TECHNICAL COOPERATION

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International Labour Organization

Report to the National Insurance Board

Tenth actuarial valuation of the National Insurance System as of 30 June 2016

Social Protection

Protección Social

Protection sociale

ILO/TF/Trinidad and Tobago/R.18

Trinidad and Tobago

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Global Employment Injury Programme
Enterprises Department

Actuarial Services Unit
Social Protection Department
International Labour Office, Geneva

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The ILO entrusted the Actuarial Services Unit of the Social Protection Department (SOC/ASU) and the Global Employment Injury Programme of the Enterprises Department (ENT/GEIP) with this assignment and mandated Mr Georges Langis, FSA, FCIA, to undertake it in collaboration with the NIBTT's actuarial services.

Mr Langis visited Port of Spain two times: from 9 to 16 October 2017 to launch the data collection necessary for the valuation in collaboration with NIBTT personnel, and from 22 January to 2 February 2018 to hold discussions with the management and members of the Board as well as to continue to construct the model with NIBTT's actuarial services department.

Mr Langis worked in collaboration with Mr Andy Sean Edwards, NIBTT's Manager Actuarial Services, and Ms Karlene Noreiga, Actuarial Assistant, 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 Bernard Smith, Manager Research and Development, assisted the Actuary during the missions and provided information and timely support.

Mr André Picard, Head of SOC/ASU, assumed responsibility for the technical supervision, clearance of content for all areas of social security (except employment injury benefits) and coordination with other ILO specialists for the review and editing of this ILO technical report. Ms Anne Drouin, Director of ENT/GEIP, and Mr Hiroshi Yamabana, Senior Actuary at ENT/GEIP, assumed responsibility for the technical supervision and clearance of content of the report related to employment injury benefits. The report has been reviewed by Ms Maya Stern-Plaza, legal specialist in the Policy Unit of the Social Protection Department, for standards and legal issues. Claudia Coenjaerts and Ariel Pino valuable contribution facilitated field work.

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

Contents

Page

List of Tables

Page

List of Tables in Appendices

List of Figures

Abbreviations

CPI	Consumer Price Index
GAP	general average premium
SCP	Senior Citizens' Pension
CSO	Central Statistical Office
ENAP	Ecole nationale d'administration publique
GDP	gross domestic product
IAA	International Actuarial Association
ILO	International Labour Office/Organization
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
TFR	total fertility rate
TT$	Trinidad and Tobago dollars
UN	United Nations
WCA	Workmen's Compensation Act

Introduction

Section 70 of the Trinidad and Tobago National Insurance Act 35 of 1971 requires that an actuarial review of the National Insurance System (NIS) be undertaken at five-yearly or shorter intervals as the Board may determine. The present actuarial review covers the three-year period up to 30 June 2016.

This report has 16 chapters. The first presents a brief history and past financial trends of NIS and past demographic and economic context over the last 12 years. The review of the experience of the NIS since the last actuarial valuation is discussed in Chapter 2. Chapter 3 concentrates on the investment policy, while Chapter 4 and Chapter 5 respectively present the financial system and the level of administrative expenditures. Chapter 6 concentrates on the projection of the demographic and macroeconomic environment of Trinidad and Tobago. Demographic and financial projections on a best-estimate basis and according to the legal provisions of the NIS are presented in Chapter 7. Chapter 8 deals with the reconciliation of results between the ninth and tenth valuations. Chapter 9 presents the sensitivity analysis necessary in any actuarial valuation, while Chapter 10 presents the value of the accrued liabilities of the NIS and the funding ratio. Chapter 11 presents a discussion on the integration of the pension system. In Chapter 12 comments are provided on the dual source of compensation for work-related injuries, and in Chapter 13 there are propositions on modifying the calculation of the pension from an earnings class system to a formula based on a percentage of earnings. Chapter 14 presents an update of a study of the extension of coverage to the self-employed. Chapter 15 presents the actuarial opinion, while in Chapter 16, the conclusion of the valuation and recommendations are given.

The quality and reliability of the data used for this actuarial valuation is the responsibility of the NIBTT. In the process of the valuation, checks have been made on the data collected to ensure that they are consistent and of good quality.

This actuarial review has been undertaken in compliance with the *Standard of Practice APS 3: Social Security Programs* of the Caribbean Actuarial Association (CAA) and the ILO-ISSA *Guidelines on actuarial work for social security*.

1. Brief history 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 over 530,000 insured persons. 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 in that year, 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) classes.

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 $2,000 per month and was further increased by 50 per cent to its current level of $3,000 in the 2012 financial year. The minimum pension now represents about 115 per cent of the minimum wage. [1]

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 16 per cent of the total number of workers. As was the case in the previous actuarial valuation, 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 12 of the 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. 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 financed before implementing any additional benefits.

[1] Since January 2015, the monthly minimum wage is TT$2,600.

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

This section contains an assessment of the compatibility of the system administered by the National Insurance Board of Trinidad and Tobago with reference to the current provisions of the Government of Trinidad and Tobago's legislation concerning social security, and in particular the National Insurance Act (as amended by Act No. 7 of 2016); National Insurance (Benefits) Regulations (GN 77/1972); the National Insurance (Contribution) Regulations (GN 63/1972); the National Insurance (Medical Expenses) Regulations (GN 95/1977); the National Insurance (Employment Injury) (Payment of Medical Expenses) Order (GN 226/1979); the National Insurance (Prescribed Diseases) Regulations (GN 94/1977) with the benchmarks and principles set out in the ILO Social Security (Minimum Standards) Convention, 1952 (No. 102) (as detailed in Annex 1).[2] 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 social protection system of Trinidad and Tobago also provides benefits through social assistance administered by the Ministry of Social Development and Family Services. However, these are outside the scope of this report.

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 as described in Annex 1, stands 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 Benefit), VIII (Maternity Benefits), IX (Invalidity Benefits) and X (Survivors Benefits). [4] It will further serve to identify potential gaps in protection and explore possible areas for improvement based on 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

[2] For additional information on Convention No. 102 and other ILO social security standards, see Annex 7

[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.

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 Annex 6, [5] it can be concluded that Trinidad and Tobago would be in a position to ratify **Parts II (Sickness), V (Old Age) and VIII (Maternity)** as it appears that the national legal framework meets or exceeds the minimum parameters established by Convention No. 102 as regards in particular:

– the definition of the contingency;

– the personal scope of coverage;

– the qualifying conditions;

– the level of the benefit; and

– the 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:

- With respect to **Part VI (Employment Injury Benefits)**, 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 of medical benefits should be put in place until this condition is reached. However, with the current provisions, there is a maximum on medical benefits payable from the EII scheme. The Scheme could be fully compliant if the medical expenses above the set limit are paid for by a national health insurance scheme or the employer liability scheme (no co-payment, no deductible, access to same medical treatment and facilities with the goal for the injured worker to return to full capacity). In order to fully comply with the minimal provisions of Convention No. 102 with respect of Employment Injury Benefits, the Minister Order on the maximum amount of health benefits to be paid could be revoked or a new Order could state that there is no limit for medical benefits paid for by the Scheme.

[5] Annex 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.

- With respect to **Part VIII (Maternity)**, the Government should confirm whether:
  - the period of residence required to benefit from maternity medical care is no longer than what is sufficient to preclude abuse (typically for example that it does not exceed the duration of a normal pregnancy);
  - the national legislation provides medical care during pregnancy, birth and postpartum; and
  - the national legislation provides the types of maternity medical care set out in the Convention. [6]
- With respect of **Parts IX (Invalidity Benefits) and 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 [7] (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 earnings classes I, in the case of survivors benefits, would receive a benefit in compliance with Convention No. 102. It is therefore very likely that, contrary to what is required by the Convention, the other beneficiaries (those whose earnings are equal or below the wage of a skilled manual male employee) would not receive a benefit equivalent to at a minimum 40 per cent of their actual previous earnings.

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 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 a means 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.

[6] The medical care shall include at least:

(a) pre-natal, confinement and post-natal care either by medical practitioners or by qualified midwives; and

(b) hospitalisation where necessary.

[7] Determined according to Article 65 of Convention No. 102.

Table 1.1. Schedule of Senior Citizens Pension

	Other monthly Income(s) –x	SCP ($)
1	x ≤ 1 500	3 500
2	1 500 <x ≤ 2 000	3 000
3	2 000 < x ≤ 2 500	2 500
4	2 500 < x ≤ 3 000	2 000
5	3 000 < x ≤ 3 500	1 500
6	3 500 < x ≤ 4 000	1 000
7	4 000 < x ≤ 4 500	500

Source: Senior Citizens' Pension Act Chapter 32:02.

This schedule implies that an applicant whose only source of income is the NIS minimum pension will be eligible to receive $2,000 from the Ministry of Social Development and Family Services. Persons having more than $4,500 of 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 134 per cent of the minimum wage.

Table 1.2 displays the number of recipients of the SCP on June 2016 and June 2017.

Table 1.2. Senior Citizens' Pension, number of recipients in June 2016 and June 2017

SCP ($)	Number of recipients June 2016	Number of recipients June 2017
3 500	65 446	66 815
3 000	1 420	1 418
2 500	404	426
2 000	18 886	20 362
1 500	1 289	1 428
1 000	941	1 431
500	165	457
Total	**88 551**	**92 337**

According to UN data, there were 132,000 persons over age 65 living in Trinidad and Tobago in 2016, which represents about 10 per cent of the total population. According to information from the Ministry of Social Development and Family Services, in June 2016 there were 88,551 persons receiving the SCP, which represents 67 per cent of the population aged 65 and over.

In 2016, out of the 200,000 persons aged 60 and over, 100,000 were receiving an NIS old-age pension. This represents a proportion of 50 per cent. About 97 per cent of the NIS old-age pensioners were receiving the minimum pension, which is 115 per cent of the minimum wage. On the contributory side, on average, 81 per cent of the workers were contributing in any given month to the NIS.

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 $7,980. If this level is adjusted to inflation to find a proxy of 2016's poverty level, it can be found that the SCP is 2.4 higher than the estimated poverty line, while for the NIS's minimum pension this relation is 2.1.

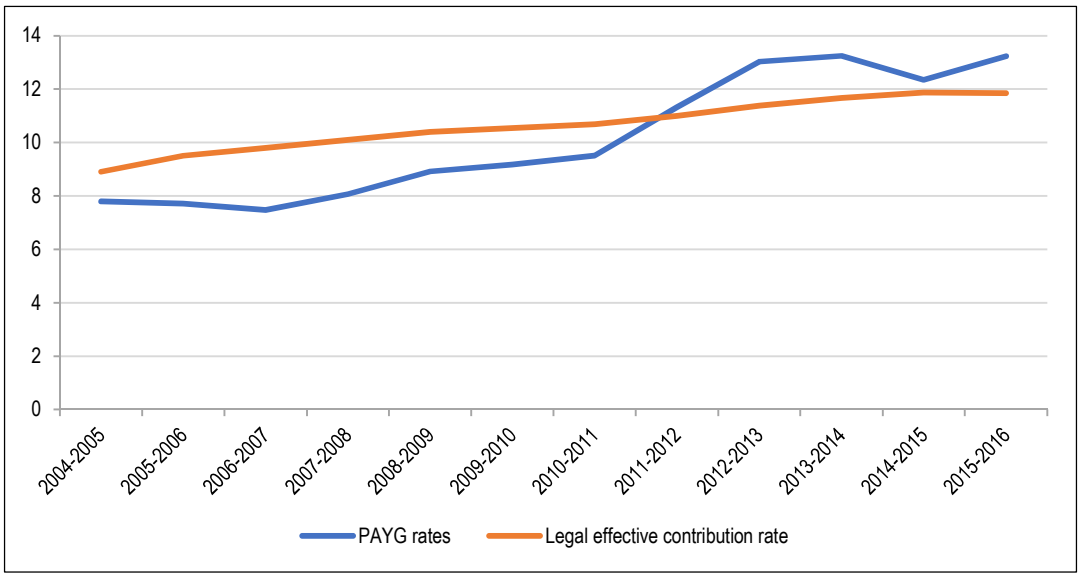
This section shows that in Trinidad and Tobago, there is adequate coverage or level of the pension protection. The base of the system, which is composed of the SCP and the minimum NIS pension, seems high enough to protect the people. Mandatory coverage of self-employed persons (SEP) is going to continue to be an important issue and will be analysed in Chapter 14. 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 11, can be illustrated by the following example:

- Someone aged 65 receiving the minimum pension at the NIS ($3,000) can also receive the SCP at a level of $2,000 for a total pension of $5,000. Someone not contributing at the NIS can receive $3,500 from the SCP and an additional $1,500 of personal income for a total of $5,000. Who is going to be interested in paying contributions to a social security system during his whole life to receive the same amount, in the knowledge that the contribution rate to the NIS is going to increase in the future?

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

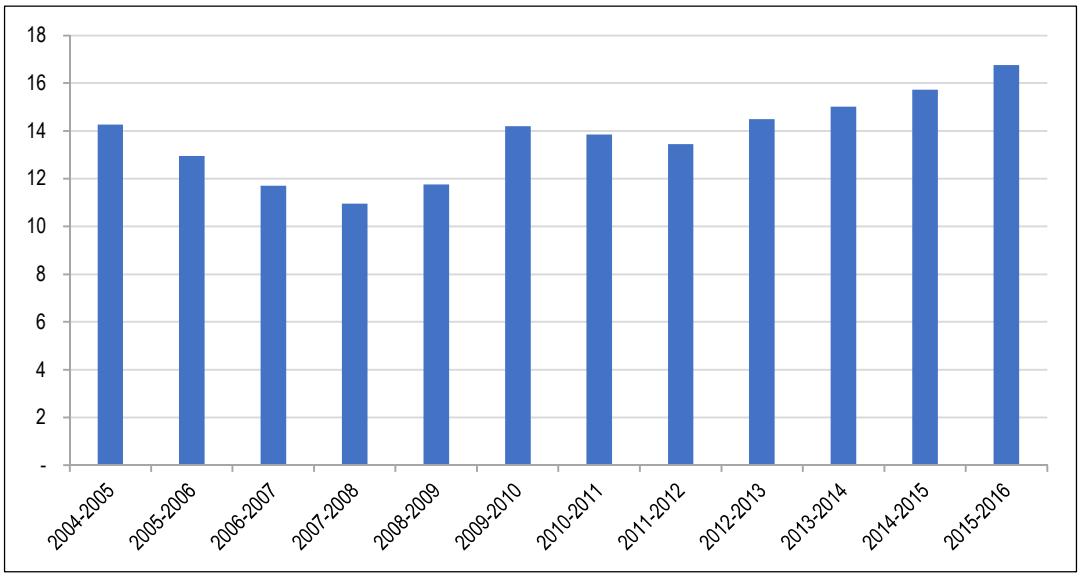
The following charts illustrate the trends of the main indicators of the financial experience of the NIS over the last 12 years. Figure 1.1 compares the legal effective contribution rates (the legal effective contribution rate considers that persons in Class Z are paying a lower contribution rate than other contributors) and the pay-as-you-go rates (PAYG) for the financial years 2004–05 to 2015–16. 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 13.2 per cent in 2015–16. 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 most recent 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. The amount of reserve accumulated at the end of the financial year 2015–16 is TT$25,494 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 2015–16, the amount of reserve represented 16.8 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 has continued to grow over the last five years.

Figure 1.1. Legal effective contribution rates and PAYG rates, 2004–05 to 2015–16 (percentages)



Source: NIBTT, authors' calculations.

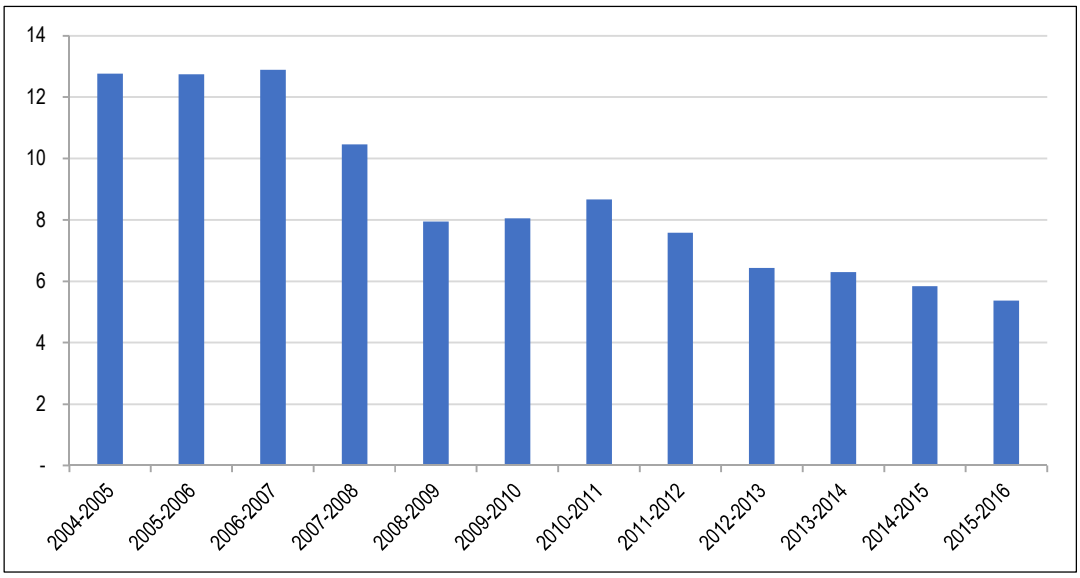
Figure 1.2. Amount of reserve (year-end) to GDP, 2004–05 to 2015–16 (percentages)



Source: CSO for GDP from 2012 to 2016, authors' estimation for the previous year.

Figure 1.3 presents the reserve-to-expenditures ratio (RER ratio) 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 ratio has generally trended downwards since 2004–05. Its level was 5.4 at the end of financial year 2015–16.

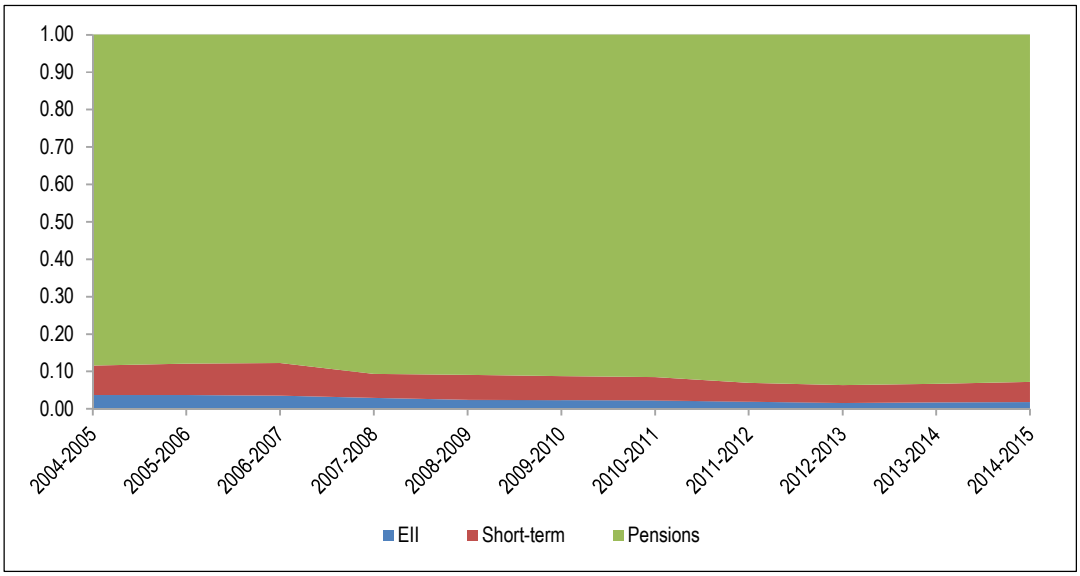
Figure 1.3. Reserve-to-expenditure ratio (RER ratio), 2004–05 to 2015–16



Source: NIBTT, authors' calculations.

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 2004–05, long-term benefit expenditure represented 88 per cent of all benefits, while it was 93 per cent in 2015–16 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, 2004–13 (percentages)

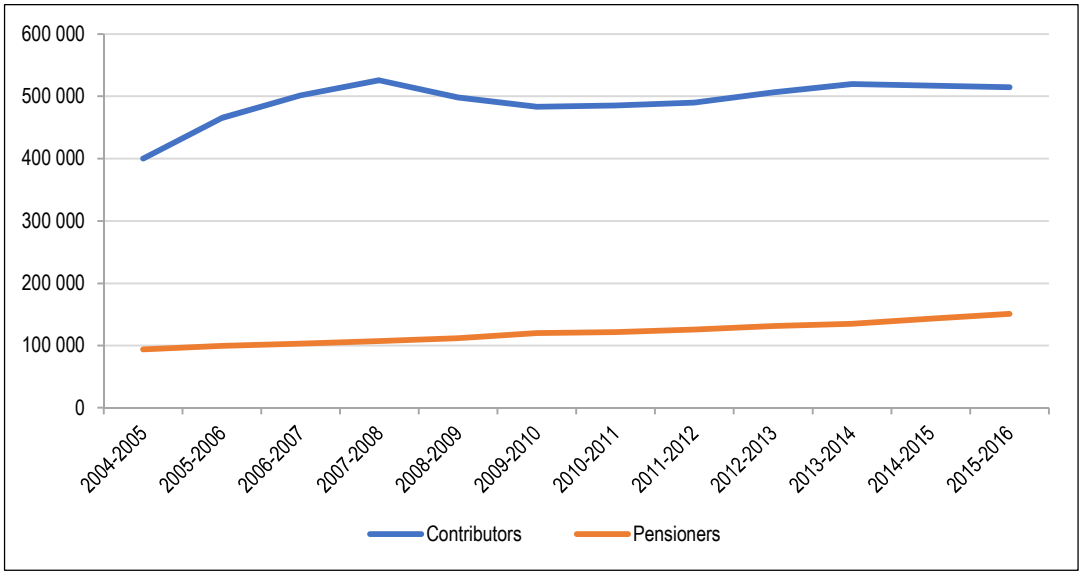


Source: authors' calculations.

Figure 1.5 shows the evolution of the number of contributors and pensioners over the last 10 years, increasing respectively by 29 and 60 per cent over the period analysed. It can be seen that since the last crisis in 2008, the number of contributors has been quite stable. 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

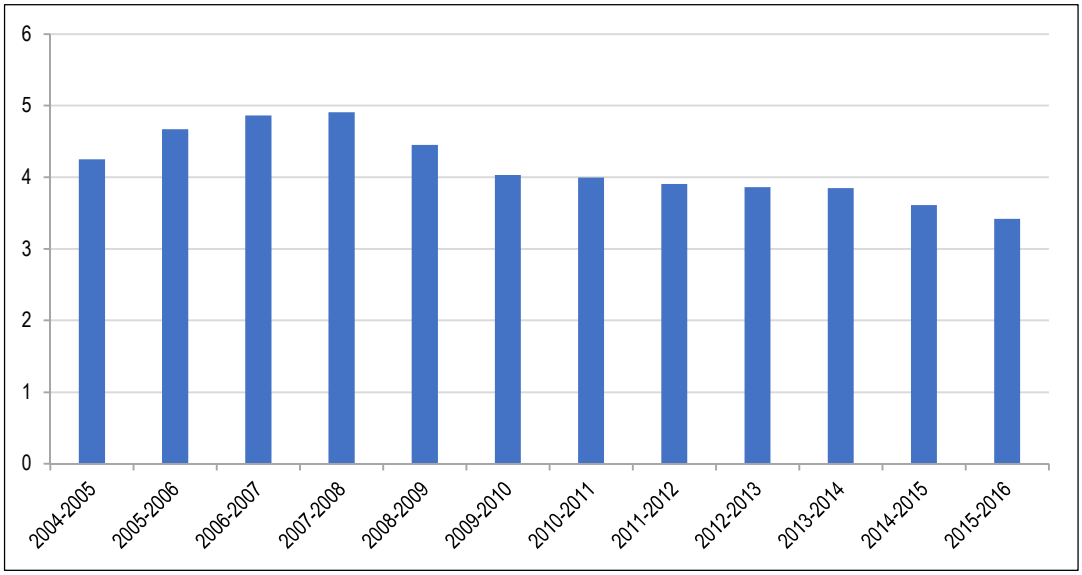
2004–05. In that financial year there were 4.4 contributors for each pensioner. This ratio is now 3.5.

Figure 1.5. Evolution of the number of pensioners and contributors, 2004–05 to 2015–16



Source: NIBTT.

Figure 1.6. Ratio of the number of contributors to the number of pensioners, 2004–05 to 2015–16



Source: NIBTT, authors' calculations.

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 2016 is estimated at 1.36 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 2005–07, 11.1 per cent of the population was aged 60 and over.

For the period 2013–16, this figure is 14.2 per cent. The proportion of the population that comprises potential contributors to the NIS, persons aged between 15 and 59, however decreased from 67.4 per cent in 2005–07 to 65.0 per cent in 2013–16. Over the 12-year period, the population aged between 15 and 59 has grown at an annual rate of 0.1 per cent. The ageing process in Trinidad and Tobago is currently under way.

Table 1.3. Evolution of the population, demographic indicators, 2005–16 (percentages)

	2005–07	2008–10	2011–13	2013–16
Proportion of the population 0-14	21.5	20.8	20.7	20.8
Proportion of the population 15-59	67.4	67.1	66.2	65.0
Proportion of the population 60+	11.1	12.1	13.1	14.2
Annual growth of the population	1.0	0.7	0.5	0.4

Source: UN, authors' calculations.

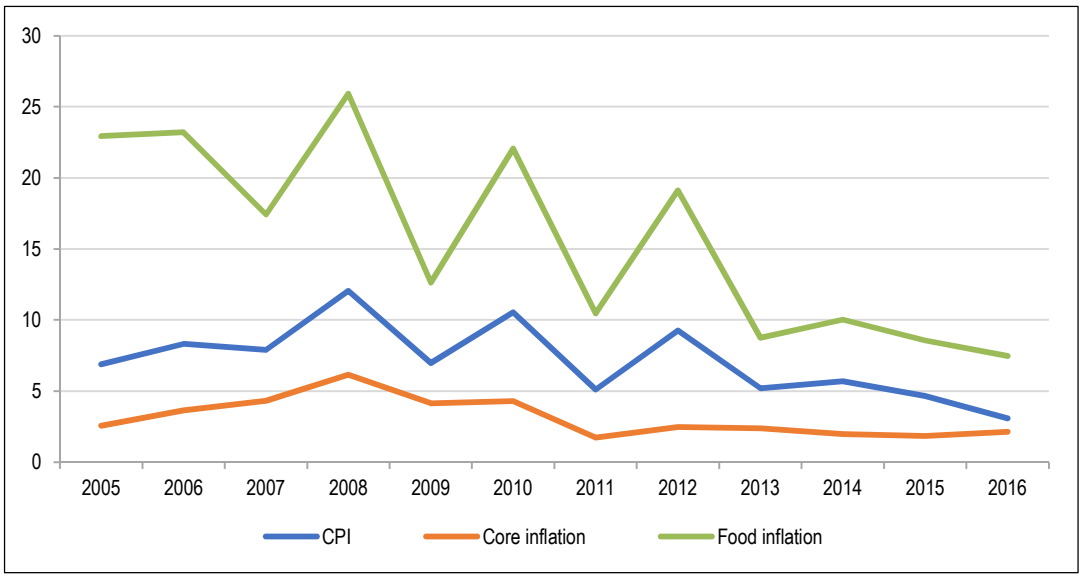
On the economic side, during the period analysed real GDP has grown at an annual rate of 1.9 per cent. Global energy prices have driven down the growth of real GDP to negative values for the last three years of the period, when the annual real GDP growth was –1.6 per cent. Further, salaries have increased less than the CPI rate. While information on salary increases was not available for the year 2005 and 2016, they can be compared for the 2006–15 period. For this period, the average CPI was 7.5 per cent and the average salary increase was 6.1 per cent. This situation creates an average negative annual salary increase of 1.4 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. In 2016, while the contribution tables have been adjusted, pensions in payment have not been adjusted. Table 1.4 shows, for the period 2005–16, that the annual CPI core index rate (excluding volatile elements such as food) was considerably lower than the global CPI index rate. This is explained by the fact that food inflation during the period was considerably higher and is the main driver of the high inflation rate. This is illustrated in figure 1.7.

Table 1.4. Economic indicators, 2005–16 (percentages)

	2005–07	2008–10	2011–13	2013–16 *	2005–16 *
Annual real GDP growth	8.0	0.7	0.7	–1.6	1.9
Annual employed population growth	2.1	–0.4	0.9	–0.2	0.6
Annual labour productivity growth	5.8	1.1	–0.2	–1.4	1.3
Annual growth GDP deflator growth	9.1	0.3	6.0	–3.0	3.0
Annual CPI rate	7.7	9.8	6.5	4.5	7.1
Annual CPI core index rate	3.5	4.9	2.2	2.0	3.1
Annual average weekly earnings growth	N/A	5.4	6.6	N/A	N/A

Source: CSO, authors' calculations.

Figure 1.7. Annual CPI index rate and food inflation, 2005–16



Source: CSO.

2. Review of the experience of the NIS

This section discusses the evolution of the financial situation of the National Insurance System (NIS) between July 2013 and June 2016 (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 three years appears in Appendix 3.

2.1. Amendments since the last actuarial review

The following modifications have been introduced in the legislation since the last actuarial review:

– On 4 March 2014, the monthly maximum insurable earnings (MIE) was increased to TT$12,000.00 and the contribution rate to 12.0 per cent of insurable earnings;

– On 5 September 2016, the monthly maximum insurable earnings (MIE) was increased to TT$13,600.00 and the contribution rate to 13.2 per cent of insurable earnings.

2.2. Experience from July 2013 to June 2016 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 for contributions and for the administrative expenditure, the expectations of the previous actuarial valuation were very close to the observed values. The main differences between the expected and the observed values are the investment income and the benefit expenditure. Observed returns on assets have been considerably lower than expected. While for the long-term benefits, the observed numbers of pensioners were in line with the previous actuarial valuation, their average amounts were lower.

The comparison in table 2.2 shows that, on average, the emerging experience is 1 per cent lower than the expected experience. In fact, during the three years, the ratio of total benefits expenditure plus the administrative expenses to total earnings was 12.9 per cent compared to an expectation of 13.9 per cent. The RER ratio over the observed period was in line with that projected in the last actuarial valuation. A low average increase in paid pensions has compensated for the low return on assets.

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

Short-term benefit expenditures have been higher than projections, while employment injury benefits, like those of the long-term branch, have been lower than the expectation.

Table 2.1. Comparison of projected versus actual results of the NIS regarding the different components of revenue and expenditure, 2013–16 (million TT$)

	2013–14	2014–15	2015–16
Projections of the ninth actuarial review			
Contribution income	3 655	4 051	4 240
Investment income *	2 124	2 148	2 199
Benefit expenditure	4 078	4 406	4 871
Administrative expenses	191	199	208
Observed results			
Contribution income	3 624	4 262	4 252
Investment income *	2 101	108	–40
Benefit expenditure	3 916	4 216	4 513
Administrative expenses	190	205	226
Contribution to surplus (deficit)			
Contribution income	–31	211	12
Investment income *	–23	–2 040	–2 239
Benefit expenditure	162	190	358
Administrative expenses	1	–6	–18

* Investment income includes realized and unrealized gains.

Source: NIBTT audited financial statements, and ninth actuarial review of the National Insurance System as of 30 June 2013.

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

	2013–14	2014–15	2015–16	Average
Ratio of total expenses to total insured earnings				
Last actuarial valuation	13.8	13.6	14.4	13.9
Observed values	13.2	12.4	13.2	12.9
Ratio of benefit expenses to total insured earnings				
Last actuarial valuation	13.1	13.0	13.8	13.3
Observed values	12.6	11.8	12.6	12.3
Ratio of administrative costs to total insured earnings				
Last actuarial valuation	0.7	0.6	0.6	0.6
Observed values	0.7	0.6	0.6	0.6
Reserve ratio				
Last actuarial valuation	6.0	5.9	5.6	5.9
Observed values	6.3	5.8	5.3	5.8

Table 2.3. Comparison of the emerging experience with the expectation in the last actuarial valuation, selected indicators, average annual variation, 2013–16 (percentages)

	Nominal	Real
Annual average increase in contributions		
Expectation from last actuarial valuation	8.7	3.9
Observed values	8.8	4.1
Annual average growth in the insured population		
Expectation from last actuarial valuation	0.1	n/a
Observed values	0.4	n/a
Annual average increase in average salary		
Expectation from last actuarial valuation	7.3	2.6
Observed values	6.8	2.2
Annual average increase of total benefits paid		
Expectation from last actuarial valuation	11.1	6.2
Observed values	8.3	3.6
Annual average increase in the number of pensioners		
Expectation from last actuarial valuation	5.4	n/a
Observed values	5.2	n/a
Annual average inflation rate		
Expectation from last actuarial valuation	4.5	n/a
Observed values	4.5	n/a
Annual average return on assets		
Expectation from last actuarial valuation	8.3	3.6
Observed values	2.8	(1.6)

Table 2.4 presents a comparison of NIS total funds projected according to the ninth 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 at 30 June, 2013–16 (million TT$)

	2013	2014	2015	2016
Projections of the ninth actuarial review	24 156	25 667	27 261	28 621
Observed results	24 156	25 796	25 741	25 245
Ratio observed/projected (%)	–	101	94	88

Source: NIBTT audited financial statements, and ninth actuarial review of the National Insurance System as of 30 June 2013.

