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
	of living and that whenever wages have evolved to catch up with inflation, the consequent additional contributions provide the financial means to also adjust pensions without compromising the sustainability of the Scheme. **In Trinidad and Tobago, adjustment to pension levels appears to be done through an ad hoc mechanism. Indeed, according to the report, pensions in payment were last adjusted in 2014, except for the minimum pension, which was last revised in 2012. It would be important to understand what has happened in terms of the general level of earnings and cost of living since 2016 in order to determine whether adjustments to invalidity benefits have followed these in line with the requirements of the Convention. Typically, the periodic actuarial reports could also provide information on the purchasing power of benefits in view of the evolution of the level of earnings in the country where these result from changes in the cost of living since the last actuarial valuation.** **It can be noted that ILO's supervisory bodies have considered that ad hoc revalorization mechanisms are not always the most efficient way of guaranteeing the sustainability of the scheme nor the adequacy of benefits. However, the periodic adjustment of the level of long-term benefits is a fundamental principle recognized both by ILO social security instruments but also by the human rights bodies the application of which is not optional. That being said, while closely and periodically monitoring the situation of the level of pensions, the Government could, in accordance with ILO C102, reserve itself the possibility, where the financial situation of the Scheme is unstable, of reviewing these levels only in cases where there have been substantial changes in the national level of earnings triggered by substantial changes in the cost of living. However, the objective of financial equilibrium of pension funds should not be pursued by disregarding the fundamental principle of social security law guaranteeing the periodic revision of long-term benefits.**		

Survivors (Part X of Convention No. 102)

