International Labour Organization

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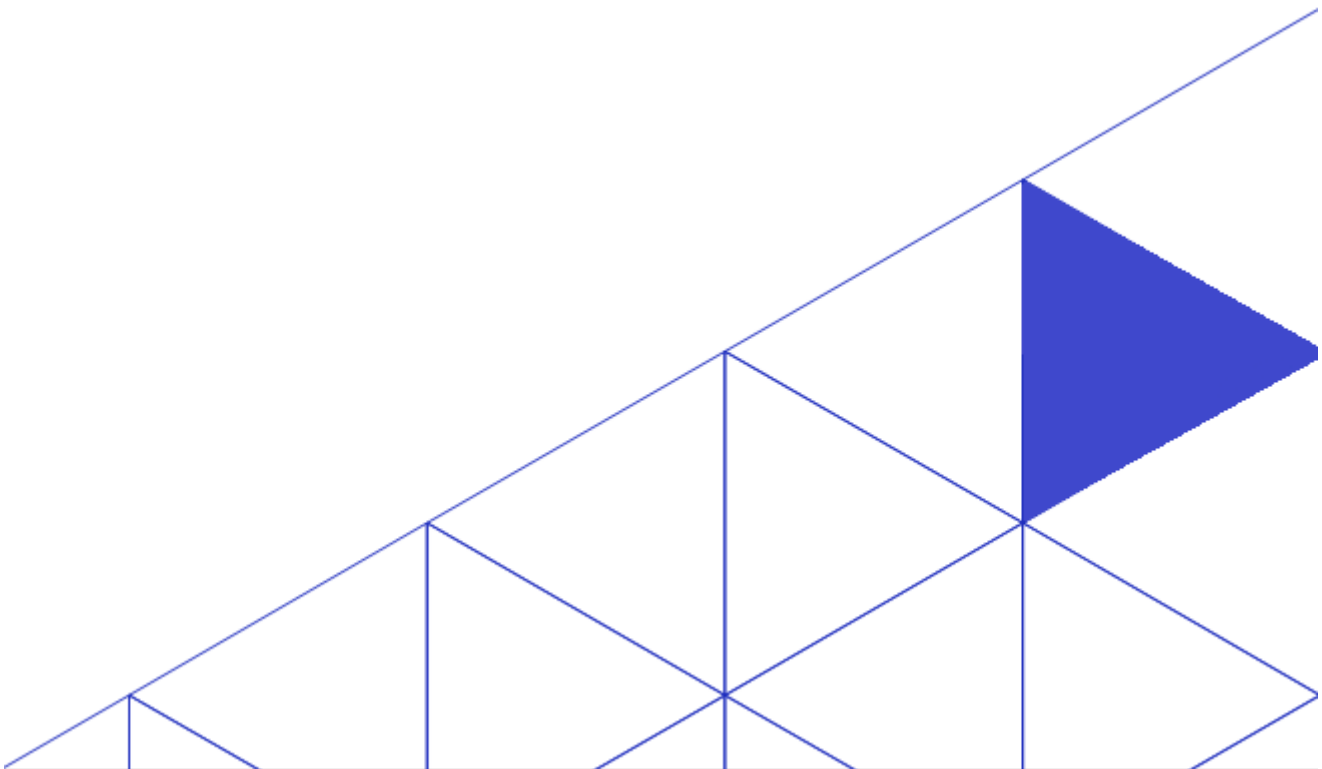
GHANA

Report to the Board of Trustees of the Social Security and National Insurance Trust

Actuarial valuation of the Social Security and National Insurance Trust Scheme as of 31 December 2020



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This report has been prepared in the framework of the Fund in Trust project between the Social Security and National Insurance Trust (SSNIT), and the International Labour Organization, represented by the International Labour Office (ILO) for the execution of a project entitled "Actuarial valuation of the Social Security and National Insurance Trust at 31 December 2020".

The ILO entrusted the Actuarial Services Unit (SOC/ASU) of the Social Protection Department (SOCPRO) to complete this mandate. The ILO mandated Mr Georges Langis, FSA, FCIA, and Mr Martin Blumhart, BSc Actuarial Science, to undertake this assignment. Mr André Picard, FSA, FCIA, head of the ASU, assumed responsibility for the technical review supervision and the editing of this ILO technical report. Mrs Langis and Blumhart visited SSNIT from 25 to 27 September 2023 to present the draft report to the Management and to the Board of SSNIT and to receive their comments. The report has been reviewed by Ms Luisa Fernanda Carmona Llano, Legal Officer, under the supervision of Ms Maya Stern-Plaza, Social Protection Legal and Standards Officer, both in the Policy Unit of the SOCPRO for standards and legal issues.

The ILO project team worked in close collaboration with Mr Joseph Poku, Chief Actuary, SSNIT and Mrs Evelyn Adjei, SSNIT Actuarial Manager.

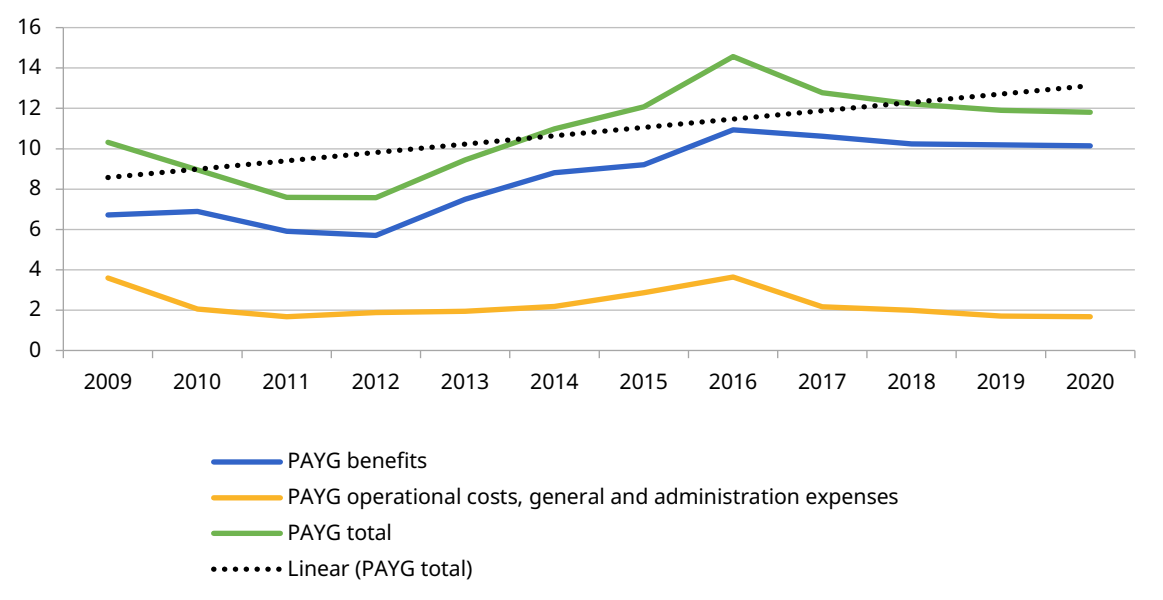
The ILO extends its sincere gratitude to Dr John Ofori-Tenkorang, Director General of SSNIT, for his collaboration and assistance throughout the project.

▶ Executive summary

Experience of SSNIT and data

The Social Security and National Insurance Trust (SSNIT) covered about 1.6 million workers in 2020, which represents about 16 per cent of all workers in Ghana. The SSNIT provides protection for old age, disability and death, and benefits in case of emigration. In the last three decades, SSNIT has been transformed from a provident fund to a pension fund. Except for the last five years showing more stability, the cost of pensions expressed as a percentage of insurable earnings (PAYG) is still increasing (figure ES.1). The scheme is expected to reach a maturity stage in many decades when all the principal indicators, like the PAYG rates, will be almost stable over a long period of time.

▶ **Figure ES.1. Pay-as-you-go rate (PAYG), experience 2009–2020** (percentages)



Sources: SSNIT, calculations by the authors (note: calculated on an accrual basis).

The net surplus, which is the excess of income over expenditures, has been uneven over the last four years (table ES.1). During that period, total contributions have been lower than the cost of benefits and operational costs, general and administrative expenses. This means that SSNIT must use part of the investment income to pay expenditures.

Over the last 12 years, according to the financial statements, the average return on the total assets has been 12.2 per cent. If the effect of inflation is removed, this results in a real average return on assets of 0.9 per cent. One interesting characteristic of the investment landscape in Ghana is the 91-Day Treasury Bills (T-Bills), which can offer an advantageous return. In fact, over the last 12 years, the average return of 91-Day T-Bills has been about 17.5 per cent, higher than the nominal return on assets. Indeed, the return of the fund has been on average 70 per cent of the average yield of T-bills (12.2 per cent over 17.5).

▶ Table ES.1. Financial statements, 2017–2020 (GHS 000)

	2017	2018	2019	2020
Total income	**3 202 204**	**3 196 489**	**3 495 659**	**5 597 527**
Contributions	2 374 229	2 719 515	3 024 954	5 039 382
Net investment income	405 980	435 960	391 728	469 474
Other income	421 995	41 014	78 977	88 671
Direct costs	**3 070 551**	**3 485 977**	**3 997 513**	**4 780 013**
Benefits paid	2 189 475	2 495 447	2 945 708	3 302 751
Operational costs, general and administrative expenses	447 433	484 508	493 137	544 503
Transfer to National Health Insurance Scheme	433 643	506 022	558 668	932 759
Net surplus	**131 653**	**–442 934**	**–472 950**	**1 141 873**

Although some inconsistencies or data issues have been observed and corrected, the individual data on which this valuation is based is complete and reasonable overall. Below are some general comments regarding the data collection process and the quality of data:

- Assessing the quality of the individual data obtained in a context where the financial statements are reported under the cash basis is challenging. Inconsistencies could affect the calibration of the model. The reader should be aware of the differences between the cash basis (as used to produce the financial statements) and the accrual basis (as used to produce the demographic and financial projections). In any case, it is not the objective of this valuation to project the actual cash flows of the Fund but rather to assess the true cost of the scheme over the medium and long term.
- Similarly to prior valuations, it has proven impossible again to use SSNIT data on deaths in order to develop a mortality table specific to SSNIT members. First, deaths are not reported in a timely manner by the heirs. Secondly, due to the design of the scheme SSNIT does not follow deaths occurring before age 75 (72 in the old system). Indeed, with a pension guaranteed until the age of 75, even if the pension is paid for a long period after the death of the pensioner, when the heirs ask for the survivors' lump sum the amount of pension paid in excess is deducted from the lump sum. The existence of ghost pensions also exacerbated the situation relative to the quality of data.

Main assumptions used in the actuarial valuation

The main assumptions used in the actuarial valuation are:

- The total fertility rate is expected to decrease from about 3.11 in 2020 to 1.99 in 2095.
- No migration has been assumed in this actuarial valuation.
- The life expectancy at birth for the general population is projected to increase over the next 75 years from 61.9 to 72.3 years for males and from 66.4 to 78.5 years for females.
- The average growth of the insured population is 2.5 per cent per year over the projection period.
- Inflation starts at 9.98 per cent in 2021, increases to reach 27.00 per cent in 2022 and then starts decreasing to reach its long-term and ultimate level of 6 per cent in 2034.
- It is expected that over the projection period the average salary will increase by 2.0 per cent over the inflation rate, except for 2022 where the real increase in average salary is –10.0 per

cent. But, over the projection period, salaries increase on average at a rate 1.9 per cent higher than inflation.

- The real return on assets is 3.5 per cent in 2021, –20.0 per cent in 2022, 2.5 per cent in 2023, and then increasing to reach 4.25 per cent in 2037 before staying at this level for all the remaining projection years.
- The life expectancy at age 60 for the insured population is projected to increase over the next 75 years from 16.5 to 20.1 years for males and from 18.3 to 23.1 years for females.
- Twenty per cent of the contributions are not paid on time but seven years later. Despite the fact that a penalty is charged on late contributions, for projection purposes, no interest on late contributions is taken into account. This assumption is mainly based on the past experience of the Government and on discussions with representatives of SSNIT.
- Net leaving rates (that is, for reasons other than invalidity, death or retirement) for males and females start at 15 per cent at age 15 and decrease to reach the ultimate value of 2.0 per cent at age 35 and over.
- Retirement rates start at age 55 and are respectively 7 per cent and 5 per cent for males and females. They stay at this level up to age 59 and then increase to 80 per cent at age 60 for both sexes. After that, they start to increase from 55 per cent for males and 70 per cent for females, at age 61, to reach 100 per cent ultimately.

The main activities undertaken for this actuarial valuation were carried out in 2022. At that time, the projections of the IMF (released in October 2022) were used to estimate the short-term economic conditions. Ultimately, the end of 2022 as well as the first months of 2023 showed much higher inflation than anticipated then. While actual short-term conditions may be different than the one assumed in this report, it is important for the reader to understand that such situation does not change the conclusion of this report. In an actuarial valuation like the one of SSNIT, if the inflation rate is changed, many components that are dependent on the inflation are affected as well: the return on assets, the salary growth, etc. This phenomenon is clearly illustrated in this report with the sensitivity analysis on the inflation assumption. What is important for SSNIT is the way in which all the other variables are going to react (or not) in the short run to this high inflation rate. Also, some decisions may affect the short-term sustainability of the scheme if not appropriately analysed. For example, a scenario where the salaries are not catching up completely with the inflation rate, but the benefits are adjusted to it may increase the financial pressure on the scheme. Accordingly, a sensitivity analysis on the relation of the assumed inflation rates to the other main dependent variables has been added in this report to help the reader to understand this relationship.

Demographic and financial projection of SSNIT

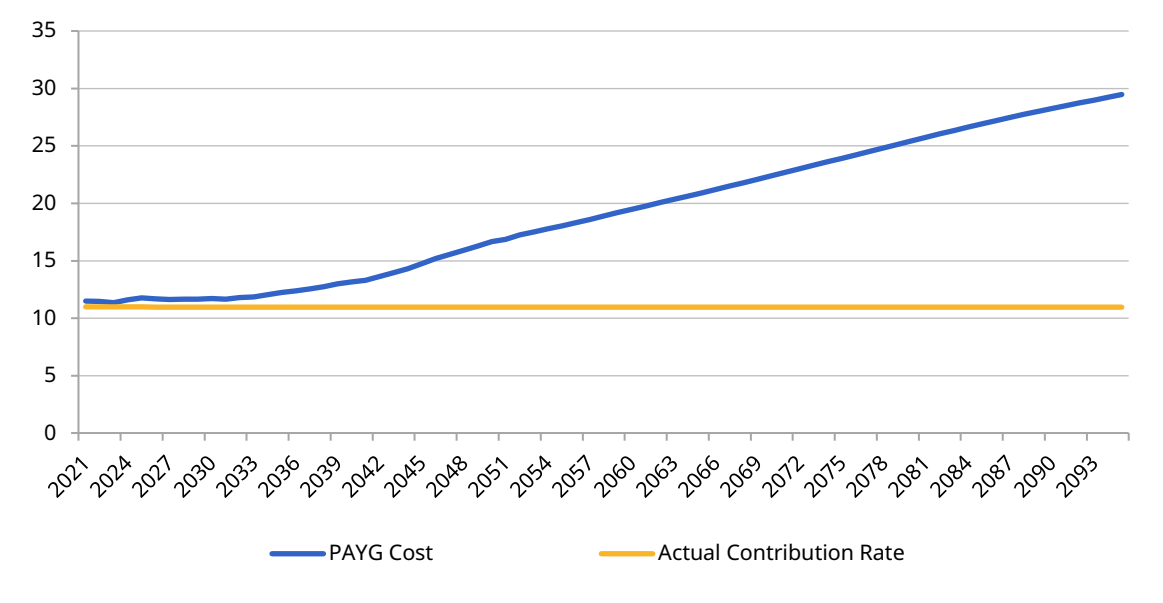
The actuarial valuation of SSNIT was carried out as at 31 December 2020. The methodology used for the pension branch is based on a model developed by the ILO for reviewing the long-term actuarial and financial status of national pension schemes.

This actuarial valuation clearly demonstrates that an increase in contribution rate is necessary for the pension branch to make the scheme more sustainable for future generations. As shown in figure ES.2, total expenditures as a percentage of insurable earnings (called the pay-as-you-go (PAYG) rate) rise from 11.5 per cent in 2020 to 29.5 per cent in 2095 on an accrual basis. The PAYG rate represents the contribution rate that would be required to pay all the expenditures of the scheme (benefits, administrative and other expenses), year after year, in the absence of a reserve. Up to 2031, the PAYG rate is slightly higher than the current legal contribution rate of 11 per cent (11.6 per cent on average for the years 2021 to 2031). During that period, it is impossible to get an excess of contributions over expenditures to accumulate a higher reserve for future generations. This incapacity to add new money into the system is exacerbated by the low

compliance of the Government to pay its contribution on time. Starting in 2032, there is an important increase in the PAYG rate. This high increase is mainly due to the increase in the demographic ratio. The number of pensioners in relation to contributors is going to continue to increase in the future. In fact, there are more and more pensioners receiving benefits, while the number of contributors is not growing as fast.

The results of this actuarial valuation are not totally in line with the presentation of the results in the financial statements. The SSNIT uses a cash basis to present its results, which is an unusual basis for a social security pension scheme and also not in accordance with financial reporting standards. Usually, social security pension schemes present their results on an accrual basis where all amounts due in a given year are reported in that year in the financial statements. For this actuarial valuation, the accrual basis is used. However, to consider the concerns of SSNIT regarding the cash flows, the presentation has been modified so that it is possible to see the surplus and deficit on the cash basis as well.

▶ **Figure ES.2. Projected PAYG rates (accrual basis), 2020–2095** (percentage of insurable earnings)



Note: PAYG based on accrual basis.

According to this valuation:

1. Annual contributions, on an accrual basis, are insufficient to pay for all annual expenditures (benefits and administrative expenditures) throughout the projection period.
2. Investment income must be used to pay for annual expenditures. The reserve grows until 2028.
3. Starting in 2029, total income (contributions, investment income and other income) is no longer sufficient to pay for annual expenditures. The reserve starts to decrease.
4. During the year 2036, the reserve drops to zero.
5. Starting in 2036, the required annual contribution rate to pay for all expenditures becomes the PAYG rate. As an illustration, this rate is 12.4 per cent in 2036 and 29.5 per cent in 2095 (table ES.2).

▶ Table ES.2. Main actuarial indicators

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036

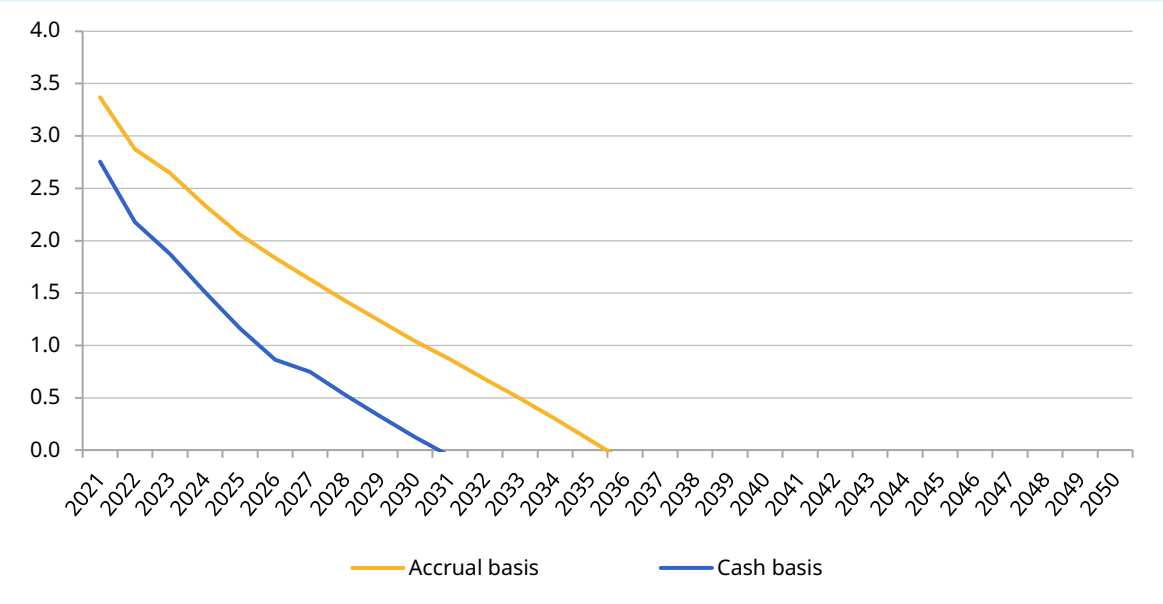
Notes: PAYG: contribution rate necessary to pay all expenditures in a given year.

General average premium: contribution rate necessary to pay all expenditures over the projection period (75 years) and accumulate an amount of reserve at the end of the projection period equal to three times all expenditures.

Source: Authors' projections.

The reserve ratio, which is the ratio of the end-of-year reserve over the annual expenditures for the year, moves from 3.4 to 0 between 2021 and 2036. This ratio can be interpreted as the number of years during which annual expenditures could be paid by the reserve if there were no contributions, no investment income and no other income. Figure ES.3 shows the evolution of the reserve ratio. It also presents the reserve ratio on a cash basis. The slight flattening of the line related to the reserve ratio on a cash basis between 2026 and 2027 is due to the delayed payment of the unpaid contributions by the Government.

▶ Figure ES.3. Projected reserve ratio, 2021–2050 (accrual vs cash basis)



Note: PAYG based on accrual basis.

Recommendations

Recommendation No. 1 – Increase in contribution rate according to a funding policy

This actuarial valuation shows that the contribution rate to pay the benefits over the next 75 years and to accumulate assets representing three years of total expenditure is 22.0 per cent. This is twice the current contribution rate of 11 per cent. Analyses of the cash flows show also that a contribution rate increase is necessary in the short term to avoid using investment income to pay the benefits. The risk is exacerbated by the fact that the Government is not paying its

contributions on time. This actuarial valuation also shows different levels of contribution rates according to different funding objectives.

The magnitude of an increase in the contribution rate should depend on clear financing and funding objectives. While such objectives do not exist at SSNIT, it is known that SSNIT is currently working on a funding policy. The authors of this report expressly wish to commend SSNIT for working on a funding policy and encourage them to continue in this direction. The ILO is ready at any time to support SSNIT with these important steps. As in the previous actuarial valuation, it is recommended again that SSNIT adopt a funding policy in order to:

- formalize the long-term funding objectives of the scheme;
- 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:

- contribution rates;
- risks faced by the scheme and how these risks can be managed;
- risk tolerance;
- allocation of risk among participants and employers;
- funding objectives (such as contribution stability or a targeted level of reserve);
- frequency of actuarial valuation;
- methods of actuarial projection, including actuarial assumptions and parameters of the scheme;
- funding methods;
- goals related to intergenerational equity;
- all other funding issues.

We also suggest that SSNIT hold discussions with stakeholders for the approval of an explicit written funding policy. The policy should be well thought out and periodically reviewed.

Other recommendations

- Insurable earnings include only the basic salary and therefore exclude social allowances, which appear to be cost-of-living allowances as referred to in the ILO Social Security (Minimum Standards) Convention, 1952 (No. 102). As social allowances are part of the regular take-home pay of insured persons, it is recommended to include them in the insurable earnings used as a reference for the purpose of calculating contributions and benefits, on a prospective basis. This new definition of insurable earnings will decrease the financial pressure on SSNIT in the short term. This means that two kinds of reference earnings would be used to calculate benefits:

  - one excluding the social allowances to calculate the pensions related to the years of contributions prior to the year in which social allowances have been included in insurable earnings; and
  - one including the social allowances to calculate the pensions related to the years of contributions after the year in which social allowances have been included in insurable earnings.
- The introduction of a pension payment instead of a lump sum when a member dies could be considered, so as to be in accordance with ILO Convention No. 102, despite Ghana not having ratified the Convention itself.
- To help to make SSNIT more sustainable, it is strongly suggested to stop adjusting pensions according to salary growth, and instead adjust according to inflation. Rules should also be implemented in the funding policy to deal with situations where salary increases are lower than inflation.

▶ Acronyms and abbreviations

CPI	consumer price index
GAP	general average premium
GDHS	Ghana Demographic Health survey
GHS	Ghana Cedi
GMHS	Ghana Maternity Health survey
GSS	Ghana Statistical Service
IFRS	International Financial Reporting Standards
ILO	International Labour Office/Organization
IMF	International Monetary Fund
NHIS	National Health Insurance Scheme
PAYG	pay-as-you-go
PNDCL 247	Social Security Law 1991
RROI	Real Return on Investments
SSNIT	Social Security and National Insurance Trust
TFR	total fertility rate
WPP	World Population Prospects (UN)

▶ 1. Overview of SSNIT scheme

The Social Security and National Insurance Trust (SSNIT) is a statutory public trust charged with the administration of Ghana's National Pension Scheme. The primary responsibility of the institution is to replace part of lost income due to old age, invalidity or death.

The SSNIT Pension Scheme was established by the Social Security Law 1991 (PNDCL 247) and reviewed under the National Pensions Act 2008 (Act 766).

As part of the reforms, the social security scheme established under PNDCL 247 (old scheme benefits) was closed to new members from 1 January 2010, with those aged under 55 automatically becoming members of the scheme set up under Act 766. Members aged 55 and over were given the option to remain in the previous scheme or to join the new scheme. However, in the amendment to Act 766 by Act 883 of 2014, all members of PNDCL 247 who were 50 years and above as at January 2010 were allowed to continue to contribute and be paid their benefits under PNDCL 247.