Accumulated assets have been lower than projections for the financial years 2014–15 and 2015–16. Investment income has been lower than expected for all years analysed. The average annual rate of return of the fund over the three-year period since the last review has been 2.8 per cent (due mainly to the impact of unrealized losses), compared to the average return of 8.3 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.

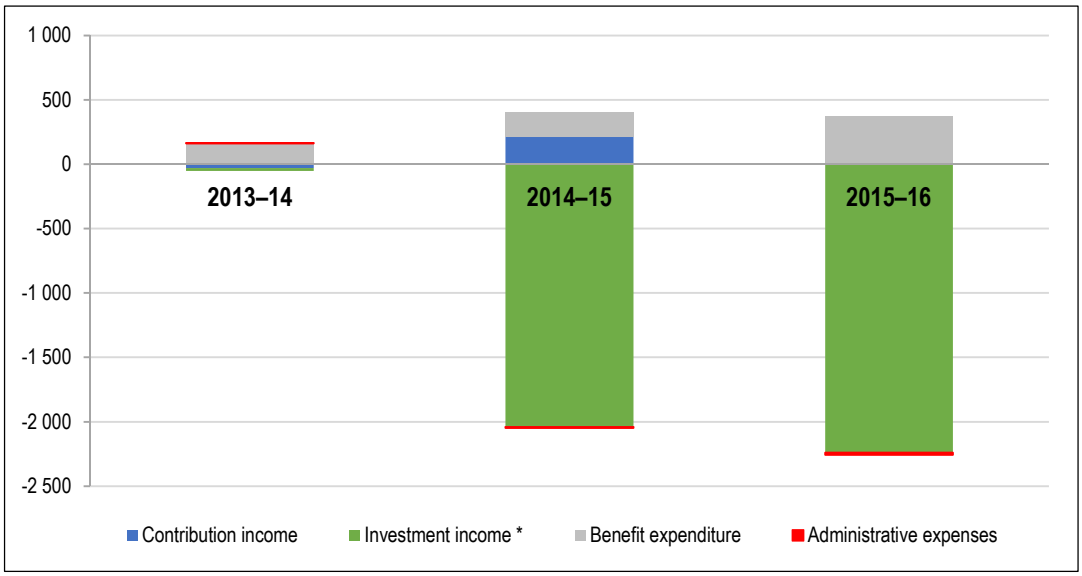
Table 2.5. Rate of return of the fund, 2013–16 (percentages)

Year	Rate of return	
	Projected	Observed [a]
2013–14	8.6	8.7
2014–15	8.3	0.4
2015–16	8.1	–0.2
arithmetic average	8.3	2.8

[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

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 2013. The majority of the deficit is caused by lower than expected investment income which represents an amount of TT$4,302 million. Lower than expected benefits has contributed to an increase of the assets by TT$710 million over the period.

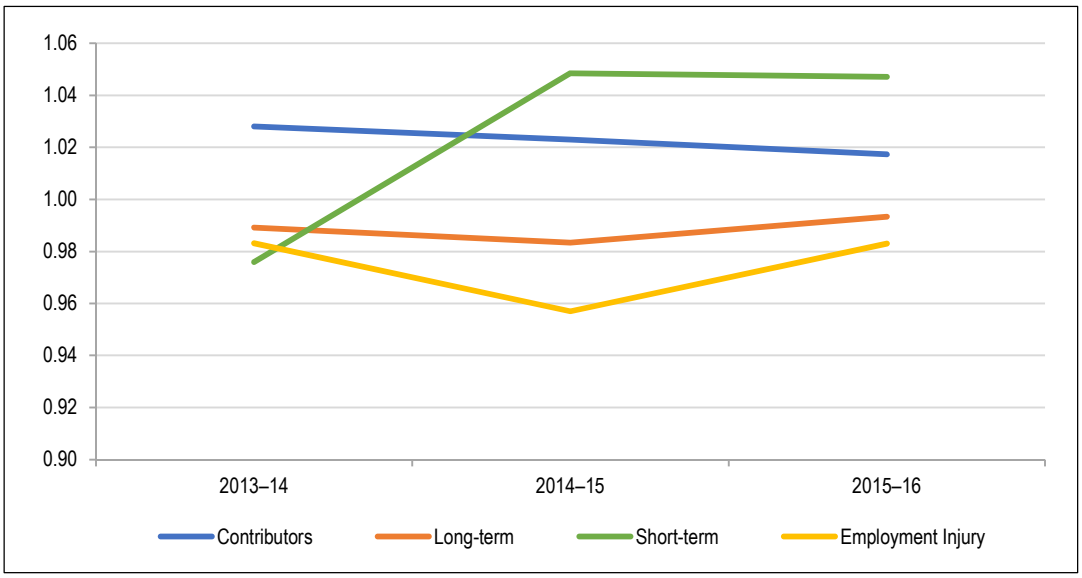
Figure 2.1. Sources of deviations in the projected increase of assets from 2013–14 to 2015–16



2.2.1. Analysis of NIS demographic data

Figure 2.2 shows the ratio of observed to projected numbers of contributors and beneficiaries. The number of contributors has been higher than the projection by about 2 per cent during the three-year period. The number of long-term pensioners has been lower than expected over the period for all categories: retirement, survivors and invalidity. The observed number of retirement grant benefits over the period has been 22 per cent higher than the expectation. For employment injury, while the number of disability pensioners has been lower than expected, the numbers of injury benefits and disability grants have been higher than expected. For short-term benefits, a higher than expected number of claims has been observed in all categories except sickness benefits. It is for funeral benefits where the gap has been the largest: 25 per cent more benefits than expected have been paid over the period. Appendix 3 presents more detailed information.

Figure 2.2. Ratio of observed to expected contributors and beneficiaries



Source: Ninth actuarial review and annual report.

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 not only 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 (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).

Consistency checks were made on the data received to be sure that it was of a suitable quality to undertake an actuarial valuation. It is usual to make some adjustments to the collected information to ensure overall consistency.

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 years, the information regarding the insured population and their contributions was not completely developed 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, a report on the employees is sent to NIBTT by the employer, and when there is an error in the information the case is rejected until the information is corrected by the employer. Usually, it takes time to bring the corrected data into the system. So the data used for the present actuarial valuation have been adjusted and assumptions have been established to replicate the value of the contributions given on the financial statement. Table 2.6 shows the degree of completeness of the information in the computerized system at the moment that the data was gathered.

Table 2.6. Degree of completeness of the information used for the actuarial valuation, insured population and contributions, 2010–16

	Number of contributors			Contribution Income		
	Annual report [1]	From data query	Degree of incompleteness (%)	Annual report adjusted (Bn$) [2]	From data query (Bn$)	Degree of incompleteness (%)
2010	482 839	492 550	2.01	2.63	2.40	–8.53
2011	484 979	512 521	5.68	2.69	2.52	–6.51
2012	489 553	505 062	3.17	2.80	2.37	–15.40
2013	506 248	495 864	–2.05	3.28	2.75	–16.04
2014	519 636	482 162	–7.21	3.59	2.66	–25.93
2015	516 926	451 261	–12.70	4.23	2.22	–47.47
2016	514 561	374 560	–27.21	4.22	1.80	–57.28

[1] In 2015 and 2016, the number of contributors in the financial statement represents the number of contributors in June. The total number of contributors in the year is difficult to estimate because of the existence of duplicated information in the report sent by employers. [2] Estimate including arrears for the current financial year only.

For this actuarial valuation, information related to mature years (2010, 2011 and 2012) has been 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 2015–16 has been estimated to be 530,000 persons.

Not all the information regarding the requests made for the *previous* actuarial valuation was accessible or recorded on the computerized system of NIBTT. Access to these previous files is important for continuity from one valuation to the next. Since the last valuation, however, the NIBTT has established a dedicated Actuarial Services Department dealing specifically with the conduct of actuarial reviews. It is recommended that the 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.

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. 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.

3. Investment policy

This section 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 depends on the targeted degree of funding. In a social security plan, the accumulation of assets also has a secondary role of equalizing 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. 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 applying to pension plans. Other very important factors should also be considered: the maturity of the system, the level of 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

The Investment Policy Statement (IPS) of the NIS was approved by the Board on 23 November 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 the specific context of the NIS, which is to:

(a) provide liquidity support to Insurance Operations over the medium term;

(b) reduce single asset concentration risk; and

(c) maintain the cash generation (cash yield)/overall return in the short/medium term.

The IPS clearly mentions that this context is not in line with the natural longer-term perspective in the development and planning of investment portfolios for pension funds and social insurance funds.

More specifically, the Investment Policy Statement of 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 be built on the expected results (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 long run, while no such increase is considered in the pessimistic scenario. The Investment Policy Statement has been mainly based on the pessimistic scenario.

The expected return on assets used in the actuarial valuation should not necessarily be the one expected in the investment policy, because of the very long-term perspective of the actuarial valuation. Governance, funding objectives and investment practices should also be considered.

The IPS specifies some limits to mitigate certain risks. 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 10 per cent of the market value of the portfolio.

(b) **Conglomerate exposure risk:** No more that 10 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 short-term Treasury Portfolio is to be maintained, and must be enough to cover the following year's projected cash outflow with the expectation to earn a return premium over the current bank account rate of 10bps.

B. Fixed income risk limits

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

(b) **Credit rating:** Each corporate entity must have a minimum credit rating of investment grade (greater than or equal to BBB–).

(c) **Investments in unrated corporate entities** must be subjected to internal credit analysis.

(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.

(c) 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. It is currently under the consideration of the Investment Committee of NIBTT to create a Real Estate Company that will be solely owned by the NIBTT. There will be no more direct real estate investment. Thus, the returns derived would be generated indirectly from the equity stake in the company.

(b) Real estate investments shall be under the following categories:

(i) Commercial;

(ii) Residential;

(iii) Mixed use;

(iv) Land.

E. *Related party transaction limits*

(a) No more than 3 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 (percentages)

Overall portfolio	Current asset allocation	Target asset allocation	Allowable range	Target cash yield	Target total return
Fixed income (local)	32.24	34.00	28–40	3.95	4.30
Fixed income (international)	0.87	15.00	5–15	3.15	6.00
Equities (local)	36.17	25.00	20–40	3.80–4.00	3.90–4.00
Equities (international)	15.95	22.00	15–25	1.50	8.00
Mutual funds	3.70	1.60	0–2	2.00	2.00
Real estate	1.41	0.00	0–2	0.00	0.00
Cash & cash equivalents	9.66	2.40	2.0–10	0.90	1.50
OVERALL PORTFOLIO	**100.00**	**100.00**	**–**	**3.15–3.33**	**4.83–5.17**

Source: NIBTT Investment Policy Statement 2018–21.

The limits on international fixed income and equities are higher than the limits indicated in the law (20 per cent for the sum of all invested assets). The target asset allocation displayed in table 3.1 is consequently conditional on approval by the Minister or through a modification to the legislation.

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 and cash equivalents) has decreased from 56 to 48 per cent. The decrease is mainly explained by a diminution in the cash and cash equivalents (from 20 to 13 per cent). Therefore, the proportion of the portfolio invested in equities has increased from 44 to 52 per cent. The proportion of the portfolio invested in international assets has been quite stable over the last three years, from 11 to 10 per cent.

Table 3.2. Evolution of the NIBTT investment portfolio, 2013–16

Type of investment	Year (%)				Fixed-income (F-I) vs equity (E)
	2013	2014	2015	2016	
Local investments					
Fixed deposit/Demand deposit	6	10	6	2	F-I
TT government securities	18	20	21	22	F-I
TT debentures/bonds	7	4	7	9	F-I
Subsidiary company bonds	4	2	1	1	F-I
Subsidiary company equities	4	5	7	8	E
Subsidiary company debentures	0	0	0	0	F-I
Mortgages	0	0	0	0	F-I
Local equities	26	28	29	29	E
Investment properties	1	1	2	2	E
Other equity mutual funds	3	3	4	4	E
Cash and cash equivalents	20	16	14	13	F-I
Sub-total – Local	**89**	**88**	**90**	**90**	
Overseas investments					
Regional equity	0	0	0	0	E
US$ equity	1	2	2	6	E
US$ debentures/bonds	1	1	0	0	F-I
US$ cash	0	0	0	0	F-I
US$ RBC shares	8	9	7	4	E
Sub-total – Overseas	**11**	**12**	**10**	**10**	
Total	**100**	**100**	**100**	**100**	

Source: NIBTT.

3.4. Comments on the NIBTT Investment Policy Statement

With an objective of 47 per cent invested in equities, the investment policy is still in line with the long-term objective of a pension fund. It also takes into account the liquidity challenges.

In the last actuarial valuation, it was mentioned that:

> […] diversification may be achieved with the 20 per cent objective in overseas investments. The intention to go above the statutory limit on overseas investments aims at meeting the higher return and diversification objectives.

Going above 20 per cent is also a way to achieve better liquidity if these investments are invested on quoted markets. The new investment policy is a step in that direction. If more foreign investments are to be made, currency risk will have to be managed and monitored closely. The investment policy statement should contain a policy about currency risk: what kind of protection against currency risk should be implemented? For this level of overseas investments to be materialized, it is understood that the legislative constraints will be modified.

The IPS is also silent on the period over which the new targets are going to be reached, for example, what percentage of local equities are going to be sold each year. This kind of schedule should be well thought out, since it is important not to disrupt the financial markets in Trinidad and Tobago. Local equities held by the NIS represent about 7 per cent of the total capitalization of the country.

The investment policy does refer to the results of the actuarial valuation, and this is a very good practice. In the development of the policy, an expected nominal return between 4.83 and 5.17 per cent has been considered. This is an important difference from the previous investment policy where the expected return was at 6.75 per cent. There are however no clear and stated objectives regarding the risk. A more detailed risk analysis, commonly called asset-liability analysis, should be included in the investment policy. It may also be appropriate that the investment policy addresses topics such as Socially Responsible Investing (SRI) and Environmental, Social and Corporate Governance (ESCG).

What is also questionable in the current system is that there are no clear financing objectives related to the financial sustainability of the NIS. It is understandable that a system like the NIS offering such comprehensive long-term pension benefits and short-term benefits cannot stay at a contribution rate of 13.2 per cent forever. This situation is even more striking in a context where the legal contribution rate is now below the contribution rate needed to pay all expenses. In our opinion, for a system to be effective, an efficient and optimal investment policy should be linked to a clear road map related to a financing strategy or funding policy. As for the investment policy, the funding policy should be based on the nature of the benefits to be financed (short-term versus long-term). The following section gives more details about the funding policy.

4. Financial system

Contribution rates must be set so that the total income makes it possible to cover the benefit expenditure as well as the administrative costs. Furthermore, a specified reserve amount should be constituted to diversify the risk, to cushion the impact of economic downturns and to increase equity among generations of contributors. However, there are different factors that will affect the achievement of this goal:

1. The natural increase in the level of expenditure over a long period.

2. The desire to have a stable contribution rate and to have a contribution rate that will not become burdensome to the contributors.

3. The duration of the equilibrium period (the period for which the contributions and the investment incomes are enough to pay for the expenditure of the system) and the desired amount (level) of reserve to be attained throughout this period.

4. The desire to maximize the return of the system and to diversify the risk.

5. Liquidity constraints.

Currently there are no formal financing objectives written into the established legislation that would govern the adjustment of key parameters over time. Thus, the following questions are not answered: For which period should the contribution rate be adequate? What is the desired level of reserve or funding? Is a stable contribution rate desirable to maintain equity among generations? What happens if experience is worse than expected? Who shares the risk of the system?

Some countries have now become aware of this problem and include in their financing strategy some explicit financing objectives. Some also put in place automatic adjustment provisions to consider changes in the demography or in the economy.

One way to deal with financing challenges is to implement a funding policy. A funding policy is a long-term plan for the funding of the NIS. The NIBTT already has an investment policy, which is a long-term plan about the investment of the reserve. In the same way, the NIBTT should have a well-thought-out document stating all the objectives about funding, and how the system should be funded to attain these goals.

A funding policy, which may be incorporated into the legislation, would clarify many elements related to the funding of the system. First, the type of funding would be clearly explained. The funding policy would also specify the risks of the system, and how these risks are mitigated. For example, for a partially-funded pension plan, the investment risk is different from the one assumed in a fully-funded system. This should be considered in the funding policy of the NIBTT.

Another element is the sharing of risk among stakeholders. For example, what is the course of action if the system performs well? The contribution rate could be decreased, benefits could be increased by providing more indexation, or the choice could be to do nothing, to build a higher reserve. On the other hand, what is the course of action if the system performs badly? The contribution rate could be increased, or benefits could be decreased. In this case, if nothing is done in the short-term, future generations will have to pay more to fill the gap.

A funding policy does not eliminate the need to adapt the system to the emerging reality. It should integrate possible modifications to the benefits, such as any increase to the retirement age.

Here is a summary of elements that should be considered when drafting a funding policy. A funding policy is a useful tool to:

– formalize the long-term funding objectives of the system;

– better understand the risks and advantages of financing options;

– plan that sufficient assets are maintained to deliver the promised benefits; and

– improve corporate governance by increasing transparency.

Funding rules must address the interests of stakeholders:

– NIS participants and former participants, as beneficiaries and 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 stakeholders;

– funding objectives (like contribution stability or targeting a specified level of funding);

– frequency of actuarial valuations, method of actuarial projection and basis to determine the actuarial assumptions;

– funding methods (like partial-funding or pay-as-you-go funding);

– goals related to intergenerational equity; and

– all other funding issues.

In the previous actuarial valuation, the following level of reserves were suggested to be maintained:

– *Short-term:* two times the annual benefit expenditure;

– *Employment injury:* 10 times the annual benefit expenditure; and

– *Long-term:* the remaining excess of income over expenditure.

In this actuarial valuation, the reserve objectives for short-term and employment injury are replicated because they have been adopted by NIBTT. In the financial statement, the amounts of reserve held for these two branches are equal to the previous actuarial valuation recommendation.

For employment injury, it is however suggested that the financing strategy be changed to a methodology that can better take into account some fundamental financing principles of employment injury insurance (EII). For disability and survivors' benefits, it is recommended to adopt the terminal funding methodology. In this way, current employers will collectively finance the total (present value) cost of benefits awarded in a year and avoid the intergenerational transfer of the cost between employers. Current employers should recognize and bear the cost of injuries and have incentives to decrease accidents. The next actuarial valuation should address the new funding method and its impact.

For long-term benefits, it is suggested to adopt a funding policy in which the reserve objective can be defined to be at a level equal at least to three times the annual expenditures. With the perspective of a decreasing working population, a higher level of reserve ratio should probably be maintained to help control future costs. However, to obtain this higher level of reserve, additional contributions today are necessary. This should be discussed in the funding policy. The minimum amount of assets should be maintained to diversify the risks of the pension system and to provide additional returns.

The funding policy will set the financing parameters surrounding the actuarial valuation and provide tools to maintain the financial sustainability of the NIS (including the period of projection, the targeted level of reserve, automatic adjustment mechanisms to balance the system, and the creation of equity between generations, etc.). Future increases in the contribution rate should be based on this funding policy. The NIBTT should start discussions with stakeholders about the implementation of an explicit written document to establish a clear road map about the funding of the system. The funding policy should be well thought out and periodically reviewed. Appendix 4 describes the basic concepts behind the funding of social insurance.

It is recommended that the NIBTT collaborate with its key stakeholders regarding the establishment of a funding policy that would outline clear objectives to govern the adjustment of parameters. These should be firmly established in the legislation. It is also recommended to modify the financing methodology of EII to a terminal funding approach.

5. 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 5.1 shows NIBTT administrative expenditures, their year-to-year variations and various ratios established for the past three financial years.

Table 5.1. NIBTT administrative expenditure ratios, 2013–16

	2013–14	2014–15	2015–16
Administrative expenditures (million TT$)	190	205	226
Variation with previous year (%)	2.9	7.8	10.2
Ratio of administrative expenditures to:			
Contribution income (%)	5.2	4.8	5.3
Total insurable earnings (%)	0.6	0.6	0.6
Benefit expenditure (%)	4.9	4.9	5.0
Ratio projected in ninth actuarial review (% of total insured earnings)	0.6	0.6	0.6

Source: NIBTT

During the three-year period administrative expenditures have represented, on average, 0.6 per cent of total insurable earnings, 5.1 per cent of contributions and 4.9 per cent of benefit expenditure. The experience ratios in the present valuation are in line with those expected in the ninth actuarial review.

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 expenditures, 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 (table 5.2). The reader should bear in mind that the population of Trinidad and Tobago is higher than those in other islands, except Jamaica.

Table 5.2. Comparison of administrative expenses of social security systems, various countries

Country	Year	Administrative expenses as % of total salary
Antigua-Barbuda	2014	1.0
Bahamas	2013	2.0
Barbados	2014	0.9
Canada	2016	0.3
Dominica	2015	1.1
Guyana	2014	1.6
Saint Kitts and Nevis	2015	1.8
Jamaica	2013	0.4
Trinidad and Tobago	2013	0.6

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

The ninth actuarial report stated the following:

> Thus, it is recommended that Section 22 of the National Insurance Act be reviewed so that the target administrative expenditure level be established with consideration of a more comprehensive analysis of the NIBTT administration components and not only on the actuaries' opinion.

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 expenditures 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 of course have an important 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 5.1, the current level of administrative expenditures 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 monthly insurable earning was increased from TT$2,770 to 3,138. 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.

5.1. 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 pace 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.

5.2. Projected NIBTT administrative expenditures

For this actuarial review, 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 5.3, this assumption, combined with the fact that the active insured population is going to decrease, has the effect of producing a ratio of total expenditure as a percentage of total salary relatively stable over the projection period.

Table 5.3. Projected NIBTT administrative expenditures as a percentage of total salary, 2016–17, 2041–42, 2065–66 (percentages)

	2016–17	2041–42	2065–66
Ratio	0.61	0.57	0.59

6. 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 55-year period is necessary to take into account the fact that the first projection year is the year of the previous official population census.

6.1. 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.

The last official population census took place in 2011, where the resident population was estimated at 1,328,018.

6.1.1. Fertility

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

Table 6.1. 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 6.1, the TFR has been stable over the last decade, fluctuating between 1.6 and 1.8 children per woman. 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 in line with the long-term projected UN average.

6.1.2. 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 1,300 persons per year, which is the average net migration for the period 2000–16 utilizing both CSO data (up to 2011) and UN estimates (2012–16). This amount will then gradually fall to a net migration of negative 633, which is the average net migration for the period 2016 to 2066 based on UN estimates. The net migration in relation to the total population produces a net migration rate of –0.10 per cent in 2011 and –0.05 per cent in 2066.

6.1.3. Mortality

Starting mortality rates for this valuation are based on the information contained in the 2011 census of Trinidad and Tobago. According to these data, life expectancy at birth is estimated at 71.4 years for males and 77.8 years for females in 2011. [8] For the future, life expectancy and improvements in mortality are assumed to occur in accordance with UN estimates. Under this pattern, it is projected that life expectancy at birth will reach 77.6 years for males and 83.5 years for females in 2066.

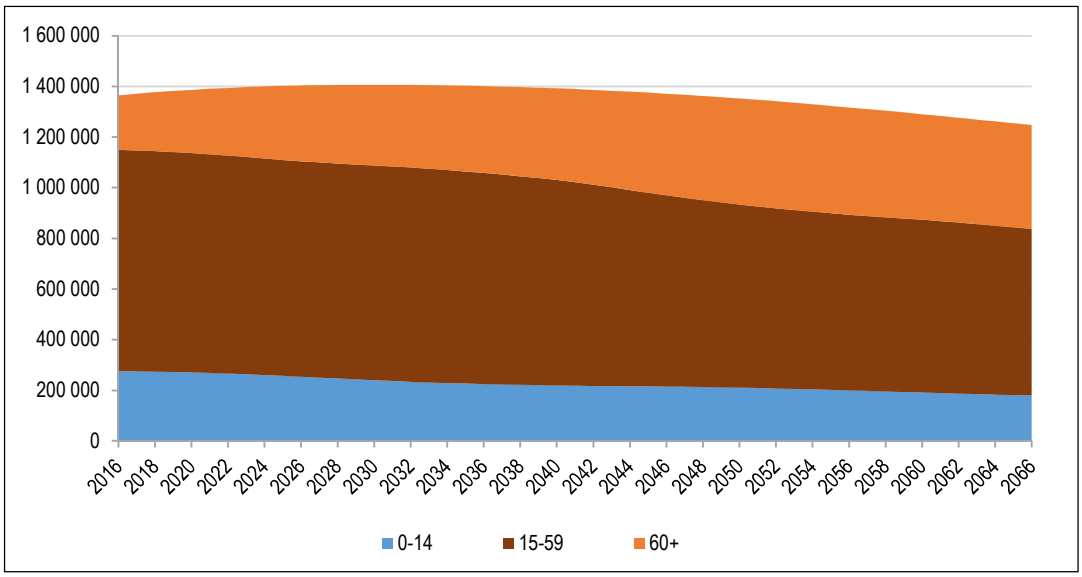
Life expectancy at advanced ages is a key driver of the cost of retirement pensions. At age 60, life expectancy is 19.5 years for males and 23.1 years for females in 2011. It will reach 22.1 years for males and 26.3 years for females in 2066. Sample mortality rates are presented in Appendix 2.

6.1.4. Projected population

Figure 6.1 presents the projected population of Trinidad and Tobago from 2016 to 2066 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).

[8] Life expectancy of the general population according to the information of CSO is higher than the one obtained from the World Population Prospect of the UN. This is going to have few impacts on the financial projection of NIS because the mortality rates used for the financial projection are the ones of the insured population, not the ones of the general population.

Figure 6.1. Projected population of Trinidad and Tobago, by age groups, 2016–66



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 6.2).

The total population will increase from 1,364,664 in 2016 to 1,406,241 in 2030 and will then initiate a slow decrease to 1,246,591 in 2066. The number of persons at pensionable age (60 and over) will grow from 215,855 in 2016 to 408,806 in 2066, while the population aged 16 to 59 (the group which potentially supports the retirees though its contributions) will decrease by 24 per cent over the same period. The number of working-age persons for each person aged 60 and over will fall dramatically from 4.0 to 1.6 over the projection period.

Table 6.2. Projected population of Trinidad and Tobago, 2016–66

Year	Total	Age			Ratio of persons 15-59 to 60 & over
		0–14	15–59	60+	
2016	1 364 664	275 580	873 229	215 855	4.0
2026	1 403 423	253 673	850 577	299 172	2.8
2036	1 400 637	224 594	833 323	342 720	2.4
2046	1 370 856	214 768	755 080	401 008	1.9
2056	1 316 522	199 742	693 781	422 999	1.6
2066	1 246 591	180 277	657 508	408 806	1.6

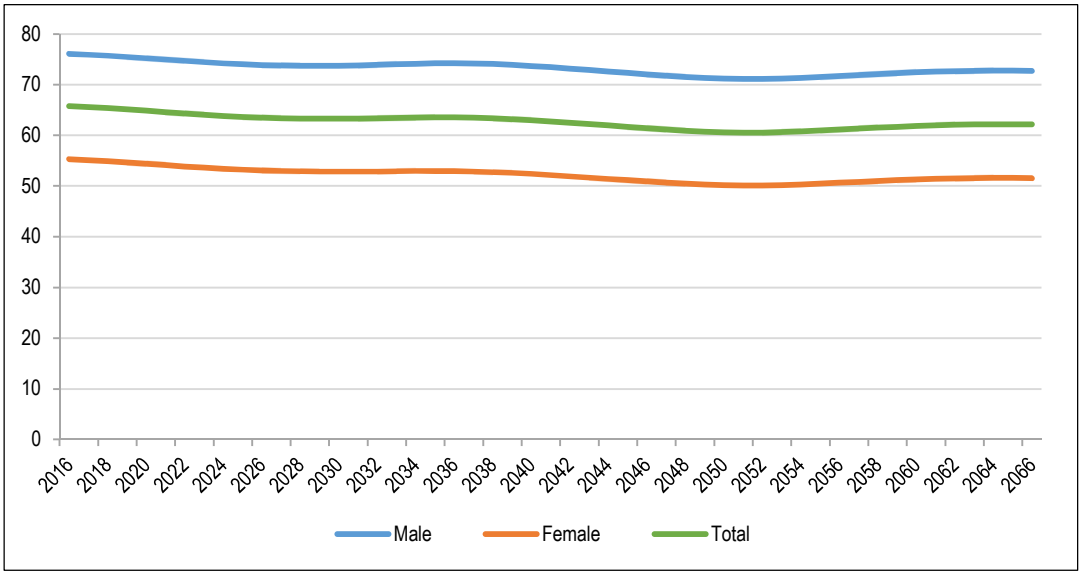
6.2. Macroeconomic framework

6.2.1. Labour force

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. However, the total participation rate in aggregate and by gender is expected to decrease slightly over time (figure 6.2). For males, the global participation rate will decrease from 76 per cent in 2016 to 73 per cent in 2066; while for females, the global participation rate will decrease from 55 per cent in 2016

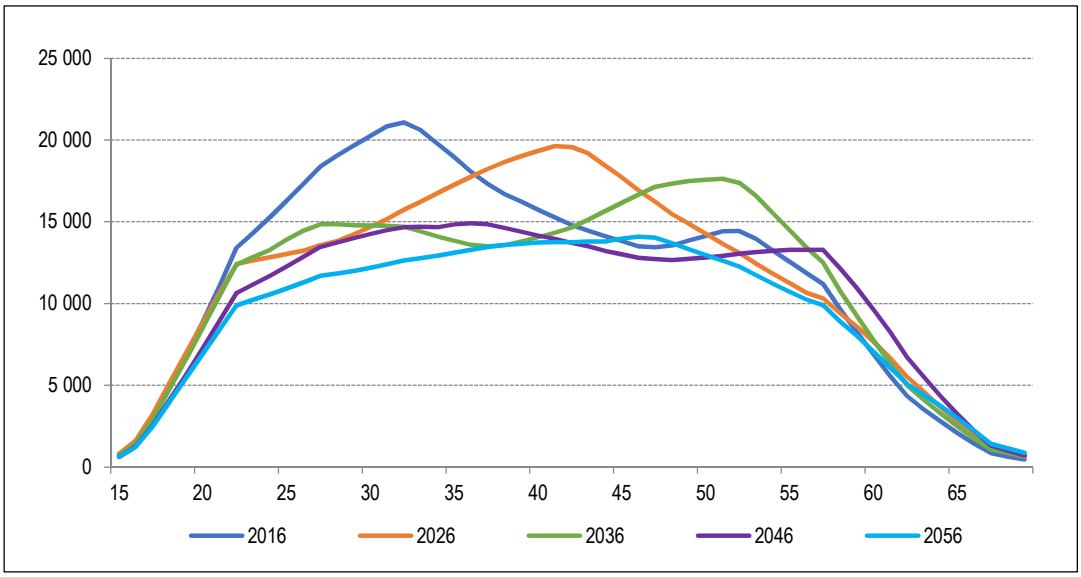
to 52 per cent in 2066. This decrease is mainly due at the lower participation rate at older ages.

Figure 6.2. Projected global participation rate, by sex, 2016–66



The labour force is influenced by participation rates and population trends. Based on these factors the total labour force will not only decline over time but will progressively age (figure 6.3).