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Contingency	Widow's or children's loss of support in the event of death of the breadwinner	Para. 47(2) NIR-Benefits: survivors of deceased insured are entitled to a survivor's pension when the deceased contributed for a minimum of 50 weeks. Benefits are paid to the widow, child, orphan and parents of the deceased.	✔
Assessment	**In compliance with Convention No. 102, the legislation under examination provides for the payment of a Survivors' Benefit to dependants of an insured person to compensate for the loss of income support they suffer as a result of his/her death.**		
Coverage	▶ Wives and children of breadwinners in prescribed classes of employees representing at least 50% of all employees; or ▶ Wives and children of members in prescribed classes of economically active persons representing at least 20% of all residents; *or* ▶ All resident widows and children with means under prescribed threshold	See comments in the corresponding section in old-age benefit for information on the scope of application of the NIA and effective coverage. Eligible survivors (Art. 46(2) NIA): ▶ Widow or widower: legal or common law spouse ▶ Child: less than age 19, including an unborn child, unmarried and unemployed or disabled (i.e., child is unable to work by reason of mental or physical disability) (Para. 45(1) NIR-Benefits) ▶ Orphan (i.e., when both deceased parents were insured): less than age 19. ▶ Parent: wholly or mainly maintained by deceased insured	✔
Assessment	**The national legislation is in line with Convention No. 102 because it provides benefits to the widows, widowers and children of all employed persons in insurable employment aged 16 to 64.**		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
	Furthermore, according to the report, there were 469 472 contributors for the long-term and short-term benefits (in 2019/2020). Therefore, it is estimated that 93.1% of all employees in Trinidad and Tobago, including unemployed persons, were covered in 2019/2020, exceeding the minimum 50% required by Convention No. 102 (where the total number of employees in 2020 was 460,000 and there were roughly 44,000 unemployed persons).		
Benefit	Periodic payments: at least 40% of former earnings of the insured worker after 15 years of contributions (for contributory schemes)	The survivors' pension is proportional to the retirement or invalidity pension as follows (Table C7 and B7 Schedule 3 NIA, modified by Act No.7 of 2016): ▶ Widow/widower: 60 per cent (min.: TT$600 per month). ▶ Child: 30 per cent (min.: TT$600 per month) ▶ Orphan: 60 per cent (min.: TT$1,200 per month). ▶ Parents: 30 per cent (min.: TT$600 per month to be shared between the two parents if both alive). If one parent dies, the surviving parent receives the total amount of dependent parents' benefit. ▶ *Maximum family benefit:* 100%.	✗
Assessment	**Contrary to Convention No. 102, a dependent wife with two children would only receive a Survivor's Pension equivalent to at least 40% of the former earnings of a deceased breadwinner who belonged to class I and had contributed 15 years whereas the Convention requires this replacement rate to be reached in all cases where the reference wage was equal or inferior to that of a skilled worker in the country.** **Specifically, according to the national law, a dependent wife with two children would receive a benefit equal to 90% of the old age or invalidity pension (30% for the widow and 30% for each child); i.e., roughly between 27% (earning class XVI) and 43% (earning class I) of previous earnings depending on the earnings class.**		
Entitlement conditions – reduced pension	5 years of contributions or employment (for contributory or employment-based schemes for entitlement to a reduced benefit) For widows, benefits may be conditional on being incapable of self-support; for children, until 15 years of age or school-leaving age	Benefits are paid following a minimum 50 weeks of contributions.	✔
Assessment	**The national legislation provides survivor benefits to dependents of a deceased insured who had contributed for one year, which is in line with Convention No. 102, which requires that, at a minimum, a reduced survivors benefit should be paid after five years of contributions.**		
Benefit duration	Until children reach school leaving age or turn 15 Benefits to widows may be made conditional on her being presumed incapable of self-support and may be suspended if the widow remarries	Para. 14 of the NIR-Benefits, maximum duration of survivor benefits: ▶ *Widow or widower:* the pension is paid for life or until remarriage. ▶ *Child/orphan:* Payable up to age 19. If the child/orphan was mentally or physically disabled before age 19, the benefit is paid until the incapacity ceases. ▶ *Parents:* the pension is paid for life or until remarriage (Para. 14(e) NIR-Benefits).	✔
Assessment	**According to the national legal framework, survivor's benefits are provided to all widows for life or until remarriage and to orphans at least until they are 19. Therefore, the legal framework is aligned with the**		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
	minimum requirements established in Convention No. 102, which set that, at a minimum, Survivors' Pensions be provided to orphans until 15 years of age or school leaving age and widows until they are remarried.		
Adjustment of pensions in payment	Adjustment of pensions in payment following substantial changes in general level of earnings and/or cost of living	See comments in the corresponding section in old-age benefit.	?
Assessment	**According to the Convention, pensions should be reviewed following substantial changes in the general level of earnings where these result from substantial changes in the cost of living. The objective is that the purchasing power of pensions should not erode over time due to substantial increases in the cost of living and that whenever wages have evolved to catch up with inflation, the consequent additional contributions provide the financial means to also adjust pensions without compromising the sustainability of the Scheme.** **In Trinidad and Tobago, adjustment to pension levels appears to be done through an ad hoc mechanism. Indeed, according to the report, pensions in payment were last adjusted in 2014, except for the minimum pension, which was last revised in 2012. It would be important to understand what has happened in terms of the general level of earnings and cost of living since 2016 in order to determine whether adjustments to survivor's benefits have followed these in line with the requirements of the Convention. Typically, the periodic actuarial reports could also provide information on the purchasing power of benefits in view of the evolution of the level of earnings in the country where these result from changes in the cost of living since the last actuarial valuation.** **It can be noted that ILO's Supervisory Bodies have considered that ad hoc revalorization mechanisms are not always the most efficient way of guaranteeing the sustainability of the Scheme nor the adequacy of benefits. However, the periodic adjustment of the level of long-term benefits is a fundamental principle recognized both by ILO social security instruments but also by the human rights bodies the application of which is not optional. That being said, while closely and periodically monitoring the situation of the level of pensions, the Government could, in accordance with ILO C102, reserve itself the possibility, where the financial situation of the Scheme is unstable, of reviewing these levels only in cases where there have been substantial changes in the national level of earnings triggered by substantial changes in the cost of living. However, the objective of financial equilibrium of pension funds should not be pursued by disregarding the fundamental principle of social security law guaranteeing the periodic revision of long-term benefits.**		

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