Under Act 766 (new scheme benefits), a three-tier social security scheme was established with effect from 1 January 2010. The SSNIT manages the first tier. The reformed pension system comprises two mandatory schemes (the first and second tiers) and a voluntary scheme (the third tier), as follows:

First tier

- A mandatory basic national social security scheme which is a defined benefit scheme.
- The first tier only provides pension benefits set at broadly 75 per cent of the benefits under the PNDCL 247 scheme.

Second tier

- A mandatory, privately-managed occupational pension scheme.
- This is a defined contribution pension scheme, paying mainly lump-sum benefits with flexibility to allow the contributor to purchase additional annuities to enhance monthly pension benefits.

Third tier

- A voluntary, privately managed, provident fund and personal pension system. This is on a defined contribution basis and is supported by tax incentives.

Table 1.1 summarizes the three stages of the reform concerning the provisions managed by SSNIT.

▶ Table 1.1. SSNIT provisions: Three stages of reform

Parameters	PNDCL 247 (Before 2010)	Act 766 (From 1 January 2010 to 31 December 2014)	Act 883 (From 1 January 2015 to present)
Contribution rate	5% employees and 12.5% employers (17.5% total); 2.5% for NHIS and 15% for SSNIT	5.5% employees and 13% employers (18.5% total); 2.5% for NHIS, 5% occupational schemes and 11% for SSNIT	5.5% employees and 13% employers (18.5% total); 2.5% for NHIS, 5% occupational schemes and 11% for SSNIT
Old-age benefit formula	50% average salary over best 3 years plus 1.5% per year for contributions in excess of 240 months	37.5% average salary over best 3 years plus 1.125% per year for contributions in excess of minimum contributory period	37.5% average salary over best 3 years plus 1.125% per year for contributions in excess of 180 months
Minimum contributory period (months)	240	240 (2010), 228 (2011), 216 (2012), 204 (2013), 192 (2014)	180
Age limit in 2010 for being exempt from Act 766 or 883	–	55	50

1.1. Old scheme benefits

Benefits payable were:

- **Old Age Pension**, equal to 50 per cent of average insurable earnings over the best three out of all career salaries after 20 years of contributions, plus 1.5 per cent for each year of contribution in excess of 20 years, up to a maximum of 80 per cent after 40 years. To be eligible, the worker must have attained the age of 60 years (or 55 in the case of workers engaged in arduous jobs such as mining) and must have contributed for at least 20 years.
- **Twenty-five per cent of the pension can be commuted** at the time of retirement to a lump sum payment equivalent to a 12-year annuity. Before June 2019, the interest rate used for the calculation was the prevailing Treasury Bill rate (the average annual Treasury Bill rate at the year of retirement) or 10 per cent, whichever was smaller. Since June 2019, it is 4.73 per cent.
- **Early retirement**, payable to those retiring between ages 55 and 60 with a minimum of 240 months contributions in aggregate. Their pension is reduced according to their age at retirement using factors which range between 60 per cent at age 55 to 90 per cent at age 59.
- **Invalidity Benefit**, a monthly pension. To be eligible, the worker must have contributed for at least 12 months within the last 36 months and have been declared permanently invalid and incapable of any normal gainful employment and certified by a medical board. The option to commute 25 per cent of the pension to a lump sum payment, as for the Old Age Pension, is also provided for Invalidity Pensions.

- **Survivors' Benefit**, a one-time payment made to nominated dependants of members who die in employment or are on pension (including invalidity) but before attaining 72 years of age. For a member who dies before retirement (Worker Death), the benefit is the present value of the computed monthly pension due the person for the guaranteed period of 12 years. However, for a pensioner death, the lump sum payment is the present value of the member's unexpired pension from the time of death up to 72 years, not exceeding 144 months.
- **Grants (Old Age lump sum)**, payable if a contributor does not qualify for a pension.

1.2. New scheme benefits

Benefits payable are:

- **Old Age Pension**, equal to 37.5 per cent of average insurable earnings over the best three out of all career salaries after 15 years of contributions, plus 1.125 per cent for each year of contribution in excess of 15 years, up to a maximum of 60 per cent after 35 years. To be eligible, the worker must have attained the age of 60 years (or 55 in the case of workers engaged in arduous jobs such as mining) and must have contributed for at least 15 years.
- **Early retirement**, payable to those retiring between ages 55 and 60 with a minimum of 180 months contributions in aggregate. Their pension is reduced according to their age at retirement using a factor which ranges between 60 per cent at age 55 to 90 per cent at age 59.
- **Invalidity Benefit**, equal to the Old Age Pension. To be eligible, the worker must not have attained the age of 60 and must have contributed for at least 12 months within the last 36 months, and have been declared permanently invalid and incapable of any normal gainful employment and certified by a medical board.
- **Survivors' Benefit**, a one-time payment made to nominated dependants of members who die in employment or are on pension (including invalidity) but before attaining 75 years of age. For a member who dies before retirement (Worker Death), the benefit is the present value of the computed monthly pension due the person for the guaranteed period of 15 years. However, for a pensioner death, the lump sum payment is the present value of the member's unexpired pension from the time of death up to 75 years, not exceeding 180 months.
- **Grants (Old Age lump sum)** are payable if a contributor does not qualify for a pension.

1.3. Indexation of pensions

Pensions in payment are reviewed annually taking into account the increase in the salary of SSNIT active contributors. The indexation is normally redistributed in order to cushion members in the lower income bracket.

The indexation consists of an increase by a fixed rate plus an additional flat amount.

1.4. Financing

The SSNIT scheme is partially funded in order to accumulate a reserve and alleviate the increase in future contribution rates as the Fund matures. It is financed by employer and employee contributions of:

(i) PNDCL 247:

- *Employee: 5 per cent of insurable earnings*
- *Employer: 12.5 per cent of insurable earnings*

Members in the informal sector contribute the full 17.5 per cent.

The total contribution is distributed as follows:

- The SSNIT receives 15 per cent whereas 2.5 per cent goes to the National Health Insurance Scheme (NHIS).

(ii) The National Pensions Act 2008 (Act 766):

- *Employee:* 5.5 per cent of insurable earnings
- *Employer:* 13 per cent of insurable earnings

Members in the informal sector contribute the full 18.5 per cent.

The total contribution is distributed as follows:

- The SSNIT receives 11 per cent, the second tier fund receives 5 per cent, and the NHIS receives 2.5 per cent.

Appendix 1 presents a more detailed summary of eligibility requirements and benefits payable.

1.5. Modifications to the provisions since the last actuarial valuation

There were no major changes in the provisions of the scheme since the last actuarial valuation, only minor adjustments in some of the parameters, such as:

- updated monthly earnings ceiling and floor;
- change in the methodology used to calculate the past credit, from using the Government 91-Day Treasury Bill rate compounded annually to quarterly instead; and
- change in the rate used to compute the 25 per cent lump sum, from using a discount rate of 10 per cent to using 4.73 per cent.

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

This section contains an assessment of the compatibility of the current provisions of the Republic of Ghana's (Ghana) legislation concerning social security, namely the National Pensions Act 2008 (Act 766) and its amendments by Act 883 of 2014 (detailed in Appendix 1) with the benchmarks and principles set out in the ILO Social Security (Minimum Standards) Convention, 1952 (No. 102). It also contains an assessment of the implementation of these provisions, to the extent that information on prevailing practice was available. Finally, this review takes into consideration good country practice in the establishment and implementation of pension schemes, where appropriate.

Convention No. 102 is a landmark instrument that sets qualitative and quantitative benchmarks in respect of social security schemes, including old age, invalidity and survivors' pension schemes, as well as principles for the good administrative and financial governance of social security systems. Over the years, it has served and continues to serve as a reference for the development of adequate and sustainable social security schemes in countries worldwide, from policy design to implementation. The Invalidity, Old Age and Survivors' Convention, 1967 (No. 128), and its accompanying Recommendation No. 131 set higher standards for pension schemes to comply with, once the minimum objectives set out in Convention No. 102 are met. Given the stage of development of the Ghanaian pension scheme, the present analysis limits itself to assessing

compliance with Convention No. 102 and reserves a possible review against higher standards for the future.[1]

The review undertaken in this section will allow Ghana to see where its pension legislation and, to some extent, practice, stands in comparison with international minimum standards and good country practice. Most importantly, it will serve to identify gaps in protection and areas for improvement; together with the conclusions and recommendations of the actuarial study, the ILO normative framework constitutes a valuable guide for future action. Finally, yet importantly, applying Convention No. 102 would bring Ghana closer to meeting its obligation to implement the right of everyone to social security in respect of Article 9 of the International Covenant on Economic, Social and Cultural Rights, 1966, ratified in 2000.

1.6.1. Compliance with Convention No. 102

From the analysis detailed here below, it can be concluded that the standards of Convention No. 102 are broadly met in respect of the Old Age and Invalidity Benefits, subject to certain clarifications. More specifically, the main parameters of these benefits are mostly in line with the minimum requirements of the Convention with regard to the definition of the contingency (what should be covered), scope of personal coverage and qualifying conditions (who should be protected and under what conditions), and duration (what should be the benefit and how long it should be provided). However, the effective coverage for all three branches analysed to not reach minimal requirements.

The levels of the old-age and invalidity pensions calculated on the basis of the basic salary also meet the requirements of Convention No. 102. However, the insurable earnings used for the calculation of contributions and benefits exclude social allowances, which, according to Convention No. 102, should be included as they constitute cost-of-living allowances. According to the information provided by SSNIT, these allowances can go as high as 50 per cent of the salary. Thus, in practice, the minimum requirements of the Convention would not be met in respect of insured members in receipt of social allowances representing more than 36 per cent and 25 per cent of the basic salary for old-age and invalidity pensions respectively.

The provisions governing Survivors' Benefit, also fall short of meeting the requirements of Convention No. 102 in their entirety. In particular, the personal scope is conditional to requirements hindering the effectiveness of the coverage, the nature and amount of the benefit, it's duration and, to some extent, the conditions for entitlement to the benefit, depart from the approach set out in ILO standards. With regard to the latter, the law requires that a dependent family member (as defined by law) be validly nominated by the deceased as a beneficiary to become entitled to a survivors' benefit. If the surviving spouse and children are not nominated, they have to apply to the court to be included in the nomination and thereby obtain the benefit. This additional condition effectively constrains access to the benefit for the surviving widow and children who should, when the entitlement and qualifying conditions set in the Convention are met, be entitled to a survivors pension in so far as the widow is deemed incapable of self-support, as defined by national law, and as long as children are under school leaving age (or age 15, whichever is higher). Moreover, the form and level of the Survivors' Benefit are not in compliance with the Convention, as the benefit is paid as a lump sum while the Convention requires that a periodic payment be provided and reviewed following substantial changes in the general level of earnings where these result from substantial changes in the cost of living. The rules for the

1 It can be noted that Ghana is party to Conventions: No. 19 – Equality of Treatment (Accident Compensation) (1925) entered into Force 20 May 1957; No. 103 – Maternity protection (1952) entered into force 27 May 1986.

computation of the lump sum do not align either with Convention No. 102, as further explained in Appendix 4 of this report.

Appendix 4 illustrates the legal and statistical requirements of Convention No. 102 and assesses the compliance of the provisions of the National Pensions Act 2008 (Act 766) and of its amendment by Act 883 of 2014 (where indicated) as well as their practical application, with the Convention.

▶ 2. Analysis of SSNIT experience

2.1. Financial statements and return on assets

Table 2.1 shows the statement of accounts for the period 2017 to 2020. The statement is presented on a cash basis. The financial statements of 2019 state that an accrual basis is not considered appropriate because it would result in substantial debtor accounts which may not be recoverable. However, where satisfactory payment arrangements have been concluded, contributions on behalf of government workers are accrued. For the years 2017 and 2020, direct costs were lower than total income. According to the statement, total income increased by 75 per cent between 2017 and 2020, while for the same period, total expenditures increased by 56 per cent. Over this period, the contribution income has increased by about 112 per cent. On the expenditure side, the amount of benefits paid has increased by 51 per cent and the operational, general and administrative costs by 22 per cent. The reader should be aware that the important increase in the contributions over the analysed period is partly due to the payment by the Government of receivables in 2020. In fact, in 2020, the Government has paid contributions of 863 million Ghana Cedis (GHS) that belong to previous years.

▶ **Table 2.1. Financial statements, 2017–2020** (GHS 000)

	2017	2018	2019	2020
Assets at previous year end	**8 405 594**	**9 833 271**	**8 812 994**	**9 078 774**
Total income	**3 202 204**	**3 196 489**	**3 495 659**	**5 597 527**
Contributions	2 374 229	2 719 515	3 024 954	5 039 382
Net investment income	405 980	435 960	391 728	469 474
Other income	421 995	41 014	78 977	88 671
Direct costs	**3 070 551**	**3 485 977**	**3 997 513**	**4 780 013**
Benefits paid	2 189 475	2 495 447	2 945 708	3 302 751
Operational costs, general and administrative expenses	447 433	484 508	493 137	544 503
Transfer to National Health Insurance Scheme	433 643	506 022	558 668	932 759
Net surplus	**131 653**	**–442 934**	**–472 950**	**1 141 873**
Net increase in the value of investments	**1 296 024**	**61 309**	**738 730**	**–66 122**
Impact of adopting IFRS was introduced in 2018	**0**	**–638 652**	**0**	**0**
Impact of loan restructuring	**0**	**0**	**0**	**730 351**
Net assets at year end	**9 833 271**	**8 812 994**	**9 078 774**	**10 884 876**

As of 31 December 2020, the total assets of SSNIT on the balance sheet represent an amount of GHS 11,459.7 million. By subtracting the total liability of GHS 574.8 million, the net assets are GHS 10,884.9 million. The total assets can be divided into two main components (see table 2.2):

- Investment portfolio, which represents 87.3 per cent of the total assets, and is mainly composed of equities (43.6 per cent), term deposits and Treasury bills (4.9 per cent), loans (6.5 per cent), bonds held to maturities (9.5 per cent), and investment properties (22.9 per cent).
- Other assets, which represent 12.7 per cent of the total, are composed of cash and bank balances (1.4 per cent), property, plant and equipment and software (8.8 per cent), and other assets (2.5 per cent).

▶ Table 2.2. Net assets, 2017 and 2020[2]

	31 December 2020		31 December 2017	
	GHS (millions)	%	GHS (millions)	%
Equities	4 990.7	43.6	4 219.9	41.4
Quoted	1 818.4	–	2 226.9	–
Unquoted	3 172.3	–	1 993.0	–
Term deposits and Treasury bills	560.6	4.9	818.1	8.0
Corporate loans	701.1	6.1	802.4	7.9
Student loans	40.9	0.4	140.2	1.4
Call deposits	–	–	–	–
Ghana Government receivables	–	–	–	–
Investments held to maturity	1 091.4	9.5	1 171.3	11.5
Investment properties	2 626.3	22.9	1 995.5	19.6
Other assets	284.2	2.5	434.0	4.3
Cash & bank balances	158.5	1.4	77.6	0.8
Property, plant and equipment and software	1 006.1	8.8	524.7	5.2
Total assets	**11 459.7**	**100.0**	**10 183.7**	**100.0**
Current liabilities	–574.8	–	(350.4)	–
Net assets	**10 884.9**	**–**	**9 833.3**	**–**

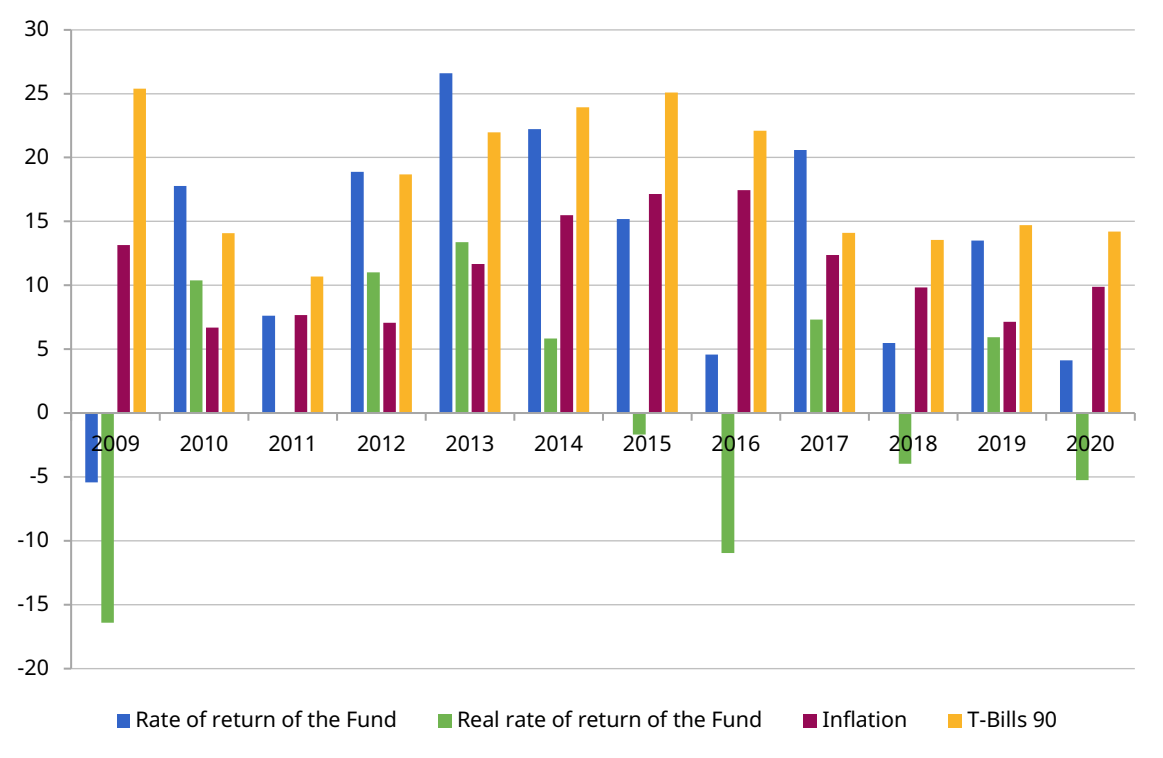
Source: SSNIT Financial Statements.

Over the last 12 years, according to the financial statements, the average return on the total assets has been 12.2 per cent. If the effect of inflation is removed, this results in a real average return on assets of 0.9 per cent. One interesting characteristic of the investment landscape in Ghana is the 91-Day T-Bills, which can offer an advantageous return. In fact, over the last 12 years, the average return of 91-Day T-Bills has been about 17.5 per cent, higher than the nominal return on assets (see figure 2.1). Indeed, the return of the Fund has been on average 70 per cent of the average yield of T-bills (i.e. 12.2 per cent over 17.5).

[2] The % of assets presented here in Table 2.2 are slightly different than in Table 3.9 because: 1) asset categories are grouped differently and 2) In Table 2.2 they are presented in % of total assets, whereas in Table 3.9 they are in % of the investment portfolio only.

The yields of the 91-Day T-Bills are used for crediting interest on the lump sum payment in the case where a member does not qualify for a pension at retirement age. In that case, 75 per cent of the T-Bills are credited. T-Bills are also used, but at 100 per cent, for crediting interest on the "past credit" (i.e. the transitional measure to replace the commuted value). The SSNIT should make sure that its investment strategy and performance will allow it to credit 100 per cent of the T-bills. Otherwise, a loss will be systematically incurred if returns on assets are lower than the yields on T-bills.

▶ **Figure 2.1. Investment returns and inflation, 2009–2020** (percentages)[3]



Note: The rate of return of the Fund is calculated according to the formula 2I/(A+B-I).

Sources: SSNIT, IMF, Central Bank, calculations from the authors.

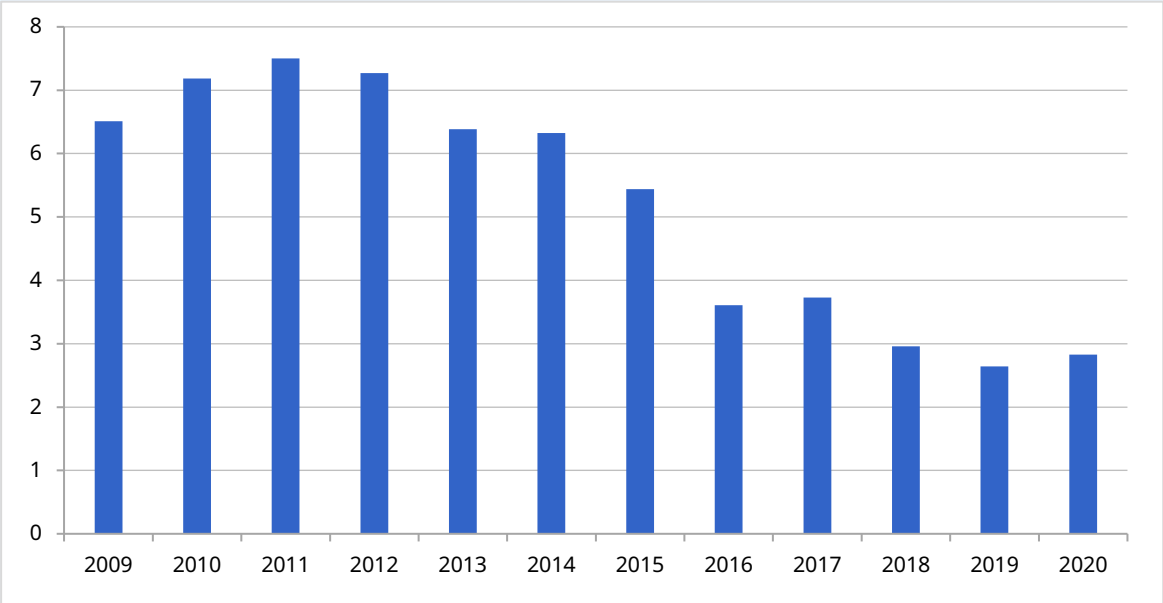
2.2. Actuarial indicators

Figure 2.2 presents the reserve ratio that reflects the size of the year-end reserve relative to that year's expenditures. It is a measure that can give an idea of the funding level of the scheme at a particular point in time. That being said, its historical pattern may not necessarily be representative of the long-term expected funding situation of the scheme. This indicator is frequently used when analysing the financial situation of a social security scheme such as SSNIT, and its targeted value can be defined in a funding policy. In figure 2.2, the reserve ratio, on a cash basis, reached its peak in 2011 at a level of 7.5 and then began its downward trend. Its level is 2.8

[3] Investment returns presented in Figure 2.1 are different than investment returns calculated by the investment department of SSNIT. In Figure 2.1, the investment return is calculated using the formula presented in the note under the Figure and based on the investment income and total net assets presented in the financial statements. The investment returns calculated by the investment department of SSNIT is calculated for the investment portfolio only.

at the end of 2020. This important decrease over the last nine years shows the importance of adopting financing measures to avoid the depletion of the reserve.

▶ Figure 2.2. Reserve ratio, 2009–2020

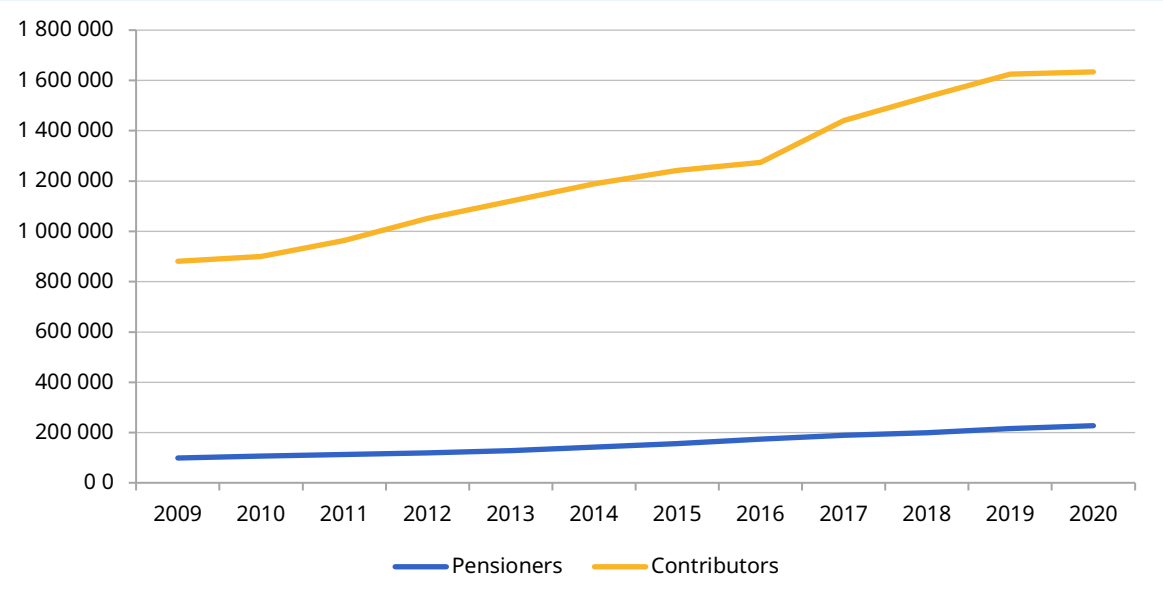


Note: Transfers to the National Health Insurance Scheme are not considered expenditures and are excluded for the purpose of calculating the reserve ratio.

Sources: SSNIT, calculations by the authors.