Figure 6.3. Projected total labour force, by age, selected years



The latest unemployment data available from the CSO for 2016 is the third quarter unemployment rate of 4 per cent. The unemployment rate for 2016 is assumed to be 4.1 per cent, which is the unemployment rate projected by the IMF for that year. This rate is projected to gradually decrease to 3.9 per cent over the long term. Table 6.3 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 6.3. Labour market balance, 2016–66

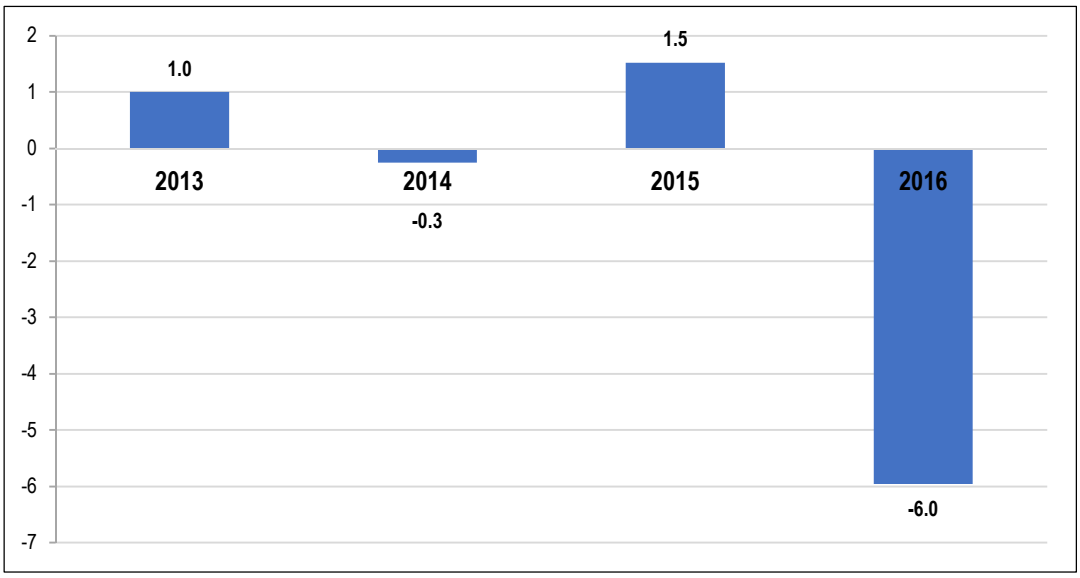
	2016	2026	2036	2046	2056	2066
Total population (000)	**1 365**	**1 408**	**1 405**	**1 376**	**1 322**	**1 252**
Male	683	698	691	671	642	607
Female	682	709	714	705	679	645
Population 15–69 (000)	**997**	**1013**	**987**	**948**	**869**	**806**
Male	502	507	492	472	434	404
Female	495	506	494	476	435	401
Labour force (000)	**656**	**643**	**627**	**582**	**531**	**501**
Male	382	374	365	340	311	294
Female	274	269	262	242	220	207
Total participation rate (%)	**66**	**63**	**64**	**61**	**61**	**62**
Male	76	74	74	72	72	73
Female	55	53	53	51	51	51
Total employed (000)	**629**	**617**	**603**	**560**	**511**	**481**
Male	367	360	352	328	300	283
Female	262	257	251	232	211	198
Salaried (000)	**527**	**515**	**501**	**464**	**424**	**399**
Male	294	287	280	259	237	224
Female	233	228	222	205	186	175
Self-employed (000)	**101**	**103**	**101**	**96**	**87**	**82**
Male	73	74	72	69	62	59
Female	28	29	29	27	25	23
Unemployed (000)	**27**	**25**	**25**	**22**	**21**	**19**
Male	15	14	14	12	11	11
Female	12	11	11	10	9	9
Unemployment rate (%)	**4.1**	**4.0**	**3.9**	**3.8**	**3.9**	**3.9**
Male	3.8	3.8	3.7	3.6	3.7	3.7
Female	4.5	4.2	4.2	4.1	4.1	4.2

Individual age labour force participation rates and unemployment rates are presented in Appendix 2 for both male and female.

6.2.2. Economic growth

The Trinidad and Tobago economy has been in recession in two of the last four years. This has been characterized by negative growth in real GDP (figure 6.4). Low or negative growth rates have been a feature since 2009, the main reason being depressed prices within the energy sector which is the main driver of the Trinidad and Tobago economy.

Figure 6.4. Real GDP growth, 2013–16 (percentages)



Source: CSO.

The year 2016 recorded the lowest level of growth during the last three years, due to lower real economic activity in both the energy and non-energy sectors, with estimated contractions of 9.6 and 1.8 per cent respectively. Sharp declines in government revenue due to depressed international prices for oil and gas has also had the effect of reducing government expenditure, which significantly influences economic activity in the non-energy sector. [9]

Based on projections from the IMF and the CSO, negative growth is expected to continue in 2017. Positive GDP growth ranging from 1.9 to 1.4 per cent in the subsequent five-year period is projected by the IMF. The IMF GDP growth rates have been chosen for the assumptions (2018–22). 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.

6.2.3. Productivity

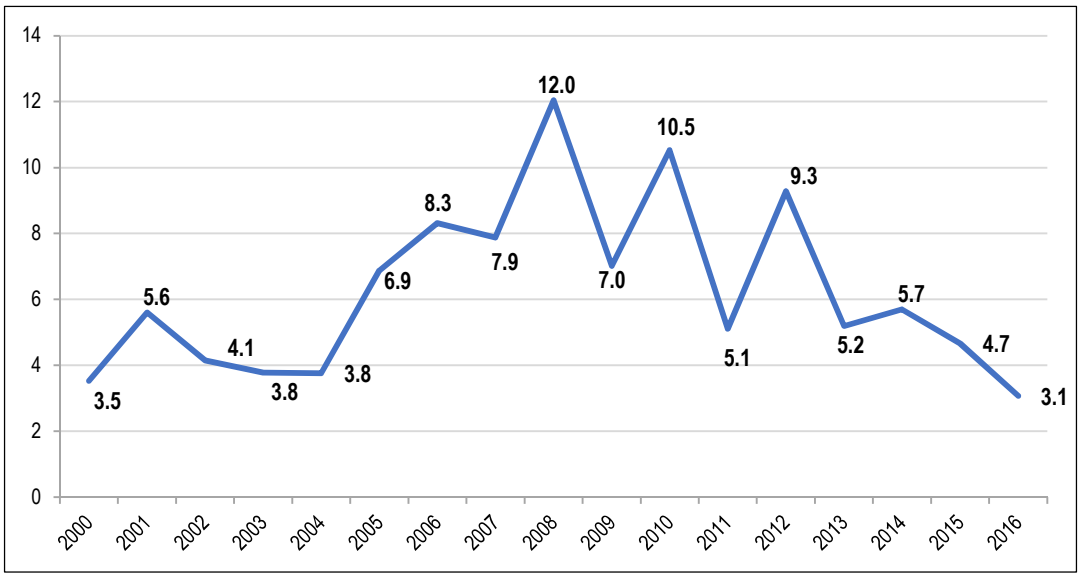
Increases in productivity are a key component of real GDP growth and can often be used as a proxy for the change in real wages in the future. The 12-year historical productivity average (2005–16) has been estimated at 1.3 per cent. Based on CSO projected data, productivity is expected to decline by 2.3 per cent in 2017, and then see positive increases of between 1.6 and 2.3 per cent over the next five years (2018–22). From 2023 onwards, productivity is assumed to be 1.25 per cent.

6.2.4. Inflation

The inflation rate in Trinidad and Tobago reached its lowest level since 2005 in the year 2016, at 3.1 per cent (figure 6.5). It has remained below 6 per cent over the last four years. The main driver of inflation continues to be food prices.

[9] Government of the Republic of Trinidad and Tobago, Ministry of Finance, Review of the Economy 2016

Figure 6.5. Inflation, 2000–16 (percentages)



Source: CSO.

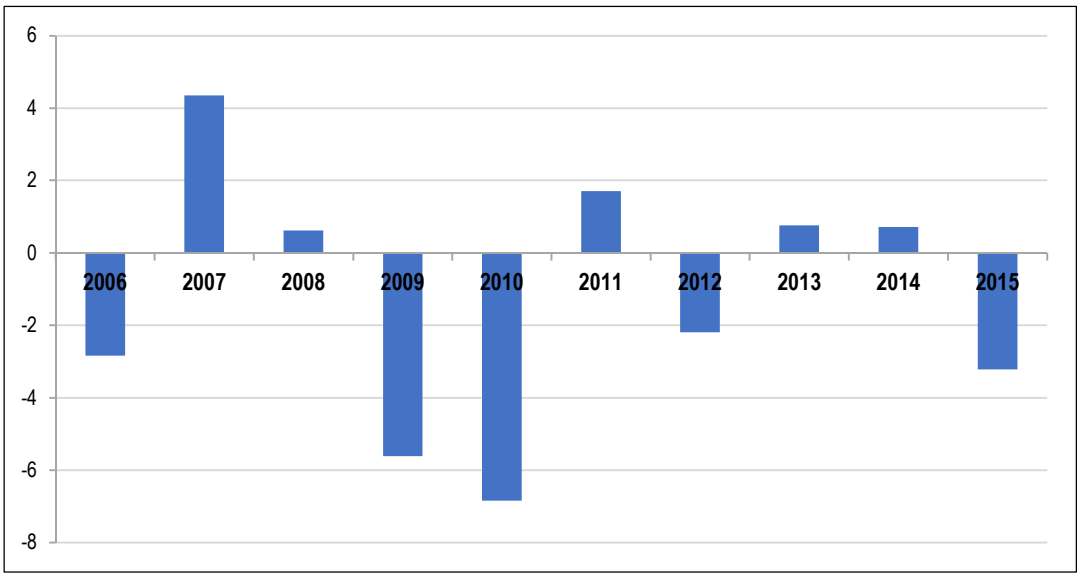
For 2017, inflation is expected to be 2 per cent. From 2018 and onwards inflation follows IMF projections which go up to the year 2022. These projections range between 3.2 and 3.7 per cent before declining to 3 per cent in 2023 and onwards. It should be noted that the level of inflation has very little impact on the results of the actuarial valuation, since it affects both the level of benefits and the level of contributions.

6.2.5. 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.

Based on all the sources of information collected, average real wage growth in Trinidad and Tobago has been negative over the last 10 years (figure 6.6). This is mainly due to food inflation. Based on the latest available data covering the 10-year period between 2006 and 2015, it was –0.3 per cent.

Figure 6.6. Real salary increase, 2006–15 (percentages)



Source: CSO, authors' calculations.

The real wage growth is assumed to be 0.98 per cent in 2017, 0 per cent in 2018 and increasing by steps of 0.5 per cent to reach its ultimate assumption of 1.25 per cent in 2021. Given the expected decrease in the labour force by more than 23 per cent over the projection period, increases in wages are expected to be driven mainly by increases in productivity. The assumed decline in food inflation is also responsible for the positive real salary increase over the projection period.

6.2.6. 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 (geometrical average) of the NIS fund over the last nine years ending on 30 June 2016 is 6.2 per cent, which also falls within the long-term assumption used in the previous valuation. If we exclude the effect of inflation, the picture is quite different: the average real return is –1.0 per cent. This figure is more relevant for an actuarial analysis such as that of the NIS. Table 6.4 shows the historical rates.

Table 6.4. Historical rates of return on invested assets, 2008–16 (percentages)

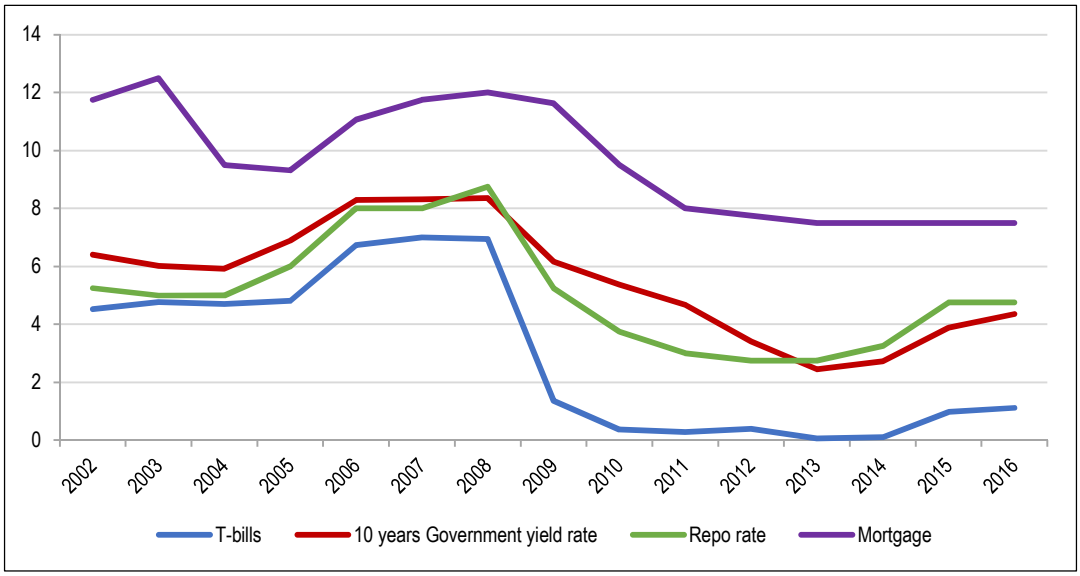
	Nominal return	Inflation	Real return
2008	15.5	10.0	5.5
2009	–0.1	9.5	–9.6
2010	3.9	8.8	–4.9
2011	11.1	7.8	3.3
2012	5.0	7.2	–2.2
2013	11.2	7.2	4.0
2014	8.7	5.4	3.3
2015	0.4	5.2	–4.8
2016	–0.2	3.9	–4.1
Average	**6.2**	**7.2**	**–1.0**

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 the system (or stakeholders) is willing to accept and also the environment of the country.

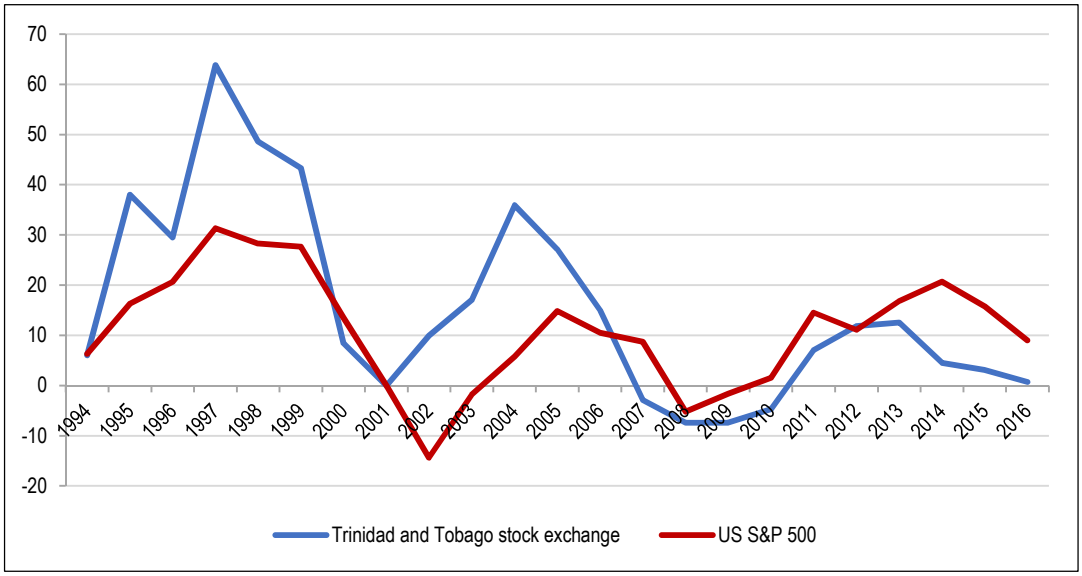
As in many other societies, interest rates have decreased in Trinidad and Tobago over the last 15 years (figure 6.7).

Figure 6.7. Different interest rates, 2000–16 (percentages)



The stock market has fluctuated in line with the US markets, but returns have been lower over the last 10 years (figure 6.8).

Figure 6.8. Stock market returns, three-year moving average, 1994–2016 (percentages)



The target assets allocation is about 50 per cent in fixed income products and 50 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 more 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 mains 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 benefits 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 assumption regarding the return on investment used for the actuarial valuation is 5.25 per cent and is based on the expected return for each category of income shown in table 6.5. It takes into account the global risk and the low interest rate environment. This assumption is also in line with the expected return of the investment policy. Since the investment return is a key assumption that has a strong impact on the system, sensitivity analyses are performed in this report.

Table 6.5. Expected rates of return, by asset class (percentages)

Fixed income (Local)	4.3
Fixed income (Overseas)	5
Equities (Local)	4.8
Equities (Overseas)	7.5
Mutual funds	4
Cash & cash equivalents	1.5

Table 6.6 summarizes the main economic and financial assumptions used in this valuation.

Table 6.6. Main economic assumptions, 2017–66 (percentages)

Year	Real GDP growth	Increase in productivity	Increase in the number of workers	Real increase in salary	Inflation	Return on assets
2017	(2.34)	(2.33)	(0.08)	0.98	2.00	5.89
2018	1.86	1.94	(0.15)	–	3.21	5.25
2019	2.19	2.34	(0.20)	0.50	3.69	5.25
2020	1.65	1.85	(0.24)	1.00	3.30	5.25
2021	1.37	1.62	(0.26)	1.25	3.25	5.25
2026	0.99	1.25	(0.35)	1.25	3.00	5.25
2036	0.89	1.25	(1.01)	1.25	3.00	5.25
2046	0.23	1.25	(0.72)	1.25	3.00	5.25
2056	0.52	1.25	(0.61)	1.25	3.00	5.25
2066	0.63	1.25	(0.08)	1.25	3.00	5.25

7. Demographic and financial projections of the NIBTT

This valuation deals with the ability of the social security system to meet its future obligations at the time they fall due. 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 6 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 2015–16 to 2065–66. This period 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 5. 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 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, are indexed to the lower of the inflation and the average salary increase. This way of indexing the parameter was recommended in the previous actuarial valuation and is used in this valuation as well.

- 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 115 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 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 11.

- Even if there is no clear indication in law, the calculated pension is indexed each year starting in the financial year 2018–19 according to the lower of inflation and wage growth.

- The maximum insurable earning 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.

7.1. 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 7.1, 7.2 and 7.3, and in figure 7.1. 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, 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 30 to 100 per cent in 2066 (a demographic ratio can also be translated in the form of a ratio of contributors to pensioners: in 2017 there are 3.2 contributors for each pensioner and this figure is 1.0 in 2066).

The same conclusion can be drawn from figure 7.1, showing that the NIS will become more mature over the next 50 years. Toward the end of the projection period, the retirement benefits demographic ratio becomes more stable as the system enters into 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 7.1. Projected number of contributors and pensioners, long-term benefits, 2017–66

Year	Number of contributors	Number of pensioners			Total number of pensioners	Ratio of pensioners to contributors	Ratio of contributors to pensioners
		Retirement	Invalidity	Survivors			
2016–17	512 130	113 642	3 966	42 812	160 420	0.3	3.2
2017–18	511 225	119 686	3 814	45 430	168 931	0.3	3.0
2018–19	509 378	124 160	3 925	47 501	175 586	0.3	2.9
2019–20	507 327	129 393	4 010	49 607	183 011	0.4	2.7
2020–21	504 479	135 444	4 076	51 752	191 272	0.4	2.6
2021–22	500 800	142 393	4 122	53 926	200 440	0.4	2.5
2022–23	497 307	149 315	4 152	56 084	209 551	0.4	2.4
2023–24	494 146	155 135	4 182	58 169	217 485	0.4	2.3
2024–25	491 706	159 914	4 203	60 079	224 197	0.5	2.2
2025–26	489 920	164 005	4 268	61 885	230 158	0.5	2.1
2030–31	485 184	181 759	4 781	68 783	255 322	0.5	1.9
2035–36	477 401	203 734	5 178	74 167	283 079	0.6	1.7
2040–41	461 739	229 749	5 261	78 703	313 713	0.7	1.5
2045–46	436 432	262 751	4 617	81 733	349 101	0.8	1.3
2050–51	414 131	286 686	4 010	83 170	373 866	0.9	1.1
2055–56	399 277	295 887	3 801	83 248	382 936	1.0	1.0
2060–61	389 298	298 451	3 893	82 580	384 924	1.0	1.0
2065–66	377 375	300 260	3 903	81 460	385 623	1.0	1.0

Figure 7.1. Projected ratio of the number of pensioners to the number of contributors, long-term benefits, 2017–66

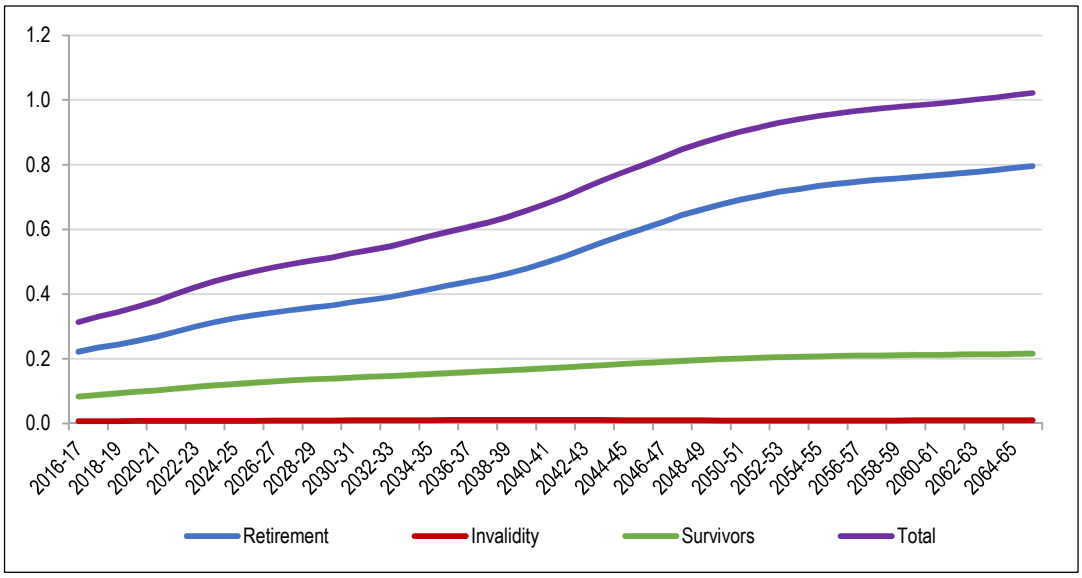


Table 7.2. Projected number of beneficiaries, short-term benefits, 2017–66

Year	Sickness benefit	Maternity benefit	Special maternity grant	Funeral grant
2016–17	10 360	7 321	998	7 355
2017–18	11 401	7 935	1 046	7 571
2018–19	11 363	7 858	1 035	7 765
2019–20	11 316	7 762	1 023	7 979
2020–21	11 262	7 651	1 008	8 203
2021–22	11 202	7 526	992	8 425
2022–23	11 140	7 394	976	8 645
2023–24	11 081	7 258	960	8 861
2024–25	11 027	7 123	943	9 084
2025–26	10 981	6 994	928	9 318
2030–31	10 828	6 517	872	10 542
2035–36	10 633	6 353	849	11 707
2040–41	10 271	6 297	837	12 610
2045–46	9 718	6 118	811	13 201
2050–51	9 239	5 801	770	13 593
2055–56	8 909	5 467	728	13 876
2060–61	8 664	5 218	696	14 108
2065–66	8 380	5 065	675	14 287

Table 7.3. Projected number of beneficiaries, employment injury benefits, 2017–66

Year	Injury allowance	Disability pension	Disability grant	Death benefit	Medical expenses
2016–17	1 547	3 284	–	458	104
2017–18	1 543	3 307	81	469	103
2018–19	1 538	3 406	81	472	103
2019–20	1 533	3 504	81	470	103
2020–21	1 525	3 599	81	473	102
2021–22	1 515	3 692	81	477	101
2022–23	1 505	3 782	81	477	101
2023–24	1 496	3 869	81	479	100
2024–25	1 490	3 953	80	479	100
2025–26	1 485	4 033	80	480	99
2030–31	1 471	4 386	79	470	98
2035–36	1 446	4 665	78	447	97
2040–41	1 401	4 869	75	420	94
2045–46	1 330	4 996	71	389	89
2050–51	1 266	5 041	68	357	85
2055–56	1 218	5 034	66	326	81
2060–61	1 184	4 997	64	298	79
2065–66	1 147	4 938	62	271	77

7.2. Financial projections

Table 7.4 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 7.4. Projected systemic replacement ratios, long-term benefits, 2017–66

Year	Retirement	Invalidity	Survivors
2016–17	52.1	27.6	12.8
2017–18	50.2	29.9	12.7
2018–19	48.4	31.4	13.0
2019–20	46.7	31.8	13.0
2020–21	45.0	32.2	12.9
2021–22	43.6	32.7	13.0
2022–23	42.4	33.2	13.1
2023–24	41.4	33.5	13.1
2024–25	40.6	34.0	13.3
2025–26	40.6	34.3	13.4
2030–31	40.8	35.4	14.2
2035–36	41.4	35.8	15.2
2040–41	42.2	36.0	16.0
2045–46	43.1	36.0	16.9
2050–51	43.3	36.0	17.6
2055–56	43.3	36.0	18.2
2060–61	43.1	36.2	18.7
2065–66	43.0	36.3	19.0

As shown in table 7.5 and figure 7.2, the total expenditures as a percentage of insurable earnings (which is called the pay-as-you-go (PAYG) rate) rises from 14.4 per cent in 2017 to 40.6 per cent in 2066. 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.

Table 7.5. Projected NIS expenditure, 2017–66 (thousand TT$)

Year	Benefit expenditure					Admin. expenses	Total expenditure	Expenditure as % of	
	Long-term			Short-term	Employ-ment injury				
	Retirement	Invalidity	Survivors					Ins. earnings	GDP
2016–17	3 981 595	73 354	368 283	240 188	85 078	214 048	4 962 546	14.4	3.3
2017–18	4 312 141	81 873	415 755	251 281	90 376	220 032	5 371 459	14.6	3.5
2018–19	4 518 260	92 415	463 981	262 124	97 704	228 199	5 662 682	14.8	3.6
2019–20	4 779 110	99 956	504 514	272 762	103 264	237 278	5 996 885	15.1	3.7
2020–21	5 075 904	107 578	549 204	282 732	109 107	246 504	6 371 028	15.4	3.8
2021–22	5 424 040	115 910	601 337	293 218	116 098	256 106	6 806 709	15.8	3.8
2022–23	5 812 370	123 882	657 796	303 829	123 349	265 914	7 287 141	16.3	4.0
2023–24	6 150 563	131 547	717 261	314 224	130 572	275 768	7 719 935	16.7	4.0
2024–25	6 471 201	139 706	779 955	324 903	138 087	285 816	8 139 668	16.9	4.1
2025–26	6 918 604	149 288	846 197	336 096	145 810	296 230	8 692 224	17.4	4.2
2030–31	9 427 820	211 759	1 226 963	402 411	187 213	354 279	11 810 445	19.4	4.7
2035–36	13 206 302	286 312	1 736 357	491 669	234 647	423 702	16 378 989	22.2	5.3
2040–41	18 769 414	362 166	2 410 991	599 250	292 124	506 730	22 940 674	26.0	6.2
2045–46	26 974 672	392 642	3 256 507	713 662	357 734	606 027	32 301 244	31.3	7.4
2050–51	36 453 325	420 826	4 267 390	836 691	432 440	724 782	43 135 455	35.7	8.4
2055–56	46 327 648	492 226	5 447 199	978 236	519 623	866 808	54 631 741	38.1	9.0
2060–61	57 300 152	623 379	6 831 737	1 150 787	623 355	1 036 665	67 566 075	39.2	9.3
2065–66	70 934 716	773 420	8 461 703	1 361 027	746 908	1 239 807	83 517 580	40.6	9.6

Figure 7.2. Projected pay-as-you-go rates, 2017–66 (percentages)

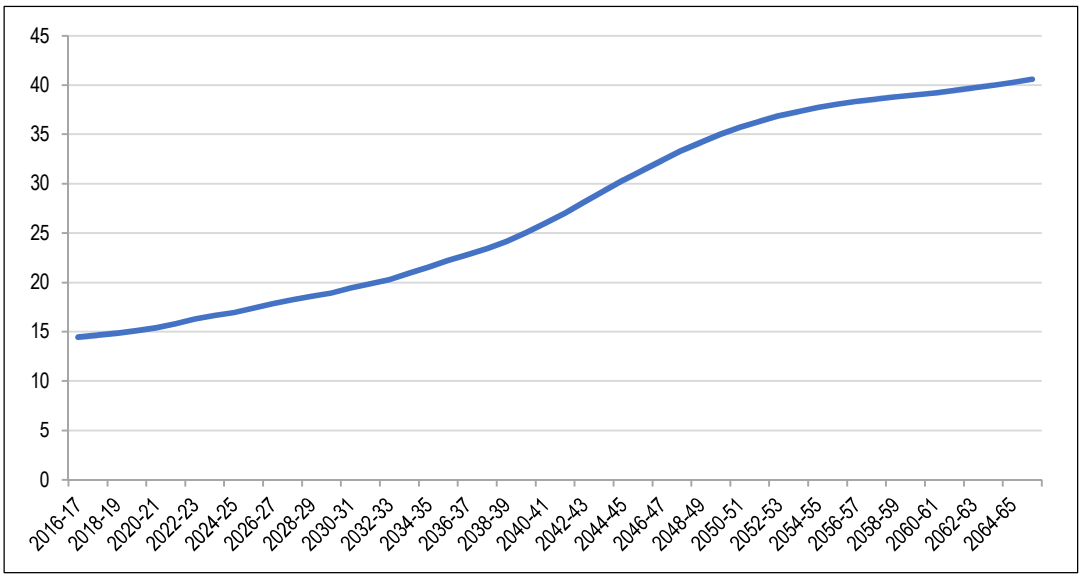


Table 7.6 displays the PAYG rates by branch.

Table 7.6. Projected pay-as-you-go rates, by branch, 2017–66 (percentages)

	Long term benefits	Short-term benefits	EII benefits	Administrative	Total
2017	12.9	0.7	0.2	0.6	14.4
2026	15.8	0.7	0.3	0.6	17.4
2036	20.7	0.7	0.3	0.6	22.2
2046	29.7	0.7	0.3	0.6	31.3
2056	36.4	0.7	0.4	0.6	38.1
2066	38.9	0.7	0.4	0.6	40.6

A summary of key moments in the future evolution of NIS assets is shown in table 7.7.

Table 7.7. Key moments of the future evolution of NIS assets

	Year
System's expenditure exceeds contributions	2016–17
System's expenditure first exceeds contributions plus investment income (assets start to decrease)	2023–24
Assets are exhausted	2035–36

Table 7.8 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 are no longer sufficient to pay for all annual expenditures. In fact, the PAYG rate exceeds the current legal contribution rate

2. At the beginning of the projection period, investment income must be used to pay for annual expenditures. The reserve still grows.

3. Starting in 2023–24, total income (contributions, investment income and other income) is no longer sufficient to pay for all annual expenditures. The reserve starts to decrease.

4. During the year 2035–36, the reserve drops to zero.

5. Starting in 2035–36, the required annual contribution rate to pay for all expenditures becomes the PAYG rate. As an illustration, this rate is 22.2 per cent in 2035–36 and 40.6 per cent in 2065–66.

6. The reserve ratio, which is the ratio of the end-of-year reserve over the annual expenditures for the year, moves from 5.3 to 0 between 2016–17 and 2065–66. This ratio can be interpreted as the number of years during which annual expenditures could be paid by the reserve if there were no contribution, no investment income and no other income.

Table 7.8. Projected revenue, expenditure and assets, 2017–66 (thousand TT$)

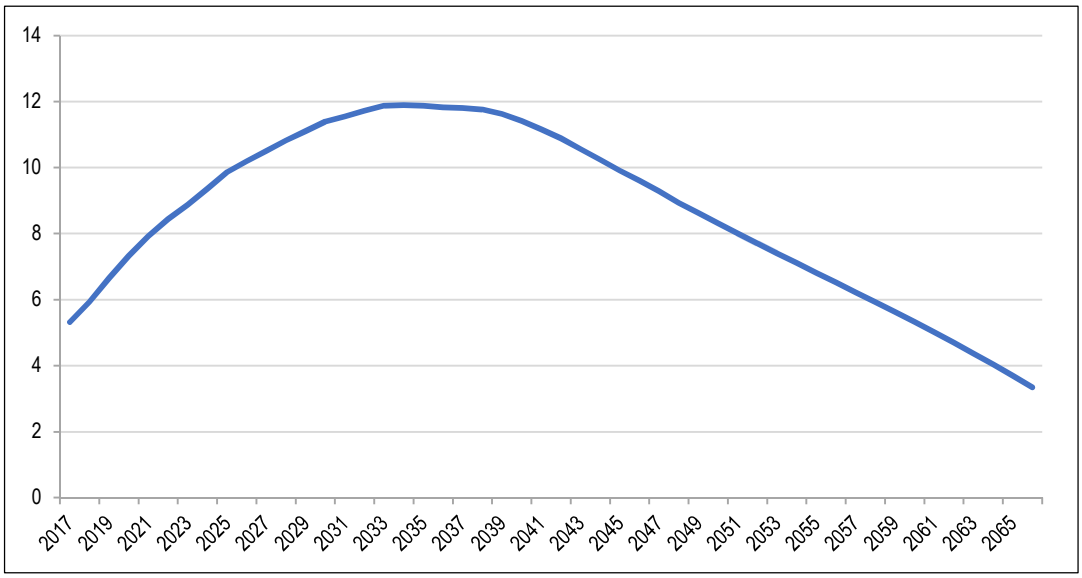
Year	Revenue			Expenditure			Assets	
	Contribution income	Investment income	Total	Benefits	Administrative expenses	Total	Year-end	Number of times current year's expenditure
2016–17	4 608 236	1 478 442	6 086 678	4 748 499	214 048	4 962 547	26 401 130	5.3
2017–18	4 850 365	1 371 916	6 222 281	5 151 427	220 032	5 371 459	27 243 103	5.1
2018–19	5 043 618	1 414 012	6 457 631	5 434 484	228 199	5 662 682	28 038 051	5.0
2019–20	5 250 323	1 452 400	6 702 724	5 759 606	237 278	5 996 885	28 743 890	4.8
2020–21	5 467 686	1 485 342	6 953 027	6 124 524	246 504	6 371 028	29 325 890	4.6
2021–22	5 686 120	1 510 194	7 196 313	6 550 602	256 106	6 806 709	29 715 494	4.4
2022–23	5 903 361	1 523 739	7 427 100	7 021 227	265 914	7 287 141	29 855 454	4.1
2023–24	6 121 679	1 525 457	7 647 136	7 444 168	275 768	7 719 935	29 782 655	3.9
2024–25	6 351 942	1 516 662	7 868 604	7 853 852	285 816	8 139 668	29 511 592	3.6
2025–26	6 596 984	1 494 359	8 091 342	8 395 994	296 230	8 692 224	28 910 710	3.3
2026–27	6 856 701	1 454 559	8 311 260	8 959 338	307 024	9 266 362	27 955 608	3.0
2027–28	7 131 142	1 396 555	8 527 697	9 522 055	318 211	9 840 267	26 643 039	2.7
2028–29	7 419 523	1 319 333	8 738 855	10 115 500	329 806	10 445 306	24 936 588	2.4
2029–30	7 719 971	1 221 501	8 941 472	10 717 963	341 824	11 059 786	22 818 274	2.1
2030–31	8 030 873	1 098 746	9 129 619	11 456 166	354 279	11 810 445	20 137 448	1.7
2031–32	8 352 276	946 802	9 299 079	12 191 324	367 188	12 558 512	16 878 015	1.3
2032–33	8 683 962	763 963	9 447 925	12 956 088	380 567	13 336 656	12 989 284	1.0
2033–34	9 025 945	543 814	9 569 758	13 893 367	394 434	14 287 801	8 271 241	0.6
2034–35	9 378 081	278 709	9 656 790	14 894 285	408 806	15 303 091	2 624 940	0.2
2035–36	9 739 921		9 739 921	15 955 287	423 702	16 378 989		
2040–41	11 649 327	–	11 649 327	22 433 945	506 730	22 940 674	–	–
2045–46	13 615 369	–	13 615 369	31 695 218	606 027	32 301 244	–	–
2050–51	15 959 565	–	15 959 565	42 410 673	724 782	43 135 455	–	–
2055–56	18 964 419	–	18 964 419	53 764 932	866 808	54 631 741	–	–
2060–61	22 770 119	–	22 770 119	66 529 410	1 036 665	67 566 075	–	–
2065–66	27 195 553	–	27 195 553	82 277 773	1 239 807	83 517 580	–	–

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 25.5 per cent (table 7.9). Figure 7.3 shows the evolution of the RER ratio if a contribution rate of 25.5 per cent is used throughout the projection period. At the end of the projection, the reserve ratio is positive at 3.4.

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 23.4 per cent. The problem with this definition of the GAP is that by financing the NIS at a contribution rate of 23.4 per cent, there would be no reserve left in 2066, meaning that the contribution rate would have to increase instantly to around 40.6 per cent (the PAYG rate). Such an increase would not be viable for the NIS.

Figure 7.3. Projection of the reserve-to-expenditures (RER) ratio, 2017−66, contribution rate = 25.5 per cent



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

Table 7.9. GAP, by branch, 2017–66 (percentages)

Long term benefits	Short-term benefits	EII benefits	Administrative	Total
23.88	0.68	0.31	0.59	25.46

Table 7.10 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$125,914 million. By increasing the contribution rate by 10.2 per cent (i.e. a total contribution rate of 23.4 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. While the exercise shown in table 7.8 is based on the open-group method for the period 2017−66, Chapter 9 will discuss the results of an actuarial valuation on a closed-group approach

Table 7.10. Financial projections: Actuarial balance, 2017–66 (million TT$)

	2016 Year-end Reserve	25 245
Plus	Present value of future contributions	163 246
Minus	Present value of future expenditures	314 404
Equal	Present value of future surplus (shortfall)	(125 914)
	Actuarial balance (% of PV of future insurable earnings) (%)	–10.2

7.3. Allocation of the contribution rate

Contribution income should be allocated to the three benefit funds according to the following proportions for a global contribution rate of 13.2 per cent:

– *Long-term fund:* 90 per cent;

– *Short-term fund:* 6 per cent;

– *Employment injury fund:* 4 per cent.

8. 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 2013. The GAP in this report, without considering the reserve, is 25.5 per cent, while in the previous report it was 23.8 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 2013 valuation versus the GAP in the 2016 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 three 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 1.45 per cent.

2. The initial insured population is different from the one that was expected in the previous actuarial valuation. This is responsible for a decrease of the GAP of 0.59 per cent.

3. The assumptions regarding the retirement rates have been modified to take into account emerging experience and the fact that people are now more knowledgeable of their rights. In fact, over recent years more persons have requested the NIS pension at age 60. The modifications to the assumptions has increased the GAP by 0.92 per cent.

4. The projected covered population of the 2016 valuation compared to that in the previous actuarial valuation does not considerably affect the results. The net impact of this element is a decrease of 0.08 per cent of the GAP.

5. The long-term real salary increase assumption is lower in this valuation than in the previous one by 0.25 per cent. This assumption combined with the observed movement in the initial salary scale assumed in this valuation is responsible for an increase in the GAP of 1.72 per cent.

6. The population of initial pensioners of this valuation compared to the expectation in the previous one decreases the GAP by 0.35 per cent.

7. Modifications to the assumptions related to the family are negligible and have increased the GAP by 0.04 per cent.

8. The distribution of past credited services for both the active population and the inactive population is responsible for a decrease in the GAP of 1.01 per cent.

9. The inactive population assumed in this actuarial valuation is considerably higher than that assumed in the previous actuarial valuation. The establishment of the number of persons deemed inactive has also been validated by applying the mortality rates assumption to the overall population. This is responsible for an increase in 0.64 per cent in the GAP.

10. The assumptions regarding the density of contributions have been modified, based on experience. This modification increases the GAP by 0.24 per cent.

11. Modifications to the invalidity incidence rates, the sickness and maternity incidence rates, and the incidence rates (injury and disability) regarding employment injury

insurance have produced few variations in the GAP. They are all responsible for a decrease of 0.07 per cent in the GAP.

12. The assumption regarding the return on assets is lower in this actuarial valuation than that used in the previous actuarial valuation (5.25 compared to 6.75 per cent). This has increased the GAP by 1.44 per cent.

13. In this actuarial valuation, it is assumed that the minimum pension will be frozen during the first nine years of the projection. Afterwards, it will increase according to a combination of the increase in salary and inflation. This modification, combined with the adjustments to all other parameters, decreases the GAP by 3.37 per cent.

14. Modification to the mortality assumptions is responsible for an increase of 0.79 per cent in the GAP.

15. Some modifications were introduced to improve the projection model. The result of all these modifications is a decrease of 0.07 per cent in the GAP.

Table 8.1 summarizes these elements.

Table 8.1. Reconciliation between the last two actuarial valuations, 2013 and 2016, impact on the GAP (percentages)

50-year GAP 30 June 2013	**23.8**
Displacement of the projection period	1.45
Initial insured population	–0.59
Retirement rates	0.92
Population growth	–0.08
Salary assumption and salary structure	1.72
Initial pensioners	–0.35
Family assumptions	0.04
Past credited services	–1.01
Inactive population	0.64
Density of contributions	0.24
Incidences rates (invalidity, S-T and EII)	–0.07
Return on assets	1.44
Adjustment to minimum pension and other parameters	–3.37
Mortality assumptions	0.79
Modifications to the model	–0.07
50-year GAP 30 June 2016	25.5

9. Sensitivity analysis

It has been seen that, under the basic scenario, a contribution rate of 25.5 per cent is necessary to pay all the expenditures of the NIS for the next 50 years, without taking into account 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 9.1 concerns sensitivity analyses on different actuarial assumptions, while section 9.2 presents effects of modifications to certain parameters of the system.

Therefore, it is important 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) Migration;

(3) Unemployment rate;

(4) Mortality;

(5) Wage increase;

(6) Inflation;

(7) Initial insured active population and density of contributions;

(8) Contribution rate increase;

(9) Introduction of early retirement reduction factors;

(10) Minimum pension.

9.1. Sensitivity analyses on actuarial assumptions

9.1.1. Rate of return of the fund

The base scenario assumes a long-term nominal investment yield 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 (table 9.1). Under the lower yield test, the GAP increases from 25.5 to 26.6 per cent, and the reserve is exhausted one year earlier, in 2035. Under the higher yield test, the GAP decreases to 24.3 per cent and the reserve is exhausted one year later, in 2037. The minimum annual return on assets that would avoid a negative level of reserve before the end of 50 years is 12.9 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.

Table 9.1. Sensitivity tests on the rate of return of the fund

Scenario	**GAP** (% of insurable earnings)	Year of reserve exhaustion
Sensitivity test (yield 6.25%)	24.3	2037
Base scenario (yield of 5.25%)	25.5	2036
Sensitivity test (yield of 4.25%)	26.6	2035

9.1.2. Migration

The base scenario of the actuarial valuation projects a negative net migration of 1,300 per year. This directly impacts the number of active insured persons. The total insured population is projected to decrease from its present level of 514,400 in 2016, to 490,000 in 2026 and eventually to 399,000 in 2056.

When future net migration is assumed to be zero, the population still decreases: 504,000 in 2026 and 417,000 in 2056. The resulting increase in the number of contributors, compared to the base scenario, would cause a decrease in the GAP from 25.5 to 24.8 per cent. The year of exhaustion is unaffected. A sensitivity test with a positive net migration of 1,300 was also done. The GAP in this case declined to 24.6 per cent and fund exhaustion was delayed by one year (table 9.2).

Table 9.2. Sensitivity test on migration

Scenario	**GAP** (% of insurable earnings)	Year of reserve exhaustion
Base scenario (minus 1,300 migrants per year)	25.5	2036
Sensitivity test (zero net migration)	24.8	2036
Sensitivity test (plus 1,300 migrants per year)	24.6	2037

9.1.3. Unemployment rate

Future levels of employment (and unemployment) directly impact both the number of active contributors and the number of beneficiaries of the system. Higher unemployment would lead to fewer contributors and hence lower revenue. This also means that fewer persons will be eligible for benefits in the longer run. However, this will not fully compensate for the permanent negative effect on revenues. Under the base scenario, the current unemployment rate is 4.1 per cent and decreases slightly to 3.8 per cent in the long term. The sensitivity test assumes an initial higher unemployment rate of 6.1 per cent that gradually decreases to the long-term rate of 5.9 per cent. Under this scenario, the GAP increases from 25.5 to 25.7 per cent. The year of exhaustion is 2036 (table 9.3).

Table 9.3. Sensitivity test on unemployment rate

Scenario	**GAP** (% of insurable earnings)	Year of reserve exhaustion
Base scenario (unemployment rate of 4.1%, decreasing to 3.8% in the long term)	25.5	2036
Sensitivity test (unemployment rate of 6.1% decreasing to 5.9% in the long term)	25.7	2036

9.1.4. 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 25.4 to 25.2 per cent.

The second test considered a 15 per cent decrease in mortality rate (higher life expectancy). The GAP increased from 25.4 to 25.6 per cent (table 9.4).

Mortality rates do not have an important impact on the actuarial valuation. As a result, the year of exhaustion is not affected by either test.

Table 9.4. Sensitivity tests on mortality

Scenario	**GAP** (% of insurable earnings)	Year of reserve exhaustion
Sensitivity test (mortality rates 15% higher)	25.2	2036
Base scenario	25.5	2036
Sensitivity test (mortality rates 15% lower)	25.6	2036

9.1.5. 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. The sensitivity test assumed a lower real wage increase of 0.75 per cent. Under the sensitivity test, the GAP increased from 25.5 to 26.8 per cent and the reserve was depleted one year earlier in 2035 (table 9.5). The results are very sensitive to real wage increase.

Table 9.5. Sensitivity test on wage increase

Scenario	**GAP** (% of insurable earnings)	Year of reserve exhaustion
Base scenario (real wage increase of 1.25%)	25.5	2036
Sensitivity test (real wage increase of 0.75%)	26.8	2035

9.1.6. Inflation

In the base scenario, it is assumed that inflation over the long term is 3 per cent per year, which is lower than the wage growth by 1.25 per cent. In the past, the inflation rate has been higher than the wage growth, producing a negative real wage growth. The sensitivity test assumes an inflation rate of 1 per cent higher than the salary. Other assumptions are not changed. The reader should bear in mind that under this scenario, the pension and other parameters will be adjusted to the lower of the inflation or the salary increase. Under the sensitivity test, the GAP increased from 25.5 to 27.9 per cent and the reserve is depleted in 2036 (table 9.6).

Table 9.6. Sensitivity test on inflation

Scenario	**GAP** (% of insurable earnings)	Year of reserve exhaustion
Base scenario (inflation of 3%)	25.5	2036
Sensitivity test (inflation of 5.25%	27.9	2036

9.1.7. Number of contributors and density of contributions

In the base scenario, an initial number of active insured has been set at 530,000 individuals. This assumption was necessary to overcome the problem of the maturity of the information on contributors, as explained in the section 2.3. In the actuarial valuation process, it is desired to reconstitute, at the beginning of the projection period, the financial statement in terms of contributions and benefits. The amount of contributions depends on the number of contributors but also on number of contributions, 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 contributions income. The aim of the sensitivity analysis is to show the sensitivity of the results to the assumptions regarding the number of persons and their density. Two tests have been made (table 9.7):

- 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 9.7 Number of contributors and density of contributions

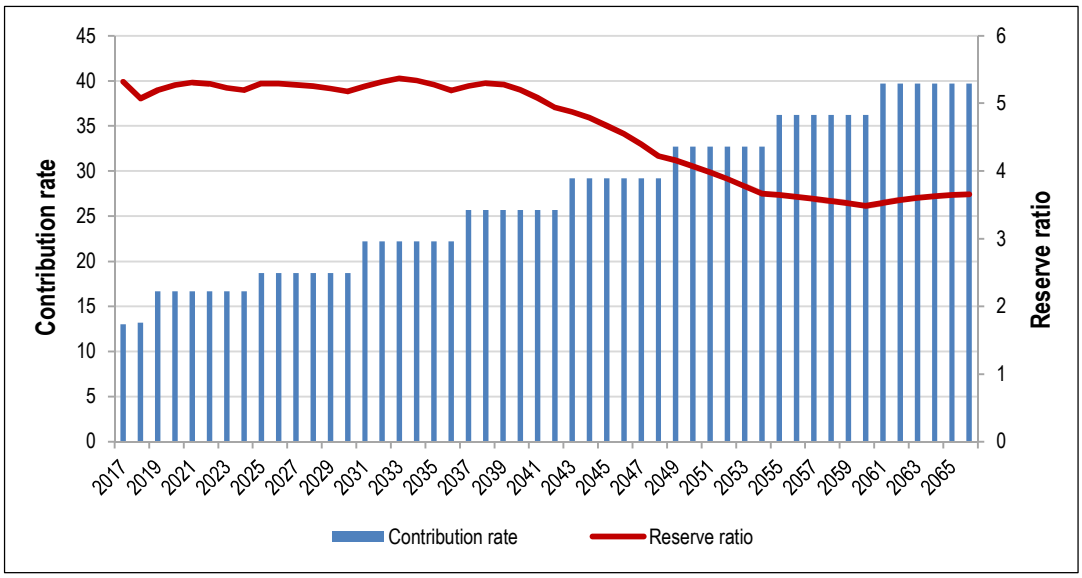
Scenario	**GAP** (% of insurable earnings)	Year of reserve exhaustion
Sensitivity test (insured population –5%, density +5%)	24.8	2037
Base scenario	25.5	2036
Sensitivity test (insured population +5%, density –5%)	26.1	2035

9.2. Sensitivity analyses on modifications to key system parameters

9.2.1. Contribution rate increase

The NIBTT has discussed with its key stakeholders the possibility of increasing the contribution rate to 15.6 per cent. Such an increase, if applied starting in July 2018, will delay the moment the reserve is depleted by six years. The reserve will be zero in 2042. 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 scale premium approach. Figure 9.1 illustrates an approach where a reserve ratio of 3 should be preserved at any time. 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.

Figure 9.1. Scale premium approach, minimum reserve ratio of 3, 2017–66



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 cut between 41 and 49 per cent, depending on the role of the reserve in this drastic scenario. This reduction will lead to benefits that are below the ILO minimum standards as set out in the Social Security (Minimum Standards) Convention, 1952 (No. 102). The impact of modifying the pension formula so as to be set at the ILO minimum standard of Convention No. 102 is highlighted in section 9.2.4.

9.2.2. 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 St. 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. This brings more equity into the system and will contribute to increasing the average retirement age, which is currently 60.9 years.

A sensitivity analysis was made to determine the impact of such an approach on the sustainability of the NIS. Two scenarios were analysed, one with an introduction of reduction factors for ages below 65, over a relatively short period of 10 years, while the other considers the implementation of this increase over a 20-year period, both starting in the year 2025. Note that these two scenarios do 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% for each month before age 65. The reduction is also applied to the minimum pension.
- It will be no longer necessary to stop work to receive the NIS pension.

As seen in table 9.8, both scenarios have a significant impact in reducing the cost of the NIS, while the exhaustion of the fund is delayed by three and six years respectively. 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 15.6 per cent as identified in the previous section, will delay fund exhaustion to 2050. The combination of these measures has a greater delaying impact than the sum of the individual effects.

Table 9.8. Introducing early retirement factors

Scenario	**GAP** (% of insurable earnings)	Year of reserve exhaustion
Base scenario	25.5	2036
Sensitivity test (introducing early retirement factors over 20 years)	21.9	2039
Sensitivity test (introducing early retirement factors over 10 years)	21.6	2042

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.

9.2.3. 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 2026 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 9.9. Minimum pension

Scenario	**GAP** (% of insurable earnings)	Year of reserve exhaustion
Base scenario	25.5	2036
Sensitivity test (minimum pension = 60% of minimum wage)	24.8	2036
Sensitivity test (no more minimum pension)	24.1	2036

Two sensitivity tests are shown in table 9.9. In the first, the minimum pension is frozen for an additional six 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.

9.2.4. Modifying the pension formula to the ILO minimum standards of Convention No. 102

Chapter 7 clearly illustrates that under the base scenario the NIS is unsustainable over the projection period. Increasing the contribution rate is only one part of the solution. It is possible to adjust the benefits. This sensitivity analysis presents a scenario where the benefits of the pension branch are reduced so as to be in line with ILO Convention No. 102 (figure 9.2). The annual accrual rate is 1.33 per cent, so that after 30 years the income replacement rate is 40 per cent. In this scenario, the reduced accrual rates apply retroactively. Both past and future services are reduced (table 9.10, see section 10.1 for further details). In this scenario, to further decrease pressure on the system it is assumed that the minimum

pension is frozen to reach 60 per cent of the minimum wage, as discussed in the preceding section. Under this new scenario, the GAP over the next 50 years decreases from 25.5 to 22.6 per cent. The reserve is depleted three years later than under the base scenario.

Figure 9.2. PAYG, base scenario and scenario related to ILO Convention No. 102, 2017–66

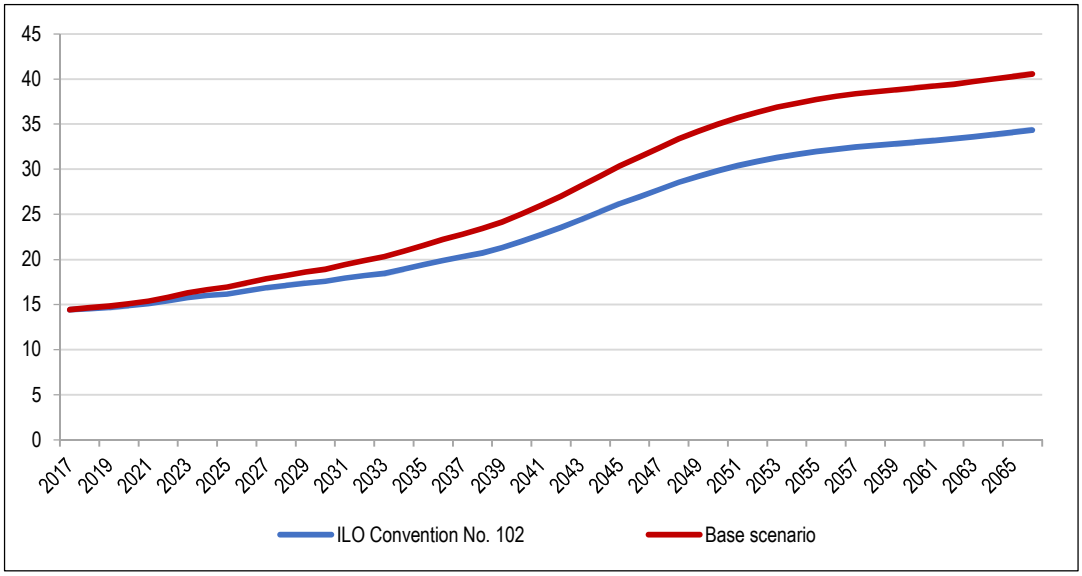


Table 9.10 Modifications of benefits to reach standards of ILO Convention No. 102

Scenario	**GAP** (% of insurable earnings)	**Year of reserve exhaustion**
Base scenario	25.5	2036
Sensitivity test (ILO Convention No. 102)	22.6	2039

10. The value of the accrued liabilities of the NIS

This part of the report deals with the assessment of the system's liabilities on a closed group approach.

Chapter 7 of this report presents the valuation on an open group approach. Under that approach, all the expenditures (liabilities) paid over the next 50 years were considered, whether from persons already insured by the fund or new insured. In this chapter, a different approach is used, looking only at the value of the liabilities which have been accrued on the actuarial valuation date by those who have already contributed to the NIS, that is, persons having accumulated rights to receive benefits. This method is usually used for private pension plans, not for social security pension systems, therefore some caution is required in interpreting the results.

In a social security pension system, the financing method is based on a social agreement between generations: current pensioners rely on current generations of workers to pay the benefits. When one day the current generation of workers will receive benefits, they will rely on younger generations of workers for financing these benefits, and so on.

In a private pension plan, at least in theory, 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 incomes must be enough to pay all the benefits. With respect to social insurance in Trinidad and Tobago, it has never been decided that each generation is going to pay for its own benefits, and it is not the philosophy of a social security pension plan to do so. Therefore, the fully funded approach for a social security pension plan should be used with care.

Using a fully funded approach for financing the NIS can add more confusion than provide added value to the financing debate. The reason for this confusion is quite simple: when a closed group approach is used for a social security pension plan, the resulting financial situation has no relation with the financing strategy that has been chosen. Usually, the situation will look worse for social security than for private pension plans. However, this situation is normal, because it is not the goal of social security to be fully funded. It is like trying to compare a motorbike with a bicycle. Of course, the motorbike is faster, so comparisons between them are not going to add value and improve the performance of cyclists. Both are a means of transportation, but they have not been constructed the same way and don't have the same function. If one is faster, the other one is better for your health. It is the same for private pension plans and social security systems: both are pension plans but they don't have the same role and financing strategy.

Like most social security systems, it is unclear which funding objective NIBTT wants to pursue (between PAYG and full funding). Most social security systems that are financed on a partial funding basis give little emphasis to the present value of accrued liabilities (fully funded approach). Even if they were to give such emphasis, it is not part of their objectives to be fully funded.

For the NIBTT, what will be more important than considering the level of accrued liabilities under a closed group approach is the sustainability of the system and its affordability. At what level of contribution rate is the NIS is going to be too expensive and unaffordable? As it relates to the reform of the NIS, what level of benefits is going to be necessary to overcome the situation? Accumulating more assets in a social security system is also another solution to controlling costs, provided the returns are there. It can be a good way to overcome potentially rising costs in the future, due for example to the decrease in

fertility. If there is a decrease in the contributing populations, having higher level of assets can be part of the solution to stabilize the cost of the system and mitigate the risks. But to maintain such a high level of assets, one needs a long financing period and an objective or funding strategy.

To illustrate the financial situation of a social security pension system, actuarial valuations rely on other indicators such as trends in the expenditures/insurable earnings ratio, the general average premium (GAP) and the fund's expected year of depletion according to current financing rules. These are the main indicators that have been chosen in this actuarial valuation.

The next section presents the value of accrued liabilities. As previously stated, caution is necessary in interpreting the results.

10.1. Results of the calculation of the accrued liabilities

To evaluate the value of the long-term accrued liabilities, the benefits that will be paid for the current insured population (including current pensioners) are projected as of the valuation date, assuming that:

- The pension fund is going to continue forever. This is different from the basis adopted in the preceding valuation where a termination approach was used.
- There are no new entrants in the system beyond the valuation date.
- Insured members will accumulate no additional service beyond the valuation date for calculating the amount of pension, but they will accumulate additional services for the eligibility condition to a pension.
- For the minimum pension, instead of taking into account the whole contributing period to finance it, this is done over the eligibility period of 15 years.
- Salaries of members at the valuation date are projected according to the assumptions related to wage growth. These projected salaries will become the basis for calculating their pension once they will retire, die or become invalid or disabled.

To evaluate the value of the EII accrued liabilities, only the value of future benefit payments that relate to accidents that occurred before the valuation date are considered.

To evaluate the value of the short-term accrued liabilities, only the value of future benefit payments that relate to sickness benefit payments, maternity benefit payments and funeral grants for which the right was already vested on the valuation date are considered.

For all types of benefits, related administrative expenditure is included in the liabilities.

The resulting projected expenditures are discounted at the valuation date using the projected rate of return on assets used for this actuarial valuation. The accrued liabilities funding ratio is the ratio of assets to the present value of accrued liabilities, and the unfunded liability corresponds to the total accrued liabilities minus the assets as of the valuation date. Table 10.1 summarizes the results.

Table 10.1. Accrued liabilities by branch (TT$ million)

	Long-term	EII	Short-term	Total
	A	B	C	A + B + C
Liabilities	185 640	1 391	2 460	189 492

According to this methodology, the accrued liabilities are estimated to be TT$189,492 million. Using the assets of TT$25,226 million, this gives a funding ratio of 13.3 per cent.

11. 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 11.1 gives some indications.

Box 11.1
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.

11.1. Targeting an income replacement level – the minimum recommended by the ILO

Table 11.1 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. According to these standards, there are no problems with the current old-age DB plan. For example, under ILO Convention No. 102, the minimum replacement rate for old age is 40 per cent for 30 years of contributions. Under the current pension plan 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, 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 minimum of 40 per cent. All eligibility conditions for long-term benefits respect the ILO minimum standards.

Table 11.1. 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.

11.2. 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 (11.1−11.4) 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, the average salary in Trinidad and Tobago was between the salary classes VIII and IX (TT$5,897 in 2015). For the purposes of discussion, the average worker is considered to be in class IX. Upon reading these figures, it appears that:

- Today, an average worker having never contributed to the NIB may expect to replace about 57 per cent of his salary at age 65. For someone having earnings at the level of the minimum wage, the income replacement rate is 134 per cent.

- An average worker with 15 years of contribution may expect to replace 82 per cent of his 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 compared to someone having contributed 15 years. Replacing 82 per cent of the salary for 25 years of contribution gives a yearly accrual rate of 3.8 per cent. But it is 5.5 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 9 on the sensitivity analysis, in addition to being a strange, questionable and counterproductive design, the minimum pension also represents an expensive design that puts pressure on the cost of the NIS.

- For an average worker with 35 years of service, the income replacement rate falls to 77 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 years of service increases the NIB pension over the minimum pension, resulting in a lower SCP for a lower overall income replacement rate.