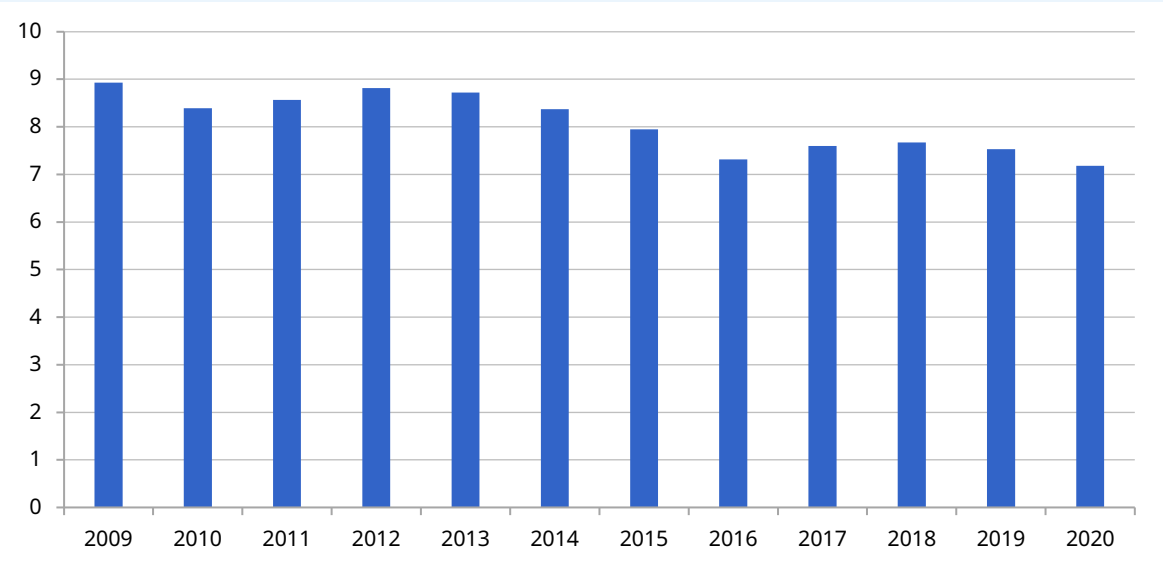
Since 2009, the average rates of growth in the number of contributors and pensioners have been 5.8 and 7.9 per cent respectively (figure 2.3). Future evolution of the financial performance of SSNIT will be driven considerably by the ratio of contributors to pensioners. Figure 2.4 shows the evolution of this ratio for the last 12 years. In 2009, there were about 8.9 contributors for each pensioner. This ratio is now 7.2 in 2020 (figure 2.4).

▶ Figure 2.3. Evolution in the number of contributors and pensioners, 2009–2020



Sources: SSNIT, calculations by the authors.

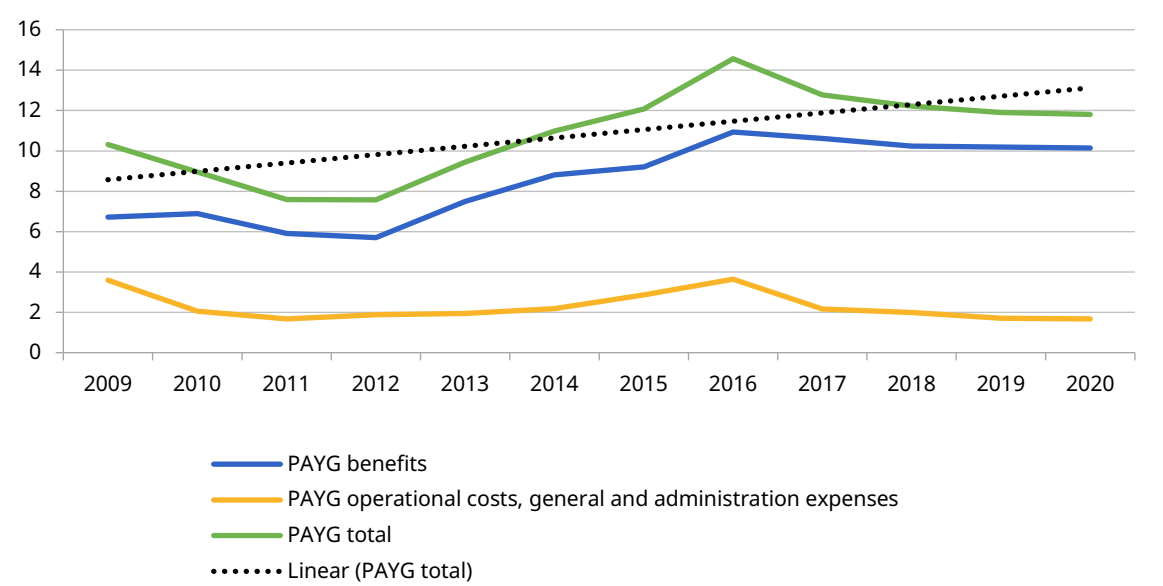
▶ Figure 2.4. Demographic ratio, number of contributors per pensioner, 2009–2020



Sources: SSNIT, calculations by the authors.

Conversely to the demographic ratio, when the ratio of the number of pensioners to the number of contributors increases, the total cost of the scheme usually follows a similar pattern, as illustrated in figure 2.5. The PAYG rate is the contribution rate that is necessary to pay all expenditures (benefits and administrative expenditures) in a given year. This rate has trended upward in the first part of the last decade, while it showed a slight decline trend over the last four years. As can be seen, the PAYG rate is now 11.8 per cent in 2020. In any case, it is usual that, when a scheme is maturing, the PAYG rate increases year after year as more and more people retire with more years of service.

▶ Figure 2.5. Pay-as-you-go rate (PAYG), based on the contributor data received, 2009–2020 (percentages)



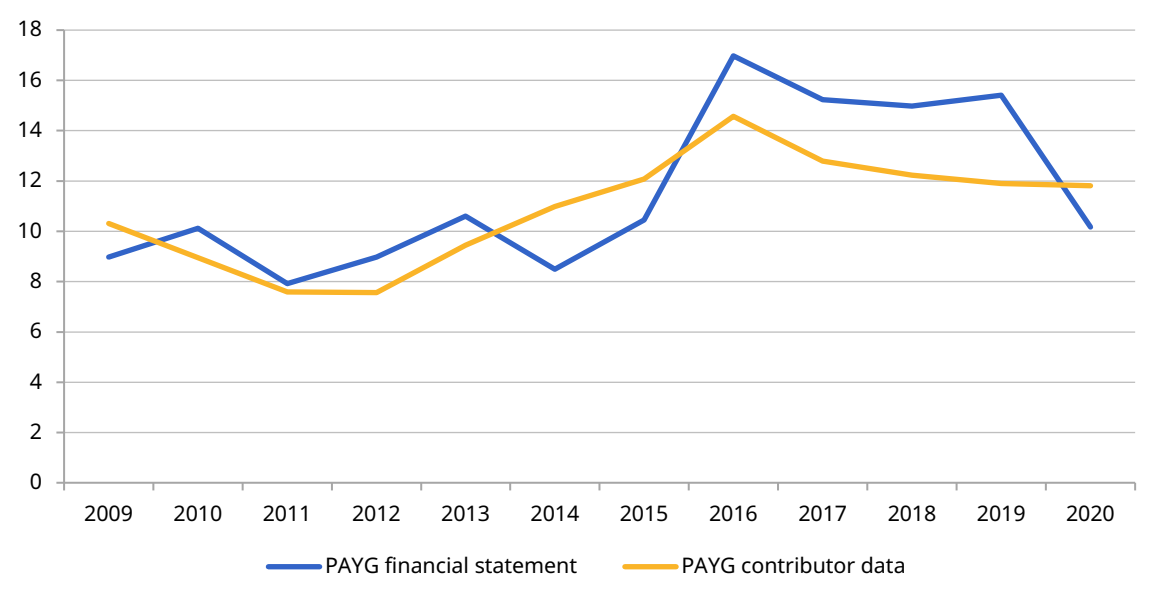
Note: calculated on an accrual basis.

Sources: SSNIT, calculations by the authors.

An element that deserves particular attention is the methodology used to calculate the PAYG rates, which is to use the individual information on the contributors provided by SSNIT. This basis, which essentially corresponds to the accrual basis, is however not the one used in the financial statements. Indeed, SSNIT is using a cash basis for its financial statements, as opposed to the accrual basis, which is the approach usually adopted by social security pension schemes.

Depending on when the contributions are paid (and on whether the level of receivables is high or not), calculating the PAYG rates with the two bases can give vastly different results. This is illustrated in figure 2.6. In general, the cash basis makes the results more volatile from year to year (for example, the blue line in figure 2.6 compared to the orange line). Crucially, important volatility makes projections more difficult, and analysis less relevant.

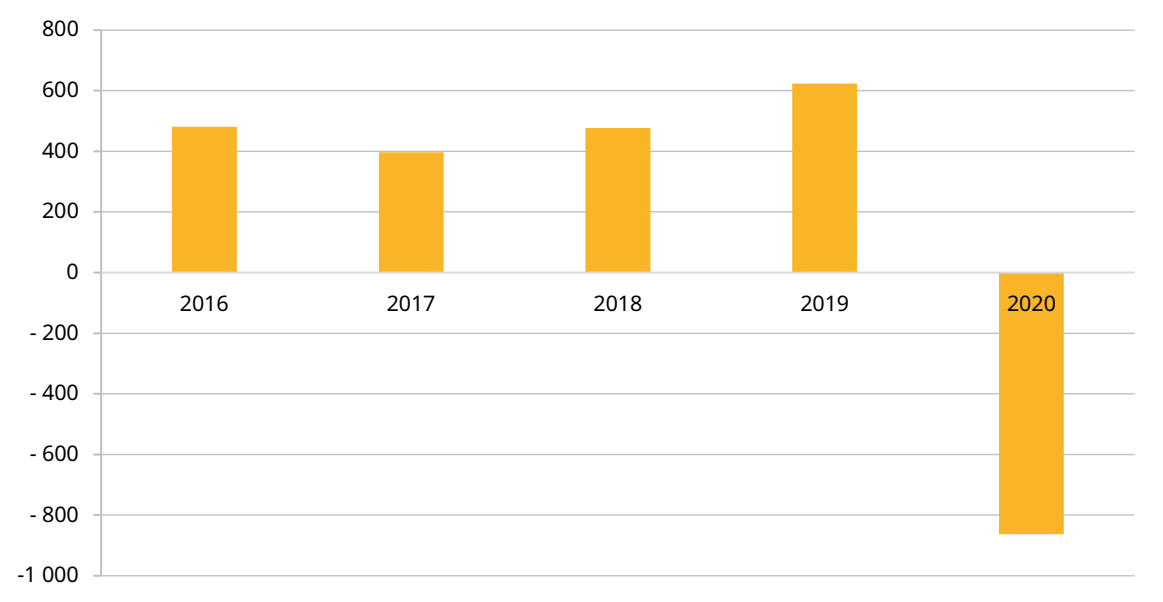
▶ Figure 2.6. Pay-as-you-go rate (PAYG), financial statement basis and data in the file related to the contributors, 2009–2020 (percentages)



Sources: SSNIT, calculations by the authors.

Figure 2.7 shows the difference in the indebtedness of the Government for the years 2016 to 2020. It is another way of analysing the difference between the cash basis and the accrual basis. Indeed, indebtedness represents the level of contributions that should be paid during a given year but is not, at least at the end of that year. Such kinds of event are very difficult to predict. Figure 2.7 informs the reader that without knowing the level of indebtedness and its repayments in advance, contribution income for a year can be easily overstated by more than GHS 500 million. For instance, in 2020, the Government has paid more than it was required for that year. However, part of this money corresponded to contribution requirements of previous years. Caution is then given when analysing the financial situation of SSNIT, as the cash basis may give the impression of a better financial situation than it is in reality, as shown in figure 2.6 where the PAYG for the year 2020 on the cash basis has decreased considerably.

▶ **Figure 2.7. Variations in indebtedness** (GHS millions)



Sources: SSNIT, calculations by the authors.

2.3. Observed experience compared with the projections of the previous actuarial valuation

The following two tables compare the results of the actuarial valuation with the observed experience. Table 2.3 presents the comparison on a cash basis, while table 2.4 does so on an accrual basis.

The reader should be aware however that in the previous actuarial valuation it was recommended that discussions be started with accountants and auditors with the aim of changing the financial statement basis from a cash basis to an accrual one. The accrual basis is more in line with the usual practice of social security pension schemes and allows for a better understanding of the evolution of the scheme compared to the cash basis, where the results are inherently more volatile.

For instance, in the 2020 annual report, it is written on page 52 that:

> Contributions are accounted for on a cash basis. An accrual basis is not considered appropriate because it would result in substantial debtor accounts which may not be recoverable. However, where satisfactory payment arrangements have been concluded, contributions on behalf of government workers are accrued.

Now, since a decision has apparently been made regarding the reporting basis, this actuarial valuation report will not renew its recommendation to switch from one basis to the other.

The comparison in table 2.3 shows that, on average, and on a cash basis, the observed experience is not in line with the one expected from the last actuarial valuation. Indeed, over the three-year period, the average ratio of total expenses to total insurable earnings was 13.5 per cent compared to an expectation of 16.5 per cent. The difference is explained by the fact that in 2020, more contributions have been paid to the scheme, specifically because they included contributions related to prior years. The figures are quite different when comparing the experience with the expectation, but on an accrual basis: over the same period, the average experience was 12.8 per cent compared to an expectation of 12.9 per cent.

The reserve ratio was lower than the one expected from the last actuarial valuation: 2.8 on average compared to 3.1. The ratio is slightly higher again in 2020 though, but not materially so.

▶ Table 2.3. Comparison of observed experience with expectations from the last actuarial valuation, cash basis, 2018–2020

	2018	2019	2020	Average
Ratio of total expenses to total insurable earnings (%)				
Last actuarial valuation	16.1	16.2	17.2	**16.5**
Experience	15.0	15.4	10.1	**13.5**
Ratio of benefit expenses to total insurable earnings (%)				
Last actuarial valuation	13.7	14.0	14.7	**14.1**
Experience	12.5	13.2	8.7	**11.5**
Ratio of administrative costs to total insurable earnings (%)				
Last actuarial valuation	2.4	2.2	2.5	**2.4**
Experience	2.4	2.2	1.4	**2.0**
Reserve ratio				
Last actuarial valuation	3.7	3.2	2.6	**3.1**
Experience	3.0	2.6	2.8	**2.8**

▶ Table 2.4. Comparison of observed experience with expectations from the last actuarial valuation, accrual basis, 2018–2020

	2018	2019	2020	Average
Ratio of total expenses to total insurable earnings (%)				
Last actuarial valuation	13.2	11.8	13.8	**12.9**
Experience	13.0	12.8	12.8	**12.8**
Ratio of benefit expenses to total insurable earnings (%)				
Last actuarial valuation	11.2	10.2	11.8	**11.1**
Experience	10.8	11.0	11.0	**10.9**
Ratio of administrative costs to total insurable earnings (%)				
Last actuarial valuation	2.0	1.6	2.0	**1.9**
Experience	2.1	1.8	1.8	**1.9**
Reserve ratio				
Last actuarial valuation	3.7	3.2	2.6	**3.1**
Experience	3.0	2.6	2.8	**2.8**

Table 2.5 presents a picture of the main factors explaining the differences between the experience of the last three years and the expectations of the previous actuarial valuation. The information is presented on an accrual basis.

The average annual increase in the level of contributions was 16.0 per cent, which is close to the expectation of 16.5 per cent. This difference is explained by the fact that the insured population growth was less than projected (4.3 per cent compared to 5.2) as well as the average salary (11.4 per cent compared to 16.5). In the previous actuarial valuation, an explicit assumption was made that in 2020, the drop in the density of contributions in 2020 due to the COVID-19 crisis would have been 15 per cent, leading to a drop of 4.2 per cent on average over the 2017–2020 period. In fact, the density has increased slightly over that period (at 0.5 per cent on average).

The average annual increase in benefits paid was 14.7 per cent compared to the expectation of 18.0 per cent. This is mainly due to a lower increase than expected in the lump sum payments. The average increase in the number of beneficiaries was in line with the expectation (5.3 per cent compared to 5.4 per cent). Table 2.5 also shows that inflation was lower than the assumption used in the previous actuarial valuation. After considering the effect of inflation, the real return on assets was lower than the expectation, i.e. –1.2 per cent compared to 2.4 per cent. Having a negative real return on the reserve over too long a period of time may be counterproductive to the constitution of a reserve.

▶ Table 2.5. Comparison of observed experience versus expectations from the last actuarial valuation, selected indicators, average annual variation, accrual basis, 2017–2020 (percentages)

	Nominal	Real
Average annual increase in contributions		
Last actuarial valuation	16.5	7.0
Experience	16.0	7.1
Variation of the effective contribution rate		
Last actuarial valuation	-0.8	n/a
Experience	-0.6	n/a
Average annual growth in the insured population		
Last actuarial valuation	5.2	n/a
Experience	4.3	n/a
Average annual increase in salary		
Last actuarial valuation	16.5	7.0
Experience	11.4	2.4
Change in the density of contributions		
Last actuarial valuation	-4.2	n/a
Experience	0.5	n/a
Average annual increase of total benefits paid		
Last actuarial valuation	18.0	8.6
Experience	14.7	5.7

	Nominal	Real
Total increase in the number of beneficiaries		
Last actuarial valuation	5.4	n/a
Experience	5.3	n/a
Average annual inflation rate		
Last actuarial valuation	9.4	n/a
Experience	8.9	n/a
Annual return on assets		
Last actuarial valuation	12.1	2.6
Experience	7.6	–1.3

2.4. Data used in the actuarial valuation

Collection of the data required to perform the actuarial valuation as well as the quality of it are the responsibility of SSNIT, based on the data requests made by the actuaries. Generally speaking, data must be accurate, complete (that is, all information about the participants or the pensioners must be available), and readily 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, for the management of human resources, or for the present and future processing of pension requests.

Consistency checks were made on the data transmitted to ensure that they were of sufficiently good quality to undertake an actuarial valuation. Accordingly, it is not uncommon to have to make some adjustments to the collected information to ensure overall consistency.

2.4.1. Data collection process

Collection of the data required to perform the actuarial valuation was carried out by SSNIT. The data requested included general information on the demographic and economic context of Ghana, as well as specific data pertaining to the insured members and beneficiaries of the scheme.

The following paragraphs present the data collection process and describe the quality of data obtained from SSNIT. It is worth reiterating that it is the ultimate responsibility of SSNIT to ensure that the quality of the data provided is good.

The following items have been obtained from SSNIT:

- General information about the demographic and economic context of Ghana.
- Annual reports for financial years 2017, 2018 and 2019.
- Financial statements for financial years 2018 to 2021, with the latter (2021) not having been audited yet.
- Detailed information about the Government's indebtedness towards the scheme as of December 2021.
- The individual data related to all active members, pensioners, and inactive members as of the valuation date, as well as for the two years preceding the valuation (2018 and 2019).

Below are some general comments regarding the data collection process and the quality of data:

- Assessing the quality of the individual data obtained in a context where the financial statements are reported under the cash basis is challenging. Indeed, under normal circumstances (where the financial statements are reported under the accrual basis), reconciliations between individual data and financial statements allow for an assessment of the extent to which the individual data are consistent with the data presented in the financial statements. Using the indebtedness information received, we have been able to partially reconcile and validate these two sources, but uncertainties remain. Ultimately, no major adjustments were made to the individual data, and they were used as a basis for the projections of the income and expenditure on an accrual basis.
- Similar to prior valuations, it has proven impossible again to use SSNIT data on deaths in order to develop a mortality table specific to SSNIT members. First, deaths are not reported in a timely manner by the heirs. Secondly, SSNIT does not follow deaths occurring before age 75 (72 in the old system). This is mainly due to the design of the scheme. Indeed, with a pension guaranteed until the age of 75, even if the pension is paid for a long period after the death of the pensioner, when the heirs ask for the survivors' lump sum the amount of pension paid in excess is deducted from the lump sum. While financially the consequences could be minimal, such practice creates analysis issues and overstates the growth in the number of pensioners. Put more simply, even if a pension recipient is dead, he or she is still considered a pensioner.
- Inconsistencies could affect the calibration of the model. The reader should be aware of the differences between the cash basis (as used to produce the financial statements) and the accrual basis (as used to produce the demographic and financial projections). In any case, it is not the objective of this valuation to project the actual cash flows of the Fund but rather to assess the true cost of the scheme over the medium and long term. As such, please refer to the sensitivity tests presented in section 5.3 to get a full picture of the possible demographic and financial outcomes of this actuarial valuation.
- Although some inconsistencies or data issues have been observed and corrected, the individual data on which this valuation is based are complete and reasonable overall.

Detailed observations made on the data shared by SSNIT, including the adjustments made by the authors of this report, are described in the sections below.

2.4.2. Analysis of data and initial distribution for active members

Distribution of insured persons

The database of the individual data pertaining to the active insured members was obtained from SSNIT. As of the valuation date, the starting figure of active contributors is 1,607,728. This number differs slightly from the total number of participants received in the individual data files (i.e. 1,607,955) since a small and immaterial number of duplicate records and participants aged more than 69 have been ignored.

Table 2.6 presents the breakdown of these active insured members who have contributed to the scheme in the financial year 2020, by age and sex.

▶ Table 2.6. Distribution of active members (contributors), by age and sex, 2020

Age	Males	Females	Total
15–19	4 492	4 029	8 521
20–24	72 015	55 002	127 017
25–29	161 503	129 381	290 884
30–34	217 497	159 070	376 567
35–39	177 811	108 690	286 501
40–44	135 941	63 916	199 857
45–49	98 665	37 091	135 756
50–54	71 388	24 801	96 189
55–59	52 267	24 070	76 337
60–64	7 074	2 185	9 259
65–69	717	123	840
Total	**999 370**	**608 358**	**1 607 728**

Insured earnings

In order to perform actuarial projections, an initial distribution of the insured earnings by age and sex is required.

Monthly insurable earnings for the active insured members were extracted from the individual data transmitted by SSNIT. Adjustments and smoothing (moving average method) have been applied on the salary distributions of members in order to eliminate any major statistical deviation.

The actuarial model used for this actuarial valuation distributes average wages into three categories (the lowest 30 per cent, a medium range of 40 per cent, and the highest 30 per cent) with the aim of measuring the effect of the minimum pension and of the ceiling, if applicable. It is assumed that the dispersion observed in the distribution of earnings will remain constant throughout the projection period.

Table 2.7 presents the distribution of monthly earnings of active insured members at the beginning of the projection period, by age, sex and income group.

Observations on the initial insurable earnings include the following:

- Among the male population, the average monthly insurable earnings of low-income earners is 66 per cent lower than that of medium-income earners. Also, the average monthly insurable earnings of high-income earners is 2.9 times the average annualized insurable earnings of medium-income earners.
- Among the female population, the average annualized insurable earnings of low-income earners is 68 per cent lower than that of medium-income earners. Also, the average annualized insurable earnings of the high-income earners is 2.4 times the average annualized insurable earnings of medium-income earners.
- In general, the average annualized insurable earnings of low and medium-income groups are similar between males and females. However, the average annualized insurable earning of high-income earners is approximately 23 per cent higher for males than it is for females.
- All these ratios between various income groups and genders remain roughly similar to those observed during the previous actuarial valuation (2017).

- Also, as visible in table 2.7, the average insurable earnings decrease above normal retirement age. This is explained by the fact that most insured members retire at age 60 and those who remain active past that age have lower earnings.

▶ Table 2.7. Distribution of monthly earnings, by age, sex and income group, 2020 (GHS)

Age	Males				Females			
	Low	Medium	High	Total	Low	Medium	High	Total
15–19	316	348	608	416	315	347	583	408
20–24	317	415	1 008	563	315	422	994	561
25–29	350	799	2 140	1 067	353	913	2 091	1 098
30–34	427	1 303	3 195	1 608	418	1 394	2 856	1 540
35–39	481	1 540	4 188	2 017	437	1 582	3 600	1 844
40–44	487	1 551	4 793	2 205	407	1 545	4 182	1 995
45–49	495	1 536	5 110	2 296	410	1 522	4 649	2 126
50–54	517	1 566	5 487	2 428	497	1 704	4 987	2 327
55–59	540	1 627	5 730	2 532	594	1 765	4 626	2 272
60–64	444	1 246	5 195	2 190	463	1 272	4 252	1 923
65–69	340	795	3 749	1 545	306	661	2 761	1 184
Average	**443**	**1 287**	**3 749**	**1 773**	**406**	**1 281**	**3 053**	**1 550**

Density of contributions

The density of contributions represents the proportion of the year during which members pay contributions to the scheme and accrue social security benefits.

In SSNIT, a strong relationship exists between the insurable earnings and the density of contributions, and therefore with past credits as well. Accordingly, this valuation reflects the specific profile (density of contributions and past credits) of the low, medium and high-income earners separately.

Table 2.8 presents the distribution of density for the active insured members at the beginning of the projection period, by age, sex and income group.

▶ Table 2.8. Density of contributions, by age, sex and income group (percentages)

Age	Males				Females			
	Low	Medium	High	Total	Low	Medium	High	Total
15–19	31.4	40.8	45.0	38.9	27.3	43.2	44.0	37.0
20–24	44.4	62.0	64.7	57.3	37.5	56.2	59.5	50.8
25–29	59.8	76.2	89.7	75.2	52.3	78.2	93.4	74.8
30–34	67.8	89.8	95.1	84.8	60.1	93.9	97.3	84.8
35–39	74.7	93.1	96.4	88.6	62.9	95.8	98.1	86.6
40–44	78.0	93.3	96.6	89.7	62.4	94.6	98.1	85.9
45–49	82.1	94.2	97.0	91.4	64.9	94.5	98.3	86.7
50–54	84.2	95.1	97.2	92.5	72.0	96.3	98.5	89.6

Age	Males				Females			
	Low	Medium	High	Total	Low	Medium	High	Total
55–59	87.2	96.5	98.0	94.1	81.3	97.9	99.0	93.2
60–64	78.9	87.8	91.9	86.4	60.5	85.2	91.0	79.5
65–69	81.6	89.9	89.1	87.2	56.5	77.1	83.0	73.9
Average	**71.0**	**87.6**	**92.7**	**84.1**	**58.5**	**87.5**	**93.1**	**80.3**

As observed in table 2.8, the average density of contributions is lower for low-income earners and higher for high-income earners, both for males and females. This can be explained by the fact that low-income earners have less secure jobs compared to the high-income earners. In addition, it is observed that densities tend to reduce past age 60: more workers are working part-time after normal retirement age.

For this actuarial valuation, the densities are assumed to remain at their current level over the projection period.

Past service of active insured members

In order to calculate the benefits paid by the scheme, the distribution of average years of service by contributor age and sex is required. These past service years of the active insured population were calculated using the individual data transmitted by SSNIT.

As previously mentioned, within SSNIT a strong relationship exists between insurable earnings and density of contributions, and therefore with past credits as well. Accordingly, this valuation reflects the specific profile (density of contributions and past credits) of the low, medium and high-income earners separately.

Table 2.9 shows the average past contribution years for the active insured members as of the valuation date. Numbers are shown by age, sex and income group.

▶ Table 2.9. Average past contribution years for active insured people, by age, sex and income group, December 2020

Age	Males				Females			
	Low	Medium	High	Total	Low	Medium	High	Total
15–19	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5
20–24	1.2	1.3	1.3	1.3	1.1	1.3	1.1	1.2
25–29	2.3	2.5	2.7	2.5	2.2	2.5	2.9	2.5
30–34	3.7	5.2	6.1	5.0	3.6	6.0	6.9	5.6
35–39	5.4	8.3	10.2	8.0	5.0	9.6	11.4	8.7
40–44	7.0	11.3	14.0	10.8	6.0	12.9	15.7	11.6
45–49	9.6	14.4	17.5	13.9	8.0	15.7	19.8	14.6
50–54	13.3	18.3	21.5	17.7	13.4	21.7	24.9	20.1
55–59	17.5	24.8	27.2	23.3	22.0	30.6	31.1	28.1
60–64	15.1	21.5	28.5	21.7	16.0	26.9	33.1	25.5
65–69	15.1	18.9	23.9	19.3	13.6	20.0	30.0	21.1
Average	**6.1**	**8.8**	**10.5**	**8.5**	**5.0**	**8.4**	**9.8**	**7.8**

As previously observed, the average density of contributions was lower for low-income earners and higher for high-income earners, both for males and females. Consequently, the same observation can be made when looking at average past credits.

According to the individual data obtained, and similar to the prior valuation, more than 80 per cent of active members aged 55 and above have accrued the minimum number of contribution years required to obtain an old-age pension under the new scheme (15 years). The large majority of SSNIT members are thus entitled to receive a pension at retirement.

Inactive insured members

As of December 2020, the number of inactive insured members (with at least one month of contribution) provided in SSNIT database was 2,143,356. Because of uncertainties related to this category of members and the fact that it is difficult to assess their impact on the financial situation of the scheme, only a part of this total number of inactive members has been used for the valuation. Other reasons for such an approach are:

- The number of inactive members seems unrealistic compared to the actual number of active members contributing to the scheme. The objective of this assumption is to avoid introducing disturbance in the results due to the uncertainties surrounding this inactive population.
- Their average years of service is quite low, even for members close to retirement. This means that the majority of members will not be entitled to a pension, which is the most important component of SSNIT costs.
- The number of 243,932 inactive members has been used in the actuarial valuation to better calibrate the model in terms of the number of expected new pensioners and grant beneficiaries. Tables 2.10 and 2.11 display the distribution of the inactive population used in the actuarial valuation for both males and females. A sensitivity analysis has been performed to illustrate the impact on the actuarial valuation of making no adjustments to the inactive population.

▶ Table 2.10. Distribution of male inactive insured members, by number of credits and age, 2020

Age	5-9	10-14	15-19	20-24	25+	Total
15–19	0	0	0	0	0	0
20–24	0	0	0	0	0	0
25–29	2 693	179	11	1	1	2 884
30–34	16 385	3 240	259	11	4	19 898
35–39	25 431	11 204	2 527	167	27	39 354
40–44	26 148	14 815	6 663	1 565	316	49 507
45–49	21 318	12 551	7 515	3 543	1 640	46 567
50–54	12 756	7 616	4 860	2 892	2 850	30 974
55–59	2 400	1 595	1 038	735	1 051	6 820
60–64	5	5	3	5	10	29
65–69	0	0	0	0	0	0
Total	**107 135**	**51 204**	**22 875**	**8 918**	**5 899**	**196 032**

▶ Table 2.11. Distribution of female inactive insured members, by number of credits and age, 2020

Age	5-9	10-14	15-19	20-24	25+	Total
15–19	0	0	0	0	0	0
20–24	0	0	0	0	0	0
25–29	1 337	87	3	0	1	1 427
30–34	6 698	1 763	137	2	1	8 602
35–39	6 536	4 062	1 189	74	8	11 869
40–44	4 760	3 318	2 310	792	119	11 298
45–49	3 233	1 956	1 559	1 180	603	8 531
50–54	1 602	1 106	763	761	809	5 041
55–59	258	225	152	198	292	1 124
60–64	1	1	1	1	5	8
65–69	0	0	0	0	0	0
Total	**24 425**	**12 518**	**6 114**	**3 007**	**1 837**	**47 900**

Remarks on the quality of the information used for the contributors

The contributor data provided by SSNIT was of sufficiently high quality such that no particular issue arose in that regard.

2.4.3. Data related to the benefits

Tables 2.12 and 2.13 summarize the information on the pensions in payment on the actuarial valuation date.

▶ Table 2.12. Retirement pensions at December 2020, by age and sex (GHS)

Age	Males		Females		Total	
	Number	Average annual pension	Number	Average annual pension	Number	Average annual pension
55–59	7 704	9 642	2 142	8 329	9 846	9 357
60–64	51 199	13 837	28 262	12 392	79 461	13 324
65–69	39 694	12 906	18 229	12 681	57 923	12 835
70–74	31 740	9 806	10 037	10 250	41 777	9 913
75–79	15 366	8 463	3 598	8 593	18 964	8 488
80–84	9 262	7 470	1 554	7 353	10 816	7 454
85–89	3 151	7 097	336	7 107	3 487	7 098
90–94	682	6 856	52	6 750	734	6 849
95–99	108	6 919	5	6 608	113	6 905
100–104	26	6 891	0	0	26	6 891
Total	**158 932**	**11 536**	**64 215**	**11 636**	**223 147**	**11 565**

▶ Table 2.13. Invalidity pensions at December 2020, by age and sex (GHS)

Age	Males		Females		Total	
	Number	Average annual pension	Number	Average annual pension	Number	Average annual pension
20–24	0	0	0	0	0	0
25–29	0	0	1	3 600	1	3 600
30–34	3	17 337	1	17 443	4	17 363
35–39	15	12 341	5	5 070	20	10 523
40–44	39	17 776	3	12 736	42	17 416
45–49	103	10 538	14	11 925	117	10 704
50–54	196	10 422	35	6 601	231	9 844
55–59	304	11 926	81	10 670	385	11 662
60–64	242	10 550	69	8 745	311	10 150
65–69	144	8 496	37	8 720	181	8 542
70–74	81	6 849	22	8 418	103	7 184
75–79	27	7 053	3	7 094	30	7 057
80–84	6	6 490	1	6 490	7	6 490
85–89	2	10 278	0	0	2	10 278
90–94	0	0	0	0	0	0
95–99	0	0	0	0	0	0
Total	**1 162**	**10 555**	**272**	**9 139**	**1 434**	**10 287**

Remarks on the quality of the information used for the pensioners

The pension-in-payment data provided by SSNIT was of sufficiently high quality such that no particular issue arose in that regard.

▶ 3. Projected demographic and macroeconomic environment of Ghana

A social security pension scheme is one of the socio-economic and political systems that function within an environment of national economy. Therefore, it does not function independently of the demographic and economic context. The analysis of the various demographic and macroeconomic indicators is thus an important part of the actuarial valuation process of a social security system.

This chapter presents the demographic and economic projections for Ghana and the assumptions used. The demographic and economic contexts have been projected over 75 years to 2095 in order to appropriately measure the demographic and financial evolution of the scheme over the long term. Such a long period of projection not only allows conclusions regarding the long-term sustainability of the scheme to be better drawn, but also contributes to providing a clearer picture of the scheme's sensitivity to assumptions or changes to benefits.

3.1. Projection of the total population of Ghana

3.1.1. Population

In this actuarial valuation, demographic projections and labour projections are used to determine the rate of growth (number of new entrants), used for projecting the population covered by SSNIT.

Population projections require specific assumptions concerning mortality, fertility and migration. It is important to note that the initial population used in the projection comes from the Census 2021 published by the Ghana Statistical Service (GSS). This population has been adjusted (backward) to estimate the population in 2020.

The projection period starts in the year 2020 and extends over 75 years into the future. Table 3.1 shows the breakdown of the population of Ghana in 2020.

▶ Table 3.1. Population of Ghana, by age and sex, 2020

Age	Males	Females	Total
0–4	1 954 450	1 897 316	3 851 767
5–9	1 873 418	1 809 476	3 682 895
10–14	1 695 267	1 649 646	3 344 913
15–19	1 626 557	1 643 724	3 270 281
20–24	1 404 841	1 475 799	2 880 640
25–29	1 242 318	1 340 127	2 582 445
30–34	1 140 813	1 197 107	2 337 920
35–39	966 103	1 002 555	1 968 659
40–44	771 017	765 583	1 536 600
45–49	612 097	608 930	1 221 027
50–54	465 835	501 199	967 035
55–59	350 058	387 508	737 566

Age	Males	Females	Total
60–64	301 683	346 414	648 097
65–69	198 906	224 553	423 459
70–74	147 297	185 281	332 578
75–79	87 174	133 379	220 554
80–84	61 165	120 146	181 311
85–89	33 020	70 320	103 340
90–94	15 777	34 394	50 170
95–99	10 437	25 400	35 837
100+	335	1 048	1 383
Total	**14 958 568**	**15 419 907**	**30 378 475**

Source: Census 2021, published by the Ghana Statistical Service adjusted to estimate the year 2020.

3.1.2. Mortality

Life expectancy at birth is estimated at 61.9 years for males and 66.4 years for females in 2020. For the projection, those levels are gradually increased to 72.3 and 78.5 for males and females respectively in 2095. Mortality rates and mortality rate improvements in life expectancy used in the projection are estimated from the United Nations World Population Prospect database of 2022. The use of WPP information is due to the impossibility of obtaining updated information from the GSS on mortality experience.

Table 3.2 shows life expectancies at different ages for the years 2020, 2045, 2070 and 2095.

Sample mortality rates can be found in table 3.3.

▶ Table 3.2. Life expectancy at ages 0, 20 and 60, general population, by sex, 2020, 2045, 2070 and 2095

Year	Males			Females		
	At 0	At 20	At 60	At 0	At 20	At 60
2020	61.9	47.3	15.6	66.4	50.9	17.5
2045	66.3	50.3	17.2	71.5	54.2	19.0
2070	69.1	52.1	17.9	75.2	56.8	20.3
2095	72.3	54.5	19.3	78.5	59.7	22.6

▶ Table 3.3. Sample mortality rates, general population, by sex, 2020, 2045, 2070 and 2095

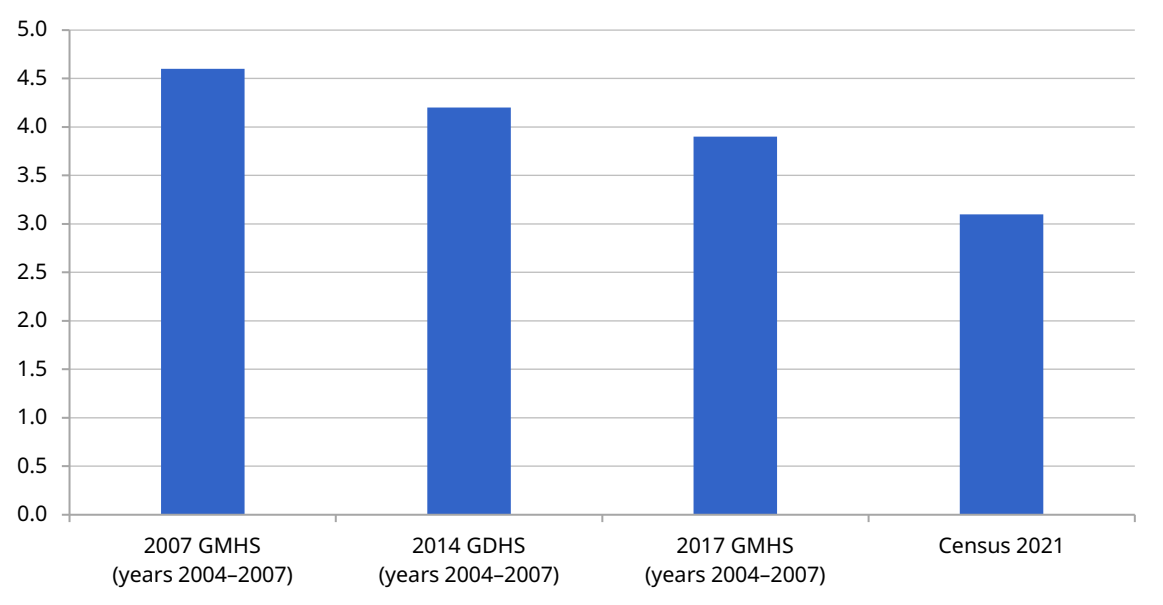
Age	Males				Females			
	2020	2045	2070	2095	2020	2045	2070	2095
0	0.037	0.027	0.021	0.015	0.029	0.017	0.010	0.008
5	0.004	0.002	0.002	0.001	0.003	0.002	0.001	0.000
10	0.002	0.001	0.001	0.001	0.002	0.001	0.000	0.000
15	0.002	0.002	0.001	0.001	0.002	0.001	0.001	0.000
20	0.004	0.003	0.002	0.002	0.003	0.001	0.001	0.001
25	0.004	0.003	0.002	0.002	0.003	0.002	0.001	0.001
30	0.005	0.003	0.003	0.002	0.003	0.002	0.001	0.001
35	0.005	0.004	0.003	0.002	0.004	0.002	0.001	0.001
40	0.006	0.005	0.004	0.003	0.005	0.003	0.002	0.002
45	0.007	0.006	0.005	0.004	0.006	0.004	0.003	0.002
50	0.010	0.008	0.007	0.006	0.007	0.006	0.004	0.003
55	0.015	0.012	0.010	0.008	0.010	0.008	0.006	0.004
60	0.021	0.017	0.015	0.012	0.015	0.012	0.009	0.007
65	0.033	0.027	0.024	0.019	0.025	0.020	0.016	0.012
70	0.051	0.041	0.037	0.031	0.041	0.033	0.027	0.020
75	0.077	0.066	0.060	0.050	0.063	0.054	0.045	0.034
80	0.120	0.104	0.096	0.083	0.100	0.089	0.076	0.059
85	0.190	0.161	0.151	0.133	0.159	0.141	0.124	0.099
90	0.284	0.249	0.235	0.213	0.227	0.207	0.187	0.156
95	0.383	0.349	0.333	0.309	0.324	0.302	0.277	0.241
100	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

3.1.3. Fertility

According to the last census, the total fertility rate (TFR) in 2021 is 3.1. Using the past Ghana Maternity Health survey (GMHS), the Ghana Demographic Health survey (GDHS), and the 2021 Census, it can be observed that the TFR has decreased from 4.6 to 3.1 over the last 15 years, as shown in figure 3.1. That being said, it is unclear whether the fertility rate measured by the census includes an effect related to the COVID-19 crisis or not, as commonly observed in other countries. In fact, according to discussions with SSNIT, the COVID-19 crisis had no impact on the level of fertility as measured by the census in 2021.

In any case, while the fertility rate calculated by this last census is low compared to expectations, its level is still within a certain possible range. Now, if this level of fertility represents the new reality in Ghana, it is a sign that the ageing of the population may be happening faster than that expected in the previous actuarial valuation.

▶ Figure 3.1. Total fertility rates, 2007 GMHS, 2014 GDHS, 2017 GMHS and Census 2021



Source: Ghana Statistical Service.

The TFR used for the actuarial valuation is 3.11 in 2020 and is assumed to continue a downward trend over the entire projection period to reach 1.99 in 2095. Sample age-specific fertility rates used in the actuarial valuation appear in table 3.4.

▶ Table 3.4. Fertility rates according to the age of the mother (average rate for the age group), 2020, 2045, 2070 and 2095

Age of the mother	Fertility rate			
	2020	2045	2070	2095
15–19	0.0316	0.0230	0.0171	0.0119
20–24	0.1051	0.0713	0.0560	0.0470
25–29	0.1509	0.1209	0.1099	0.1048
30–34	0.1552	0.1434	0.1417	0.1395
35–39	0.1174	0.0933	0.0848	0.0816
40–44	0.0489	0.0197	0.0120	0.0103
45–49	0.0122	0.0059	0.0033	0.0019
Total fertility rate	3.11	2.39	2.12	1.99

3.1.4. Migration

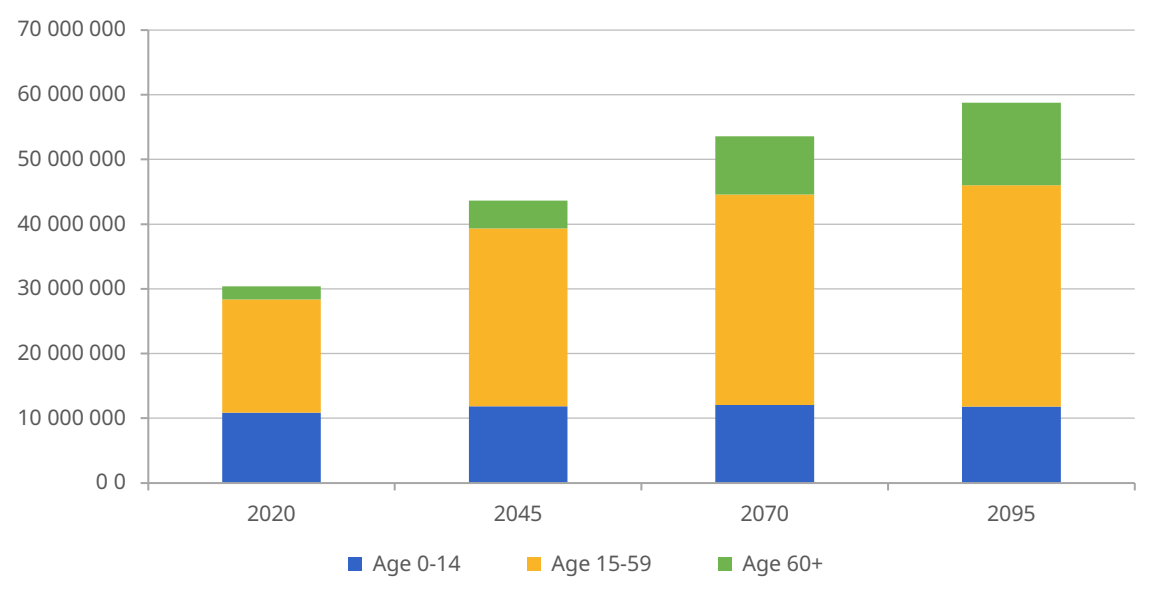
As in the previous actuarial valuation, net migration is assumed to be zero in 2020 and during the whole projection period.

3.1.5. Projected population

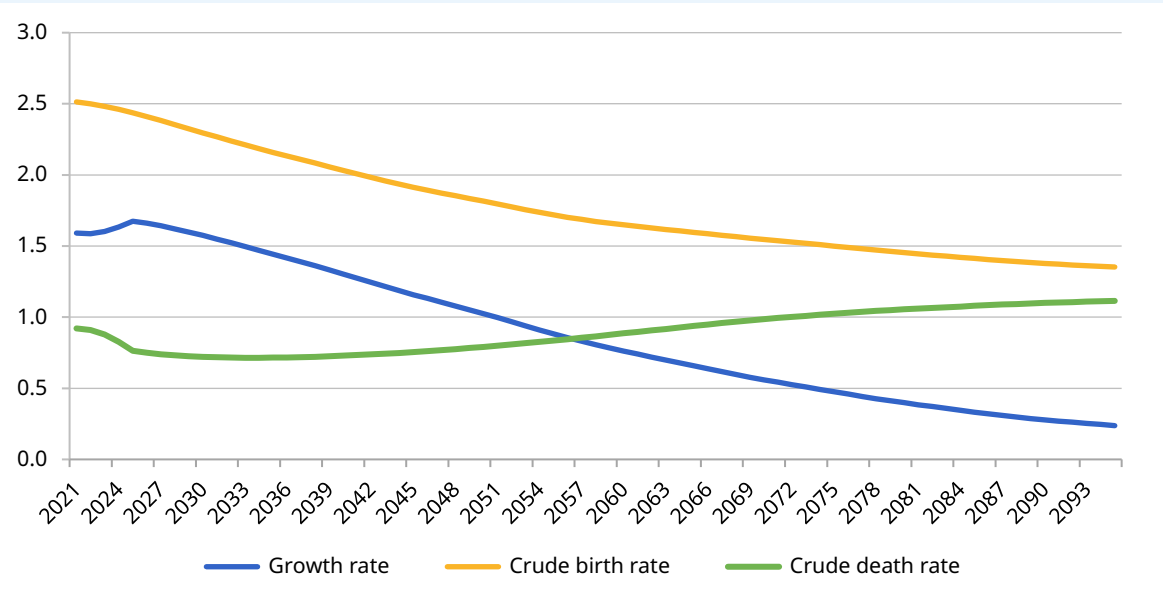
The total population of Ghana is projected to increase from 30,378,475 in 2020 to 43,657,920 in 2045, to 53,602,065 in 2070 and to 58,780,151 in 2095 (see figure 3.2). The population growth rate

is projected to decrease from 1.6 per cent in 2021, to 1.2 per cent in 2045, to 0.6 per cent in 2070 and to 0.2 per cent in 2095, as shown in figure 3.3. The ageing of the population is illustrated in figure 3.2 where those aged 60 and over represent an increasing percentage of the total population, from 6.6 per cent in 2020, to 9.4 per cent in 2045, to 16.5 per cent in 2070 and 21.7 per cent in 2095. Population pyramids disaggregated by sex are shown in figure 3.4.

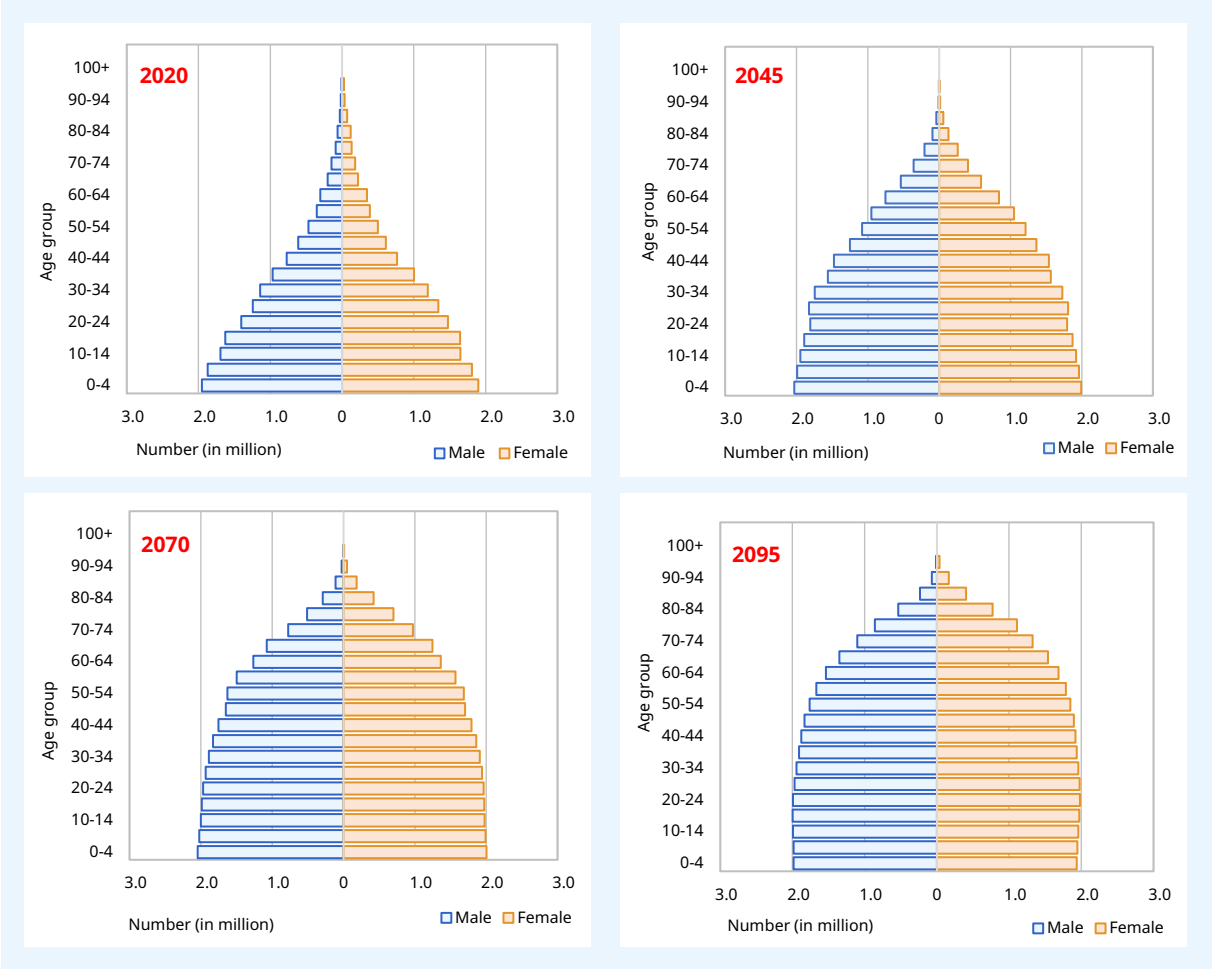
▶ Figure 3.2. Projected population of Ghana, by age group, 2020, 2045, 2070 and 2095



▶ Figure 3.3. Projected growth rate, crude birth rate and crude death rate of Ghana for the whole projection period, 2021–2095 (percentages)



▶ **Figure 3.4. Population pyramids of Ghana, both sexes, 2020, 2045, 2070 and 2105**



3.2. Projected macroeconomic environment

The projection of the employed population is needed to establish the growth assumptions related to the covered population. In fact, in the base scenario, the growth of the insured population will be linked to that of the employed population plus an adjustment in the short term to reflect recent experience. To project the employed population, labour force participation rates and unemployment rates are needed.