Figure 11.1. Income replacement rate, 0 years of contribution

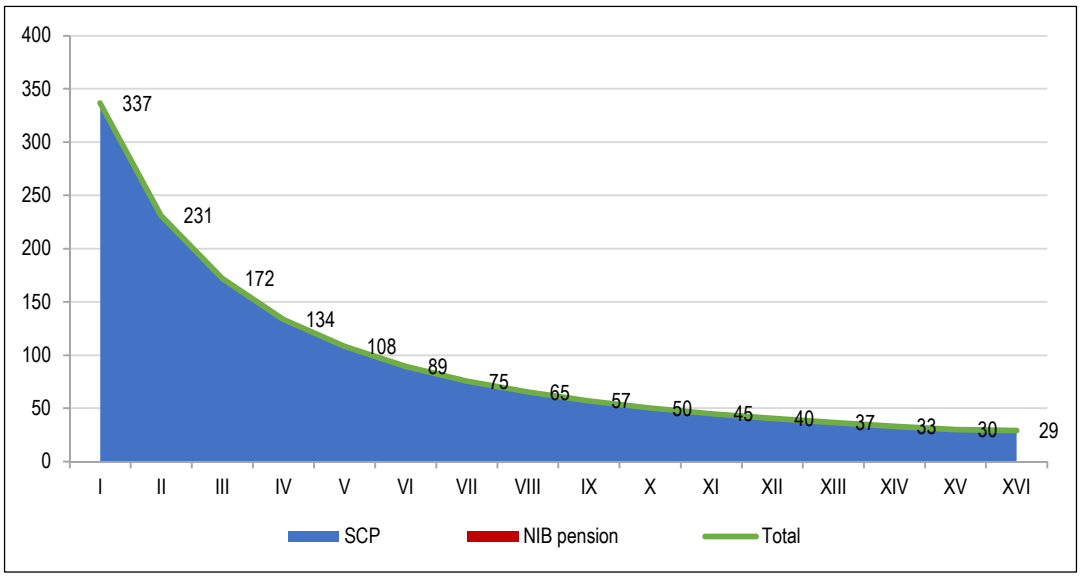


Figure 11.2. Income replacement rate, 15 years of contribution

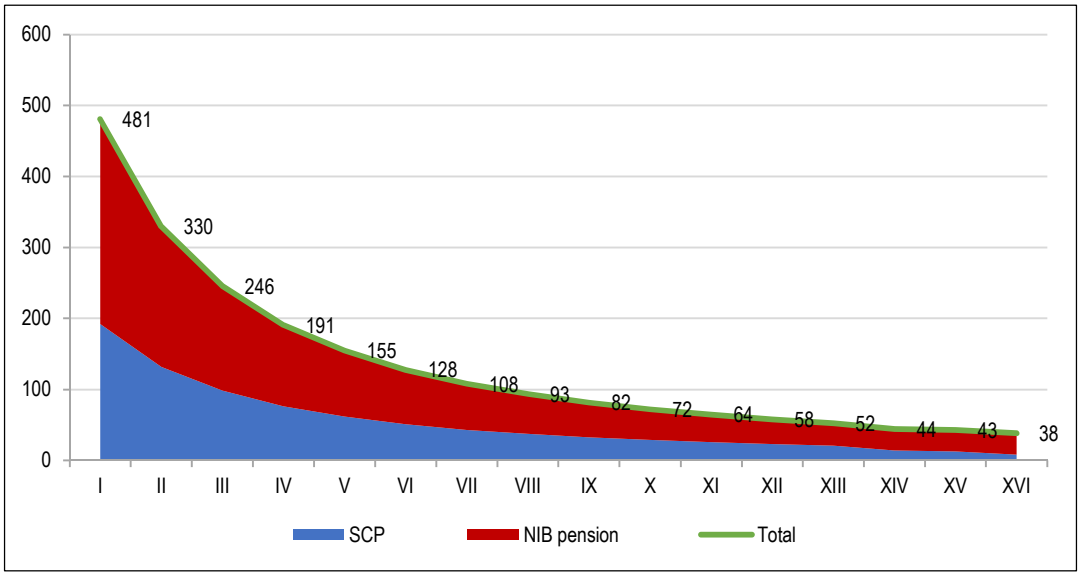


Figure 11.3. Income replacement rate, 25 years of contribution

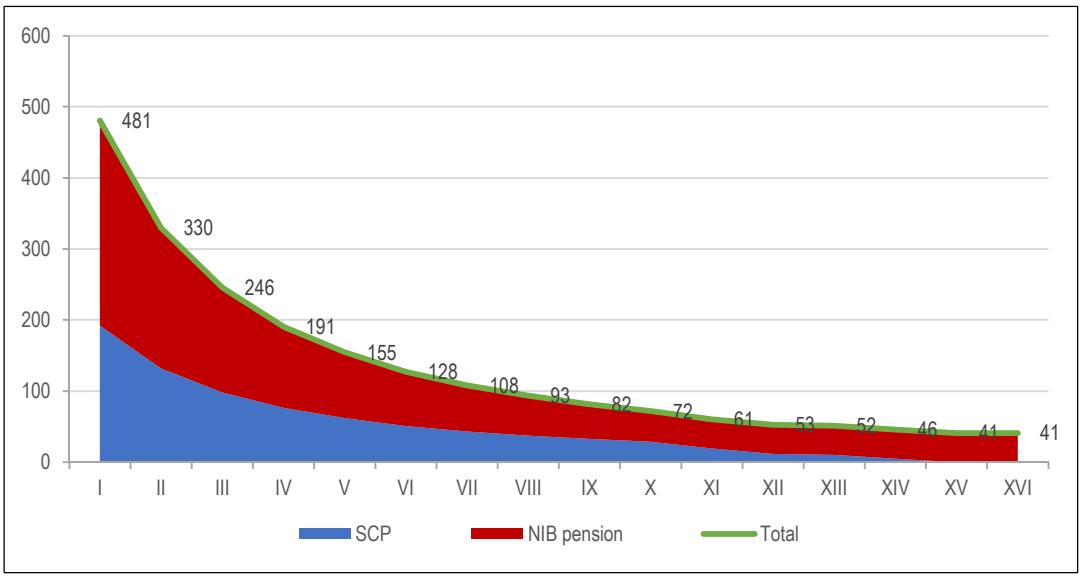
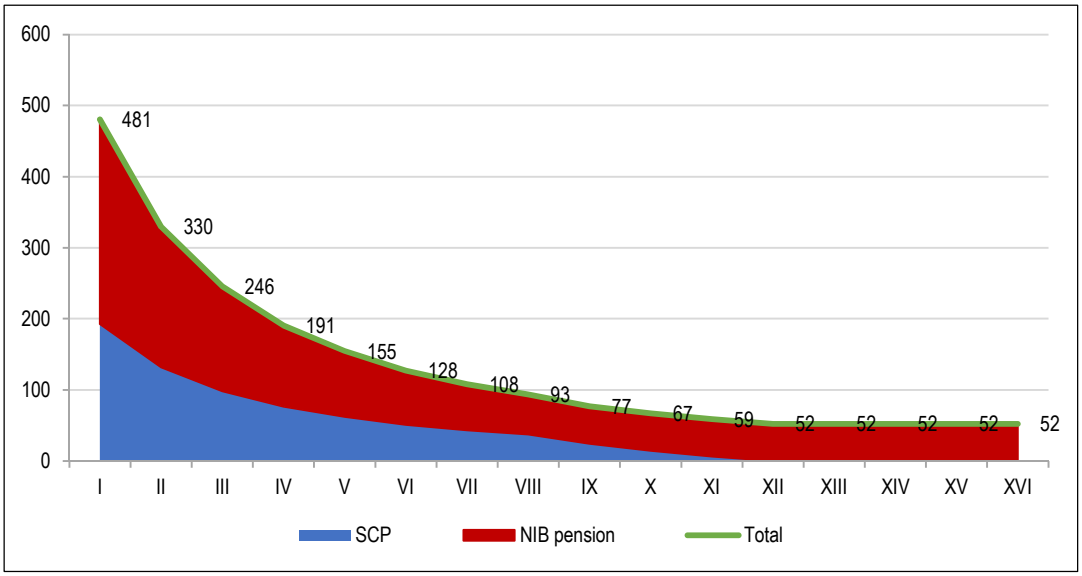


Figure 11.4. Income replacement rate, 35 years of contribution



11.3. 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 private pension plans should play in the pension system? At this

stage, the income replacement should be allocated among the different pillars. [10] 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 at 31 July 2015, pension plan assets totalled approximately TT$49.1 billion. 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 universal pension 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 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. The results of the last 2014 Survey of Living Conditions (SLC) were contested and rejected. 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. According to some announcements, a new SLC is supposed to be conducted in 2018. It is important that an SLC is conducted and that the integration of the pension system be based on the findings.

During this exercise of integration, the risks that society, 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. 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

[10] 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.

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 taken into account 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 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. For the majority of 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 work before age 65. The impact of increasing the retirement age is discussed in section 9.2.2.

- It is important to take into account the impact of the pension system on the labour force participation rates. It has been illustrated in the section 7.1 regarding demography that the number of contributors is expected to contract 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 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 extension of coverage to the self-employed population. Today, they have no 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, 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 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 and new pension formulas, as explained in Chapter 13.

12. Dual source of compensation for employment injuries

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 $2,600.

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 providing 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 12.1 compares the benefits provided by WCA and the NIS.

Table 12.1. 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 has been released. In the draft report, the following solutions were considered by the 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 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 OSHA could play in relation to EII may also be beneficial to the whole system.

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

In the last two 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. All the options presented 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 11, the minimum pension creates another kind of inequity. These kinds of inequities should not exist in a well-designed pension social security system.

Table 13.1. 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. This is what happened in the past and is explained in table 13.2. The current system of sixteen classes was implemented in 2008, and that year is therefore taken as the starting date of this short analysis. From 2009 to 2014, the cumulative basic pension increase, the cumulative brackets increase, and the cumulative inflation was almost the same, 50 per cent. During the same period, the cumulative salary growth was 34 per cent. Table 13.2 details these figures. The following can be observed:

- During 2009 to 2014, the increase in the bracket and the inflation was almost the same.
- Pension increases were linked to the increase in the brackets, despite the fact that it is the relation between increases in wages and increases in pensions that is important. Moves in the brackets are only a move in a classification system, which may bear no relation to the wage increase. Because of the existence of the brackets, wage increases are also difficult to capture. This difficulty is exacerbated when the increases in the brackets are on an ad hoc basis. What happens to the classification of the salary when the brackets increase by a high percentage, as in 2013? Some individuals, instead of staying in their current class, move to the lower class. This is counter-intuitive, but is what actually happened.
- During this period, the fact that pensions in payment have increased more than salaries (50 per cent compared to 34 per cent) has considerably affected the sustainability of the system. A pension system where pensions are increasing at the same rate as wages is an expensive one, therefore a pension system where pensions are increasing more than wages may significantly affect sustainability.
- The decision to freeze the pension in payment for the last increase in 2016 was the right decision to start to restore sustainability.

Table 13.2. Increase in the class system, inflation and wage growth, 2005–16 (percentages)

Years	Class X	Basic pension class X	Inflation	Salary
2016	13.1	13.2	3.1	–
2015	–	–	4.6	1.3
2014	19.9	19.9	5.7	6.5
2013	24.8	24.8	5.3	6.0
2012	–	–	9.2	6.9
2011	–	–	5.1	6.9
2010	–	–	10.5	3.0
2009	–	–	7.0	1.0
2008	24.4	25.0	12.1	12.7
2007	–	–	7.9	12.6
2006	–	–	8.4	5.2
2005	–	–	6.8	
Cumulative 2009–14	50	50	51	34

In the previous actuarial valuation (ninth actuarial review) three proposed pension formulas were presented:

– reproduction of the present pension formula (2 per cent per year for the first 15 years and 1.1 per cent thereafter);

– fixed rate per year of contribution of 1.6 per cent per year; and

– 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 11.

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.

14. Extension of coverage to self-employed persons

14.1. Background

The coverage of self-employed persons (SEP) 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 was established to review the proposal for the introduction of SEP coverage. 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 coverage. The report of the committee was reviewed by the Cabinet, which agreed in a letter dated 6 July 2015 to the introduction of SEP coverage, in addition to the provision of age credits and the co-payment of contributions for low-income SEP. Despite this agreement at the level of the Government, no steps have been taken to advance the inclusion of SEP into the NIS.

This section aims to reproduce the financial projections for the implementation of coverage for SEP, as well as to discuss recent developments. For the purpose of the projections, it is assumed in this section that the application of specific provisions concerning SEP would be introduced on 1 July 2018.

Two previous assessments have been made regarding the full introduction of SEP into the NIS. The first was made by the International Labour Office (ILO), which produced an actuarial review regarding the extension of coverage to SEP. This was a separate report carried out as part of the scope of the seventh actuarial review. A second assessment was completed as part of the ninth actuarial review by the Ecole nationale d'administration publique (ENAP) of Québec, Canada. The analysis presented hereunder is consistent with the findings of both the 2010 ILO report, and the analysis of self-employed in the ninth actuarial review.

14.2. Key provisions

The key provisions of the implementation of SEP coverage presented in this section come from the document *The design of the system of incorporation of self-employed persons into the National Insurance System of Trinidad and Tobago*, and can be categorized under four headings: registration, benefits, contributions and financing provisions. Theoretically, the programme should mirror as much as possible the programme available to salaried workers. However, this is not always possible or even desirable; certain adjustments need to be made to ensure sustainability at a reasonable cost.

14.2.1. 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.

14.2.2. Benefits

There is consensus that the long-term benefits branch should mirror those of the existing system (retirement, invalidity and survivors' 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 those for 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 contributions are not sufficient.

- **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 seven days or more, if the person has paid contributions for at least 20 weeks during the last 26 weeks. The benefit would represent 60 per cent of earnings of the best 20 of the last 26 weeks and 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, applicants 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).

14.2.3. Contributions

As the protection offered in the long-term branch is the same as that available to salaried workers, equity suggests using the same contribution rate for both salaried workers and SEP even if the benefits-to-earnings ratio of 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 amount 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; and

– 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 11.9 per cent (90 per cent of the total contribution rate of 13.2 per cent). The expected cost of short-term benefits is 0.3 per cent. The total SEP contribution rate would thus be 12.2 per cent. It is recommended that this contribution rate be adjusted in the future to take into account any adjustment of the contribution rate for long-term benefits applicable to salaried workers.

14.2.4. Financing provisions

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 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 an 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 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. Further, the SEP must have registered in the three months prior to and the three months following the commencement date. Table 14.1 shows the applicable number of age credits and the eligibility status of the SEP depending on age.

Table 14.1. 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 contribution 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 SEP. This co-payment will only be available for a five-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. Table 14.2 shows the extent of the co-payment for each year in the proposed five-year period.

Table 14.2. Co-payment schedule (percentages)

	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 contribution income and 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 also looks at the cost of both the age credits and the co-payments, costs that will have to be borne by the Government of Trinidad and Tobago.

14.3. Profile of self-employed persons

The number of self-employed persons is estimated at 101,367 in 2016 (see table 14.3). They represent 16 per cent of the total labour force. Among SEP, 34,462 are aged 50 and over. The average earnings of SEP are estimated at TT$7,163 per month for males and TT$5,849 for females.

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*, who represent 26 per cent of all SEP, are considered more likely to be operating formally and are relatively easy to identify. *Own account workers*, on the other hand, can be divided in two subgroups, which are assumed to be roughly of equal size according to the degree of informality of the work activities. One subgroup is formally engaged in economic activities and the other is not. It should be possible to eventually register a large proportion of the *Employers*, but there is high uncertainty about the capacity to register a significant proportion of the *Own account workers*, even in the long term.

Table 14.3. Number and average earnings of self-employed persons, by age and sex, 2016 *

Age	Male		Female		Total	
	Number	Average monthly earnings (TT$)	Number	Average monthly earnings (TT$)	Number	Average monthly earnings (TT$)
15–19	653	3 188	354	2 808	1 007	3 055
20–24	3 707	4 482	1 361	2 975	5 068	4 078
25–29	7 420	5 626	2 462	4 103	9 882	5 246
30–34	10 051	6 088	3 194	6 189	13 245	6 112
35–39	9 521	7 160	3 397	7 898	12 918	7 354
40–44	8 885	7 842	3 630	7 201	12 515	7 656
45–49	8 361	7 951	3 908	5 559	12 270	7 189
50–54	9 009	8 017	4 372	4 957	13 381	7 017
55–59	8 346	8 064	3 566	5 811	11 911	7 390
60–64	5 293	8 105	1 704	6 380	6 996	7 685
65–69	1 697	8 329	476	7 083	2 173	8 056
Total	**72 944**	**7 163**	**28 423**	**5 849**	**101 367**	**6 795**

* Based on 2015 data projected in 2016.

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.

14.4. Projected evolution of SEP coverage

For the purposes of this review it is anticipated that the first contributions will be paid from 1 July 2018. Usually, despite intensive efforts of implementation, the registration of SEP is gradual. Two coverage rate scenarios are analysed. The first assumes gradual registration. In this scenario, coverage should increase significantly over the first five years of implementation and will slowly reach maturity over time. It may be expected that the incentives announced by the Government in the 2015 Budget Statement will encourage SEP participation. In particular, 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 capacities of the NIBTT to absorb this new group of contributors. The coverage rate under the first scenario is presented in table 14.4.

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 14.4. Assumed self-employed coverage rates

Year	Gradual coverage rate (%)
2018–19	15
2019–20	20
2020–21	30
2021–22	35
2022–23	40
– – –	Linear increase
From 2062–63	60

14.5. Demographic projections

The number of SEP pensioners will slowly increase through the projection period. By the end of the period, the ratio of contributors to pensioners will reach a level below 2 (see table 14.5).

Table 14.5. Projected number of self-employed contributors and pensioners, long-term benefits, 2016–66

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
2016–17	–	–	–	–	–	–
2017–18	–	–	–	–	–	–
2018–19	13 915	9	–	55 660	36	–
2019–20	18 562	33	–	55 782	133	–
2020–21	27 796	483	57.6	55 826	300	186.4
2021–22	32 386	790	41.0	55 796	1 421	39.3
2022–23	37 098	844	43.9	56 361	1 185	47.6
2023–24	37 658	1 084	34.7	56 851	1 420	40.0
2024–25	38 231	1 282	29.8	57 375	1 651	34.8
2025–26	38 822	1 465	26.5	57 940	1 911	30.3
2030–31	40 944	3 065	13.4	57 074	6 526	8.7
2035–36	42 355	4 281	9.9	54 666	9 457	5.8
2040–41	43 220	7 531	5.7	52 939	15 335	3.5
2045–46	42 732	13 350	3.2	49 803	22 994	2.2
2050–51	42 458	18 636	2.3	47 191	29 310	1.6
2055–56	42 960	22 719	1.9	45 634	33 464	1.4
2060–61	43 932	25 716	1.7	44 688	35 732	1.3
2065–66	43 360	28 237	1.5	43 361	36 914	1.2

These projections take into account the granting of age credits to SEP between the ages of 50 and 57 at the inception date.

Table 14.6 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 14.6. Projected number of self-employed benefit recipients, short-term benefits, 2016–66

Year	Gradual coverage rate	60% coverage rate
	Short-term benefits	Short-term benefits
2016–17	–	–
2017–18	–	–
2018–19	424	619
2019–20	540	711
2020–21	803	956
2021–22	961	1 078
2022–23	1 099	1 198
2023–24	1 127	1 212
2024–25	1 137	1 224
2025–26	1 148	1 238
2030–31	1 211	1 326

Year	Gradual coverage rate	60% coverage rate
	Short-term benefits	Short-term benefits
2035–36	1 276	1 407
2040–41	1 349	1 530
2045–46	1 421	1 650
2050–51	1 508	1 793
2055–56	1 636	1 968
2060–61	1 796	2 149
2065–66	1 932	2 274

14.6. Financial projections

Benefit expenditures relative to SEP for a gradual increase in coverage rates are presented in table 14.7. 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 1.4 to 1.5 per cent in 2025–26, to reach 26.2 per cent in 2065–66. The total GAP of the SEP system is 10.3 per cent (10.03 per cent for long-term benefits and 0.28 per cent for short-term benefits).

Table 14.7. Projected benefit expenditure, self-employed persons, gradual increase in coverage rates, 2016–66

Year	**Benefit expenditure** (thousands TT$)				Admin. expenses	Total expenditure	Expenditure as % of	
	Long-term			Short-term				
	Retirement	Invalidity	Survivors				Ins. earnings	GDP
2016–17	–	–	–	–	–	–	–	–
2017–18	–	–	–	–	–	–	–	–
2018–19	–	16	52	3 057	11 600	14 724	–	0.01
2019–20	–	42	–	3 893	11 600	15 535	–	0.01
2020–21	–	94	793	5 779	11 600	18 266	1.4	0.01
2021–22	11 732	202	1 639	7 135	11 973	32 681	0.7	0.02
2022–23	15 702	421	2 765	8 401	13 528	40 817	0.7	0.02
2023–24	21 759	886	4 109	8 943	16 109	51 804	1.1	0.03
2024–25	27 880	1 603	5 617	9 338	17 222	61 660	1.3	0.03
2025–26	32 524	2 498	7 220	9 749	19 144	71 135	1.5	0.03
2030–31	111 528	7 503	16 525	12 157	23 953	171 665	2.8	0.07
2035–36	198 596	12 526	27 403	15 287	29 478	283 289	4.7	0.09
2040–41	398 486	17 654	41 330	19 530	36 400	513 400	5.4	0.14
2045–46	964 368	21 489	61 594	24 793	44 376	1116 619	10.3	0.26
2050–51	1 705 839	25 381	89 844	31 401	54 304	1906 768	16.0	0.37
2055–56	2 561 870	31 370	126 416	40 296	66 751	2826 702	20.3	0.47
2060–61	3 546 034	41 210	169 486	52 140	81 975	3890 844	23.1	0.54
2065–66	4 788 459	52 719	216 072	66 121	97 961	5221 331	26.2	0.60

Benefit expenditures with a 60 per cent coverage rate are presented in table 14.8. 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 1.2 to 1.3 per cent in 2025–26, to reach 34.6 per cent in 2065–66. The total GAP of the SEP system is 12 per cent (11.75 per cent for long-term benefits and 0.25 per cent for short-term benefits).

Table 14.8. Projected benefit expenditure, self-employed persons, 60 per cent coverage rate, 2016–66

Year	Benefit expenditure				Admin. expenses	Total expenditure	Expenditure as % of	
	Long-term			Short-term				
	Retirement	Invalidity	Survivors				Ins. earnings	GDP
2016–17	–	–	–	–	–	–	–	–
2017–18	–	–	–	–	–	–	–	–
2018–19	–	62	208	4 562	22 847	27 679	–	0.02
2019–20	–	168	–	5 272	22 937	28 377	–	0.02
2020–21	–	375	2 708	7 044	12 753	22 881	1.2	0.01
2021–22	34 446	809	4 560	8 129	23 567	71 510	0.7	0.04
2022–23	17 720	1 541	6 566	9 273	24 657	59 757	0.5	0.03
2023–24	20 571	2 606	8 732	9 716	26 298	67 923	1.5	0.04
2024–25	21 879	3 772	11 096	10 160	27 633	74 541	1.2	0.04
2025–26	29 471	4 955	13 638	10 628	28 990	87 683	1.3	0.04
2030–31	239 089	12 240	28 171	13 445	33 559	326 503	2.9	0.13
2035–36	418 106	18 323	45 079	17 003	38 021	536 532	7.1	0.17
2040–41	839 949	24 327	68 328	22 280	44 528	999 413	8.9	0.27
2045–46	1 653 280	28 157	102 439	28 823	51 745	1864 444	15.5	0.43
2050–51	2 642 922	31 587	147 761	37 193	60 452	2919 915	22.6	0.57
2055–56	3 713 025	37 051	202 080	48 134	71 055	4071 344	28.0	0.67
2060–61	4 857 902	46 372	257 404	61 793	83 582	5307 053	31.6	0.73
2065–66	6 199 695	56 735	305 559	76 961	97 812	6736 762	34.6	0.78

Table 14.9. Key moments of the future evolution of assets under different coverage rates

	Year (gradual coverage)	Year (60% coverage)
System's expenditure exceeds contributions	2044–45	2041–42
System's expenditure first exceeds contributions plus investment income (assets start to decrease)	2053–54	2048–49
Assets are exhausted	2067–68	2061–62

Table 14.9 highlights that, depending on the level of coverage and no other changes to the current parameters of the system, fund exhaustion will occur after 2061. 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 (figure 14.1). The depletion of the fund progresses rapidly in both cases once the maximum level of assets is attained. This is because the benefit-to-earnings ratio begins

to increase much higher than the contribution rate during the latter part of the projection period (see figure 14.2). 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 14.1. Fund projections for different coverage rate scenarios, 2016–67 (thousands TT$)

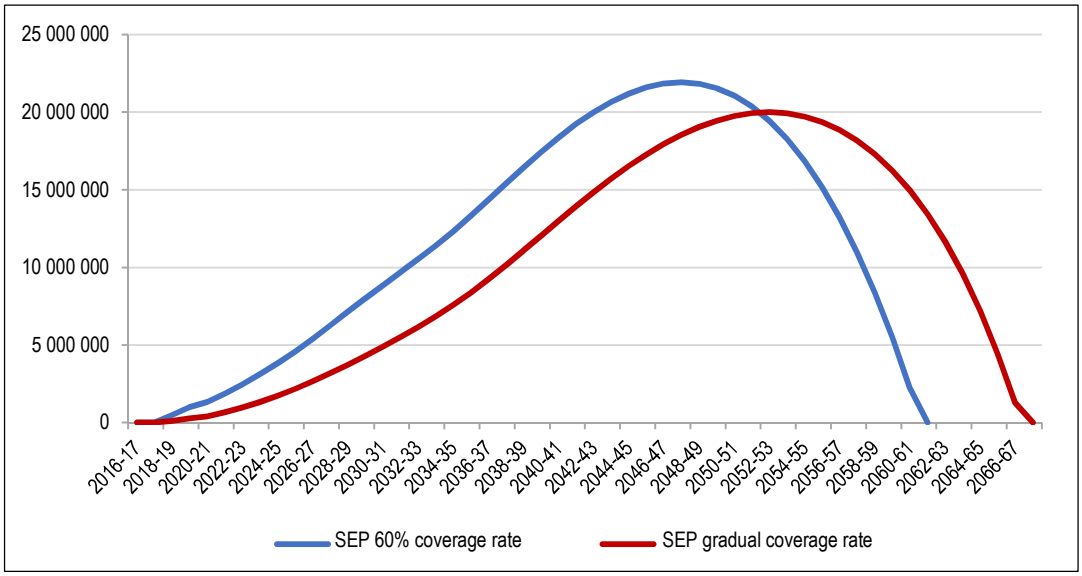
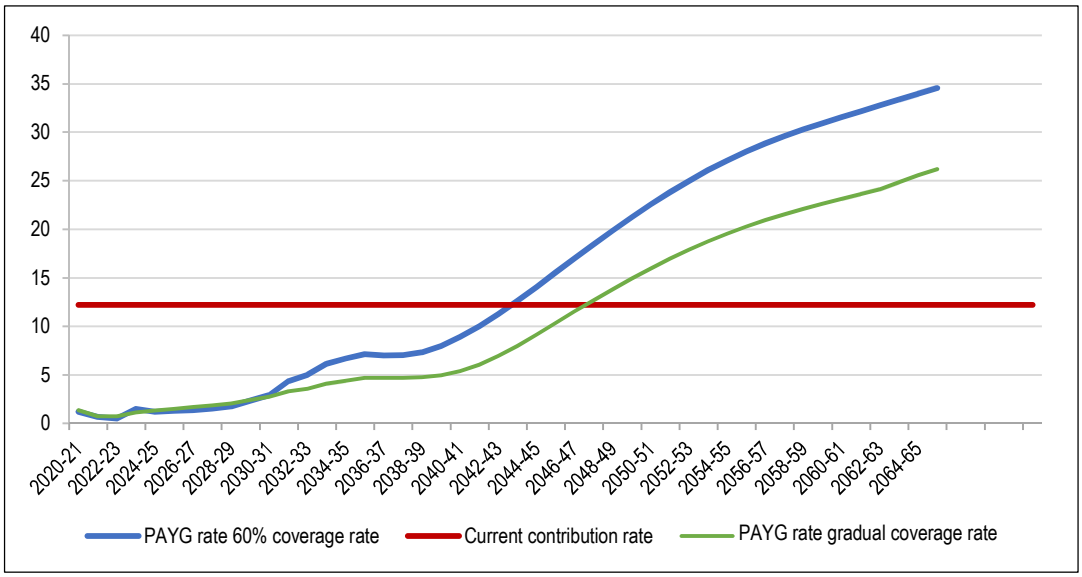
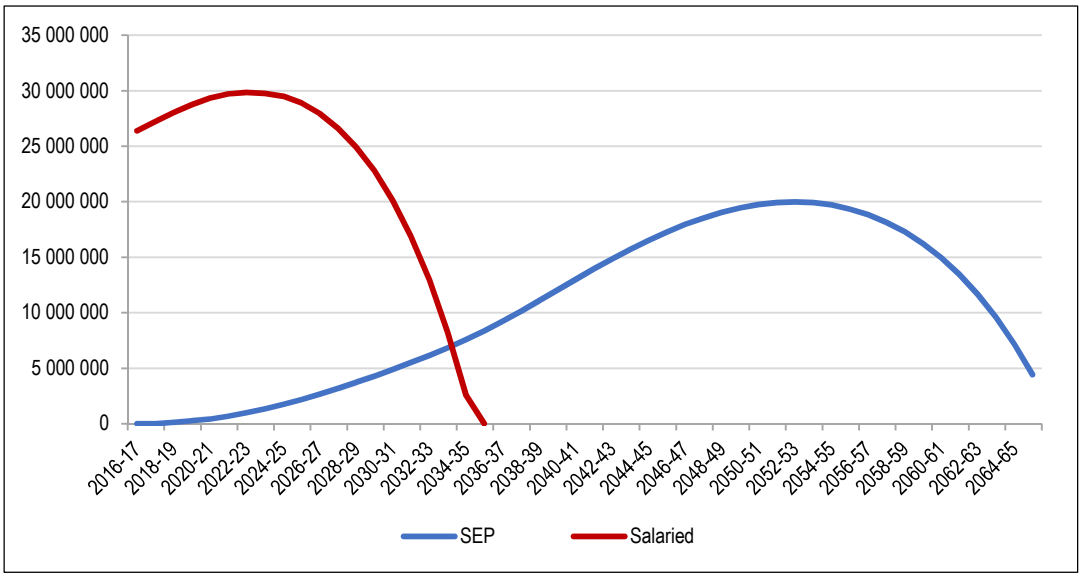


Figure 14.2. PAYG rate, SEP, 2019–66 (percentages)



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 14.3 shows that the SEP fund will reach the peak of its fund level 30 years later than the fund of salaried workers.

Figure 14.3. Comparison of fund projections, SEP with gradual coverage rate increase versus salaried employees, 2016–65



Detailed financial projections regarding the SEP system assuming a gradual coverage rate increase are presented in table 14.10.

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

Table 14.10. Projected revenue, expenditure and assets, self-employed persons, 2016–66 (thousand 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
2016–17	0	0	0	0	0	0	0	–
2017–18	0	0	0	0	0	0	0	–
2018–19	126 239	2 927	129 166	3 128	11 600	14 728	114 438	7.8
2019–20	168 386	10 014	178 400	4 177	11 600	15 777	277 061	17.6
2020–21	132 912	17 557	150 469	6 602	11 600	18 202	409 328	22.5
2021–22	265 833	27 613	293 445	20 610	11 973	32 583	670 191	20.6
2022–23	300 326	42 001	342 327	27 154	13 528	40 682	971 836	23.9
2023–24	352 121	58 909	411 030	35 541	16 103	51 645	1331 222	25.8
2024–25	375 570	78 134	453 704	44 277	17 216	61 493	1723 433	28.0
2025–26	419 740	99 636	519 376	51 825	19 138	70 963	2171 846	30.6
2026–27	443 643	123 501	567 144	62 345	20 197	82 542	2656 447	32.2
2027–28	466 231	149 025	615 256	80 855	21 132	101 987	3169 716	31.1
2028–29	489 952	176 084	666 035	99 337	22 098	121 434	3714 317	30.6
2029–30	512 639	204 485	717 124	128 365	23 000	151 365	4280 076	28.3
2030–31	536 137	234 276	770 413	147 526	23 947	171 472	4879 017	28.5
2031–32	560 461	265 474	825 935	180 300	24 915	205 215	5499 737	26.8
2032–33	585 583	298 027	883 610	205 718	25 929	231 646	6151 701	26.6
2033–34	611 373	332 262	943 635	230 202	26 978	257 179	6838 156	26.6
2034–35	640 767	368 714	1009 481	242 626	28 198	270 824	7576 813	28.0
2035–36	671 022	407 968	1078 989	253 553	29 469	283 022	8372 780	29.6
2036–37	702 108	450 158	1152 265	268 025	30 783	298 808	9226 237	30.9
2046–47	1034 503	900 849	1935 352	1215 873	46 171	1262 044	17946 115	14.2
2056–57	1533 374	976 851	2510 226	2955 311	69 560	3024 871	18837 793	6.2
2064–65	2093 354	428 442	2521 797	4835 618	94 569	4930 187	7170 832	1.5
2065–66	2166 869	296 315	2463 183	5122 409	97 948	5220 357	4413 659	0.8

14.7. 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 taking into account 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$45 to TT$179 million, depending on the coverage rate achieved.

Gradual coverage rates (15 to 60%)	**Coverage rate** (constant at 60%)
TT$45 million	TT$179 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$38 to TT$88 million in total for the first five years. This includes the cost of the full subsidy during the first year.

Gradual coverage rates (15 to 60%)	**Coverage rate** (constant at 60%)
TT$38 million	TT$88 million

It must however 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.

14.8. Comments on the document *The design of the system of incorporation of self-employed persons into the National Insurance System of Trinidad and Tobago*

This document was released in 2013 and many comments on it have been provided in the previous actuarial valuation. In this section the comments of the previous actuarial valuation are used as a starting point and additional comments are presented if necessary.

14.8.1. Determination of the earnings class

The previous valuation highlighted three important elements:

1. The dissuasive impact on the participation of SEP, due to the complicated mechanism to demonstrate that the participant earnings are different from the assigned ones according to the occupational grouping to which he/she belongs.

2. The use of CSO data to determine occupational grouping to which the SEP belongs represents a risk of outdated information.

3. The need to record the exact earnings on which SEP have contributed, in addition to the earnings class, in case a new system based on percentage of earnings is implemented.

The NIBTT should consider these three important comments.

14.8.2. Frequency of contribution payment

The previous valuation highlighted three important elements:

1. SEP contributions should be paid monthly and rules to convert to a weekly basis should be clear for determining the minimum earnings of TT$180 as well as the eligibility condition.

2. Some spreading of earnings should be possible in case an SEP does not contribute during a month of leave.

3. Imposing uniform weekly average earnings may be difficult for someone having irregular earnings during a month.

The NIBTT should consider these three important comments.

What is important at the end is that by paying contributions people are going to be protected and will receive benefits. Flexibility is very important in attracting SEP. It is important to bear in mind that having the benefits based on career earnings is the most adequate system to fit flexibility needs, and that the NIS has such a feature. Of course, it is not desirable that someone having high earnings declares low earnings only to qualify for a minimum pension. This is why the integration of the system will be very important in implementing the new coverage for SEP. The following question should be addressed and answered: Is a minimum pension necessary in the NIS, knowing that people are going to receive an important universal pension?

14.8.3. Dual status

The previous valuation highlighted this element:

- In cases where a person has contributed both as salaried and as self-employed, the document mentions that benefits shall be paid according to the system (salaried or self-employed) to which the person has contributed at the time of qualification for the benefit. However, it would be important that an SEP does not lose eligibility to certain benefits just because of a change in insured status.

This point is very important and should be considered. It leads to reflection on other points. The fact that people may have dual classification militates in favour of providing the same benefits and having the same contribution rate. Is there really a necessity to have different eligibility conditions for maternity benefits, for example? It is not right to say that someone is acting against the NIS (anti-selection) by having a baby! For the maternity benefit, SEP and salaried workers should be subject to the same contribution rules. This is also very important in a situation where the fertility rate is not so high, leading to a decreasing population.