3.2.1. Labour force and employed population

The projection of the labour force is performed by applying labour force participation rates to the corresponding projected population groups. The projection of the unemployed population is performed by applying the unemployment rates to the corresponding projected labour force population. The employed population is derived by subtracting the unemployed population from the labour force population. Labour force participation rates and unemployment rates for the long-term are the ones used in the previous actuarial valuation and which were based on an analysis of the years 2000, 2010, 2015 and 2017.[4]

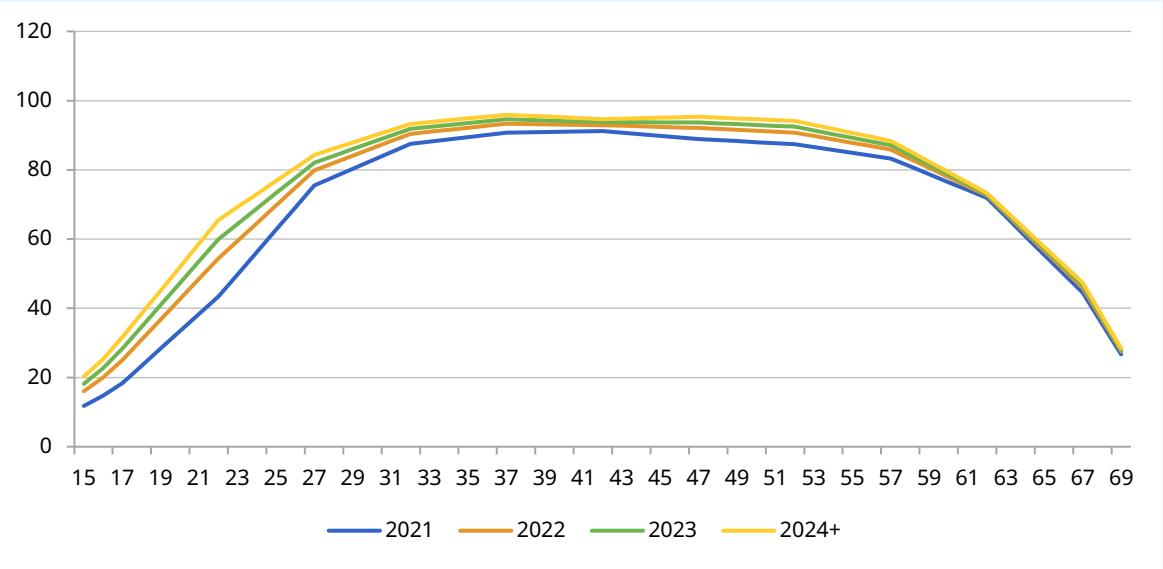
For the economic activity at the beginning of the projection period, information from the 2021 census is used. Information from this census shows drops in the labour force participation rates and increases in the unemployment rates when compared to the assumptions used in the

4 Data transmitted by GSS.

previous valuation. So, for the year 2021, information from the 2021 census is used but with some minor adjustments for calibrating purposes.

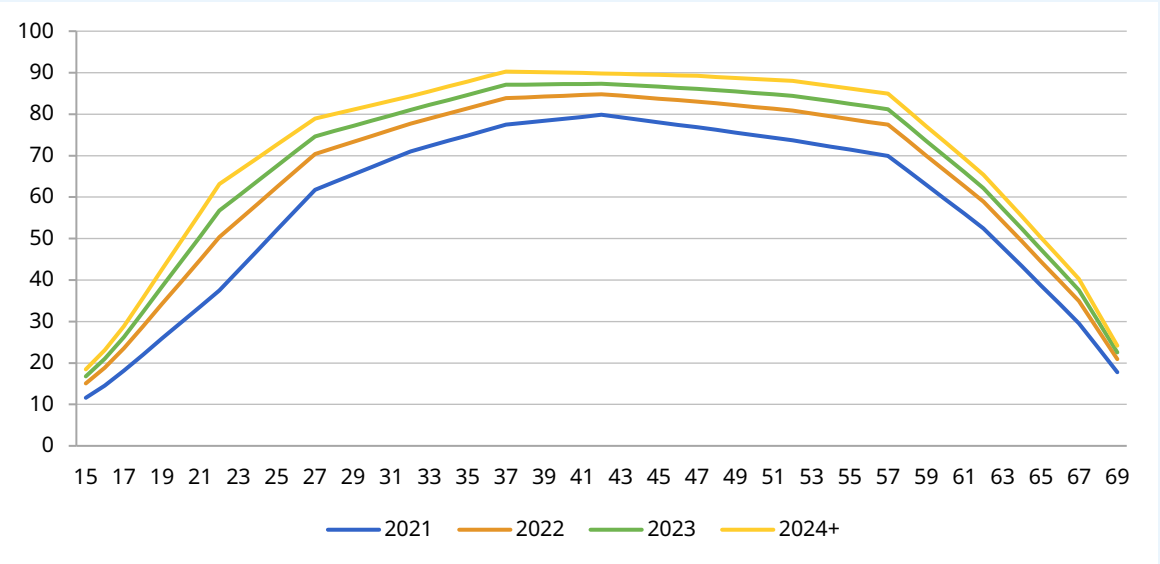
The assumption used in this valuation is that labour force participation rates will increase and unemployment rates will decrease over three years to reach their ultimate levels in 2024. Participation rates and unemployment rates by age and sex are then held constant for the rest of the projection period. Figures 3.5 to 3.8 show the labour force participation rates by age group and sex, and the unemployment rates used in this actuarial valuation.

▶ Figure 3.5. Estimated labour force participation rates, male, by age, 2021, 2022, 2023 and 2024+ (percentages)



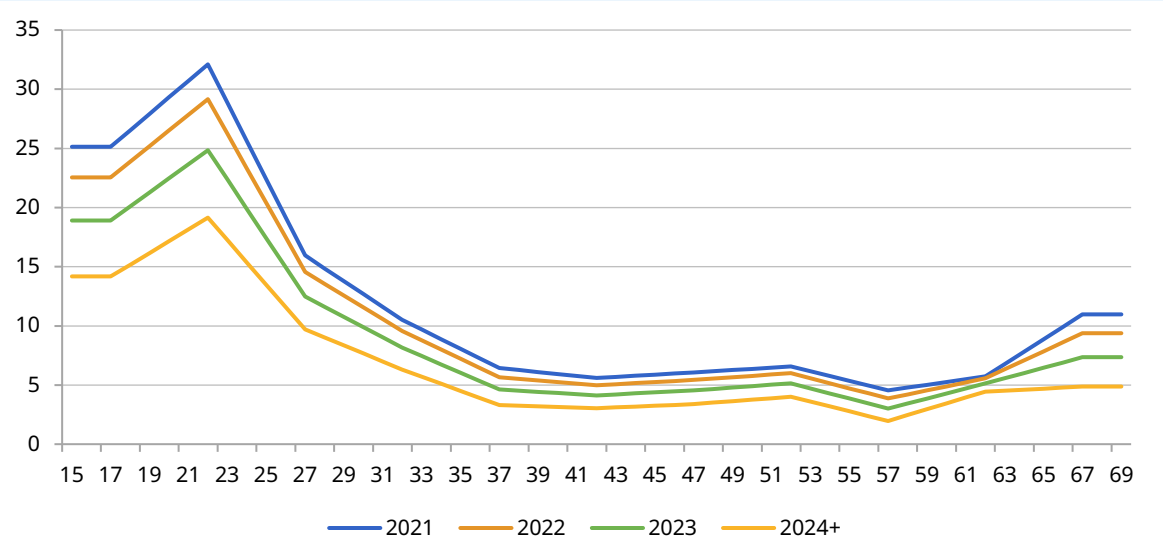
Sources: Previous valuation and Census 2021, calculations by the authors.

▶ Figure 3.6. Estimated labour force participation rates, female, by age, 2021, 2022, 2023 and 2024+ (percentages)



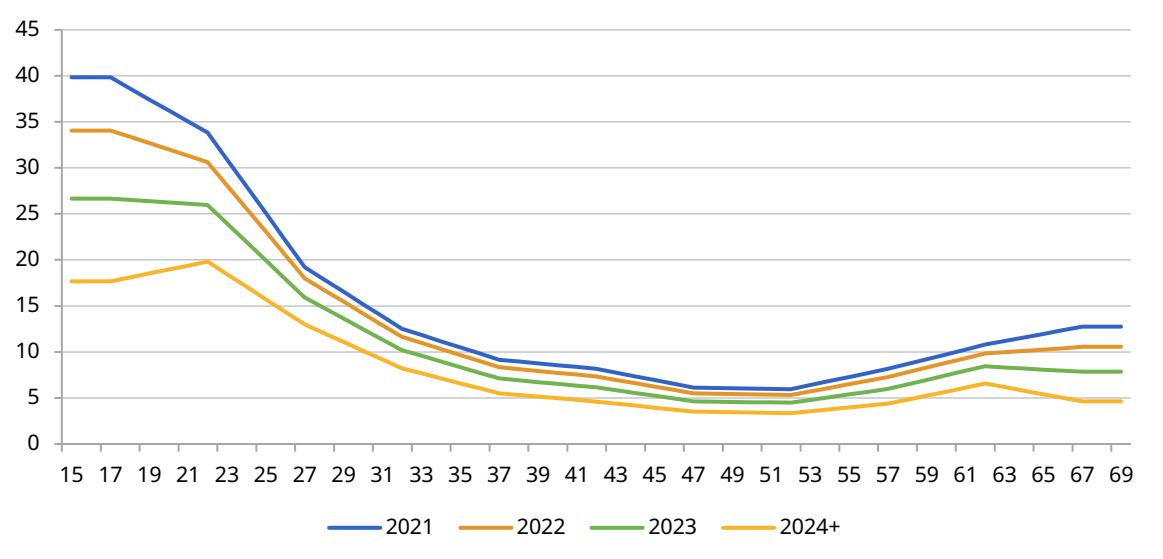
Sources: Previous valuation and Census 2021, calculations by the authors.

▶ Figure 3.7. Estimated unemployment rates, male, by age, 2021, 2022, 2023 and 2024+ (percentages)



Sources: Previous valuation and Census 2021, calculations from the authors.

▶ Figure 3.8. Estimated unemployment rates, female, by age, 2021, 2022, 2023 and 2024+ (percentages)



Sources: Previous valuation and Census 2021, calculations by the authors.

The evolution of the total population of Ghana and various components of the labour force appear in table 3.5.

▶ Table 3.5. Labour force balance, 2021–2095

	2021	2045	2070	2095
Population	30 860 411	43 657 920	53 602 065	58 780 151
Male	15 206 586	21 538 008	26 249 183	28 601 659
Female	15 653 825	22 119 912	27 352 882	30 178 492
Working-age population 15–69	19 045 724	30 236 818	37 496 601	40 348 225
Male	9 313 941	14 868 959	18 466 647	19 838 184
Female	9 731 783	15 367 859	19 029 954	20 510 041
Labour force population (%)	60.3	75.5	75.5	75.5
Male	65.5	78.0	78.3	78.2
Female	55.4	73.1	72.9	72.8
Labour force population	11 493 306	22 829 049	28 320 705	30 454 727
Male	6 102 279	11 595 288	14 453 294	15 519 930
Female	5 391 027	11 233 761	13 867 411	14 934 798
Employed population	9 948 773	21 126 088	26 333 011	28 367 091
Male	5 368 486	10 814 282	13 543 107	14 564 938
Female	4 580 288	10 311 806	12 789 903	13 802 153
Unemployed population	1 544 532	1 702 962	1 987 695	2 087 636
Male	733 793	781 007	910 187	954 991
Female	810 739	921 955	1 077 508	1 132 645
Unemployed population (%)	13.4	7.5	7.0	6.9
Male	12.0	6.7	6.3	6.2
Female	15.0	8.2	7.8	7.6

3.2.2. Inflation

The average inflation rate for the last ten years (table 3.6), as at December 2020, was 11.6 per cent. The Bank of Ghana has a monetary policy objective aiming at ensuring price stability and low inflation. According to this monetary policy, inflation (CPI) in the medium term should be between 6 and 10 per cent (target: 8±2 per cent).

▶ Table 3.6. Inflation rate, 2011–2020 (percentages)

Year	Inflation rate
2011	7.7
2012	7.1
2013	11.7
2014	15.5
2015	17.2
2016	17.5
2017	12.2
2018	9.8
2019	7.1
2020	9.9

Source: IMF.

The inflation rate is assumed to be 10.0 per cent in 2021, as per the International Monetary Fund (IMF). For 2022, as in many countries around the world, inflationary pressure has been observed in Ghana. According to the latest information available from the Bank of Ghana at the time of writing this section, the annual inflation rate in October 2022 was 40.4 per cent. For the complete year of 2022, it is estimated that the inflation rate will be 27.0 per cent on average. Inflation is then assumed to decrease from 15.0 per cent in 2023 to reach the ultimate assumption rate of 6 per cent in 2034. The inflation rate remains constant at 6 per cent for the rest of the projection period.

3.2.3. Salary increases

An important assumption in the actuarial valuation is the expected growth in the salary. Even more important is the relationship between the salary growth and the inflation rate, which is called the real salary growth. Real wages have been fluctuating during the last seven years. According to the file on the contributors, the average salary increase for the last seven years, as at December 2020, was 14.7 per cent (table 3.7). On a real basis (that is, without the effect of inflation) the average growth was 2.0 per cent.

▶ Table 3.7. Nominal and real wage increases, 2014–2020 (percentages)

Year	Nominal salary growth	Inflation	Real salary growth
2014	15.6	15.5	0.1
2015	19.1	17.2	1.9
2016	15.0	17.5	-2.5
2017	19.6	12.4	7.2
2018	15.9	9.8	6.0
2019	6.5	7.1	–0.7
2020	12.0	9.9	2.1
Average*	14.7	12.7	2.0

* Geometric average.

From 2021 onwards, it has been assumed that real wage growth for all years of the projection is 2.0 per cent, which is lower by 0.3 per cent than the level of the long-term assumption used in the previous actuarial valuation. The downward trend observed in the most recent seven years, compared to the years before 2014, explains to some extent why the real salary growth assumption has been decreased for this valuation. There is, however, an exception for the year 2022. Indeed, because the inflation rate is expected to be high, the assumption of real salary increase that year is –10.0 per cent.

3.2.4. T-bills and return on assets

Table 3.8 displays the 91-Day T-bills returns for the last ten years in both nominal and real terms. On average over the period, the average annual T-bills real return has been 6.3 per cent.

▶ Table 3.8. T-bills return, 2011–2020 (percentages)

Year	Nominal T-bills	Real T-bills
2011	10.7	3.0
2012	18.7	11.6
2013	22.0	10.3
2014	23.9	8.4
2015	25.1	7.9
2016	22.1	4.6
2017	14.1	1.7
2018	13.5	3.7
2019	14.7	7.6
2020	14.2	4.3

Source: Bank of Ghana.

For this valuation, the T-Bills real rate of return is assumed to be 4 per cent for all projection years. This is the same assumption as the one used in the previous actuarial valuation.

Regarding the expected rate of return on assets, although past performance is not indicative of future results, the analysis of the Fund's past performance remains useful in the process of determining the appropriate assumption. Over the last 12 years, for instance, the average return on total assets has been 12.2 per cent. If the effect of inflation is removed, this results in an average real return on assets of 0.9 per cent.

The asset allocation of the Fund is also essential in determining the investment return assumption. The long-term targeted asset allocation of SSNIT is described briefly in table 3.9. Roughly speaking, it is a 60/40 allocation in fixed income securities and variable income securities.

▶ Table 3.9. Asset allocation policy of the investment portfolio (percentages)

Asset classes	Target allocation	Range	Actual as at 31/12/2020
Equity	**38**	**+/–8**	**46.4**
Listed	20	+/–5	18.0
Unlisted	18	+/–3	28.4
Fixed income	**48.5**	**+/–19**	**23.8**
Corporate bonds	2	+/–4	1.0
Municipal bonds	0.1	+/–1	0.0
Government bonds	12	+/–3	0.0
Corporate lending	9	+/–5	7.0
Municipal lending	0	+/–1	0.0
Government lending	4	+/–4	0.0
Treasury	21	+/–1	15.4
Student loans	0.4	+/–0	0.4
Alternative investments	**13.5**	**+/–8**	**29.8**
Real estate	10	+/–5	26.8
Private equity and fund of funds	2.5	+/–1	0.9
ETI	1	+/–1	2.1

In the 2020 annual report, there are two references to the objectives of return on the investments:

1. On page 19, it is written that the trust investment policy objectives include the following:
   - **(a)** Implementation of an Optimal Asset Allocation Policy.
   - **(b)** Maintaining a long-term Optimum Fund Ratio.
   - **(c)** Protection of the principal assets of the Scheme and the value of those assets.
   - **(d)** Achieving a Real Return on Investments (RROI) of at least +4.25 per cent per annum.
   - **(e)** Attracting, training and retention of competent investment professionals.
2. On page 75, it is written that combinations of assets duly assessed are made in proportions that are projected to at least yield the minimum Expected Portfolio return of a positive 2.5 per cent above inflation.

However, we did not receive any documents justifying the level of long-term expected return by asset category. This is explained in part by the fact that, according to the Investment Team, the targeted Real Return on Investments (RROI) of 4.25 per cent and the minimum Expected Portfolio real return of 2.5 per cent were actually based on the assumptions of the 2017 actuarial valuation, in accordance with section 3.3 (1) of the SSNIT Investment Policy & Guidelines of June 2019, which states that "The investment return objective is to meet or exceed external actuarial return objective. ».

For this valuation, a similar approach to that used in the previous valuation to establish the investment return assumption is used, i.e. a transition from a current rate of return to a long-term one. The long-term target real investment return will be 4.25 per cent (compared to 4.5 per cent for the previous valuation). For the start of the transition, we have looked at the recent past. For instance, as displayed in figure 2.1, of the last six years of experience, four have had negative real returns on assets. In fact, the average real return on assets over the last six years was -1.6 per cent. We make the assumption then that, while the recent investment performance was not as good as expected, the situation will improve over time. As a result, the real return on asset

assumption is 2.5 per cent starting in 2023, expected to increase over the first 15 years to reach the ultimate level of 4.25 per cent (in 2035).

There are exceptions however for the years 2021 and 2022. For the year 2021, the real return on assets has been estimated using the most up-to-date information transmitted by SSNIT at the time of producing the financial projections. For 2022, the year was not complete yet at the time of producing the financial projections, but because the inflation rate was expected to be so high, the real return on assets assumption was set at –20.00 per cent. However, sensitivity analyses are also presented in this actuarial valuation in order to illustrate the impact of other returns on investment, including the use of the actual investment returns for 2021 and 2022, now known at the time of signing this report. As shown in that sensitivity analysis though, the use of the actual investment returns for 2021 and 2022 rather than the estimated/assumed ones does not change the General Average Premium and extend the year at which the reserve is exhausted by only one year.

3.2.5. Summary of the economic assumptions

Table 3.10 summarizes the economic assumptions used in this actuarial valuation.

▶ Table 3.10. Projected inflation rate and nominal wage increase, 2021–2095 (percentages)

Year	Inflation rate	Annual real increase of average wage	Annual real return on assets	Annual growth in the employed population
2021	9.98	2.00	3.47	2.98
2022	27.00	–10.00	–20.00	14.07
2023	15.00	2.00	2.50	9.56
2024	11.00	2.00	2.63	10.07
2025	8.00	2.00	2.75	2.66
2026	7.78	2.00	2.88	2.60
2027	7.56	2.00	3.00	2.55
2028	7.33	2.00	3.13	2.51
2029	7.11	2.00	3.25	2.47
2030	6.89	2.00	3.38	2.43
2031	6.67	2.00	3.50	2.39
2032	6.44	2.00	3.63	2.34
2033	6.22	2.00	3.75	2.28
2034	6.00	2.00	3.88	2.21
2035	6.00	2.00	4.00	2.12
2036	6.00	2.00	4.13	2.04
2037+	6.00	2.00	4.25	0.78

▶ 4. Fund-specific assumptions

4.1. Demographic assumptions related to the Fund

4.1.1. Coverage rate

A cohort approach has been used for projecting the active insured population, which means that global coverage rates have been applied to the corresponding total employed population for each future year of projection. As with prior valuations, those coverage rates are expected to continue to increase for a certain period of time. However, for this valuation it is assumed that the coverage rates will increase for a longer period than previously assumed. Indeed, now that a sufficiently long historical data series is available, it appears that SSNIT is able to sustain a certain level of growth. This is most likely due to SSNIT's efforts in extending coverage, and to the overall development of the economy towards a more robust formal economy. Furthermore, it is our understanding that SSNIT is also actively promoting the scheme to the workers of the informal economy, thereby reinforcing our belief that SSNIT might continue to grow and expand its coverage for most of the projection period.

Specifically, we have assumed that the active insured population will continue to grow until the labour force participation rates have fully recovered from the COVID-19 pandemic and have thus reached their ultimate level again in 2024. After that, it is assumed that the coverage rates will continue to grow indefinitely by an absolute amount of 0.3 per cent per year, which is in line with the observed trend in the evolution of SSNIT and the overall economic potential of the economy. These assumptions entail an increase in the average coverage rate (male and female combined) from the current level of around 16.7 per cent to 35.8 per cent at the end of the projection period in 2095.

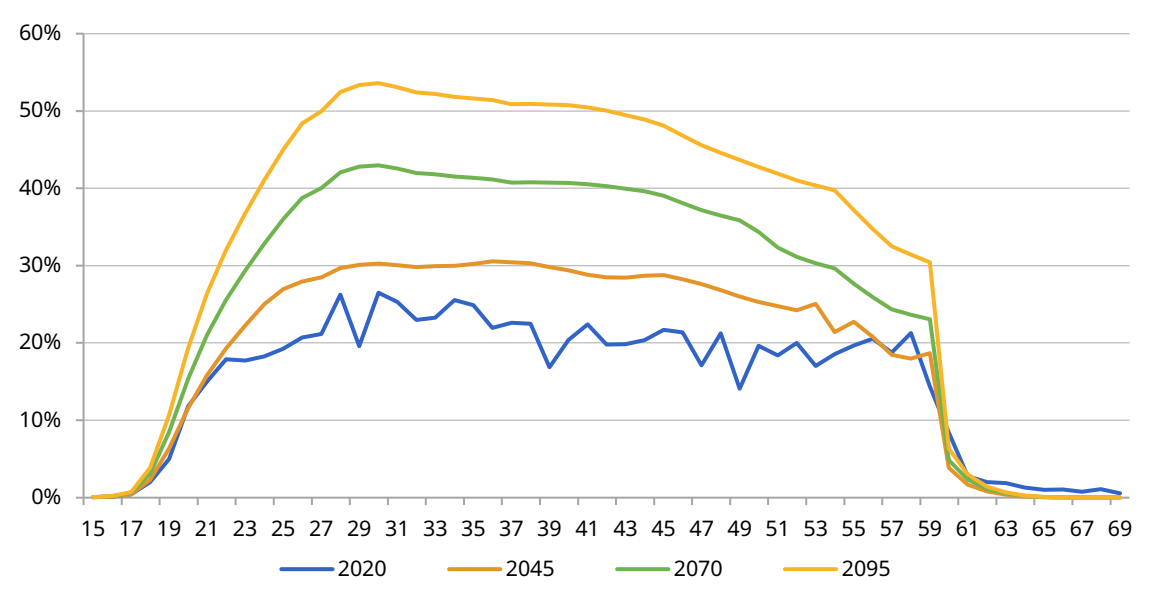
Table 4.1 illustrates this resulting growth in the insured population over the projection period. It is higher at the beginning of the projection period since it reflects the recent experience of SSNIT (including the actual 2021 increase), and then it slows down to a level that is in line with the growth of the employed population, albeit slightly higher given the assumed increase in the overall coverage of SSNIT.

▶ Table 4.1. Growth of the insured population, 2020–2095 (percentages)

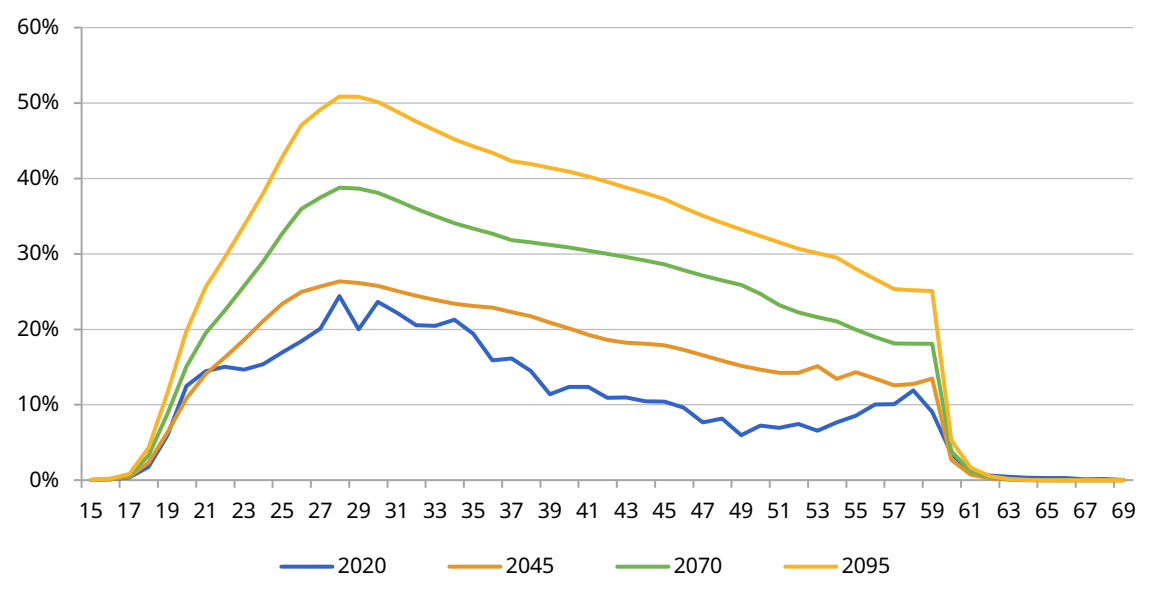
Sex	2020–2045	2045–2070	2070–2095	Average
Male	3.9	2.0	1.2	2.3
Female	4.4	2.3	1.4	2.7
Total	**4.1**	**2.1**	**1.2**	**2.5**

Once the growth of the insured population is determined, the model will use assumptions, as discussed below, (entry rates, mortality rates, retirement rates, invalidity rates and net leaving rates) to project the population by age and sex for the entire projection period. Figures 4.1 and 4.2 show the resulting coverage rates for males and females respectively for the years 2020, 2045, 2070 and 2095.

▶ **Figure 4.1. Resulting coverage rates for males, by age, 2020, 2045, 2070 and 2095**



▶ **Figure 4.2. Resulting coverage rates for females, by age, 2020, 2045, 2070 and 2095**



4.1.2. Mortality rates

It was not possible to use SSNIT data on deaths in order to develop a mortality table specific to SSNIT members. Firstly, deaths are not reported in a timely manner by the heirs, and secondly, SSNIT does not follow deaths occurring before age 75 (72 in the old system). This is mainly due to the design of the scheme. Indeed, by having a pension guarantee until age 75, even if the pension is paid for a long period after the death of the pensioner, when the heirs ask for the survivors' lump sum the amounts of pension paid in excess are simply deducted from the lump sum.

Thus, the mortality rates used for the projection of the general population have been used and adjusted to take into account the expectation that the insured population of SSNIT is wealthier than the general population of Ghana and, as a consequence, has a higher life expectancy. The assumption used is that mortality rates for SSNIT members are 20 per cent lower than those observed in the general population. As a result, the residual life expectancy of SSNIT members at normal retirement age (60 years old) exceeds that of the general population by 0.9 years for males and 0.8 years for females. Members' mortality rates are assumed to decline gradually over the projection period in the same way as in the general population.

Table 4.2 presents residual life expectancy of the insured population at selected ages for 2020, 2045, 2070 and 2095. Table 4.3 shows a sample of mortality rates used in the actuarial valuation.

▶ Table 4.2. Residual life expectancy at selected ages, insured population, by sex, 2020, 2045, 2070 and 2095

Year	Males		Females	
	At 20	At 60	At 20	At 60
2020	49.5	16.5	52.9	18.3
2045	52.3	18.0	55.7	19.7
2070	53.9	18.7	58.1	21.0
2095	56.1	20.1	60.8	23.1

▶ Table 4.3. Sample mortality rates, insured population, by sex, 2020, 2045, 2070 and 2095 (percentages)

Age	Males				Females			
	2020	2045	2070	2095	2020	2045	2070	2095
0	0.0294	0.0218	0.0165	0.0121	0.0234	0.0137	0.0083	0.0067
5	0.0029	0.0020	0.0013	0.0008	0.0025	0.0012	0.0006	0.0004
10	0.0018	0.0011	0.0008	0.0005	0.0014	0.0007	0.0004	0.0002
15	0.0018	0.0012	0.0009	0.0006	0.0013	0.0007	0.0004	0.0003
20	0.0032	0.0022	0.0017	0.0013	0.0020	0.0011	0.0007	0.0005
25	0.0035	0.0025	0.0019	0.0014	0.0023	0.0013	0.0008	0.0006
30	0.0037	0.0026	0.0020	0.0016	0.0027	0.0016	0.0010	0.0008
35	0.0040	0.0030	0.0023	0.0018	0.0029	0.0018	0.0012	0.0009
40	0.0048	0.0037	0.0030	0.0023	0.0037	0.0025	0.0017	0.0013
45	0.0059	0.0047	0.0038	0.0030	0.0044	0.0032	0.0023	0.0017
50	0.0084	0.0067	0.0057	0.0045	0.0060	0.0044	0.0033	0.0024
55	0.0118	0.0093	0.0081	0.0065	0.0083	0.0064	0.0050	0.0036
60	0.0171	0.0134	0.0118	0.0095	0.0122	0.0095	0.0075	0.0054
65	0.0281	0.0223	0.0200	0.0164	0.0211	0.0166	0.0135	0.0097
70	0.0448	0.0361	0.0327	0.0269	0.0357	0.0287	0.0238	0.0174
75	0.0711	0.0603	0.0551	0.0463	0.0581	0.0496	0.0418	0.0313
80	0.1148	0.0998	0.0922	0.0793	0.0964	0.0851	0.0732	0.0567
85	0.1904	0.1610	0.1507	0.1334	0.1589	0.1409	0.1238	0.0994
90	0.2841	0.2494	0.2353	0.2131	0.2268	0.2070	0.1866	0.1560
95	0.3833	0.3491	0.3328	0.3093	0.3239	0.3021	0.2771	0.2405
100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

People with disabilities generally have higher mortality rates than active participants. Due to the low incidence of disability experienced by the scheme each year though, it is difficult to establish accurate mortality rates for invalids. For this actuarial review, it has been assumed that the mortality rates of the disabled are the same as those assumed for the active and insured population. While conservative, this assumption has only a slight impact on the results.

4.1.3. Retirement rates and net leaving rates

Retirement rates have been derived from SSNIT past experience between 2017 and 2020 inclusively. Although these rates may fluctuate from one year to another, the data obtained from SSNIT was assumed to be representative of the general retirement pattern of the members and consistent with the scheme's normal retirement age. The only exception is the 2020 experience data, which was given slightly less weight since the COVID-19 pandemic is likely to have had a one-time effect on retirement patterns. Overall, checks and adjustments have been made to ensure that the assumed retirement pattern was consistent with the current pensioners' characteristics and profile, by age and sex.

Table 4.4 presents the retirement rates used for the actuarial valuation, by age and sex.

▶ Table 4.4. Retirement rates, by age and sex (percentages)

Age	Males	Females
55	7.0	5.0
56	7.0	5.0
57	7.0	5.0
58	7.0	5.0
59	7.0	5.0
60	80.0	80.0
61	55.0	70.0
62	55.0	70.0
63	55.0	70.0
64	65.0	85.0
65	75.0	95.0
66	85.0	100.0
67	90.0	100.0
68	100.0	100.0
69	100.0	100.0

Source: Authors' assumptions.

New for the 2020 valuation is the introduction of net leaving rates (that is for reasons other than invalidity, death or retirement) in the projection of the covered population. The reader should be aware that these rates are *net* leaving rates, which means that they take into account the combined effect of members leaving the scheme as well as members re-entering the scheme. It is an improvement that does not change the conclusions of this report, but it is one that allows for better precision and control over the evolution of the covered population, and ultimately on the modelling of the benefits and costs of the scheme. There are many ways to deal with the leaving rates assumption. For this valuation, a reasonable approach based on a balance of simplicity and added value is used. Samples of the rates used for this valuation are shown in table 4.5. They have been derived using the experience of SSNIT but are also calibrated to yield reasonable projected coverage rates. Their introduction is done using a prudent and simple

approach which is an alternative to a complex analysis based on long-term historical information. Sensitivity on this assumption is presented in section 5.3.1.

▶ Table 4.5. Net leaving rates, by age and sex (percentages)

Age	Males	Females
15	15.0	15.0
20	11.8	11.8
25	8.5	8.5
30	5.2	5.2
35	2.0	2.0
40	2.0	2.0
45	2.0	2.0
50	2.0	2.0

Source: Authors' assumptions.

4.1.4. Invalidity rates

Table 4.6 shows the expected incidence rates, by age and sex, of insured persons qualifying for invalidity benefits. The rates are based on the experience of SSNIT. The invalidity rates have been calibrated using SSNIT general trend in terms of invalidity pensions in payment during the years 2017 to 2020. The assumed invalidity rates are kept constant for the whole projection period.

▶ Table 4.6. Sample invalidity rates, by age and sex (per 1,000 insured members)

Age	Males	Females
15	0.0000	0.0000
20	0.0000	0.0000
25	0.0015	0.0027
30	0.0036	0.0042
35	0.0165	0.0064
40	0.0683	0.0164
45	0.2187	0.0984
50	0.5555	0.3248
55	0.9678	0.5206
60	1.1290	0.5732

Source: Authors' assumptions.

4.1.5. Entry rates

Under this actuarial valuation, the distribution by age and sex of the projected insured population is determined using the cohort projection method. This method uses an assumed age and sex distribution of new entrants and a series of decrements (mortality, invalidity and retirement) that are applied to successive cohorts of active insured persons. Hence, the evolution of the number of active insured persons is determined on the basis of assumptions regarding the overall employment growth and coverage rate, but their distribution by age and sex is determined after the application of new entrants' distribution as well as the decrement rates.

The distributions of new entrants have been derived using the past experience of new entrants to the scheme between 2017 and 2020 inclusively. Those whose entry age was below 15 or above 45 have been excluded for the purposes of estimating the age distributions of new entrants.[5]

In this actuarial valuation, the entry rates by age and sex are assumed to remain unchanged for the whole projection period. Table 4.7 shows the assumptions that were used to distribute the new entrants for all projected years of the current valuation.

▶ Table 4.7. Distribution of new entrants, by age and sex

Age	Male	Female
15–19	4.7	5.8
20–24	31.5	33.8
25–29	34.7	37.6
30–34	16.3	13.2
35–39	7.6	5.9
40–44	4.6	3.3
45–49	0.5	0.4
50–54	–	–
55–59	–	–
60–64	–	–
65–69	–	–
Total	**100.0**	**100.0**

Source: SSNIT.

4.1.6. Family structure

More information on the family structure of the insured population is usually necessary for the projection of survivors' benefits. As the survivors' benefit from SSNIT is a lump sum paid to the member's elected beneficiary, the probability of a member having an elected beneficiary (by age and sex) is the only parameter needed to project the survivors' benefits through time. It is worth noting that no explicit assumption was used past age 75 as no survivors' benefit is paid above that age. Therefore, the assumption assumes that anyone who dies has an elected beneficiary.

5 The minimum age at which a person may join the SSNIT is 15 and the maximum age is 45.

▶ Table 4.8. Sample of probabilities of having a dependant, by age and sex

Age	Male	Female
15	100.0	100.0
20	100.0	100.0
25	100.0	100.0
30	100.0	100.0
35	100.0	100.0
40	100.0	100.0
45	100.0	100.0
50	100.0	100.0
55	100.0	100.0
60	100.0	100.0
65	100.0	100.0
70	100.0	100.0

Source: Authors' assumptions.

4.1.7. Density of contributions

The density of contributions represents the proportion of the year during which members pay contributions to the scheme and accrue social security benefits. In other words, the density of contribution represents the average number of months of contribution in a year. In this actuarial valuation, the densities presented in table 2.8 of section 2.4.2 are assumed to remain at their current level over the projection period.

4.2. Other assumptions and data

4.2.1. Indexing of the Fund's parameters and pensions in payment

Pensions in payment are reviewed annually taking into account the increase in the salaries of SSNIT's active contributors. The indexation consists of an increase by a fixed rate plus an additional flat amount. The pension indexation rates announced in the official press releases (on SSNIT website) have been used for the years 2020 and 2021. The pension indexation rates are 10 per cent for both years. It has been assumed that from year 2022 onwards the indexation will follow the annual salary increase.

The increase in the minimum monthly pension is set each year by the Board of Trustees. For the years 2021 and 2022, the minimum monthly pension is GHS 300. Starting in 2023, it has been assumed that the minimum monthly pension will increase at the same rate as the wage growth for the whole projection period.

A ceiling and floor on contribution wages did not exist in the old scheme, but have been included in the new scheme since 2011. It has been assumed that both floor and ceiling will also increase in line with the wage growth from 2023 onwards. For the years 2021 and 2022, ceiling and floor wages presented in Appendix 1 have been used.

4.2.2. Administrative expenses

Administrative and operational expenses have fluctuated between 1.4 and 2.4 per cent of insurable earnings from 2018 to 2020. It is assumed that administrative expenditures will remain

constant at 2 per cent of insurable earnings from the year 2022 onwards. This is the same assumption as the one used in the previous actuarial valuation. For the year 2021, according to the information transmitted by SSNIT, the expenses represent 1.6 per cent of the total insurable earnings.

4.2.3. Return on the assets

The assumptions related to the return on investment are detailed in section 3.2.4.

4.2.4. Delay in payment of contributions

According to the information transmitted, it has been observed that, on 31 December 2021, there was a total amount of indebtedness equal to GHS 9,355.46 million. This amount includes interest on unpaid contributions, and does not appear in the financial statements because of the use of the cash basis. Almost three-quarters of the amount of indebtedness is due by the Government. Given the importance of paying the contributions on time though, the base scenario considers explicitly the Government's delay in payment. Taking into consideration such a situation is also much more important in a context where SSNIT uses part of the investment income to pay benefits. To reflect this situation, it has been assumed that, as in the previous actuarial valuation, 20 per cent of the contributions are not paid on time but seven years later. Also, no interest is assumed to be paid on the late contributions. As has been raised previously, this actuarial valuation is on an accrual basis; the amount of indebtedness is therefore added to the assets.

For simplicity, slight conservatism, and because no information on late payment of other sectors was collected, only the part of indebtedness related to the Government is taken into account in the assets at the beginning of the projection period. This represents GHS 6,905 million out of the total indebtedness of GHS 9,355 million.

This assumption has many implications. First, it has a considerable impact on the return SSNIT may achieve on its assets. In fact, this is a 1.3 per cent decrease in investment return each year. Second, as past experience suggests, by not paying on time and not paying the interest income on delayed contributions, the Government shifts an important part of the cost to the private sector.

4.2.5. Other income

Except for the first year of projection where the information was available, other incomes are not recognized in this actuarial valuation. This approach has been used for materiality and simplicity, and also in recognition that some elements, such as exchange rate gain/loss, should not be anticipated before they occur. Delay in the payment of contributions is automatically recognized in the assumptions related to the investment income for the private sector, while for the Government, an explicit assumption is made for this (see "Delay in payment of contributions", above).

4.2.6. Contribution collection rate

As in the previous actuarial valuation, it is assumed that 100 per cent of the contributions are going to be collected.

4.2.7. Probability of commuting the pension

For the old scheme, an option to commute 25 per cent of the pension to a lump sum payment equivalent to a 12-year annuity calculated at the prevailing Treasury Bill rate is available at the time of retirement (section 36(1), PNDCL 247). It is assumed that 100 per cent of the eligible members commute 25 per cent of their pension.

▶ 5. Demographic and financial projections of SSNIT

This part of the valuation addresses the ability of the social security scheme to meet its future obligations at the time they fall due. This is done under an open-group approach. It is assumed that workers will continue to be insured with SSNIT indefinitely, thus paying contributions and accruing benefit entitlements, and later receiving benefits in accordance with the current practice of SSNIT. Future contributions and benefits are calculated according to the demographic and economic assumptions and the fund-specific assumptions presented in Chapters 3 and 4.

The results of this actuarial valuation are not totally in line with the presentation of the results in the financial statements. As discussed previously in this report, SSNIT uses a cash basis to present its results, which is an unusual basis for a social security pension scheme. Usually, social security pension schemes present their results on an accrual basis, where all amounts due in a year belong to that year in the financial statements. For this actuarial valuation, the accrual basis is used. However, to take into consideration the concerns of SSNIT regarding cash flow, the presentation has been modified so that it is possible to see the surplus and deficit on a cash basis. Accordingly, the indebtedness, which is supposed to be receivables and be part of the contributions, is excluded from the contributions, but is part of the assets as receivables. All the money that is due by the Government on the actuarial valuation date is included in the assets.

This review deals with expenditures and income. Long-term benefits will attain a mature state only after the youngest people of the first generation of contributors have become pensioners, have died and all survivors' benefits paid on their behalf have ceased. This requires that the situation of the scheme be analysed over a period that is long enough. For the current valuation, the projection period is 75 years, from 2021 to 2095. This is the same period as the one used in the previous actuarial valuation.

The general methodology of the ILO valuation model is described in Appendix 3. For the present actuarial valuation, a basic scenario was produced based on best-estimate assumptions. Also, additional scenarios were made to better understand the main factors that have an impact on the financial soundness of SSNIT, and to assess uncertainties concerning possible modifications to the scheme that could be part of a future potential reform of pensions.

The main purpose of the valuation is to find out whether the financing of SSNIT is on course over the long term, not to exactly forecast numerical values. Due to the long-term nature of assumptions, absolute figures include a high degree of uncertainty. Therefore, results should be interpreted carefully, and future actuarial reviews should be undertaken on a regular basis to revise actuarial assumptions in light of the actual experience of the scheme.

5.1. Base scenario

5.1.1. Demographic projections

Demographic projections are shown in table 5.1. The total number of contributors follows a rate of growth derived from the projections of Ghana's national population, labour force and employed population as described in Chapter 3, but also a small, gradual increase in overall coverage as described in section 4.1.1.

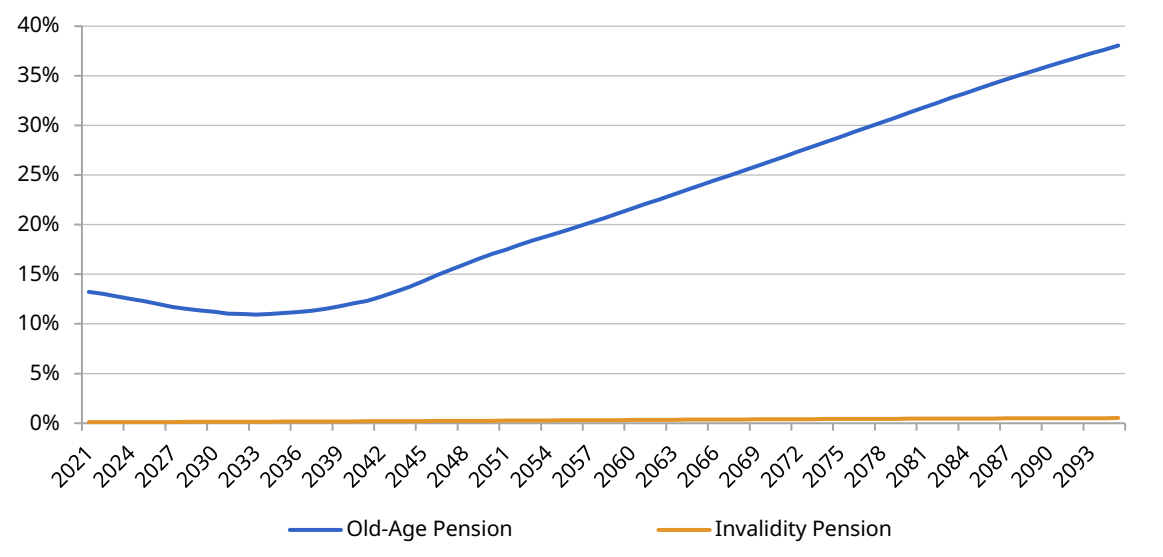
The table also shows the demographic ratio, which is defined as the number of pensioners divided by the number of contributors. This ratio of pensioners to contributors is normally a good indicator of the increasing cost of the scheme. The number of pensioners grows rapidly during

the projection period (see figure 5.1). Thus, the ratio of all pensioners (Old Age and Invalidity) to contributors (the demographic ratio) grows from 13.3 to 38.5 per cent in 2095. In other words, there are 7.5 contributors for each pensioner in 2021, while in 2095 there will be 2.6 contributors for each pensioner.

▶ Table 5.1. Projected number of contributors and pensioners, 2021–2095

Year	Number of contributors	Number of beneficiaries				Demographic ratio (pension) (%)	
		Old-Age pension	Old-Age lump sum	Invalidity pension	Death allowance	Old-Age	Invalidity
2021	1 734 168	229 401	4 562	1 573	11 729	13.2	0.1
2022	1 810 471	236 084	3 770	1 718	12 436	13.0	0.1
2023	1 890 132	241 128	3 592	1 874	12 721	12.8	0.1
2024	1 973 298	247 061	4 331	2 041	12 630	12.5	0.1
2025	2 067 934	253 872	5 686	2 222	12 012	12.3	0.1
2030	2 580 260	289 570	7 964	3 330	13 742	11.2	0.1
2040	3 758 303	453 078	16 209	6 802	21 175	12.1	0.2
2050	5 005 135	853 842	37 704	12 313	31 566	17.1	0.2
2060	6 242 169	1 347 885	80 390	19 947	43 176	21.6	0.3
2070	7 438 329	1 962 224	109 986	28 665	52 446	26.4	0.4
2080	8 549 869	2 676 025	141 167	37 837	61 779	31.3	0.4
2090	9 610 469	3 456 624	168 964	47 047	68 046	36.0	0.5
2095	10 138 857	3 857 651	182 538	51 665	70 087	38.0	0.5

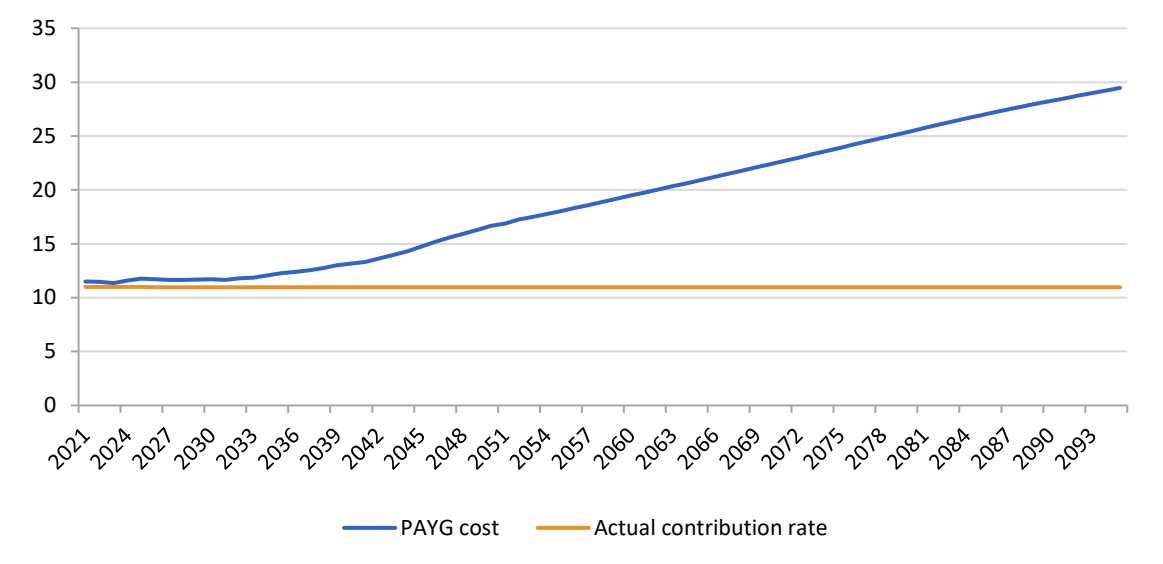
▶ Figure 5.1. Demographic ratio: Number of pensioners divided by the number of contributors, 2021–2095



5.1.2. Financial projections

As shown in figure 5.2, total expenditures as a percentage of insurable earnings (which is called the pay-as-you-go (PAYG) rate) rises from 11.5 per cent in 2021 to 29.5 per cent in 2095. The PAYG rate represents the contribution rate that would be required to pay all the expenditures of the scheme (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 is not growing as fast.

▶ **Figure 5.2. Projected PAYG rates, 2021–2095** (percentage of insurable earnings)



Note: PAYG based on accrual basis.

Some comments are necessary to better appreciate table 5.2:

- The PAYG rate is calculated on an accrual basis, not on a cash basis. This means that the PAYG is calculated on the total insurable earnings in the years declared as opposed to the cash basis where it would have been calculated on the salaries related to the years in which the contributions are actually paid. Therefore, on an accrual basis, the expenditures are almost in line with the contributions, while on a cash basis they are higher than contributions in any given year. This illustrates the impact of the delays in the payment of contributions by the Government.
- The results of the first year of projection have been calibrated in order to reconstruct the financial information available at the moment of the calculations for the year 2021.