14.8.4. Independent financing objectives for the SEP system

The previous valuation highlighted this element:

- The document suggests a financing of SEP benefits independent of the financing of the system for salaried workers and the monitoring of a funding objective for the SEP system. It is understood here that the follow-up of reserve ratios for the SEP system will be made in a manner similar to the methods applied to the system for salaried workers.

This is probably the only point where we can be interpreted as dissenting from the previous actuarial valuation. It is simply not suggested to have two independent financing mechanisms, even if the Government may be called to meet any insufficiencies through a sinking fund, for example.

It is highly recommended to merge the current NIS and the new SEP coverage. Creating a separate system for the self-employed may represent a risk for them in the future. What if the coverage rate decreases in the future instead of increasing? The contribution rate may rise to levels where it is too expensive. The future of the increasing PAYG may also be a disincentive for people to contribute. If more and more persons do not register, this can create a spiral effect raising the de facto contribution rate. Not everyone is going to be a salaried worker forever! Some may have dual status and others may switch from one category to another during their working life. So why is having two systems being considered? If there are two financing rules, there will be a necessity to transfer assets from one fund to another. The rule should be one fund for all workers. This is probably the spirit of the law.

The following tables and figures illustrate the overall financial picture where the salaried and the self-employed are merged together. The contribution rate is the one that is currently applied to the current system. For simplicity, only the results with gradual coverage increase are presented.

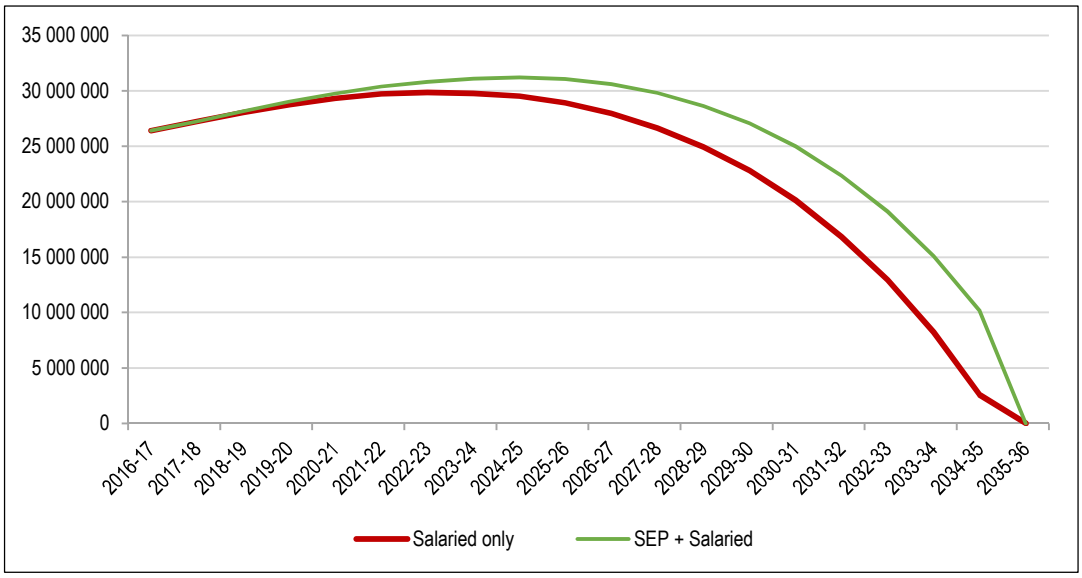
Financial projections concerning SEP are presented in this section using a constant contribution rate of 12.2 per cent. This contribution rate is higher than the GAP for both coverage rate scenarios and causes the fund to accumulate for most of the projection period. Table 14.11 reveals that when the current NIS is combined with SEP coverage, the fund would increase continuously until 2024–25, and before that the total of contributions and investment income is sufficient to support the system's expenditure.

Table 14.11. Key moments of the future evolution of assets with and without SEP, gradual coverage scenario

	Year (with SEP)	**Year** (without SEP)
System's expenditure exceeds contributions	2016–17	2016–17
System's expenditure first exceeds contributions plus investment income (assets start to decrease)	2024–25	2023–24
Assets are exhausted	2035–36	2035–36

Liquidation of assets occurs one year earlier if the NIS were to evolve without the introduction of SEP coverage, and total fund exhaustion occurs in the same year (figure 14.4). While the inclusion of SEP should be pursued it is not the saviour of the system.

Figure 14.4. Comparison of fund projections for salaried versus salaried plus SEP, gradual coverage scenario (thousands TT$)



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 in the SEP contribution rate and would improve the financial condition of this system.

14.8.5. Effect of the contribution subsidy on the cost of the Senior Citizens' Pension

In the previous valuation report it was stated:

- While in theory the participation of SEP in the NIBTT would bring a reduction of the cost of the Senior Citizens' Pension (SCP), it must be acknowledged that the existence of the SCP itself (and its coordination with the NIBTT pension) is a deterrent to the participation of self-employed persons to the NIS. Hence the expected cost savings on the SCP may not materialize.

This is a very important point and is discussed in many sections of this report. The system should be integrated, from the SCP to the pension formula of NIS and the minimum pension. This integration starts first by knowing the elderly population through a Survey of Living Conditions and by defining the role of each part in the system.

14.8.6. Establishment of a sinking fund for managing government transfers for the co-payment of SEP contributions

In the previous valuation report it was stated:

- The concept is interesting, but the precise objectives and operations of that fund need to be specified before deciding on its utility.

This point is linked to the one on the independent financing system. It is of course an interesting concept that leads to many other questions. If it is interesting for SEP, why should it not be interesting for salaried workers? The role of the Government in the social security system must be well defined. Again, this would come through a better integrated system.

14.8.7. Representation on the NIBTT Board

In the previous valuation report it was stated:

- The document suggests that SEP would be adequately represented on the Board either through labour representatives (for own account workers) or through business representatives (for employers). This does not appear sufficient because there is no assurance that either of these groups will adequately represent SEP. There should be at least one member of the NIBTT Board having SEP status.

  The NIBTT should consider this important comment.

14.8.8. Late claims

In the previous valuation report it was stated:

- The document suggests a delay for submitting a claim for the different benefits. While such a delay is justified for most benefits, in case of death, it appears difficult to justify precluding access to survivors' benefits just because of late claim, in a situation where the effect of the contingency (the death of the person) is easy to confirm and is not debatable.

  The NIBTT should consider this important comment.

A final word regarding the extension of coverage to SEP: the NIBTT should explore new alternatives based on the experience in other countries. This is probably necessary since the provisions related to SEP are based on work and discussions dating back several years. Almost all countries in the Caribbean have mandatory coverage of the self-employed as proposed in Trinidad and Tobago. Nevertheless, coverage rates of this group are still very low. New approaches to the extension of coverage to the self-employed could be based on the experiences in South America, notably Argentina, Brazil (Monotributo – monotax) and Uruguay, where there is a social security system for "small contributors" integrated with taxes and supported by incentives and an automatic mechanism for compliance.

15. Actuarial opinion

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

- the data on which this report is based are sufficient and reliable although there is some information regarding the recent contributors that is not complete which may create some uncertainties;
- 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)*.

30 June 2018

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16. Conclusion

The actuarial valuation of Trinidad and Tobago's National Insurance System was carried out as at 30 June 2016. 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 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 and of good quality to undertake this actuarial valuation. Globally the data used is complete enough to obtain a good picture of 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 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.

Since the NIS of Trinidad and Tobago has not been certified as financially sustainable over the projection period, the following seven 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.

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 25.5 per cent. At this level, a reserve ratio of 3.4 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 in previous actuarial valuations. However, the magnitude and the time passed make this recommendation more urgent today. 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 equitable for subsequent generations.

It is recommended to increase the contribution rate to 16.2 per cent starting in July 2019. With such an increase, the year the projected reserve is depleted moves from 2035–36 to 2042–43. This recommendation is however not enough to restore financial sustainability over the long term. Further contribution increases will be necessary.

Recommendation No. 2: 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 NIBTT. It is therefore recommended that NIBTT adopt a funding policy in order to:

– formalize the long-term funding objectives of the NIS;

– better understand the risks and advantages of financing options;

– ensure that plan assets are sufficient to deliver the promised benefits; 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:

(1) Contribution rates;

(2) Risks faced by the NIS and how these risks can be managed;

(3) Risk tolerance;

(4) Allocation of risks among participants and employers;

(5) Funding objectives (such as contribution stability or a targeted level of reserve);

(6) Frequency of actuarial valuation;

(7) Methods of actuarial projection, including actuarial assumptions and parameters of the NIS;

(8) Funding methods;

(9) Goals related to intergenerational equity;

(10) 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.

The report also highlights that for employment injury, it is preferable to change the financing methodology from a partially funded methodology (PAYG) to a methodology that can better take into account some fundamental financing principles of EII. For disability and survivors' benefits, it is recommended to adopt the terminal funding methodology. The next actuarial valuation should address the new funding method and its impact.

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 take into account 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 will increase the average retirement age, currently at 60.9 years old, and will decrease the financial pressure in the coming years. The urgency of this situation necessitates implementing the reduction factors over a shorter period.

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.

Along with the introduction of such factors, it will also be necessary to eliminate the condition requiring persons to stop work before age 65. This will give people more flexibility in going from active life to retirement, by allowing a combination of retirement income and wages.

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, current pensioners should also be part of the equation. To bring more equity into the system, it is recommended to freeze pensions in payment for the next five years.

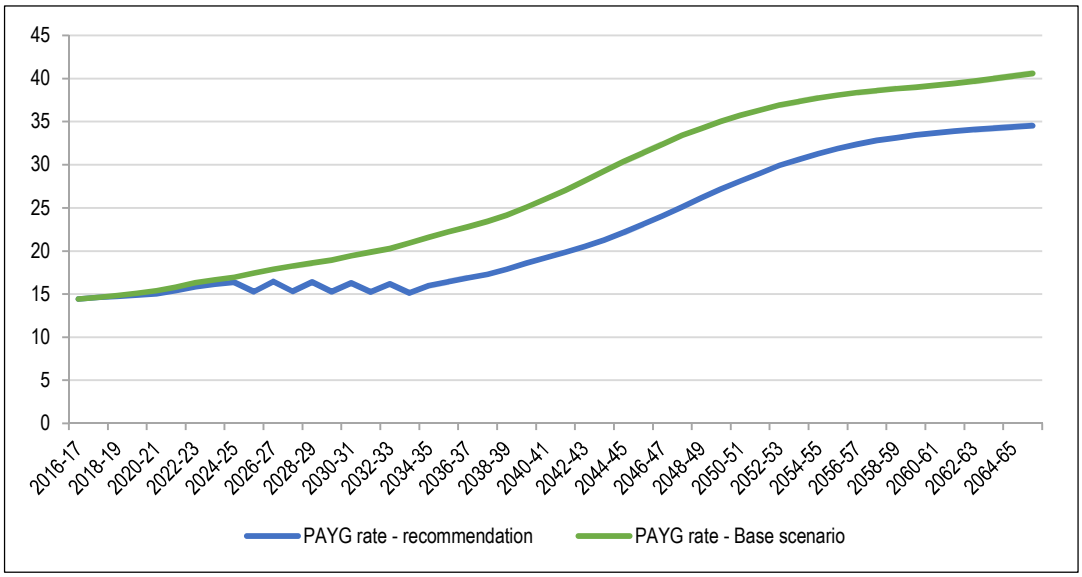
Introducing the early retirement factors and freezing the pensions in payment for the next five years, along with the increase in the contribution rate to 16.2 per cent, should be viewed as transitory measures to a better reformed pension system. The introduction of the funding policy with a better integrated pension system is going to be necessary for the long-term sustainability of the NIS.

Table 16.1 shows that the introduction of these transitional measures will delay exhaustion of the fund to the year 2054. It will also have the impact of lowering the overall cost of the system over time (see figure 16.1).

Table 16.1. Key moments of the future evolution of assets with the introduction of early retirement factors, freezing pensions in payment and a contribution rate of 16.2 per cent from July 2019

	Year
System's expenditure exceeds contributions	2016–17
System's expenditure first exceeds contributions plus investment income (assets start to decrease)	2043–44
Assets are exhausted	2053–54

Figure 16.1. PAYG, base scenario and transitional measures, 2017−66 (percentages)



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 16.2) 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 115 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 16.2. Recommendations related to the adjustment of the parameters

Parameters	Type of adjustment	Comments
Insurable earnings ceiling	Average wage	This is the scenario used in this valuation.
Minimum pension	Lower of inflation and average wage increase	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	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.

Recommendation No. 5: Better integration of the pension system

The Senior Citizens' Pension is currently at 135 per cent of the minimum wage. The level of the NIS minimum pension is 115 per cent of the minimum wage. In some cases, there is no recognition of additional years of service in the pension paid. Over 95 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 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 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. A new Survey of Living Conditions should be released soon and will be the cornerstone of this new pension system.

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 restructuration or reform of the system. These elements are presented in the previous recommendations and concern the introduction of the early retirement factors, freezing the pensions in payment for the next five years and the increase in the contribution rate to 16.2 per cent.

Recommendation No. 6: 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. 7: 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 where the compensation comes from;

– 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, 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 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 pension 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 2016, earnings covered for determining contributions and benefits are limited to TT$2,770 per week or TT$12,000 per month (increased to TT$3,138 per week or TT$13,600 per month on 5 September 2016).

A1.4. Financing

Contributions payable by employers and employed persons are based on the earnings class of the insured person. On 30 June 2016, total contributions on behalf of an employed person represent 12 per cent of average weekly insurable earnings. The contribution rate was increased to 13.2 per cent from 5 September 2016. 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 2016 and 5 September 2016 are set out in tables A1.1 and A1.2 respectively.

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

– *Long-term fund:* 90 per cent;

– *Short-term fund:* 6 per cent;

– *Employment injury fund:* 4 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 2016
(based on a contribution rate of 12%)

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	180–299.99	780–1 300	240.00	9.60	19.20	28.80	1.44
II	300–399.99	1 300–1 733	350.00	14.00	28.00	42.00	2.10
III	400–539.99	1 733–2 340	470.00	18.80	37.60	56.40	2.82
IV	540–669.99	2 340–2 903	605.00	24.20	48.40	72.60	3.63
V	670–819.99	2 903–3 553	745.00	29.80	59.60	89.40	4.47
VI	820–989.99	3 553–4 290	905.00	36.20	72.40	108.60	5.43
VII	990–1 149.99	4 290–4 983	1 070.00	42.80	85.60	128.40	6.42
VIII	1 150–1 319.99	4 983–5 720	1 235.00	49.40	98.80	148.20	7.41
IX	1 320–1 509.99	5 720–6 543	1 415.00	56.60	113.20	169.80	8.49
X	1 510–1 689.99	6 543–7 323	1 600.00	64.00	128.00	192.00	9.60
XI	1 690–1 889.99	7 323–8 190	1 790.00	71.60	143.20	214.80	10.74
XII	1 890–2 099.99	8 190–9 100	1 995.00	79.80	159.60	239.40	11.97
XIII	2 100–2 319.99	9 100–10 053	2 210.00	88.40	176.80	265.20	13.26
XIV	2 320–2 579.99	10 053–11 180	2 450.00	98.00	196.00	294.00	14.70
XV	2 580–2 769.99	11 180–12 000	2 675.00	107.00	214.00	321.00	16.05
XVI	2 770 and over	12 000 and over	2 770.00	110.80	221.60	332.40	16.62

Table A1.2. Earnings classes and contributions in application on 5 September 2016
(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 tables. 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). [11]

Age requirement: Age 60 or over and retired from the workforce, or age 65 and over regardless of whether or not the person is retired (Regulation 16, NIR-Benefits).

[11] 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).

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, $566.72 for earning class I (48 per cent of average weekly earnings) and $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 $8.28 for earning class I and $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 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$144.00 per week (increased to TT$162 per week on 5 September 2016) for earning class I (Table A7, Schedule 3 NIA, modified by Act No.7 of 2016).

Max.: TT$1,662 per week (increased to TT$1,882.80 per week on 5 September 2016) 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$ 144.00 per week (increased to TT$162.00 on 5 September 2016) for earning class I (modified by Act No.7 of 2016).

Max.: TT$1,662.00 per week (increased to TT$1,882.80 on 5 September 2016) 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$160.00 per week (increased to TT$180 on 5 September 2016, for earning class I (Table D7 Schedule 3 NIA, modified by Act No.7 of 2016)).

Max.: TT$1846.67 per week (increased to TT$2092.00 on 5 September 2016 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 remarries; 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$28,125 per injury (increased to TT$33,750 on 3 March 2014).

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. Methodology, data and assumptions

This actuarial review makes use of the comprehensive methodology developed at the ILO for reviewing the long-term actuarial and financial status of a national pension system. The review has been undertaken using the model developed for the previous actuarial valuation by the Ecole nationale d'administration publique (ENAP) of Québec. This model is an adaptation of the ILO's generic model modified to fit the specific case of Trinidad and Tobago and the NIBTT. The modelling tools include a population model, an economic model, a labour force model, a wage model, a long-term benefits model, a short-term benefits model and EII model.

The actuarial valuation begins with a projection of Trinidad and Tobago's future demographic and economic environment. Next, projection factors specifically related to social security are determined and used in combination with the demographic and economic framework to estimate future cash flows and the system reserve. Assumption selection takes into account both recent experience and future expectations, with emphasis placed on long-term trends rather than giving undue weight to recent experience.

A2.1. Modelling demographic and economic developments

The population of Trinidad and Tobago has been projected with information obtained from the Central Statistical Office (CSO) and by applying appropriate mortality, fertility and migration assumptions. The initial population used was the one of 2011 obtained from the Census. The following tables describe those assumptions.

For this actuarial analysis, the total fertility rate starts at 1.7 and stays at this level for the whole projection period. Age-specific fertility rates change over the projection period to take into account the fact that women are tending to have their babies later. Table A2.1 shows age-specific and total fertility rates in 2011 and ultimately.

Table A2.1. Age-specific and total fertility rates (TFR), 2011 and 2045

Age group	2011	2045
15-19	0.02957	0.01129
20-24	0.08765	0.04870
25-29	0.10270	0.11750
30-34	0.07458	0.10403
35-39	0.03513	0.04734
40-44	0.00910	0.00925
45-49	0.00127	0.00177
TFR	1.70	1.70

The initial mortality rates (2011) used for the projections of the population are calculated from the life table transmitted by the Central Statistical Office. These rates were grouped by age group at 5-year intervals and have been transformed into single age mortality rates. Mortality improvements used in the 2017 revision of the UN World Population Prospects have been applied to the initial mortality rates to obtain the mortality rates for each projection year. Table A2.2 compares, for specific ages, mortality rates assumed for the years 2011, 2036 and 2061, while table A.2.3 shows life expectancy in the same years.

Table A2.2 Mortality rates at selected age intervals, 2011, 2036 and 2061 (per 1,000 persons)

Selected ages	Males			Females		
	2011	2036	2061	2011	2036	2061
0	15.1	9.1	5.6	14.0	8.4	5.3
5	0.3	0.2	0.1	0.3	0.2	0.1
10	0.3	0.2	0.2	0.2	0.2	0.1
15	0.7	0.5	0.3	0.2	0.1	0.1
20	2.0	1.4	1.1	0.8	0.6	0.4
25	3.2	2.3	1.7	0.9	0.7	0.5
30	3.1	2.3	1.6	1.2	0.9	0.6
35	3.3	2.5	1.8	1.7	1.3	0.9
40	3.7	2.9	2.1	2.1	1.6	1.2
45	4.7	3.8	2.9	3.0	2.3	1.8
50	6.5	5.4	4.1	4.0	3.1	2.4
55	9.2	8.0	6.2	5.8	4.6	3.5
60	13.8	12.4	9.6	8.4	6.5	4.9
65	21.3	19.2	15.1	13.4	10.6	8.1
70	31.0	28.4	22.7	20.2	16.4	12.9
75	48.6	45.1	37.1	30.9	25.6	20.8
80	75.7	71.0	61.3	49.9	42.5	35.6
85	113.9	108.4	97.1	84.9	75.0	65.4
90	183.7	177.3	163.7	130.5	119.3	108.1
95	264.4	258.8	247.0	195.5	185.4	174.9

Table A2.3. Life expectancy by sex and for different ages, 2011, 2036 and 2061

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
2036	73.8	54.9	20.1	80.5	61.5	24.5
2061	76.8	57.5	21.7	83.0	63.6	26.0

Net migration (in minus out) is negative and is assumed to increase over the projection period at varying rates and reaching different ultimate levels. Figures A2.1 and A2.2 show the evolution of the net migrant population and the age distribution by sex and single age of net migrants. This distribution is held constant for the entire projection period.

Figure A2.1. Net migration, number of persons

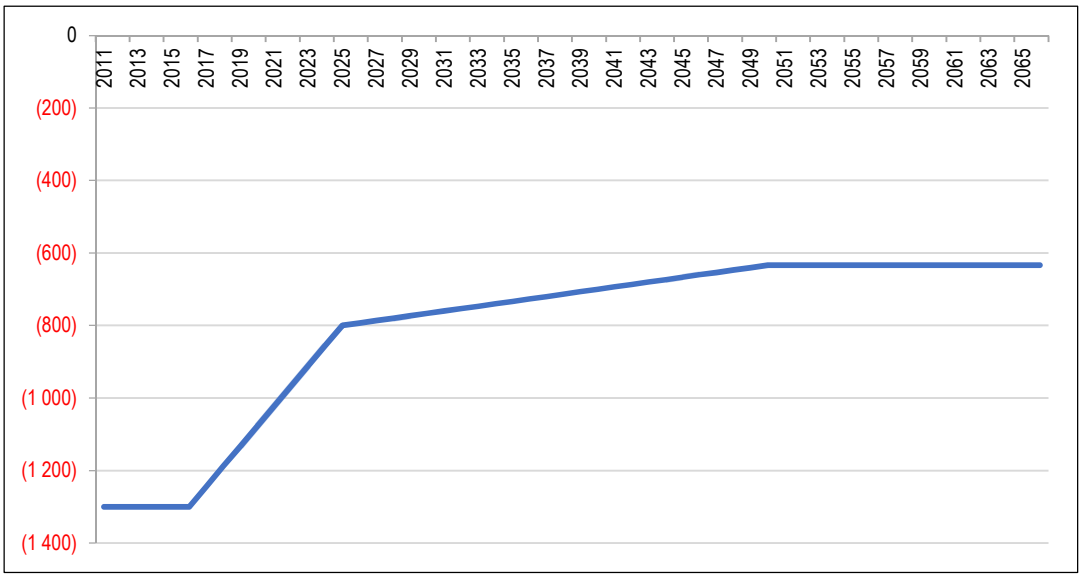
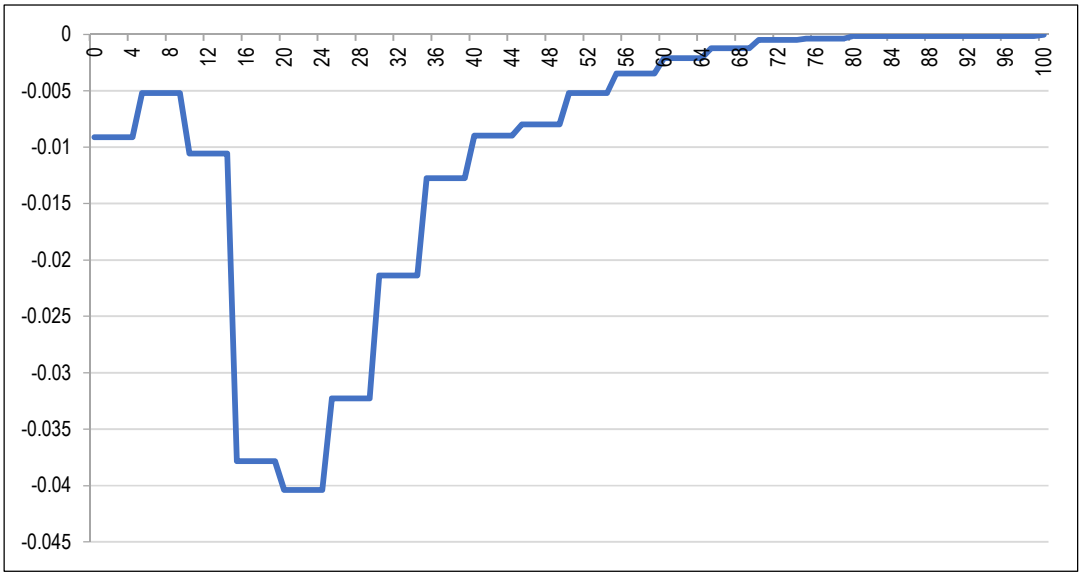


Figure A2.2. Net migration, distribution by age of the net migration population



The projection of the labour force, i.e. the number of persons available for work, is obtained by applying assumed labour force participation rates by age and sex to the projected number of persons. Age-specific labour force participation rates are assumed to stay constant for both males and females. Figure A2.3 shows the assumed age-specific labour force participation rates while figure A2.4 shows the assumed age-specific unemployment rates.

Figure A2.3. Labour force participation rates by age and sex (as % of population)

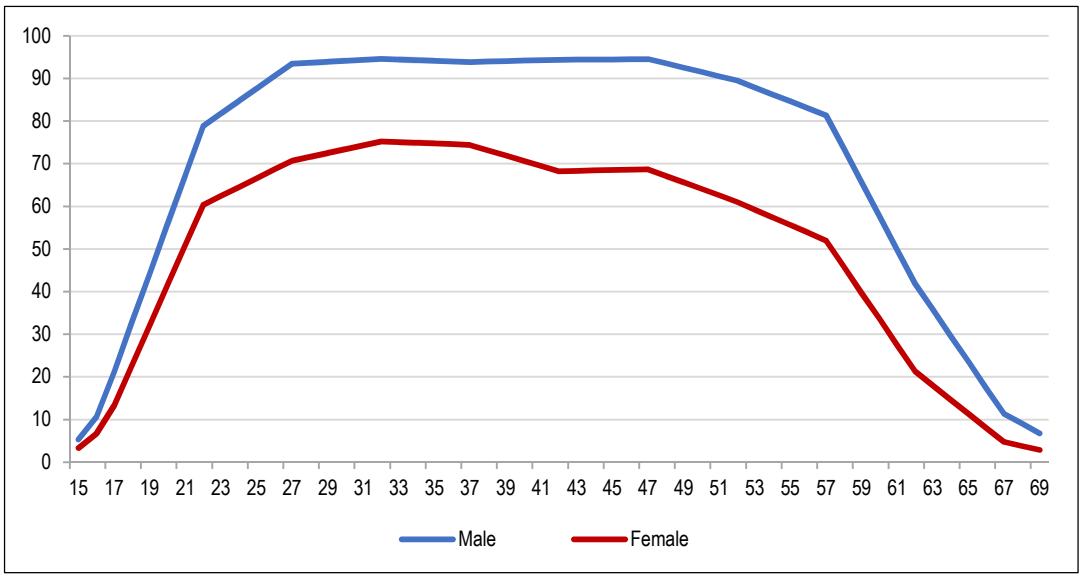
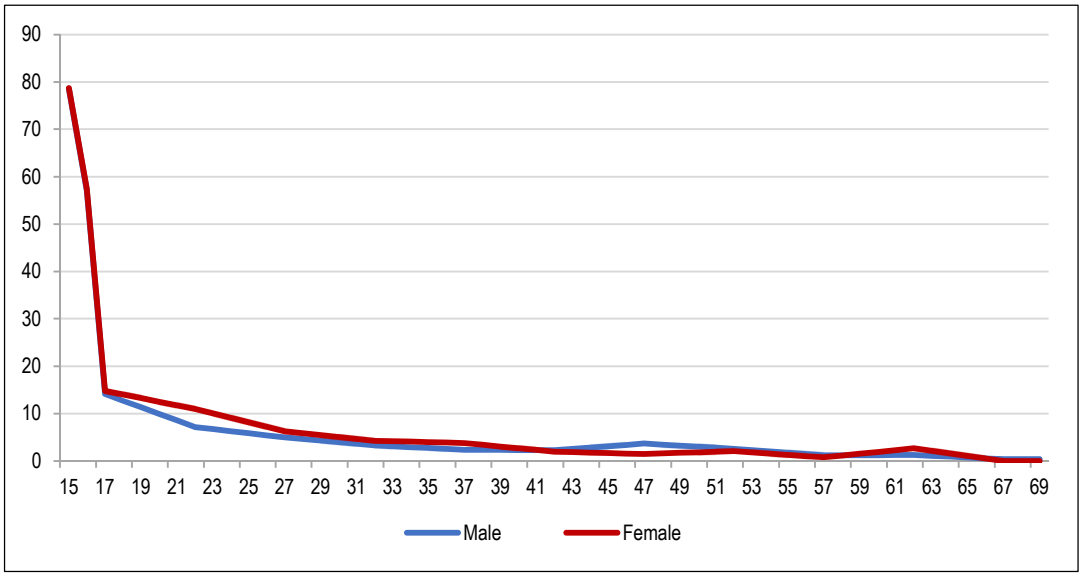


Figure A2.4. Unemployment rates by age and sex (as % of labour force)



A2.2. 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 2066, 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's 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 0.6 per cent of total insurable earnings, and 0.6 per cent at the end, with some slight fluctuations between 2017 and 2066.

A2.3. 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. 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.

A2.3.1. Insured population as of the valuation date

Data on the insured population was obtained from NIB. These distributions of the contributors come from an extraction from the NIS's 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 A2.4 shows the number of members who contributed during the last financial year preceding the valuation date (2015–16) for the long-term and short-term benefits, by age and sex, while table A2.5 shows the number of insured who contributed during the last financial year preceding the valuation date (2015–16) for the EII.

Table A2.4. Distribution of active members (contributors), long-term and short-term branches, by age and sex, 2015–16

Age	Males	Females	Total
15-19	8 584	8 267	16 851
20-24	28 861	29 141	58 002
25-29	37 005	38 037	75 042
30-34	41 207	42 957	84 163
35-39	33 973	36 426	70 398
40-44	27 986	29 648	57 633
45-49	24 271	24 832	49 103
50-54	25 856	25 354	51 210
55-59	22 847	20 500	43 347
60-64	8 593	7 378	15 971
65-69	667	466	1 133
Total	**259 848**	**263 005**	**522 853**

Table A2.5. Distribution of active members (contributors), EII branch, by age and sex, 2015–16

Age	Males	Females	Total
15-19	8 661	8 305	16 966
20-24	28 868	29 151	58 019
25-29	37 011	38 045	75 056
30-34	41 211	42 971	84 183
35-39	33 978	36 433	70 411
40-44	27 991	29 654	57 645
45-49	24 279	24 846	49 125
50-54	25 867	25 364	51 231
55-59	22 864	20 515	43 379
60-64	9 963	8 626	18 589
65-69	2 730	2 666	5 396
Total	**263 424**	**266 576**	**530 000**

A2.3.2. Projection of the insured population

The projection of the insured population constitutes the basis for projections of the system costs. In order to forecast the NIS's 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 A2.6). The insured population was projected by applying coverage rates of the initially insured population to the salaried population (tables A2.7 and A2.8). The coverage rates have been kept constant. The total growth of the population (table A2.9) is however not based on an explicit assumption but on the results of applying the coverage rate to the projection of the employed population.

Table A2.6. Proportion of salaried employees and self-employed, by age and sex (percentages)

	Male salaried	Female salaried	Male self-employed	Female self-employed
15–19	92.6	92.9	7.4	7.1
20–24	89.2	94.7	10.8	5.3
25–29	84.7	93.2	15.3	6.8
30–34	81.7	92.8	18.3	7.2
35–39	80.3	90.6	19.7	9.4
40–44	78.9	87.9	21.1	12.1
45–49	78.1	86.0	21.9	14.0
50–54	78.4	84.1	21.6	15.9
55–59	74.9	82.9	25.1	17.1
60–64	63.0	78.6	37.0	21.4
65–69	52.8	70.6	47.2	29.4
Total	**80.1**	**89.1**	**19.9**	**10.9**

Table A2.7. Coverage rate, long-term and short-term benefits, proportion of the salaried population, by age and sex, 2016 (percentages)

	Male	Female
15–19	113.9	165.9
20–24	97.5	128.5
25–29	89.1	111.4
30–34	90.5	107.9
35–39	87.3	111.0
40–44	83.9	110.8
45–49	80.7	103.5
50–54	81.1	108.7
55–59	95.3	120.5
60–64	90.8	116.8
65–69	32.4	37.5
Total	88.4	112.8

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

Table A2.8. Coverage rate, EII, proportion of the salaried population, by age and sex, 2016 (percentages)

	Male	Female
15-19	114.9	166.6
20-24	97.5	128.6
25-29	89.1	111.4
30-34	90.5	108.0
35-39	87.3	111.0
40-44	83.9	110.8
45-49	80.7	103.5
50-54	81.1	108.7
55-59	95.4	120.6
60-64	105.2	136.6
65-69	132.6	214.4
Total	89.6	114.4

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

Table A2.9. Insured population growth assumptions, by sex and 25-year period (percentages)

	2016–41	2041–66	Average
Males	–0.4	–0.8	–0.6
Females	–0.4	–0.8	–0.6
Total	–0.4	–0.8	**–0.6**

Disability incidence rates

Table A2.10 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 A2.10. 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	0.008
30	0.015	0.015
35	0.030	0.027
40	0.060	0.049
45	0.122	0.091
50	0.246	0.167
55	0.496	0.307

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

Disability incidence rates for EII

Table A2.11 shows the expected incidence rates of insured persons related to the disablement pension. The rates are based on the experience of the NIS.

Table A2.11. Disablement pension incidence rates, by age and sex (per 100 insured)

Age	Males	Females
15	0.0000	0.0000
20	0.0002	0.0004
25	0.0089	0.0031
30	0.0225	0.0120
35	0.0351	0.0205
40	0.0466	0.0250
45	0.0571	0.0284
50	0.0666	0.0337
55	0.0750	0.0438
60	0.0000	0.0000
65	0.0000	0.0000

Incidence rates for short-term benefits

Tables A2.12 and A2.13 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 A2.12. Maternity benefits incidence rates, by age and sex (per 100 insured)

Age	Maternity benefit	Special maternity benefit
15	0.75	0.07
20	2.23	0.32
25	4.62	0.66
30	5.86	0.79
35	5.02	0.65
40	2.57	0.34
45	0.59	0.12

Table A2.13. Sickness benefits incidence rates, by age and sex (per 100 insured)

Age	Males	Females
15	0.3726	0.5333
20	0.8833	1.6938
25	1.2942	2.7304
30	1.5615	3.1985
35	1.6724	3.1713
40	1.7454	2.9082
45	1.8618	2.6825
50	1.9602	2.6092
55	1.7959	2.4724
60	0.9639	1.5535

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 A2.14 presents the life expectancy calculated using the mortality rates of the insured population, while table A2.15 compares, for specific ages, mortality rates assumed for the years 2016, 2041 and 2066.

Table A2.14. Life expectancy by sex and for different ages, 2016, 2041 and 2066

Year	Men		Women	
	At 20	At 60	At 20	At 60
2016	54.8	20.8	62.3	25.9
2041	56.6	21.5	64.3	27.2
2066	59.3	23.1	66.2	28.5

Table A2.15. Mortality rates at selected age intervals, insured population, 2016, 2041 and 2066
(per 1,000 persons)

Selected ages	Males			Females		
	2016	2041	2066	2016	2041	2066
15	0.6	0.4	0.3	0.2	0.1	0.1
20	1.8	1.3	0.9	0.7	0.5	0.4
25	2.9	2.1	1.5	0.8	0.6	0.5
30	2.8	2.0	1.4	1.0	0.8	0.6
35	3.0	2.2	1.6	1.5	1.1	0.8
40	3.3	2.6	1.9	1.9	1.4	1.1
45	4.3	3.4	2.5	2.7	2.1	1.6
50	5.9	4.9	3.6	3.6	2.8	2.1
55	8.5	7.3	5.5	5.3	4.1	3.1
60	9.6	8.5	6.5	4.6	3.6	2.7
65	17.1	15.2	11.7	8.3	6.5	4.9
70	27.2	24.6	19.3	13.6	10.9	8.6
75	44.7	41.1	33.2	22.3	18.3	14.8
80	69.9	65.6	55.6	37.7	32.0	26.6
85	102.5	97.8	86.4	66.6	58.6	50.8
90	155.0	149.7	137.0	104.8	95.6	86.3
95	199.1	195.1	185.2	158.7	150.4	141.5

Retirement rates

Table A2.16 shows the retirement rates in 2016, 2021 and 2026. Starting in 2026, the retirement rates are kept constant for the period of the projection. Retirement rates for males and females are the same.

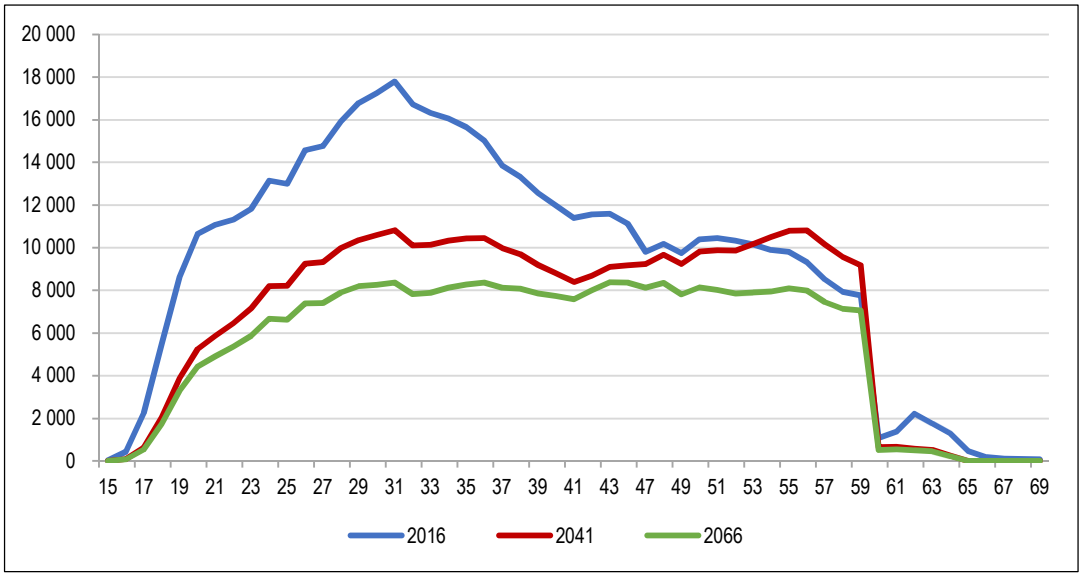
Table A2.16. Retirement rates, by age, 2016, 2021 and 2026 (percentages)

Age	2016	2021	2026
60	80	88	90
61	20	7	7
62	20	7	7
63	20	7	7
64	20	50	50
65	20	20	100
66	20	20	100
67	20	20	100
68	20	20	100
69	20	20	100
70	100	100	100

Structure of the insured population

Figure A2.5 shows the age structure of the initial insured population together with those projected as prevailing in 2016, 2041 and 2066. At the beginning of the projection period, the average age is 37.5 years old while at the end of the projection it is 40.0 years old.

Figure A2.5. Distribution of the insured population by age, 2016–66



A2.3.3. Salary scale and density of contribution

Table A2.17 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 2019, 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 A2.17. Distribution of monthly earnings by age and sex, 2016 (TT$)

Age	Males	Females	Both sexes
15–19	3 448	3 159	3 306
20–24	5 020	4 168	4 592
25–29	6 881	5 782	6 324
30–34	7 726	6 605	7 154
35–39	8 075	6 888	7 461
40–44	8 171	6 846	7 490
45–49	8 075	6 544	7 301
50–54	7 885	6 295	7 098
55–59	7 737	6 215	7 017
60–64	7 450	5 349	6 480
65–69	7 450	5 349	6 586
Average	7 297	6 071	6 680

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 A2.18 and is based on the experience of the NIS.

Table A2.18. Density of contributions, by age and sex (percentages)

Age	Males	Females
15–19	44	44
20–24	66	67
25–29	79	83
30–34	82	87
35–39	84	88
40–44	85	88
45–49	86	89
50–54	88	90
55–59	89	90
60–64	74	73
65–69	75	74

A2.3.4. Inactive insured population

The structure of the inactive population has been analysed (those who have not contributed during 2015–16, 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 A2.19. 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.

Table A2.19. Distribution of inactive members, by age and sex, 2015–16

Age	Males	Females	Total
15–19	2	2	4
20–24	5 304	4 623	9 927
25–29	17 915	16 381	34 296
30–34	20 576	19 352	39 928
35–39	20 568	16 542	37 111
40–44	21 482	15 659	37 142
45–49	19 530	14 592	34 122
50–54	21 896	16 002	37 898
55–59	19 868	13 871	33 740
Total	147 143	117 024	264 167

A2.3.5. Past service

Credited service for the active and inactive insured populations was transmitted by the NIS. Tables A2.20 and A2.21 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 A2.20. Average past contribution years for active insured persons, by age and sex, June 2016

Age	Males	Females
15–19	1.1	1.1
20–24	2.3	1.9
25–29	5.0	4.5
30–34	8.0	7.7
35–39	10.4	10.4
40–44	12.6	12.3
45–49	14.8	13.7
50–54	18.4	15.9
55–59	23.2	19.6
60–64	23.6	18.1
65–69	25.5	22.8

Table A2.21. Average past contribution years for inactive insured persons, by age and sex, June 2016

Age	Males	Females
15–19	1.1	1.1
20–24	1.3	1.3
25–29	2.0	2.1
30–34	2.8	3.1
35–39	3.5	3.7
40–44	4.4	4.4
45–49	5.5	5.3
50–54	7.6	6.9
55–59	11.3	9.6

A2.3.6. *Pensioners at the valuation date: Long-term branch*

Tables A2.22−25 show the distribution of pensioners used for this actuarial valuation as at the valuation date.

Table A2.22. NIS average monthly retirement pensions in payment, by age and sex, June 2016 (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	19 213	3 003	12 232	3 001
65–69	17 425	2 977	9 926	2 970
70–74	12 151	2 974	6 493	2 960
75–79	7 224	2 983	3 757	2 980
80–84	4 240	2 993	2 306	2 996
85–89	2 159	3 000	1 266	3 000
90–94	906	2 994	537	3 000
95+	284	3 000	194	3 000
Total	**63 602**	**2 944**	**36 711**	**2 939**

Table A2.23. Invalidity monthly pensions in payment, by age and sex, June 2016 (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	1 402
25–29	7	2 106	16	1 501
30–34	45	1 807	29	1 768
35–39	75	1 844	72	1 501
40–44	129	1 725	96	1 463
45–49	239	1 639	190	1 515
50–54	639	1 634	350	1 437
55–59	1 058	1 692	589	1 468

Age	Male		Female	
	No. of pensions	Average amount	No. of pensions	Average amount
60–64	–	–	–	–
65–69	–	–	–	–
70–74	–	–	–	–
75–79	–	–	–	–
80–84	–	–	–	–
85–89	–	–	–	–
90–94	–	–	–	–
95+	–	–	–	–
Total	**2 396**	**1 667**	**1 430**	**1 466**

Table A2.24. Survivors' monthly pensions in payment, by age and sex, June 2016 (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	99	986	11	971
30–34	259	1 013	27	947
35–39	459	975	76	919
40–44	747	922	115	871
45–49	1 093	900	134	858
50–54	2 102	877	241	883
55–59	2 984	877	333	926
60–64	3 536	835	334	900
65–69	3 761	760	320	901
70–74	4 118	689	242	836
75–79	3 644	641	177	756
80–84	3 037	615	107	691
85–89	1 961	603	65	632
90–94	903	601	23	659
95+	280	601	10	603
Total	**28 983**	**748**	**2 215**	**859**

Table A2.25. Orphans and parents' monthly pensions in payment, by age, June 2016 (TT$)

Age	No. of pensions	Average amount
0–4	355	653
5–9	1 547	633
10–14	2 849	628
15–19	3 737	592
20–24	29	614
25–29	32	656
30–34	45	600
35–39	28	643
40–44	32	675
45–49	30	599
50–54	48	542
55–59	82	471
60–64	86	446
65–69	77	429
70–74	135	370
75–79	96	350
80–84	88	357
85–89	42	341
90–94	15	393
95+	9	332
Total	**9 362**	**599**

A2.3.7. Pensioners at the valuation date: EII

Tables A2.26−28 show the distribution of pensioners used for this actuarial valuation for the EII branch as at the valuation date.

Table A2.26. Disablement average monthly pensions in payment, by age and sex, June 2016 (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	15	1 968	6	2 965
30–34	57	2 333	13	1 429
35–39	109	2 455	33	1 757
40–44	156	1 918	54	2 684
45–49	243	1 753	56	1 694
50–54	397	1 778	104	1 671
55–59	467	1 776	102	1 788

Age	Male		Female	
	No. of pensions	Average amount	No. of pensions	Average amount
60–64	424	1 430	80	1 562
65–69	303	1 177	77	1 286
70–74	180	1 004	30	1 665
75–79	101	830	23	914
80–84	34	783	12	612
85–89	16	941	1	646
90–94	6	737	1	466
95+	1	646		
Total	**2 509**	**1 580**	**592**	**1 679**

Table A2.27. Survivors' monthly pensions in payment (EII), by age and sex, June 2016 (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	3 103	–	–
30–34	6	3 454	–	–
35–39	17	2 923	–	–
40–44	28	2 575	–	–
45–49	33	2 402	1	4 801
50–54	39	2 298	1	3 103
55–59	53	1 923	–	–
60–64	48	1 842	–	–
65–69	36	1 637	1	1 855
70–74	19	1 387	–	–
75–79	7	1 482	–	–
80–84	2	1 291	–	–
85–89	3	1 291	–	–
90–94	1	1 291	–	–
95+	–	–	–	–
Total	**293**	**2 076**	**3**	**3 253**

Table A2.28. Orphans and parents' monthly pensions in payment (EII), by age, June 2016 (TT$)

Age	No. of pensions	Average amount
0–4	5	17 278
5–9	18	2 577
10–14	39	1 018
15–19	54	120
20–24	1	–
25–29	–	–
30–34	–	–
35–39	–	–
40–44	–	–
45–49	–	–
50–54	3	784
55–59	6	1 044
60–64	8	1 405
65–69	10	1 191
70–74	10	725
75–79	5	646
80–84	2	646
85–89	1	1 070
90–94	1	646
95+	–	–
Total	163	1 375

A2.3.8. 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 A2.29.

Table A2.29. 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	0.1	1.1	16	20	0.00	0.05	0.00	0.00
20	2.3	6.3	20	24	0.01	0.10	1.00	1.00
25	13.4	14.3	25	29	0.36	0.48	3.00	3.00
30	24.7	21.9	29	34	0.75	0.82	6.00	6.00
35	34.8	28.5	33	39	0.99	0.97	8.00	8.00
40	43.0	33.1	37	43	1.03	0.91	9.00	9.00
45	49.1	35.3	42	48	0.90	0.69	11.00	11.00
50	52.8	34.9	46	53	0.65	0.39	12.00	12.00
55	54.7	32.2	50	58	0.38	0.08	12.00	12.00

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
60	54.9	27.5	54	63	0.16	0.00	13.00	13.00
65	54.0	21.6	59	67	0.04	0.00	13.00	13.00
70	52.3	15.4	63	72	0.02	0.00	13.00	13.00
75	50.4	9.8	67	77	0.01	0.00	13.00	13.00
80	48.5	5.4	71	82	0.00	0.00	13.00	13.00
85	46.8	2.8	76	86	0.00	0.00	13.00	13.00
90	44.5	2.0	80	91	0.00	0.00	13.00	13.00
95	41.3	1.0	84	96	0.00	0.00	13.00	13.00

A2.4. Initial reserve

For the purpose of this actuarial valuation, as in the previous actuarial valuation, all the branches have been combined together. 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$25,226 million for all branches.

Appendix 3. Detailed NIS results
(1 July 2013 to 30 June 2016)

This appendix presents a detailed reconciliation of financial and demographic data of the NIS over the period 1 July 2013 to 30 June 2016.

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$)

	2013–14	2014–15	2015–16
Fund at start of year	**23 243**	**24 714**	**24 495**
Contribution income	3 225	3 793	3 784
Investment income *	2 059	105	–37
Miscellaneous income	20	–3	31
Transfer from short-term and EI funds	0	0	0
Total revenue	**5 305**	**3 894**	**3 777**
Retirement pension	3 169	3 362	3 564
Retirement grant	119	139	206
Invalidity pension	62	75	73
Survivors' pension	297	329	352
Administration expenses	169	182	201
Transfer to short-term and EI funds	17	26	0
Total expenditure	**3 834**	**4 113**	**4 397**
Revenue – Expenditure	**1 471**	**–219**	**–619**
Fund at year-end	**24 714**	**24 495**	**23 876**

* Includes realized and unrealized gains and losses.

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

	2013–14	2014–15	2015–16
Fund at start of year	**342**	**399**	**464**
Contribution income	217	256	255
Investment income *	13	1	-1
Miscellaneous income	0	0	0
Transfer from Long-term fund	36	53	0
Total revenue	**267**	**310**	**254**
Sickness benefit	37	46	50
Maternity benefit	110	127	131
Special Maternity grant	4	6	4
Funeral grant	48	53	52
Administration expenses	11	12	14
Transfer to Long-term fund	0	0	0
Total expenditure	**210**	**245**	**250**
Revenue - Expenditure	**56**	**65**	**4**
Fund at year-end	**399**	**464**	**468**

* Includes realized and unrealized gains and losses.

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

	2013–14	2014–15	2015–16
Fund at start of year	**570**	**683**	**783**
Contribution income	181	213	213
Investment income *	29	2	-2
Miscellaneous income	0	0	0
Transfer from long-term fund	0	0	0
Total revenue	**210**	**215**	**211**
Disablement benefit	42	49	51
Disablement grant	2	2	2
Injury allowance	14	16	18
Medical expenses	0	0	0
Survivors' benefits	10	10	10
Administration expenses	10	10	11
Transfer to long-term fund	20	27	0
Total expenditure	**97**	**116**	**93**
Revenue – Expenditure	**113**	**100**	**118**
Fund at year-end	**683**	**783**	**900**

* 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

	2013–14	2014–15	2015–16
		Expected	
Contributors	**506 435**	**506 576**	**506 389**
Retirement pensioners	92 534	98 629	104 286
Retirement grants	3 934	4 013	4 267
Survivor pensioners	38 347	40 405	41 965
Invalidity	4 168	4 196	4 329
Total long-term	**138 983**	**147 243**	**154 847**
Sickness	12 013	12 050	12 074
Maternity benefits	7 680	7 678	7 651
Special maternity grants	1 026	1 026	1 022
Funeral grants	5 339	5 437	5 544
Total short-term	**26 058**	**26 191**	**26 292**
Injury allowances	1 479	1 480	1 479
Medical expense payments	104	104	104
Disablement pensioners	3 207	3 315	3 422
Disablement grants	88	88	89
Death benefits	525	532	325
Total employment injury	**5 403**	**5 519**	**5 419**

	2013–14	2014–15	2015–16
	Observed		
Contributors	**519 636**	**516 926**	**514 661**
Retirement pensioners	90 683	96 395	102 454
Retirement grants	4 275	4 568	6 175
Survivor pensioners	38 338	39 644	41 105
Invalidity	4 185	4 197	4 089
Total long-term	**137 481**	**144 804**	**153 823**
Sickness	10 390	10 981	11 548
Maternity benefits	7 522	8 208	8 025
Special maternity grants	1 096	1 149	1 060
Funeral grants	6 422	7 120	6 897
Total short-term	**25 430**	**27 458**	**27 530**
Injury allowances	1 644	1 584	1 551
Medical expenses payments	53	61	104
Disablement pensioners	3 018	3 057	3 102
Disablement grants	95	96	105
Death benefits	502	485	465
Total employment injury	**5 312**	**5 282**	**5 327**
	Ratio observed/expected		
Contributors	**1.026**	**1.020**	**1.016**
Retirement pensioners	0.980	0.977	0.982
Retirement grants	1.087	1.138	1.447
Survivor pensioners	1.000	0.981	0.980
Invalidity	1.004	1.000	0.945
Total long-term	**0.989**	**0.983**	**0.993**
Sickness	0.865	0.911	0.956
Maternity benefits	0.979	1.069	1.049
Special maternity grants	1.068	1.120	1.037
Funeral grants	1.203	1.309	1.244
Total short-term	**0.976**	**1.048**	**1.047**
Injury allowances	1.112	1.070	1.049
Medical expenses payments	0.510	0.587	1.000
Disablement pensioners	0.941	0.922	0.907
Disablement grants	1.083	1.086	1.180
Death benefits	0.956	0.910	1.429
Total employment injury	**0.983**	**0.957**	**0.983**

* Included in disablement pensioners.

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

Appendix 4. Concepts on the funding of social insurance

A4.1. 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 were applied to a new pension plan, 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.

A4.2. 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 a formation of high reserves. Though theoretically constant, the contribution rate is likely, in practice, to be revised at periodic actuarial reviews. If this system were 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.

A4.3. Scaled premium system

It is possible to devise many intermediate systems of finance between the basically unfunded (PAYG) pure assessment system and the fully-funded 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.

A4.4. A 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 shall be enough to pay all the promises. If not, the deficit should be filled in during 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.

Appendix 5. General methodology of the actuarial valuation

This actuarial review makes use of the comprehensive methodology developed at the ILO for reviewing the long-term actuarial and financial status of a national pension system. The review has been undertaken using the model developed for the previous actuarial valuation by the Ecole nationale d'administration publique (ENAP) of Québec. This model is an adaptation of the ILO's generic model modified to fit the specific case of Trinidad and Tobago and the NIBTT. The modelling tools include a population model, an economic model, a labour force model, a wage model, a long-term benefits model, a short-term benefits model and EII model.

The actuarial valuation begins with a projection of Trinidad and Tobago's future demographic and economic environment. Next, projection factors specifically related to social security are determined and used in combination with the demographic and economic framework to estimate future cash flows and the system's reserve. Assumption selection takes into account both recent experience and future expectations, with emphasis placed on long-term trends rather than giving undue weight to recent experience.

A5.1. Modelling the demographic and economic developments

The use of the ILO actuarial projection model requires the development of demographic and economic assumptions related to the general population, the economic growth, the labour market and the increase and distribution of wages. Other economic assumptions are related to the future rate of return on investments, the indexation of benefits and the adjustment of parameters, such as the maximum insurable earnings and the future level of flat-rate benefits.

The selection of assumptions for projections took into account the recent experience of the NIBTT to the extent that this information was available. These assumptions were selected to reflect long-term trends rather than giving undue weight to recent experience. The detailed description of the demographic and economic assumptions is presented in Appendix 2.

A5.2. General population

General population is projected starting with the most current data on the general population, and applying appropriate mortality, fertility and migration assumptions.

A5.3. Economic growth and inflation

Increase of the productivity of labour, wage share of GDP and inflation rates are exogenous inputs to the economic model. The long-term GDP growth assumption is the result of assumptions on the future evolution of the labour force, wage share of GDP and labour productivity.

A5.4. Active population and employed population

The projection of the labour force, i.e. the number of persons available for work, is obtained by applying assumed labour force participation rates to the projected number of persons in the general population. Unemployment rates by age and sex are assumed for the future to project the employed population. Growth in the insured population is linked to the growth in the employed population. Coverages are used in the projections. This assumption is adequate since a high proportion of the employed population is covered by the NIBTT.

The projection of the employed population is performed separately for salaried and self-employed persons. This helps in assessing the introduction of a new system for SEP.

The model assumes movement of participants between the groups of active and inactive insured persons.

A5.5. Salaries

Based on an allocation of total GDP to capital income and to labour income, a starting average wage is calculated by dividing the wage share of GDP by the total number of employed persons.

In the medium term, real wage development is checked against the labour productivity growth. In specific labour market situations, wages might grow at a pace faster or slower than productivity. However, due to the long-term perspective of the present review, the real wage increase is assumed to gradually converge with real labour productivity. It is expected that wages will adjust to efficiency levels over time.

Wage distribution assumptions are also needed to simulate the possible impact of the social protection system on the distribution of income, for example through minimum and maximum pension provisions. Assumptions on the differentiation of wages by age and sex are established, as well as assumptions on the dispersion of wages between income groups.

A5.6. Modelling the financial development of the social Insurance system

The present actuarial review addresses all revenue and expenditure items of the NIS. The most important components of this budget concern long-term (pension) benefits.

For short-term benefits, income and expenditures are projected using simple projection methods based on recent experience. For employment injury benefits, income and expenditures are projected using a model specifically developed by the ILO for that branch.

Projections for pensions are made for each sex separately. Groups of insured are separated between salaried and self-employed persons.

A5.7. Purpose of pension projections

The purpose of the pension model is twofold. First, it is used to assess the financial viability of each branch. This refers to the measure of the long-term balance between income and expenditure of the system. In case of an imbalance, a revision of the contribution rate, or the benefit structure, is recommended. Second, the model may be used to examine the financial impact of different reform options, thus assisting policy-makers in the design of benefit and financing provisions. More specifically, the model is used to develop long-term projections of expenditure and insurable earnings under the system, for the purpose of:

1. Assessing the options for building up a contingency or technical reserve.
2. Proposing schedules of contribution rates consistent with the funding objective.
3. Testing how the system reacts to changing economic and demographic conditions.
4. Analysing the financial impact of possible modifications to the system.

A5.8. Pension data and assumptions

Pension projections require the demographic and macro-economic framework already described and, in addition, a set of assumptions specific to the social insurance system.

The database, as at the valuation date, includes the insured population by active and inactive status, the distribution of insurable wages among contributors and the distribution of past credited service and pensions in payment. Data are disaggregated by age and sex.

Scheme-specific assumptions, such as disability incidence rates, are determined with reference to system provisions and the NIS's historical experience. The data and assumptions specific to the NIS are presented in detail in Appendix 2.

A5.9. Pension projection approach

Pension projections are made following a year-by-year cohort methodology. The existing population is aged and gradually replaced by successive cohorts of participants on an annual basis according to the demographic and coverage assumptions. The projection of insurable earnings and benefit expenditures are then made according to the economic assumptions and the system's provisions.

Pensions are long-term benefits. Hence, the financial obligations that a society accepts when adopting financing provisions and benefit provisions for them are also of a long-term nature: participation in a pension system extends over a whole adult life, either as contributor or beneficiary, i.e. up to 70 years for someone entering the system at the age of 16 years, retiring at the age of 65 years and dying some 20 or so years later. During their working years, contributors gradually build entitlement to pensions that will be paid even after their death, to their survivors.

It is not the objective of pension projections to forecast the exact progression of a system's income and expenditure, but to verify its financial viability. This entails evaluating the NIS with regard to the relative balance between future income and expenditure. This type of evaluation is essential, especially in the case of the NIS, which has not yet reached its mature stage.

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

This comparison of benefit provisions with the ILO Social Security Minimum Standards, is based only on what is covered on by the National Insurance System (NIS) of Trinidad and Tobago. Social Security in Trinidad and Tobago includes both Social Insurance covered by the NIS and Social Welfare, which is administered by the Ministry of Social Development and Family Services.

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.

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:* 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.	✔
Assessment	***The national legislation under review covers the loss of earning resulting from temporary incapacity in accordance with the Convention.***		
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, 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.	✔
Assessment	***The national legislation is in line with Convention No. 102, as it covers all employed persons in insurable employment aged 16 to 64 as well as self-employed persons. According to the report, there were 522,853 contributors for the long-term and short-term benefits (in 2015–16). It is therefore estimated that over 38% of all residents were covered in 2015, over the minimum 20% required by Convention No. 102 (where the total population in 2015 was 1,360,000).***		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
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 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 (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).	✔
Assessment	***The national legislation provides sickness benefits at a level that complies 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.***		
Benefit duration	At least 26 weeks in each case of sickness; possible waiting period at most 3 days.	*Para. 14(a), NIR:* Sickness benefits are payable for a maximum of 52 weeks.	✔
Assessment	***The national legislation, which provides sickness benefits for a duration of a maximum 52 weeks, is in line with the requirements of Convention No. 102.***		
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:* 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 is not overly restrictive and ca be considered in line with the requirements of Convention No. 102.***		

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.	*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.	✔
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.	*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. It is available at all nation's health facilities.	✔ ✔
Assessment	***The national legislation is in line with Convention No. 102, as it covers all employed persons in insurable employment aged 16 to 64 as well as self-employed persons. According to the report, there were 522,853 contributors for the long-term and short-term benefits (in 2015–16). It is therefore estimated that over 38% of all residents were covered in 2015, over the minimum 20% required by Convention No. 102 (where the total population in 2015 was 1,360,000). In the case of medical care, it is understood that all pregnant women, insured or not, are entitled to antenatal health care.***		
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:* The Ministry of Health provides antenatal healthcare to all pregnant women, free of charge. It is available at all nation's health facilities. *Cash benefits:* 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.	☑ ✔
Assessment	***The national legislation guarantees maternity cash benefits to all insured women 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.*** ***Maternity medical care appears to be provided to all pregnant female residents free of charge and in accordance with Convention No. 102, subject to confirmation by the Government that pre-natal, confinement and post-natal care either by medical practitioners or by qualified midwives and hospitalization where necessary are included.***		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Benefit duration	*Medical care*: Throughout the contingency.	*Medical care:*	?
	Cash benefit: At least 12 weeks.	*Cash benefit:* 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. 27A NIR).	✔
Assessment	***The national legislation, which provides a cash benefit for a maximum 14 weeks is in line with the Convention, subject to confirmation from the Government that medical maternity care is provided during the contingency, i.e. during pregnancy, birth and post-natal period.***		
Qualifying period	No longer than period considered necessary to preclude abuse.	*Cash benefits:* Para. 22(2) NIR: 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.***		

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. 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. 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). *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. Benefits are paid in the conditions stated as per Convention No. 102, with even additional benefits over the minimum (e.g. pension paid to parents if there is no widow or orphans).***		
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. 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. 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). *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. According to the report, there were 530,000 contributors for the EII branch (in 2015–16). It is therefore estimated that over 84% of all employees were covered in 2016, over the minimum 50% required by Convention No. 102 (where the total employed population in 2016 was 629,000).*** ***Furthermore, the national legislation is in line with Convention No. 102 with regards to the payment of the benefits to the widow and children of a deceased employee following a work injury.***		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
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.	*Art. 46, NIA:* Section (4) mentions that medicals 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 sets the maximum medical expense payable at TT$33,750 effective 3 March 2014 (Act 38 of 2013). In a no-fault system for the employer, it would be unreasonable to cap the amount of medical benefit paid. *Art. 46, NIA:* Section (3) stipulates that a pension must be paid to the injured worker if s/he rendered incapable of work. Table D6 mentions the amount of benefits payable by earning class. A comparison of the replacement rate for all earnings class and situation was performed. The replacement ratio for a fully disabled member range from 53 to 89%; the replacement ratio for a widow and two orphans also ranges from 53 to 89%.	☑
Assessment	***The replacement rate of the disability pension is above the minimum specified in Convention No. 102 for both the disabled worker and the widow & orphans.*** ***However, there is a parametric element in the Regulations that prevents the EII scheme to be fully compliant with Convention No. 102: the maximum to the health benefit paid to an injured worker. If the medical cost over the limit are covered by a national health scheme and/or employer liability scheme with 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 benefits could be considered fully compliant with Convention No. 102. A simple remedy to this situation would be to enact a new Minister Order that would remove this cap.***		
Benefit duration	– Throughout the contingency; – Possibility of 3-day waiting period.	*Art. 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). No articles in the Act or the Regulations set a waiting period for the payment of the benefits; it is payable as soon as the injury occurs.	✔
Assessment	***Since the EII benefits are payable as soon as the injury occurs and they are not stopped until the insured dies or return to work, the Act and its Regulations are in line with Convention No. 102.***		
Qualifying period	Prohibition to prescribe qualifying period.	*Art. 37, NIA:* This article stipules that all covered worker 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 NIA is in line with Convention No. 102 regarding the qualifying period.***		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
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 since 2004.	✔
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. This is consistent with the Convention so long as the Government uses this mechanism as required to avoid erosion of benefits in view of the evolution of level of earnings when these result from changes in the cost of living and to guarantee the sustainability of the scheme in the long-term.*** ***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. As such, the Government may wish to consider, statutory automatic adjustments or indexation mechanisms, as recommended by the actuarial report, which would also be in line with the Convention and would have the added advantage of ensuring the adequacy of contributions and benefits over time.***		