Table 5.2 shows the results of the financial projections for cash flows and reserves. In the base scenario, the contribution rate is 11 per cent (15 per cent for PNDCL 247). The main observations are as follows:

1. Annual contributions are insufficient to pay for all annual expenditures (benefits and administrative expenditures) throughout the projection period.
2. Investment income must be used to pay for annual expenditures. The reserve grows until 2028.

3. Starting in 2029, total income (contributions, investment income and other income) is no longer sufficient to pay for annual expenditures. The reserve starts to decrease.
4. During the year 2036, the reserve drops to zero.
5. Starting in 2036, the required annual contribution rate to pay for all expenditures becomes the PAYG rate. As an illustration, this rate is 12.4 per cent in 2036 and 29.5 per cent in 2095.

The reserve ratio, which is the ratio of the end-of-year reserve over the annual expenditures for the year, moves from 3.4 to 0 between 2021 and 2036. This ratio can be interpreted as the number of years during which annual expenditures could be paid by the reserve if there were no contributions, no investment income and no other income. Figure 5.3 shows the evolution of the reserve ratio. It also presents the reserve ratio on a cash basis. The bump in 2027, as seen on the line related to the reserve ratio on a cash basis, is due to the delayed payment of the unpaid contributions by the Government according to the assumptions explained in section 4.2.4. The scenario on a cash basis has been agreed with representatives of SSNIT.[6]

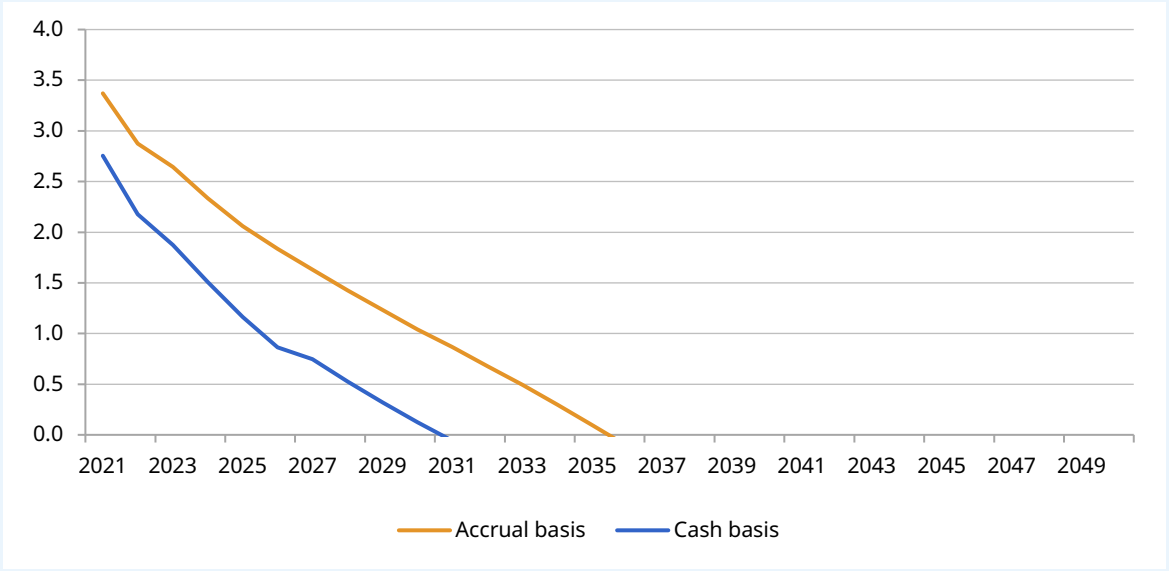
6 The reader should be aware that the accrual basis also takes into account that there is a delay in the payment of contributions. The main difference from the cash basis is the fact that with the accrual basis, the receivables are taken into account in the calculation of the reserve.

▶ Table 5.2. Projected revenues, expenditures and reserve, 2021–2095 (GHS millions)

Year	Income				Expenditures		Surplus / (Deficit)	Indebtedness	Reserve at end of year	PAYG rate (%)	Reserve ratio	Reserve ratio (cash)
	Contribution paid on time	Contribution paid late	Other income	Investment earnings	Benefits	Administrative expenses						
2021	3 376	0	62	1 413	3 628	564	659	2 582	14 126	11.5	3.4	2.8
2022	3 924	0	0	767	4 219	892	–419	3 563	14 688	11.5	2.9	2.2
2023	4 794	0	0	1 831	5 089	1 089	446	4 762	16 332	11.3	2.6	1.9
2024	5 657	0	0	1 458	6 167	1 286	–337	6 176	17 409	11.6	2.3	1.5
2025	6 521	0	0	1 093	7 231	1 482	–1 100	7 806	17 939	11.8	2.1	1.2
2030	12 722	1 198	0	340	14 028	2 891	–2 659	15 500	17 616	11.7	1.0	0.1
2040	40 571	4 592	0	–9 777	51 499	9 221	–25 333	52 052	–61 073	13.2	–1.0	–1.9
2050	116 662	14 042	0	–88 316	194 322	26 514	–178 447	152 944	–843 157	16.7	–3.8	–4.5
2060	314 541	39 501	0	–518 676	625 197	71 487	–861 317	418 562	–5 335 865	19.5	–7.7	–8.3
2070	809 586	104 893	0	–2 382 618	1 876 668	183 997	–3 528 803	1 089 664	–25 125 073	22.4	–12.2	–12.7
2080	2 009 198	266 599	0	–9 544 832	5 352 289	456 636	–13 077 960	2 726 958	–101 747 841	25.4	–17.5	–18.0
2090	4 875 615	656 367	0	–34 894 716	14 544 076	1 108 094	–45 014 904	6 649 361	–373 865 114	28.3	–23.9	–24.3
2095	7 557 597	1 021 738	0	–64 953 692	23 593 675	1 717 636	–81 685 668	10 326 891	–696 891 397	29.5	–27.5	–27.9

Note: Indebtedness (receivables) is included in the reserve at the end of every year. The indebtedness is equal to the contributions not yet paid at the end of the year. Late contributions are the contributions that are paid seven years after their due date.

▶ **Figure 5.3. Projected reserve ratio, accrual vs and cash basis, 2021–2050**



5.1.3. General average premium (GAP)

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, which is 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. Over the projection period the contributions and the reserve are going to be used to pay all expenditures. In the current valuation, this GAP is 21.0 per cent. The problem with this definition of the GAP is that by financing the scheme at a contribution rate of 21.0 per cent, there would be no reserve left in 2095, meaning that the contribution rate would have to increase instantly to around 29.5 per cent (the PAYG rate). Such an increase would not be viable for the scheme.
2. The annual contribution, as a percentage of insurable earnings, which is necessary to pay for all expenditures over the entire projection period, but that allows for the accumulation of a predefined level of reserve at the end of the period. The amount of reserve can be defined as a multiple of the last projection year's total expenditure. This is the reserve ratio. For example, a contribution rate of 22.0 per cent is necessary to pay all expenditures (administrative and benefits) over the entire projection period and allows for the accumulation at the end of the projection period of a reserve equal to three times the total scheme's expenditures at that point. As in the previous actuarial valuation, this definition of the GAP is used for the rest of this report.

5.2. Reconciliation of the GAP with previous actuarial valuation

The long-term projected cost of SSNIT in this valuation is different from the one obtained in the last report for 2017. There are elements related to the methodology and the assumptions that, when taken in isolation, produce different results from those obtained in the previous valuation. This section explains these differences.

The reconciliation of the long-term projected cost of SSNIT between this valuation and the previous one is done using the GAP. The second definition of GAP, as discussed in section 5.1.2, is used. Under this definition, the GAP is the contribution rate, as a percentage of insurable earnings, which is necessary to pay for all expenditures over the entire projection period and that allows for the accumulation of a reserve equal to three times the expenditures at the end of the period.

The GAP of SSNIT in this valuation is 0.4 per cent lower than the one calculated in the last report. Table 5.3 shows the reconciliation between the two valuations:

- Over the long term, expenditures increase more rapidly than insurable earnings. Therefore, in each valuation year the cost of the scheme is expected to increase until the scheme becomes fully mature. The shift in the period of projection from 2017–2092 to 2020–2095 increased the GAP by 0.3 per cent.
- The overall financial experience of the scheme between 31 December 2017 and 31 December 2021 (the latest year for which full financial information is available) has contributed to increasing the GAP by 0.4 per cent.
- Similarly, the overall demographic experience of the scheme between 31 December 2017 and 31 December 2020 (the valuation date) has contributed to increasing the GAP by 0.6 per cent.
- Various economic assumptions have been reviewed, resulting in a net decrease of the GAP by 0.5 per cent. The most important changes are the update in the salary increase assumption (see section 3.2.3), and the revision of the investment return assumption (section 3.2.4). Also, the minimum pension increased less than expected in the last actuarial valuation; this contributed to a further decrease in the GAP of 0.3 per cent.
- Demographic assumptions have also been reviewed, most importantly the growth of the covered population, which leads to a decrease of 1.9 per cent in the GAP. Further details on this significant change are available in section 4.1.1.
- Lastly, some adjustments have been made to the calculation methodology and to the calibration of the model, and these have had the effect of increasing the GAP by 0.7 per cent. The most important of these changes is the improved modelling of pre-retirement salaries. The pension formula is based on the best three years of salaries, which are usually the last three years of salaries. The information transmitted for this valuation, compared to that transmitted for the previous valuation, allows the recognition of the sharp increase in salary just before reaching the retirement age of 60. This improved modelling of pre-retirement salaries increased the GAP by 1.0 per cent.

▶ Table 5.3. Reconciliation of the GAP between the December 2017 and December 2020 valuations (percentages)

GAP as of 31 December 2017		**22.4**
Experience		
Projection period 2020–2095	0.3	
Financial experience from 31 December 2017 to 31 December 2021	0.4	
New valuation data at 31 December 2020	0.6	
	1.3	23.7
Economic assumptions and others		
Minimum and maximum insurable earnings	0.0	
Minimum pension	–0.3	
Inflation assumption	–0.3	
Salary growth rate assumption	–0.6	
Pension indexation	0.1	
Investment return & T-Bill assumptions	0.6	
Lump sum rate	0.0	
	–0.5	23.2
Demographic assumptions		
Covered population growth	–1.9	
Mortality rates	–0.1	
Retirement rates	0.1	
Invalidity rates	–0.1	
Density	0.0	
New entrants distribution	–0.1	
Inactive members	0.2	
	–1.9	21.3
Methodology refinement		
Introducing leaving rates	–0.5	
Improved modelling of pre-retirement salaries	1.0	
Miscellaneous corrections and calibration	0.2	
	0.7	
GAP as of 31 December 2020		**22.0**

5.3. Sensitivity tests

Under the base scenario, a contribution rate of 22.0 per cent is necessary to pay all the expenditures of the scheme for the next 75 years and accumulate a reserve ratio of 3 at the end of the projection period. This contribution rate refers to the GAP. This section discusses some other scenarios to better understand the risks the pension scheme may face.

In addition to the GAP, impacts for each scenario on the PAYG rate at the end of the projection period, and on the year the reserve will be zero, will also be shown. This section is divided in two: sensitivity tests on the assumptions and sensitivity tests on policy reforms.

5.3.1. Sensitivity tests on assumptions

5.3.1.1. Return of the Fund

The assumption concerning the real return on assets in the base scenario starts from 2.5 per cent in 2023 and increases gradually for 15 years until it reaches its ultimate level of 4.25 per cent. For the year 2021, based on preliminary financial reports, an estimated nominal return of 13.45 per cent was used. For 2022, an assumed nominal return of 7.00 per cent was used. At the time of signing this report though, the actual investment returns for 2021 and 2022 are now known, and are 18.99 per cent and 21.27 per cent respectively. Table 5.4 below shows the impact of using these actual investment returns rather than the estimated/assumed 13.45 per cent and 7.00 per cent for 2021 and 2022 respectively.

▶ Table 5.4. Sensitivity analysis: Actual 2021/2022 Returns of the Fund

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
18.99% and 21.27% in 2021 and 2022	22.0	29.5	2037

Source: Authors' projections.

This sensitivity test shows that using the actual 2021 and 2022 investment returns rather than the estimated/assumed ones does not significantly affect the GAP, the 2095 PAYG, nor the year of exhaustion of the reserve.

Table 5.5 shows the impact of having a return 3 per cent lower, 1 per cent lower, and 1 per cent higher than in the base scenario. A change in the return on assets has no impact on the PAYG rate, because when calculating this rate, the amount of reserve is not considered.

▶ Table 5.5. Sensitivity analysis: Return of the Fund

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
–3.0%	26.5	29.5	2035
–1.0%	23.5	29.5	2036
+1.0%	20.6	29.5	2036

Source: Authors' projections.

Getting a 1.0 per cent higher return on assets would practically not affect the moment of depletion of the reserve, but in terms of the contribution rate (GAP), it would have an important effect: the rate would go down by 1.4 per cent, from 22.0 to 20.6 per cent. Getting a 1.0 per cent lower return on assets could increase the GAP by 1.5 per cent, from 22.0 to 23.5 per cent. This scenario shows the importance of having a long-term strategy in terms of investment.

5.3.1.2. Insured population growth

Depending on the degree of funding of the scheme, the GAP can be very sensitive to the assumption of insured population growth. The PAYG rate is also significantly affected by this

assumption. The sensitivity analysis shown in table 5.6 assumes a higher and a lower insured population growth assumption throughout the projection period. In the base scenario, the insured population grows on average at a rate of 2.5 per cent per year over the 75-year projection period. In the low-growth scenario, it is assumed that the insured population will grow at an annual rate 1.0 per cent lower, while in the high-growth scenario at an annual rate that is 1.0 per cent higher.

▶ Table 5.6. Sensitivity analysis: Insured population growth

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
+1.0%	19.3	23.2	2040
–1.0%	24.9	37.8	2034

Source: Authors' projections.

It is important to understand the impact of insured population growth for a pension scheme. Indeed, higher insured population growth means that there are more people available to pay for benefits. This has the effect of delaying the ultimate cost of a pension plan by lowering the PAYG rate over the projection period, as shown in table 5.6. The opposite applies to the lower growth scenario. According to these scenarios, the PAYG rate at the end of the projection period for low growth and high growth are 37.8 and 23.2 per cent respectively. There is also a material impact on the GAP. This sensitivity analysis clearly illustrates one of the most important risks of social security systems that are partially funded.

5.3.1.3. Salary increase

In pension plans, pensions are very often indexed annually according to the increase in inflation, while salaries increase faster, usually in accordance with inflation plus a productivity component. This is not the case for SSNIT, where both the contributions and the pensions in payment move according to the increase in the average salary. The fact that the annual increase in salaries is not higher than the pension adjustment makes the pension scheme less sensitive to variation in the salaries.

In the base scenario, it is expected that the average salary will increase by 2.0 per cent over the inflation rate, except in 2022 where a decrease of 10 per cent is expected. In fact, over the projection period, salaries increase on average at a rate 1.9 per cent higher than inflation. The sensitivity analysis shows the financial impact of an increase in real salaries that is 1 per cent higher or lower than in the base scenario. Table 5.7 shows the results.

▶ Table 5.7. Sensitivity analysis: Salary increase

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
+1.0%	23.3	29.0	2036
–1.0%	20.8	29.9	2036

Source: Authors' projections.

5.3.1.4. Mortality rates

The next scenarios show the impact on the projections of mortality rates that are 20 per cent higher or lower than the best-estimate assumption. At age 60, a reduction in the mortality rate of 20 per cent increases life expectancy by up to 1.8 years, while an increase in the mortality rate of

20 per cent decreases life expectancy by about 1.4 years. Table 5.8 shows the impact on the results of these variations in mortality.

▶ Table 5.8. Sensitivity analysis: Mortality rates

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
High mortality (+20%)	21.3	28.2	2037
Low mortality (–20%)	22.9	31.1	2035

Source: Authors' projections.

5.3.1.5. Inflation rate

For this actuarial valuation, the inflation rate starts at 10.0 per cent in 2021 and increases considerably to an annual average of 27.0 per cent in 2022. In 2023, inflation rates start decreasing gradually until they reach 6.0 per cent in 2034 and stay at this level for the rest of the projection. The next scenarios show the impact on the projections of a change of plus or minus 1 per cent in the rate of inflation (table 5.9). The assumption regarding the inflation rate affects many variables in the actuarial valuation: adjustment to pensions in payment, salary growth, discount rate used for the calculation of the commuted values, interest rate used for the calculation of the old age lump sums, and return on investment.[7] According to the projections, inflation is not the biggest risk, if all other variables move in parallel to the inflation as assumed in this sensitivity test.

▶ Table 5.9. Sensitivity analysis: Inflation rate

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
+1.0%	21.9	29.1	2036
–1.0%	22.3	30.0	2036

Source: Authors' projections.

5.3.1.6. Adjustments to pensions in payment

Pensions in payment are adjusted each year according to the increase in salary. In some pension schemes, instead of adjusting the pension to the average salary growth, pensions in payment are adjusted according to inflation. Assumptions regarding adjustment to pensions in payment can considerably affect the results. The next sensitivity analysis (table 5.10) presents the impact on the scheme if pensions in payment were adjusted to inflation instead of to salary.

▶ Table 5.10. Sensitivity analysis: Adjustments to pensions in payment

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
Inflation	19.4	25.0	2038

Source: Authors' projections.

7 Although the inflation rate is not directly used to project the salary mass or the benefits paid by the SSNIT, this test assumes that the real salary growth rate, the real interest rate and the real investment rate will remain unchanged compared to the base scenario.

Rules may also be implemented in the funding policy to deal with situations where the increase in the average salary is lower than inflation.

5.3.1.7. Contributions payment performance

Figure 5.3 clearly illustrates that the moment the reserve is expected to be depleted is affected by the accounting basis chosen for the actuarial projections. In fact, under an accrual basis, which is equivalent to an approach where all contributions are paid on time, the reserve is depleted in 2036, while if a cash basis is used (where 20 per cent of contributions are delayed by seven years), the reserve is depleted five years earlier, in 2031. In this section, three additional scenarios are presented:

- 100 per cent of contributions are paid on time, including the interest on late contributions due by the government at the beginning of the projection period.
- 70 per cent of contributions are paid on time and 30 per cent are delayed by seven years.
- 20 per cent of the contributions are never paid.

▶ Table 5.11. Sensitivity analysis: Contributions payment performance

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base (accrual basis)	22.0	29.5	2036
Base (cash basis)	22.3	29.5	2031
100% of contributions paid on time	19.8	29.5	2044
70% of contributions are paid on time (accrual basis)	23.3	29.5	2034
20% of contributions are never paid (accrual basis)	24.2	29.5	2030
Source: Authors' projections.			

5.3.1.8. Administrative expenditures

This actuarial valuation assumes a constant level of administrative expenditures in relation to salary of 2.0 per cent (base scenario). Three other scenarios are produced: one with a level of administrative expenditures in relation to salary higher by 1.0 per cent, one with a level lower by 1.0 per cent, and with a level representing 15 per cent of the scheme's total contribution income, as shown in table 5.12.

▶ Table 5.12. Sensitivity analysis: administrative expenditures

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
Administrative expenditures +1%	23.2	30.5	2032
Administrative expenditures –1%	20.9	28.5	2042
15% of the total contribution income	21.6	29.1	2038
Source: Authors' projections.			

5.3.1.9. Ghost pensioners

All pensioners aged 72 years and above under PNDCL 247 and those aged 75 years and above under Act 766 (currently none) are required by policy to complete a pensioner certificate once every year to confirm they are alive. Previously the exercise was done every three years. Those

who do not complete the certificate are deemed not to be alive and have their names deleted from the pension's payroll. The last exercise done by SSNIT resulted in a net deactivation of 21,139 pensioners for the non-renewal of pensioner certificates. The base scenario does not take into account this exercise because it has no significant impact on the results. The following sensitivity analysis (table 5.13) illustrates the impact of removing 10,000 pensioners on the actuarial valuation date to take into account this ghost-pensioners exercise. The number of pensioners removed is lower than 21,139 because of the effect of mortality already embedded in the model. The impact is the highest at the beginning of the projection period where the PAYG rate decreases from 11.5 per cent to 11.3 per cent. In any case, it is important to understand that this deactivation of "ghost" pensioners is a unique event only affecting the population of pensioners at the start of the projection period, hence the limited impact. For projection purposes, it is considered that there are no ghost pensioners arising: when a pensioner dies (according to our mortality assumption), the pension in payment stops immediately.

▶ Table 5.13. Sensitivity analysis: Ghost pensioners

Scenario	GAP (%)	PAYG 2022 (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	11.5	29.5	2036
Elimination of ghost pensioners	22.0	11.3	29.5	2036
Source: Authors' projections.				

However, according to SSNIT, even though they are now able to track the death of pensioners after age 72/75 more rapidly than before, they are still only completing this life certification process once a year, such that they pay on average six additional months of pensions after the date of death. Table 5.14 below presents the impact of assuming that, for the whole projection period, SSNIT will systematically pay an extra six months of pensions after the pensioners death after age 72/75.

▶ Table 5.14. Sensitivity analysis: Six extra monthly pensions to all pensioners dying after age 72/75

Scenario	GAP (%)	PAYG 2022 (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	11.5	29.5	2036
Six extra months	22.3	11.6	29.9	2036
Source: Authors' projections.				

5.3.1.10. Net leaving rates

This actuarial valuation introduces for the first time the net leaving rates. These rates represent the probability of leaving the scheme before the retirement age for reasons other than invalidity or death. The reader should be aware that these rates are *net* leaving rates, which means that they take into account the combined effect of members leaving the scheme as well as members re-entering the scheme. These leaving rates have been developed by analysing the experience of SSNIT. They start at 15 per cent at age 15 and decrease to reach an ultimate level of 2 per cent. Because the period analysed does not take into account the full career of the individuals, uncertainties still exist in the establishment of these rates. The following sensitivity analysis (table 5.15) shows the impact of two scenarios:

- Low leaving rates: leaving rates starting at 5 per cent and decrease to reach an ultimate level of 1 per cent.

- High leaving rates: leaving rates starting at 25 per cent and decrease to reach an ultimate level of 3 per cent.

▶ Table 5.15. Sensitivity analysis: Net leaving rates

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
Low leaving rates	22.3	30.0	2036
High leaving rates	21.7	28.8	2036
Source: Authors' projections.			

5.3.1.11. Inactive population

This actuarial valuation assumes an inactive population of 243,932 people. As stated earlier in this report, this particular population has been selected in order to better calibrate the model. In an actuarial valuation of a social security pension scheme, adjustments to the inactive population are frequent because of uncertainties related to the quality of the data. If no adjustments were made, the inactive population would have been 2,143,356. A sensitivity analysis has been produced showing the impact on the actuarial valuation of using the entirety of the inactive population without adjustments.

▶ Table 5.16. Sensitivity analysis: Inactive population

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
No adjustment to the inactive population	22.4	29.5	2033
Source: Authors' projections.			

5.3.1.12. High inflation rate at the start of the projection

The main activities undertaken for this actuarial valuation have been carried out in 2022 using, for example, the projections of the IMF to estimate the short-term economic environment. However, the end of 2022 and the first months of 2023 showed much higher inflation than anticipated then. While short-term assumptions may be different than the ones assumed in this report, it is important for the reader to understand that such situation does not change the conclusion of this report. In an actuarial valuation like the one of SSNIT, if the inflation rate is changed, many components that are dependent on the inflation are affected as well: the return on assets, the salary growth, etc. This dynamic is clearly illustrated in this report with the sensitivity analysis on the inflation. What is important for SSNIT is the way in which all the variables are going to react (or not) in the short run to this high inflation rate. Also, some decisions may affect the short-term sustainability of the scheme if not appropriately analysed. For example, a scenario where the salaries are not catching up completely with the inflation rate, but the benefit are adjusted to it may increase financial pressure of the scheme. Accordingly, scenarios of high inflation rates are included in this report. These analyses are based on the new inflation projection of the IMF (April 2023) as presented in the following table.

▶ Table 5.17. High inflation rates at the start of the projection period compared to the baseline scenario

Year	Inflation rate (base scenario)	High inflation (sensitivity)
2021	9.98	9.98
2022	27.00	31.90
2023	15.00	45.40
2024	11.00	22.20
2025	8.00	11.50
2026	7.78	8.00
2027	7.56	8.00
2028	7.33	8.00
2029	7.11	7.11
2030	6.89	6.89
2031	6.67	6.67
2032	6.44	6.44
2033	6.22	6.22
2034+	6.00	6.00

Using this high inflation-rate scenario, many scenarios have been analysed:

- Scenario 1:
  - Real salary increases: same as baseline scenario
  - Real return on assets: same as baseline scenario
  - Pension indexation: same as baseline scenario, i.e. adjusted each year to the average salary growth.
- Scenario 2:
  - Real salary increases: same as baseline scenario
  - Real return on assets: same as baseline scenario
  - Pension indexation: adjusted each year to the maximum between the inflation and the salary growth.
- Scenario 3:
  - *Nominal* salary increases: increases from 50 per cent of inflation to 100 per cent of inflation over the first 4 years and then stays at the level of the baseline scenario thereafter.
  - Real return on assets: same as baseline scenario
  - Pension indexation: same as baseline scenario, i.e. adjusted each year to the average salary growth.