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:* 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 more favourable than Convention No. 102 which provides that an old-age pension should be provided, at the latest, 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* – all residents with means under prescribed threshold.	*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. 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).	✔
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 522,853 contributors for the long-term and short-term benefits (in 2015/2016). It is therefore estimated that over 38% of all residents were covered in 2015, over the minimum 20% required by Convention No. 102 (where the total population in 2015 was 1,360,000).***		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
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 and 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). According to the schedules in the law, a person who has contributed during 30 years would receive between roughly 47% (earning class XVI) and 67% (earning class I) of their previous earnings depending on their earning class. Notwithstanding the benefits rates, the Board pays the sum of 3,000$ monthly to each person qualifying for or in receipt of a retirement pension of less than 3,000$ (Section 54B(5A) NIA). In addition, it is noted that in Trinidad and Tobago, the Senior Citizens Pension is granted monthly to persons above 65 years of age based on a means test. Based on the current schedule, anyone with earnings below 4,500 is entitled to receive a monthly pension varying from 500 to 3,500$. In effect, persons receiving a NIS minimum pension are entitled to receive $2,000 from the SCP.	✔
Assessment	***The national legal framework exceeds by far 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 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 82% of their previous earnings. As there is little incentive to contribute beyond 15 years and since the minimum pension is so high, effectively, about 97% of NIS old-age pensioners are receiving it.*** ***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.***		
Benefit duration	From the prescribed age to the death of beneficiary.	*Para. 14(d), NIR:* 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.***		
Qualifying period – reduced pension	Maximum of 15 years of contribution or employment (for contributory schemes) for entitlement to a reduced pension	*Para. 16, NIR:* 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.***		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
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 since 2004.	✔
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. This is consistent with the Convention so long as the Government uses this mechanism as required to avoid erosion of benefits in view of the evolution of level of earnings when these result from changes in the cost of living and to guarantee the sustainability of the scheme in the long-term.*** ***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. As such, the Government may wish to consider, statutory automatic adjustments or indexation mechanisms, as recommended by the actuarial report, which would also be in line with the Convention and would have the added advantage of ensuring the adequacy of contributions and benefits over time.***		

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).	The insured people must be aged less than 60, suffer from an incapacity not caused by employment and have medical certification that they are likely to remain incapable of work for a period of at least 12 months.	✔
Assessment	***This requirement of Convention No. 102 is fulfilled since the national legislation provides for invalidity pensions in case of total permanent disability, i.e. equal to a loss of ability to work of above 65%.***		
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.	Article 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. 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).	✔
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 522,853 contributors for the long-term and short-term benefits (in 2015/2016). It is therefore estimated that over 38% of all residents were covered in 2015, over the minimum 20% required by Convention No. 102 (where the total population in 2015 was 1,360,000).***		
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 as retirement pensions but not subject to the minimum pension. Benefits vary between 30 and 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). As such, according to the schedules in the law, a person who has contributed during 15 years would receive between roughly 30 (earning class XVI) and 48% (earning class I) of their previous earnings depending on their earning class.	✖
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. The Convention No. 102 requires that all persons whose earnings are below those of a typical male skilled employee should get at least 40% of their previous earnings if they become invalid and have contributed for 15 years. Given that only classes I and II would comply, it is unlikely that all these beneficiaries would receive a benefit equivalent to at a minimum 40% of their previous earnings, as required by Convention No. 102.***		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Benefit duration	As long as the incapacity to earn a sufficient income remains or until old age benefit becomes payable.	*Para.14(c), NIR:* 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.	✔
Assessment	***The national legislation is in compliance with the Convention given that the Social Security Law provides invalidity pensions so long as the conditions of total disability persist and are terminated if the pensioner resumes work.***		
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)(ca) and 24, NIR).	✔
Assessment	***The national legal framework establishing the right to an invalidity pension after already 3 years provided that the insured has contributed at least 1 year in the 3 years preceding the contingency, is in compliance with the Convention which requires that a pension start to be paid after a contributory period of at least 5 years.***		
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 since 2004.	✔
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. This is consistent with the Convention so long as the Government uses this mechanism as required to avoid erosion of benefits in view of the evolution of level of earnings when these result from changes in the cost of living and to guarantee the sustainability of the scheme in the long-term.*** ***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. As such, the Government may wish to consider, statutory automatic adjustments or indexation mechanisms, as recommended by the actuarial report, which would also be in line with the Convention and would have the added advantage of ensuring the adequacy of contributions and benefits over time.***		

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, 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.	*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. 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) Eligible survivors (Sec. 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. 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; – *Parent:* wholly or mainly maintained by deceased insured.	✔
Assessment	***The national legislation is in line with Convention No. 102 given that it covers all employed persons in insurable employment aged 16 to 64. In addition, beyond the minimum requirements of this Convention, it awards survivor's benefits to widow and widowers, children, orphans and parents who were wholly or mainly maintained by the deceased insured.*** ***Furthermore, according to the report, there were 522,853 contributors for the long-term and short-term benefits (in 2015–16). It is therefore estimated that over 38% of all residents were covered in 2015, over the minimum 20% required by Convention No. 102 (where the total population in 2015 was 1,360,000).***		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
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 (tables C7 and B7, Schedule 3, NIA, modified by Act No. 7 of 2016): – *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%. As such, it is understood that a dependent wife with two children would receive a benefit equal to 100% of the old age or invalidity pension (60% for the widow and 30% for each child, up to a maximum 100%); i.e. roughly between 30% (earning class XVI) and 48% (earning class I) of previous earnings depending on the earnings class.	✖
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 the deceased breadwinner who had an employment history of 15 years and belonged to class I and II 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 100% of the old age or invalidity pension (60% for the widow and 30% for each child up to a maximum 100%); i.e. roughly between 30% (earning class XVI) and 48% (earning class I) of previous earnings depending on the earnings class.***		
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.	*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).	✔
Assessment	***The national legal framework is in compliance with the minimum requirement of Convention No. 102 since the survivor's benefits guaranteed by the social security law are provided to orphans at least until they are 19 and to all widows until they remarry.***		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
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 law is in compliance with Convention No.102 given that gives entitlement to a survivor's benefit in so long as the deceased insured contributed one year.**		
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 since 2004.	✔
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. This is consistent with the Convention so long as the Government uses this mechanism as required to avoid erosion of benefits in view of the evolution of level of earnings when these result from changes in the cost of living and to guarantee the sustainability of the scheme in the long-term.*** ***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. As such, the Government may wish to consider, statutory automatic adjustments or indexation mechanisms, as recommended by the actuarial report, which would also be in line with the Convention and would have the added advantage of ensuring the adequacy of contributions and benefits over time.***		

Annex 7. Minimum requirements in ILO social security standards: Overview tables

ILO social security standards have come to be recognized globally as key references for the design of rights-based, sound and sustainable social protection schemes and systems. They also give meaning and definition to the content of the right to social security as laid down in international human rights instruments (notably the Universal Declaration of Human Rights, 1948, and the International Covenant on Economic, Social and Cultural Rights, 1966), thereby constituting essential tools for the realization of this right and the effective implementation of a rights-based approach to social protection.

Guiding ILO policy and technical advice in the field of social protection, ILO social security standards are primarily tools for governments which, in consultation with employers and workers, are seeking to draft and implement social security law, establish administrative and financial governance frameworks, and develop social protection policies. More specifically, these standards serve as key references for:

– the elaboration of national social security extension strategies;

– the development and maintenance of comprehensive national social security systems;

– the design and parametric adjustments of social security schemes;

– the establishment and implementation of effective recourse, enforcement and compliance mechanisms;

– the good governance of social security and improvement of administrative and financial structures;

– the realization of international and regional obligations, and the operationalization of national social protection strategies and action plans; and

– working towards the achievement of Sustainable Development Goals, particularly goals 1, 3, 5, 8, 10 and 16.

The ILO's normative social security framework consists of eight up-to-date Conventions and nine Recommendations [3] (see table 5.1). The most prominent of these are the Social Security (Minimum Standards) Convention, 1952 (No. 102), and the Social Protection Floors Recommendation, 2012 (No. 202). [4] Other Conventions and Recommendations set higher standards in respect of the different social security branches, or spell out the social security rights of migrant workers.

[3] Income Security Recommendation, 1944 (No. 67), Medical Care Recommendation, 1944 (No. 69), Social Security (Minimum Standards) Convention, 1952 (No. 102), Equality of Treatment (Social Security) Convention, 1962 (No. 118), Employment Injury Benefits Convention, 1964 (No. 121) and Recommendation, 1964 (No. 121), Invalidity, Old-Age and Survivors' Benefits Convention, 1967 (No. 128) and Recommendation, 1967 (No. 131), Medical Care and Sickness Benefits Convention, 1969 (No. 130) and Recommendation, 1969 (No. 134), Maintenance of Social Security Rights Convention, 1982 (No. 157) and Recommendation, 1983 (No. 167), Employment Promotion and Protection against Unemployment Convention, 1988 (No. 168), and Recommendation, 1988 (No. 176), Maternity Protection Convention, 2000 (No. 183), and Recommendation, 2000 (No. 191), and Social Protection Floors Recommendation, 2012 (No. 202).

[4] Convention No. 102 has been ratified to date by 55 countries, most recently by Argentina (2016), Chad (2015), Dominican Republic (2016), St. Vincent and the Grenadines (2015) and Ukraine (2016). ILO Recommendations are not open for ratification.

ILO standards establish qualitative and quantitative benchmarks which together determine the minimum standards of social security protection to be provided by social security schemes when life risks or circumstances occur, with regard to:

– definition of the contingency (what risk or life circumstance must be covered?);
– persons protected (who must be covered?);
– type and level of benefits (what should be provided?);
– entitlement conditions, including qualifying period (what should a person do to get the right to a benefit?);
– duration of benefit and waiting period (how long must the benefit be paid/provided for?).

In addition, they set out common rules of collective organization, financing and management of social security, as well as principles for the good governance of national systems. These include:

– the general responsibility of the State for the due provision of benefits and proper administration of social security systems;
– solidarity, collective financing and risk-pooling;
– participatory management of social security schemes;
– guarantee of defined benefits;
– adjustment of pensions in payment to maintain the purchasing power of beneficiaries; and
– the right to complain and appeal.

Tables A8.1 to A8.9 on the following pages provide a summary overview of some of the key requirements set out in ILO standards.

Table A7.1. Main requirements: ILO social security standards on health protection

	ILO Convention No. 102 Minimum standards	ILO Convention No. 130 and Recommendation No. 134 [1] Higher standards	ILO Recommendation No. 202 Basic protection
What should be covered?	Any ill health condition, whatever its cause; pregnancy, childbirth and their consequences.	The need for medical care of curative and preventive nature.	Any condition requiring health care, including maternity.
Who should be protected?	At least: – 50% of all employees, and wives and children; *or* – categories of the economically active population (forming not less than 20% of all residents, and wives and children); *or* – all residents with means under prescribed threshold.	**C.130:** All employees, including: – apprentices, and their wives and children; *or* – categories of the active population forming not less than 75% of whole active population, and their wives and children; *or* – prescribed class of residents forming not less than 75% of all residents. **R.134:** In addition: persons in casual employment and their families, family businesses, all economically active persons and their families, all residents.	Universality of protection, through progressive realization; at least all residents and children should benefit from basic guarantee of access to at least essential health care; non-residents should also be in line with the country's international obligations.
What should the benefit be?	In case of ill health: general practitioner care, specialist care at hospitals, essential medications and supplies, hospitalization if necessary. In case of pregnancy, childbirth and their consequences: prenatal, childbirth and post-natal care by medical practitioners and qualified midwives, hospitalization if necessary.	**C.130:** The medical care required by the person's condition, with a view to maintaining, restoring or improving health and ability to work and attend to personal needs, including at least: general practitioner care, specialist care at hospitals, allied care and benefits, essential medical supplies, hospitalization if necessary, dental care and medical rehabilitation. **R.134:** In addition: the supply of medical aids (e.g. eyeglasses) and services for convalescence.	Goods and services constituting essential health care, including maternity care, meeting accessibility, availability, acceptability and quality criteria; free prenatal and post-natal medical care for the most vulnerable; higher levels of protection should be provided to as many people as possible, as soon as possible.
What should the benefit duration be?	As long as ill health, or pregnancy and childbirth and their consequences, persist. May be limited to 26 weeks in each case of sickness. Benefit should not be suspended while beneficiary receives sickness benefits or is treated for a disease recognized as requiring prolonged care.	**C.130:** Throughout the contingency.	As long as ill health, or pregnancy and childbirth and their consequences, persist. May be limited to 26 weeks in each case of sickness. Benefit should not be suspended while beneficiary receives sickness benefits or is treated for a disease recognized as requiring prolonged care.
What conditions can be prescribed for entitlement to a benefit?	Qualifying period may be prescribed as necessary to preclude abuse.	**C.130:** Qualifying period may be prescribed as necessary to preclude abuse. **R.134:** Right to benefit should not be subject to qualifying period.	Persons in need of health care should not face hardship and an increased risk of poverty due to financial consequences of accessing essential health care. Should be defined at national level and prescribed by law, applying principles of non-discrimination, responsiveness to special needs and social inclusion, and ensuring the rights and dignity of people.

[1] Medical Care and Sickness Benefits Convention, 1969, and Recommendation, 1969.

Table A7.2. Main requirements: ILO social security standards on sickness benefits

	ILO Convention No. 102 Minimum standards	ILO Convention No. 130 and Recommendation No. 134 Higher standards	ILO Recommendation No. 202 Basic protection
What should be covered?	Incapacity to work resulting from illness that results in the suspension of income.	**C.130:** Incapacity to work resulting from sickness and involving suspension of earnings. **R.134:** Also covers periods of absence from work resulting in loss of earnings due to convalescence, curative or preventative medical care, rehabilitation or quarantine, or due to caring for dependants.	Basic income security for those who are unable to earn a sufficient income due to sickness.
Who should be protected?	At least: – 50% of all employees; *or* – categories of the economically active population (forming not less than 20% of all residents); *or* – all residents with means under a prescribed threshold.	**C.130:** All employees, including apprentices; *or* categories of economically active population (forming not less than 75% of whole economically active population); *or* all residents with means under prescribed threshold. **R.134:** Extension to persons in casual employment, family businesses, all economically active persons, all residents.	At least all residents of active age, subject to international obligations.
What should be the benefit?	Periodic payments; at least 45% of reference wage.	**C.130:** Periodic payments: at least 60% of reference wage; in case of death of the beneficiary, benefit for funeral expenses. **R.134:** Benefit should be 66.66% of reference wage.	Benefits in cash or in kind at a level that ensures basic income security, so as to secure effective access to necessary goods and services; prevents or alleviates poverty, vulnerability and social exclusion; and enables life in dignity.
What should the benefit duration be?	As long as the person remains unable to engage in gainful employment due to illness; possible waiting period of maximum three days before benefit is paid; benefit duration may be limited to 26 weeks in each case of sickness.	**C.130:** As long as the person remains unable to engage in gainful employment due to illness; possible waiting period of maximum three days before benefit is paid; benefit duration may be limited to 52 weeks in each case of sickness. **R.134:** Benefit should be paid for full duration of sickness or other contingencies covered.	As long as the incapacity to earn a sufficient income due to sickness remains.
What conditions can be prescribed for entitlement to a benefit?	Qualifying period may be prescribed as necessary to prevent abuse.	**C.130:** Qualifying period may be prescribed as necessary to prevent abuse.	Should be defined at national level, and prescribed by law, applying principles of non-discrimination, responsiveness to special needs and social inclusion, and ensuring the rights and dignity of people.

Table A7.3. Main requirements: ILO social security standards on unemployment protection

	ILO Convention No. 102 Minimum standards	ILO Convention No. 168 and Recommendation No. 176 [1] Higher standards	ILO Recommendation No. 202 Basic protection
What should be covered?	Suspension of earnings due to inability to find suitable employment for capable and available person.	**C.168:** Loss of earnings due to inability to find suitable employment for capable and available person actively seeking work. Protection should be extended to loss of earnings due to partial unemployment, suspension or reduction of earnings due to temporary suspension of work, part-time workers seeking full-time work. **R.176:** Provides guidance for assessing suitability of potential employment.	Basic income security for those who are unable to earn sufficient income in case of unemployment.
Who should be protected?	At least: – 50% of all employees; *or* – all residents with means under prescribed threshold.	**C.168:** At least 85% of employees, including public employees and apprentices; all residents with means under prescribed threshold. Coverage should be extended to persons seeking work who have never been, or have ceased to be, recognized as unemployed or covered by unemployment protection schemes. **R.176:** Coverage should be extended progressively to all employees as well as to persons experiencing hardship during waiting period.	At least all residents of active age, subject to international obligations.
What should the benefit be?	Periodic payments; at least 45% of reference wage.	**C.168:** Periodic payments: at least 50% of reference wage; or total benefits must guarantee the beneficiary healthy and reasonable living conditions. **R.176:** For partial employment: total benefit and earnings from the part-time work should reach the sum of previous earnings from full-time work and the amount of full unemployment benefit.	Benefits in cash or in kind at a level that ensures basic income security, so as to secure effective access to necessary goods and services; prevents or alleviates poverty, vulnerability and social exclusion; and enables life in dignity.
What should the benefit duration be?	*For schemes covering employees:* at least 13 weeks of benefits within a period of 12 months. *For means-tested (non-contributory) schemes:* at least 26 weeks within a period of 12 months. Possible waiting period of maximum seven days.	**C.168:** Throughout the unemployment period; possibility to limit initial duration of payment of the benefit to 26 weeks in case of unemployment or 39 weeks over any period of 24 months; possible waiting period of maximum seven days. **R.176:** Benefit duration should be extended until pensionable age for unemployed persons who have reached a prescribed age.	As long as the incapacity to earn a sufficient income remains.
What conditions can be prescribed for entitlement to a benefit?	Qualifying period may be prescribed as necessary to prevent abuse.	**C.168:** Qualifying period may be prescribed as necessary to prevent abuse. **R.176:** Qualifying period should be adapted or waived for new jobseekers.	Should be defined at national level, and prescribed by law, applying principles of non-discrimination, responsiveness to special needs and social inclusion, and ensuring the rights and dignity of people.

[1] Employment Promotion and Protection against Unemployment Convention, 1988, and Recommendation, 1988.

Table A7.4. Main requirements: ILO social security standards on income security in old age (old-age pensions)

	ILO Convention No. 102 Minimum standards	ILO Convention No. 128 and Recommendation No. 131b [1] Higher standards	ILO Recommendation No. 202 Basic protection
What should be covered?	Survival beyond a prescribed age (65 or higher according to working ability of elderly persons in country).	**C.128:** Same as Convention No. 102; also, the prescribed age should be lower than 65 for persons with occupations deemed arduous or unhealthy. **R.131:** In addition, the prescribed age should be lowered based on social grounds.	Basic income security for older persons.
Who should be protected?	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.	**C.128:** All employees, including apprentices; *or* categories of economically active population (forming not least 75% of whole economically active population); *or* all residents or all residents with means under prescribed threshold. **R.131:** Coverage should be extended to persons whose employment is of casual nature; or all economically active persons.	All residents of a nationally prescribed age, subject to international obligations.
What should the benefit be?	Periodic payments: at least 40% of reference wage; adjustment following substantial changes in general level of earnings and/or cost of living.	**C.128:** Periodic payments: at least 45% of reference wage; adjustment following substantial changes in general level of earnings and/or cost of living. **R.131:** At least 55% of reference wage; minimum amount of old-age benefit should be fixed by legislation to ensure a minimum standard of living; level of benefit should be increased if beneficiary requires constant help.	Benefits in cash or in kind at a level that ensures basic income security, so as to secure effective access to necessary goods and services; prevents or alleviates poverty, vulnerability and social exclusion; and enables life in dignity. Levels should be regularly reviewed.
What should the benefit duration be?	From the prescribed age to the death of beneficiary	From the prescribed age to the death of beneficiary.	From the nationally prescribed age to the death of beneficiary.
What conditions can be prescribed for entitlement to a benefit?	30 years of contribution or employment (for contributory schemes) or 20 years of residence (for non-contributory schemes). Entitlement to a reduced benefit after 15 years of contribution or employment.	**C.128:** Same as Convention No. 102. **R.131:** 20 years of contributions or employment (for contributory schemes) or 15 years of residence (for non-contributory schemes). Periods of incapacity due to sickness, accident or maternity, and periods of involuntary unemployment, in respect of which benefit was paid, and compulsory military service, should be assimilated to periods of contribution or employment for calculation of the qualifying period fulfilled.	Should be defined at national level and prescribed by law, applying the principles of non-discrimination, responsiveness to special needs and social inclusion, and ensuring the rights and dignity of older persons.

[1] Invalidity, Old-Age and Survivors' Benefits Convention, 1967, and Recommendation, 1967.

Table A7.5. Main requirements: ILO social security standards on employment injury protection

	ILO Convention No. 102 Minimum standards	ILO Convention No. 121 and Recommendation No. 121 [1] Higher standards	ILO Recommendation No. 202 Basic protection
What should be covered?	Ill health; and incapacity for work due to work-related accident or disease, resulting in suspension of earnings; total loss of earning capacity or partial loss at a prescribed degree, likely to be permanent, or corresponding loss of faculty; loss of support for the family in case of death of breadwinner.	**C.121:** Same as Convention No. 102.	Basic income security for those who are unable to earn a sufficient income due to employment injury.
Who should be protected?	At least 50% of all employees and their wives and children.	**C.121:** All public and private sector employees including members of cooperatives and apprentices; in case of death, spouse, children and other dependants as prescribed. **R.121:** Coverage should be extended progressively to all categories of employees and other dependent family members (parents, brothers and sisters, and grandchildren).	At least all residents of active age, subject to international obligations.
What should the benefit be?	*Medical care and allied benefits:* General practitioner, specialist, dental care, nursing care; medication, rehabilitation, prosthetics, etc., with a view to maintaining, restoring or improving health and ability to work and attend to personal needs. *Cash benefits:* Periodic payments: at least 50% of reference wage in cases of incapacity to work or invalidity; at least 40% of reference wage in cases of death of breadwinner. Adjustment of long-term benefits following substantial changes in general level of earnings and/or cost of living. Lump sum if incapacity is slight and competent authority is satisfied that the sum will be used properly.	**C.121:** Medical care: Same as Convention No. 102; also at the emergency and follow-up treatment at place of work. *Cash benefits:* Periodic payments: at least 60% of reference wage in cases of incapacity for work or invalidity; at least 50% of reference wage in case of death of breadwinner *Lump sum:* same conditions as Convention No. 102, plus consent of injured person required. **R.121:** Costs of constant help or attendance should be covered when such care is required. *Cash benefits:* not less than 66.67% of previous earnings; adjustment of long-term benefits taking into account general levels of earnings or cost of living. Lump sum allowed where degree of incapacity is less than 25%; should bear an equitable relationship to periodic payments and not be less than periodic payments for three years.	Benefits in cash or in kind at a level that ensures basic income security, so as to secure effective access to necessary goods and services; prevents or alleviates poverty, vulnerability and social exclusion; and enables life in dignity. Levels should be regularly reviewed.
What should the benefit duration be?	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.	**C.121:** As long as the person is in need of health care or remains incapacitated. **R.121:** In addition, cash benefits should be paid from first day in each case of suspension of earnings.	As long as the incapacity to earn a sufficient income remains.

	ILO Convention No. 102 Minimum standards	ILO Convention No. 121 and Recommendation No. 121 [1] Higher standards	ILO Recommendation No. 202 Basic protection
What conditions can be prescribed for entitlement to a benefit?	No qualifying period allowed for benefits to injured persons. For dependants, benefit may be made conditional on spouse being presumed incapable of self-support and children remaining under a prescribed age.	**C.121:** Same as Convention No. 102.	Should be defined at national level and prescribed by law, applying the principles of non-discrimination, responsiveness to special needs and social inclusion, and ensuring the rights and dignity of injured persons.

[1] Employment Injury Benefits Convention, 1964, and Recommendation, 1964.

Table A7.6. Main requirements: ILO social security standards on family/child benefits

	ILO Convention No. 102 Minimum standards	ILO Recommendation No. 202 Basic protection
What should be covered?	Responsibility for child maintenance.	Basic income security for children.
Who should be protected?	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.	All children.
What should the benefit be?	– Periodic payments; or – provision for food, clothing, housing, holidays or domestic help; *or* – combination of both. Total value of benefits calculated at a *global* level: – at least 3% of reference wage multiplied by number of children of covered person; *or* – at least 1.5% of reference wage multiplied by number of children of all residents.	Benefits in cash or in kind providing access to nutrition, education, care and other necessary goods and services for children.
What should the benefit duration be?	At least from birth to 15 years of age or school-leaving age.	For the duration of childhood.
What conditions can be prescribed for entitlement to a benefit?	Three months' contributions or employment (for contributory or employment based schemes); one year's residence (for non-contributory schemes).	Should be defined at national level and prescribed by law, applying the principles of non-discrimination, responsiveness to special needs and social inclusion, and ensuring the rights and dignity of children.

Table A7.7. Main requirements: ILO social security standards on maternity protection

	ILO Convention No. 102 Minimum standards	ILO Convention No. 183 and Recommendation No. 191 [1] Higher standards	ILO Recommendation No. 202 Basic protection
What should be covered?	Medical care required by pregnancy, confinement and their consequences; resulting lost wages.	**C.183:** Medical care required by pregnancy, childbirth and their consequences; resulting lost wages. **R.191:** Same as Convention No. 183.	Goods and services constituting essential maternity health care. Basic income security for those who are unable to earn a sufficient income due to maternity.
Who should be protected?	At least: – 50% of all women employees; *or* – all women in categories of the active population (forming not less than 20% of all residents); *or* – all women with means under prescribed threshold.	**C.183:** All employed women including those in atypical forms of dependant work. **R.191:** Same as Convention No. 183.	At least all women who are residents, subject to international obligations.
What should the benefit be?	*Medical benefits:* At least: – prenatal, confinement and post-natal care by qualified practitioners; hospitalization if necessary. *Cash benefits:* – periodic payment: at least 45% of the reference wage.	**C.183:** *Medical benefits:* – At least prenatal, childbirth and post-natal care by qualified practitioners; hospitalization if necessary. Daily remunerated breaks or reduced hours for breastfeeding. *Cash benefits:* At least 66.67% of previous earnings; should maintain mother and child in proper conditions of health and a suitable standard of living. **R.191:** Cash benefits should be raised to the full amount of the woman's previous earnings.	*Medical benefits:* should meet criteria of availability, accessibility, acceptability and quality; free prenatal and post-natal medical care should be considered for the most vulnerable. *Benefits in cash or in kind:* should ensure basic income security, so as to secure effective access to necessary goods and services, and be at a level that prevents or alleviates poverty, vulnerability and social exclusion and allows life in dignity. Levels should be regularly reviewed.
What should the benefit duration be?	At least 12 weeks for cash benefits.	**C.183:** 14 weeks' maternity leave, including 6 weeks' compulsory leave after childbirth; additional leave before or after maternity leave in case of illness, complications or risk of complications arising from pregnancy or childbirth. **R.191:** 18 weeks' maternity leave. Extension of the maternity leave in the event of multiple births.	As long as the incapacity to earn a sufficient income remains.
What conditions can be prescribed for entitlement to a benefit?	As considered necessary to preclude abuse.	**C.183:** Conditions must be met by a large majority of women; those who do not meet conditions are entitled to social assistance. **R.191:** Same as Convention No. 183.	Should be defined at national level and prescribed by law, applying the principles of non-discrimination, responsiveness to special needs and social inclusion, and ensuring the rights and dignity of women.

[1] Maternity Protection Convention, 2000, and Recommendation, 2000.

Table A7.8. Main requirements: ILO social security standards on disability benefits

	ILO Convention No. 102 Minimum standards	ILO Convention No. 128 and Recommendation No. 131 Higher standards	ILO Recommendation No. 202 Basic protection
What should be covered?	Inability to engage in any gainful activity, likely to be permanent, or that persists beyond sickness benefit (total invalidity).	**C.128:** Incapacity to engage in any gainful activity, likely to be permanent, or that persists beyond temporary or initial incapacity (total invalidity). **R.131:** Incapacity to engage in an activity involving substantial gain (total and partial invalidity).	Basic income security for those who are unable to earn a sufficient income due to disability.
Who should be protected?	At least: – 50% of all employees; *or* – categories of the active population (forming not less than 20% of all residents); *or* – all residents with means under prescribed threshold.	**C.128:** All employees, including: – apprentices; *or* – at least 75% of economically active population; *or* – all residents or all residents with means under prescribed threshold. **R.131:** Coverage should be extended to persons in casual employment and all economically active persons.	At least all residents, subject to international obligations.
What should the benefit be?	Periodic payment: at least 40% of reference wage. Adjustment following substantial changes in general level of earnings and/or cost of living.	**C.128:** Periodic payment: at least 50% of reference wage. **R.131:** Reduced benefit for partial invalidity.	Benefits in cash or in kind at a level that ensures basic income security, so as to secure effective access to necessary goods and services; prevents or alleviates poverty, vulnerability and social exclusion; and enables life in dignity.
What should the benefit duration be?	As long as the person remains unable to engage in gainful employment or until old-age pension is paid.	As long as the person remains incapacitated or until old-age pension is paid.	As long as the incapacity to earn a sufficient income remains.
What conditions can be prescribed for entitlement to a benefit?	15 years of contributions or employment (for contributory schemes) or 10 years of residence (for non-contributory schemes); entitlement to a reduced benefit after five years of contributions or three years of residence.	**C.128:** 15 years of contributions (for contributory schemes) or employment, or 10 years of residence (for non-contributory schemes). Entitlement to a reduced benefit after five years of contributions or three years of residence. **R.131:** Five years of contributions, employment or residence; qualifying period should be removed (or reduced) for young workers or where invalidity is due to an accident. Periods of incapacity due to sickness, accident or maternity and periods of involuntary unemployment, in respect of which benefit was paid, and compulsory military service, should be assimilated to periods of contribution or employment for calculation of the qualifying period fulfilled.	No specific indication; entitlement conditions should be defined at national level, applying the principles of non-discrimination, responsiveness to special needs and social inclusion and ensuring the rights and dignity of persons with disabilities; they should be prescribed by law.

Table A7.9. Main requirements: ILO social security standards on survivors' benefits

	ILO Convention No. 102 Minimum standards	ILO Convention No. 128 and Recommendation No. 131 Higher standards	ILO Recommendation No. 202 Basic protection
What should be covered?	Widow's or children's loss of support in the event of death of the breadwinner.	**C.128:** Widow's or children's loss of support in case of death of breadwinner. **R.131:** Same as Convention No. 128.	Basic income security for those who are unable to earn a sufficient income due to the absence of family support.
Who should be protected?	Wives and children of breadwinners representing at least: – 50% of all employees; *or* – wives and children of members of economically active persons representing at least 20% of all residents; *or* – all resident widows and children with means under prescribed threshold.	**C.128:** Wives, children and other dependants of employees or apprentices; *or* wives, children and other dependants forming not less than 75% of active persons; *or* all widows, children and other dependants who are residents or who are residents and whose means are under prescribed threshold. **R.131:** In addition, coverage should progressively be extended to wives and children and other dependants of persons in casual employment or all economically active persons. Also, an invalid and dependent widower should enjoy same entitlements as a widow.	At least all residents and children, subject to international obligations.
What should the benefit be?	Periodic payment: at least 40% of reference wage. Adjustment following substantial changes in general level of earnings and/or cost of living.	**C.128:** At least 45% of reference wage. Rates must be adjusted to cost of living. **R.131:** Benefits should be increased to 55% of reference wage; a minimum survivors' benefit should be fixed to ensure a minimum standard of living.	Benefits in cash or in kind should ensure basic income security so as to secure effective access to necessary goods and services at a level that prevents or alleviates poverty, vulnerability and social exclusion and allows life in dignity. Levels should be regularly reviewed.
What should the benefit duration be?	Until children reach active age; no limitation for widows.	**C.128 and R.131:** Until children reach active age or longer if disabled; no limitation for widows.	As long as the incapacity to earn a sufficient income remains.
What conditions can be prescribed for entitlement to a benefit?	15 years of contributions or employment (for contributory or employment based schemes) or 10 years of residence (for non-contributory schemes); entitlement to a reduced benefit after five years of contributions. For widows, benefits may be conditional on being incapable of self-support; for children, until 15 years of age or school-leaving age.	**C.128:** Same as Convention No. 102; In addition, possible to require a prescribed age for widow, not higher than that prescribed for old-age benefit. No requirement of age for an invalid widow or a widow caring for a dependent child of deceased. **R.131:** Same as Convention No. 128. Periods of incapacity due to sickness, accident or maternity and periods of involuntary unemployment, in respect of which benefit was paid and compulsory military service, should be assimilated to periods of contribution or employment for calculation of the qualifying period fulfilled.	Should be defined at national level and prescribed by law, applying the principles of non-discrimination, responsiveness to special needs and social inclusion, and ensuring the rights and dignity of people.