- Scenario 4:
  - *Nominal* salary increases: increases from 50 per cent of inflation to 100 per cent of inflation over the first 4 years and then stays at the level of the baseline scenario thereafter.
  - Real return on assets: same as baseline scenario
  - Pension indexation: adjusted each year to the maximum between the inflation and the salary growth.
- Scenario 5:
  - *Nominal* salary increases: increases from 50 per cent of inflation to 100 per cent of inflation over the first 4 years and then stays at the level of the baseline scenario thereafter.
  - Real return on assets: same as baseline scenario except for the year 2023 and 2024 where it is respectively –15.0 and –10.0 per cent.
  - Pension indexation: adjusted each year to the maximum between the inflation and the salary growth.

▶ Table 5.18. Sensitivity analysis: High inflation rate at the start of the projection

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
Scenario 1	22.0	29.5	2037
Scenario 2	22.1	29.6	2035
Scenario 3	21.9	29.5	2038
Scenario 4	22.7	30.1	2031
Scenario 5	22.8	30.1	2030

Source: Authors' projections.

These scenarios clearly illustrate that the dynamic between the salary growth, the inflation, and the return on assets does not considerably impact the GAP or the ultimate PAYG rates, but that it significantly affects the moment when the reserve is expected to be depleted.

5.3.2. Sensitivity tests on pension reforms

5.3.2.1. Contribution rate

As requested by SSNIT, the impact of changing the contribution rate of the new scheme from 11 to 12–18 per cent, starting from 2024, has been analysed. A change in the contribution rate has no impact on the GAP or the PAYG, because when calculating these two indicators, the total amount of contribution is not considered. The impact on the year when the reserve is 0 is presented in table 5.19.

▶ Table 5.19. Sensitivity analysis: Contribution rate

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base (Contribution rate =11%)	22.0	29.5	2036
Contribution rate =12%	22.0	29.5	2041
Contribution rate =13%	22.0	29.5	2046
Contribution rate =14%	22.0	29.5	2051

Contribution rate =15%	22.0	29.5	2056
Contribution rate =16%	22.0	29.5	2062
Contribution rate =17%	22.0	29.5	2068
Contribution rate =18%	22.0	29.5	2073
Source: Authors' projections.			

5.3.2.2. Retirement age

As requested by SSNIT, the impact of increasing the retirement age from 60 to 62 over a 12-year period starting from 2027 has been analysed (table 5.18). From 2039 onwards, the retirement age is projected constant at 62 years old. In this scenario, the first early retirement age is increased from age 55 to 57. The retirement rates and the reduction factors for early retirement have also been shifted to take into account the new retirement age.

▶ Table 5.20. Sensitivity analysis: Retirement age

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
Gradual increase of the retirement age (+2 years)	19.1	25.2	2039
Source: Authors' projections.			

It is important to state that the impact of increasing the retirement age may differ according to the way people react to the increase. However, increasing the retirement age should have an important positive impact on the financial sustainability of the scheme.

5.3.2.3. Reference salary

As requested by SSNIT, four scenarios of modification to the definition of the reference salary used in the calculation of the pension were analysed: career average salary indexed with either salary growth, inflation, return on T-bills or return on T-bills +1 per cent, as shown in table 5.21. The sensitivity tests are presented below. It is assumed that the scheme will move gradually from its current reference salary to a career average salary over the projection period. At the start of the projection period, three years are taken into account in the calculation of the reference salary. In the first year of the projection period, four years are taken into account in the calculation of the reference salary, and so on.

▶ Table 5.21. Sensitivity analysis: Modification to the definition of the reference salary

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
Career average salary, indexed at salary growth	20.2	26.3	2037
Career average salary, indexed at inflation	17.7	22.7	2038
Career average salary, indexed at T-bills	23.8	31.8	2034

Career average salary, indexed at T-bills +1%	26.0	35.3	2033
Source: Authors' projections.			

The career-indexed pension plan works in the following way: all the salaries declared during the working life of the insured are considered in the calculation of the pension. However, the monthly salary used to calculate the pension is the salary earned in a given month and re-evaluated according to an index which is usually the average salary increase of the worker from the date the salary was declared (earned) to the date of the contingency (retirement, invalidity or death). In the preceding scenarios, the salaries are re-evaluated up to 1.5 years before the contingency. This is necessary in order to be in line with the current pension formula which uses the average of the best three salaries (considered to be the last three). In the model, the midpoint of the average is 1.5 years before the contingency.

Usually career-indexed plans are not implemented with the purpose of containing the cost of a pension scheme but to better link the pension to the salary history of the members. They can also be used to eliminate risks of manipulation of the salary during the last years of work to increase the pension. Because all salaries are considered in the pension formula, it is also important to integrate such kinds of feature into eventualities that take place during the career of the individual. For example, in changing to a career-indexed plan, it would be important to give special attention to women so as not to penalize them when they give birth. Indeed, when a woman gives birth to a child, she can be out of the labour market for a period or see her salary decrease because she is taking care of the new-born. In Ghana, women are given full salaries up to three months when they are on maternity leave.

Using inflation instead of salary growth to re-evaluate the salary will considerably affect the results. In fact, the GAP decreases from 22.0 to 18.8 per cent. This modification has the effect of decreasing the effective income replacement rate of new retirees. For example, in 40 years their retirement pension would be reduced by 22 per cent if the salaries are re-evaluated according to inflation instead of salary growth. In other words, someone having reached the maximum pension of 60 per cent on retirement is effectively replacing 46.8 per cent if the salaries are re-evaluated according to inflation. Indexing the salary to the T-bills + 1%, as requested by SSNIT, increases the cost considerably. It is not recommended to go in that direction because of the additional financial pressure it may bring onto the scheme.

5.3.2.4. Basic salary plus allowances

Under the current provisions of SSNIT, the insurable earnings do not include overtime pay, cost-of-living allowance, commissions or service charge payments. Cost-of-living allowances as referred to in ILO Convention No. 102 should be included in the insurable earnings. Therefore, the pension formula does not apply to the total earnings, but to a portion of the total earnings. If the value of the income not taken into account in the insurable earnings represents 20 per cent of the total earnings, the effective income replacement on retirement is 20 per cent lower than that obtained by using the current parameters to calculate the pension. In fact, the effective maximum income replacement rate is not 60 per cent in this example, but 48 per cent.

As social allowances are part of the regular take home pay of insured persons, it is recommended to include them into the insurable earnings used as references for the purpose of calculating contributions and benefits, on a prospective basis. This means that two reference earnings would be used to calculate the benefits:

- one excluding the social allowances to calculate the pensions related to the years of contributions prior to the year in which social allowances have been included in insurable earnings; and

- one including the social allowances to calculate the pensions related to the years of contributions after the year in which social allowances have been included in insurable earnings.

Table 5.22 presents the results where, social allowances are estimated at 20 per cent of the total insurable earrings.

▶ Table 5.22. Sensitivity analysis: Basic salary plus social allowances

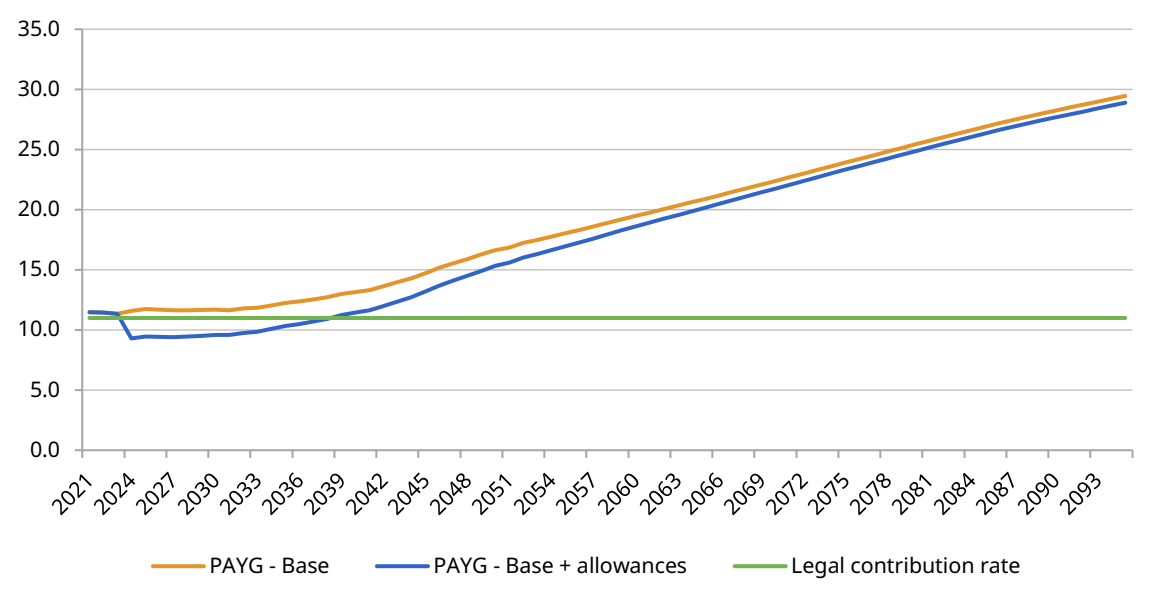
Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
Basic salary plus social allowances	20.9	28.9	2046

Source: Authors' projections.

As shown in figure 5.4, adding allowances to the basic salary for future services gives fresh air to SSNIT by decreasing the financial pressures in the short term. In fact, because the insurable earnings increase immediately and it takes time for this to be fully recognized in the benefits, the PAYG rate under this scenario is much lower than in the base scenario. An interesting feature of this recommendation is that the PAYG rate is also lower than the current legal contribution rate for about 18 years.

It should be noted that alternative transitional approaches for the inclusion of the social allowances in the insurable earnings are also conceivable, for instance by gradually increasing the proportion of total social allowances included in insurable earnings over a set number of years (e.g. 10 per cent per year over ten years).

▶ Figure 5.4. Sensitivity analysis: Basic salary plus allowances, PAYG rate (percentages)



5.3.2.5. Minimum and maximum replacement rates

As requested by SSNIT, the impact of increasing the minimum and maximum replacement rates has been analysed. A scenario where these rates equal respectively 43.125 per cent (after 15 years) and 65.625 per cent has been analysed; they compare to the minimum replacement rate

of 37.5 per cent after 15 years and a maximum replacement rate of 60 per cent under the current provisions. As shown in table 5.23, providing higher replacement rates increases the cost of the scheme.

▶ Table 5.23. Sensitivity analysis: Minimum and maximum replacement rates

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
Minimum and maximum replacement rates of 43.125% and 65.625%	24.0	32.3	2034
Source: Authors' projections.			

5.3.2.6. Eligibility period

As requested by SSNIT, the impact has been analysed of extending the minimum number of months required to qualify for a pension from 180 to 240 while keeping the same accrual rate (37.5 per cent for the first 180 months of contribution and 1.125 per cent for the years of contribution beyond the 180 months). As shown in table 5.24, increasing the contributory period decreases the cost of the scheme because fewer people are eligible for a pension. This is probably not the best way of containing the cost of a social security pension scheme because it penalizes people having more atypical careers, leading to difficulties in accumulating years of service. An eligibility period higher than 180 months also does not respect the minimum period stipulated in ILO Convention No. 102.

▶ Table 5.24. Sensitivity analysis: Eligibility period

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
20 years of contributory period	20.4	26.9	2038
Source: Authors' projections.			

5.3.2.7. Accrual rates

The SSNIT has requested the following scenarios:

- Scenario A: where a flat accrual rate of 1.8125 per cent applies for each year of contribution. This scenario also provides a replacement rate of 54.375 per cent after 30 years of contributions, the same replacement rate as under the actual provisions. The maximum pension is 60 per cent (after 40 years of contributions).
- Scenario B: where the total accrual rate after 15 years of contributions has been changed from 37.5 to 30 per cent, and the accrual rate per year of contribution beyond the minimum period has been changed from 1.125 to 1.0 per cent. This scenario provides a 45 per cent replacement rate after 30 years of contributions compared to 54.375 per cent under the actual provisions. The maximum pension is 55 per cent (after 40 years of contributions).
- Scenario C: where a flat accrual rate of 1.5 per cent applies for each year of contribution. This scenario also provides a 45 per cent replacement rate after 30 years of contributions. The maximum pension is 60 per cent (after 40 years of contributions).

It has been assumed that the new pension formulas are applied to all years of service (past and future). Only the calculation of the old age pensions has been modified in these three sensitivity analyses.

▶ Table 5.25. Sensitivity analysis: Accrual rates

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
Scenario A	21.4	28.4	2036
Scenario B	19.2	25.3	2041
Scenario C	18.8	24.6	2042

Source: Authors' projections.

5.3.2.8. Extending the qualifying months for invalidity benefit from 12 months to 24 months

The SSNIT has requested a scenario that shows the financial impact of increasing the minimum qualifying period for disability from 12 months of contributions within the last 36 months to 24 months of contributions within the last 36 months. The new provision starts in 2027. Table 5.26 presents the result of this analysis. The impact on the contribution rate is immaterial because it affects mostly young members where the incidence of invalidity is very low.

▶ Table 5.26. Sensitivity analysis: Extending the qualifying months for invalidity benefit from 12 to 24 months

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
24 months of the last 36 months (invalidity)	22.0	29.5	2036

Source: Authors' projections.

5.3.2.9. Extending the qualifying months for survivors' benefit from 12 to 24 months

The SSNIT has requested a scenario that shows the financial impact of increasing the minimum qualifying period for survivor's benefit from 12 months of contributions within the last 36 months to 24 months of contributions within the last 36 months. The new provision starts in 2027. Table 5.27 presents the result of this analysis. The impact on the contribution rate is immaterial because it affects mostly young members where the mortality rates are very low.

▶ Table 5.27. Sensitivity analysis: Extending the qualifying months for survivors' benefit from 12 to 24 months

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
24 months of the last 36 months (survivors)	22.0	29.5	2036

Source: Authors' projections.

5.3.2.10. Minimum pension frozen until it reaches 60% of the minimum wage

The SSNIT has requested a scenario that shows the financial impact of freezing the monthly minimum pension of GH₵300 until it is equivalent to 60% of the national monthly minimum wage.

▶ Table 5.28. Sensitivity analysis: Minimum pension frozen until it reaches 60% of the minimum wage

Scenario	GAP (%)	PAYG 2095 (%)	Year reserve = 0
Base	22.0	29.5	2036
Minimum pension frozen	21.9	29.2	2036
Source: Authors' projections.			

5.4. Modifications to be considered in future reforms of the Act

Based on the analysis of the scheme, below are some modifications that the Government, together with social partners, could consider in the context of future reforms of the National Pensions Act 2008.

Note: it goes without saying that, prior to the introduction of these modifications, as with any other modification having financial consequences on SSNIT, a proper assessment of the financial impact should be conducted and, if necessary, the contribution rate adjusted to ensure that the financial impact of these modifications is adequately financed and do not affect the financial sustainability of SSNIT.

- As mentioned in Appendix 4, the survivors' benefits are not fully aligned with the ILO Convention 102 (C.102). Although Ghana has not ratified the C.102 and is therefore not bound by it, the payment of a pension rather than a lump sum when a member dies could be considered.

- Under the current provisions, no worker is allowed to join the scheme (for the first time) after age 45. Although joining the scheme after age 45 would imply that such members could never be entitled to an old age pension at early or normal retirement because they would not have time to contribute for the required 15 years by then, joining the scheme after age 45 would still give them the possibility of becoming entitled to invalidity and survivors' benefits. As such, it could be considered to allow workers to join even after age 45. However, in order to avoid anti-selection and having only workers with health issues joining the scheme, such modifications should be made on a mandatory basis rather than on a voluntary basis. Once again though, even if introduced on a mandatory basis, such a modification should be assessed and financed properly, e.g. taking into account the specific risk profile of these potential new members.

- In December 2022, an administrative decision was taken by SSNIT to no longer allow members to contribute after the age of 60. This decision was taken by SSNIT in order to strictly apply the provision of Section 70 (1) of Act 766, which states that

  "A member of the social security scheme who

  (a) retires on attaining the compulsory retirement age of sixty years; or

  (b) retires voluntarily on attaining the age of fifty-five years;

  and has contributed to the social security fund for a period not less than fifteen years in the aggregate or one hundred and eighty months in the aggregate is entitled to a superannuation pension."

  While it is not in the purview of the actuarial valuation to validate this application by SSNIT of Section 70 (1) of Act 766, it remains that some members might have joined the scheme later in their career or have had a career broken into different service periods, and as such might reach age 60 with less

than 15 years of contribution. To allow these members to keep contributing in order to reach the required 15 years of contribution, and thus be entitled to a pension, the Government and social partners could consider changing the Act to allow for this more socially conscious provision. This would also allow members with more than 15 years of contribution at age 60 to accumulate a better pension at their effective retirement date.

Once again though, such a modification would need to be properly financed and include risk-mitigation measures, such that its implementation does not affect the financial sustainability of the scheme. For instance, in order to avoid anti-selection and inadvertently attract only members who anticipate (or coordinate) higher salary increases in the years leading up to retirement, such a modification should apply on a mandatory basis to all workers over age 60. It could also be accompanied by a modification of the rules governing the reference salary used to compute the retirement pension such that members can no longer manipulate their salaries to obtain unjustified higher pensions. This could either be done via a transition to a career-indexed reference salary for instance (see section “5.3.2.3. Reference salary”), or through the implementation of a limit on salary increases in the years leading up to retirement.

▶ 6. Conclusion and recommendations

The actuarial valuation of the Social Security and National Insurance Trust scheme was carried out as at 31 December 2020. The methodology used for the pension branch is based on a model developed by the ILO for reviewing the long-term actuarial and financial status of national pension schemes. The model has been adjusted to fit the particular situation of SSNIT. The ILO's model is based on methodologies that are appropriate and consistent with accepted actuarial practice. The data related to SSNIT (contributors, beneficiaries, financial statements) used in this actuarial valuation are in general complete and of enough quality to undertake an actuarial valuation and to obtain a picture of the financial soundness of SSNIT. Some elements in the data collection process bring some uncertainties to the actuarial valuation:

1. Financial reporting on a cash basis creates unnecessary uncertainties in the actuarial valuation and the presentation of the financial results.
2. The use of data to create a SSNIT-specific mortality table was not possible.

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. The objective of pension projections is not to forecast the exact development of the scheme's income and expenditures, but to verify its financial viability over the long term.

6.1. Recommendation No. 1 – Increase in contribution rate in accordance with a funding policy

This actuarial valuation shows that the contribution rate to pay the benefits over the next 75 years and to accumulate assets representing three years of total expenditure is 22.0 per cent. This is twice the current contribution rate of 11 per cent. Analyses of the cash flows show also that a contribution rate increase is necessary in the short term to avoid using investment income to pay the benefits. The risk is exacerbated by the fact that the Government is not paying its contributions on time. This actuarial valuation also shows different levels of contribution rate according to different funding objectives.

The magnitude of an increase in the contribution rate should depend on clear financing and funding objectives. While such objectives do not exist at SSNIT, it is known that SSNIT is currently working on a funding policy. The authors of this report would like to expressly commend SSNIT for working on a funding policy and encourage them to continue in that direction. The ILO is ready at any time to support SSNIT with these important steps. Similar to the previous actuarial valuation, it is recommended again that SSNIT adopt a funding policy in order to:

- formalize the long-term funding objectives of the scheme;
- 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:

- contribution rates;
- risks faced by the scheme and how these risks can be managed;
- risk tolerance;
- allocation of risk among participants and employers;
- funding objectives (such as contribution stability or a targeted level of reserve);
- frequency of actuarial valuation;
- methods of actuarial projection, including actuarial assumptions and parameters of the scheme;
- funding methods;
- goals related to intergenerational equity; and
- all other funding issues.

We also suggest that SSNIT hold discussions with stakeholders for the approval of an explicit written funding policy. The policy should be well-thought-out and periodically reviewed.

6.2. Other recommendations

- Insurable earnings include only the basic salary and therefore exclude social allowances, which appear to be cost-of-living allowances as referred to in ILO Convention No. 102. As social allowances are part of the regular take-home pay of insured persons, it is recommended to include them in the insurable earnings used as a reference for the purpose of calculating contributions and benefits, on a prospective basis. This new definition of insurable earnings will decrease the financial pressure on SSNIT in the short term. This means that two kinds of reference earnings would be used to calculate benefits:
  - one excluding the social allowances to calculate the pensions related to the years of contributions prior to the year in which social allowances have been included in insurable earnings; and
  - one including the social allowances to calculate the pensions related to the years of contributions after the year in which social allowances have been included in insurable earnings.
- To help to make SSNIT more sustainable, it is strongly suggested to stop adjusting pensions according to salary growth, and instead adjust according to inflation. Rules may also be implemented in the funding policy to deal with situations where salary increases are lower than inflation.

6.3. Modifications to be considered in future reforms of the Act

As presented in section 5.4, when the government and social partners will discuss parametric modifications to the pension scheme in the future, they could also consider the following modifications to the National Pension Act, 2008:

- Payment of a survivors' pension instead of a lump sum in case of death;
- Make the participation to the scheme mandatory even for workers joining for the first time after age of 45. Even if they would not be entitled to a pension at retirement age because they would not reach 15 years of contribution, they could be protected in case of death and invalidity prior to retirement age; and
- Make contribution to the scheme mandatory for workers above age 60, allowing those with less than 15 years of contribution at age 60 to reach 15 years of contribution and be eligible to a pension rather than a lump sum as well as for those with 15 years of contribution or more to receive a higher pension when they retire.

Prior to the introduction of these modifications, as with any other modification having financial consequences on SSNIT, a proper assessment of the financial impact should be conducted and, if necessary, the contribution rate adjusted to ensure that the financial impact of these modifications is adequately financed and do not affect the financial sustainability of SSNIT.

▶ 7. Actuarial opinion

This report was prepared as requested under Article 53 of the National Pensions Act 2008, Act 766. In our opinion:

- the data on which this report is based are sufficient and reliable although there are some aspects related to the reconciliation of the data and the mortality rates which 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 SSNIT scheme is not financially sustainable over the 75-year 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 SSNIT scheme, 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 does not consider any event, nor additional information or data, subsequent to 10 August 2023.

This report has been prepared, and our opinions given, in accordance with internationally accepted actuarial practice as provided by the *International Standard of Actuarial Practice 2: Financial Analysis of Social Security Programs.*

31 December 2023

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▶ Appendix 1. Summary of the provisions of SSNIT

The Trust Pension Scheme was established by SSNIT under the Social Security Act 1991 (PNDCL 247) and reviewed under the National Pensions Act 2008 (Act 766). Act 766 was consequently amended by the National Pensions (Amendment) Act 2014 (Act 883). The following summary provides a general overview of the key coverage, contribution and benefit provisions for the old and the new schemes as at the actuarial valuation date.

Scope of SSNIT

The Social Security National Insurance Trust provides for the following benefits:

Long-term benefits: Old Age Pension (Sec. 70, Act 766), Invalidity Pension (Sec. 71, Act 766), Lump sum payment (Sec. 72, Act 766), Survivors' lump sum benefit (Sec. 73, Act 766) and Emigration benefit (art. 73A, Act 883).

Coverage

- Every employer of an establishment and every worker employed therein, both in the private and public sector (Sec. 2(c) & 58(1)(a), Act 766).
- Every other employer and worker to whom the Social Security Decree, 1972 (NRCD 127) applied immediately before the commencement of the current law (Sec. 58(1)(b), Act 766).
- All self-employed persons who opt to join the scheme (Sec. 58(1)(c), Act 766).

The minimum age at which a person may join the social security scheme is 15 years and the maximum age is 45 years (Sec. 59, Act 766).

Exclusions:

- A worker aged 50 years or older and entitled to retirement benefits under a pension scheme in existence before the commencement of this Act is exempt from mandatory participation (art. 60(1), Act 883).
- Under Act 766, the only persons expressly exempted by law are the Military (Sec. 31, Act 766).

Insurable earnings and contributions

Under the old scheme (PNDCL 247) contributions are 12.5 per cent of salaries for employers and 5 per cent of salaries for employees, total 17.5 per cent (art. 22, PNDCL 247); 2.5 per cent of salaries is passed on to the National Health Insurance Scheme, and the remaining 15 per cent is available for SSNIT Fund.

Under the new scheme, the National Pensions Act 2008 (Act 766) and the Amendment Act, 2014 (Act 883), a total worker–employer contribution rate of 18.5 per cent is paid on behalf of the worker; the worker now contributes 5.5 per cent while the employer pays 13 per cent of the worker's wages (Sec. 3(1)(2), Act 766). The total contribution rate of 18.5 per cent is distributed as follows (Sec. 3(3) & 63, Act 766):

- 2.5 per cent for the NHIS;
- 5 per cent to the second tier (Pillar Two) schemes; and
- 11 per cent for the operations of SSNIT.

In both schemes only the salary is subject to insurable earnings. The insurable earnings do not include overtime pay, cost-of-living allowance, commissions or service charge payments (Sec. 45, PNDCL 247; Sec. 211, Act 766).

While the concept of a ceiling and floor for covered earnings did not exist in the old scheme, under the new scheme earnings that are covered for the purpose of determining contributions and benefits of the first tier are limited to a maximum amount. The maximum contribution shall not exceed 13.5 per cent of a maximum amount that may be determined periodically by the Trust in consultation with the Board of the Authority (Sec. 63(3), Act 766). The minimum contribution is 13.5 per cent of the approved monthly equivalent of the national daily minimum wage (Sec. 63(2), Act 766). The floor (minimum) on insurable earnings has increased as shown in table A1.1.

▶ Table A1.1. Evolution of monthly earnings ceiling and floor since 2011 for the new scheme

Period	Ceiling GHS	Floor GHS
2011	20 000	**86.24**
2012	20 000	**98.59**
2013	20 000	**115.28**
2014	20 000	**132.00**
2015	20 000	**154.00**
2016	20 000	**176.00**
2017	25 000	**193.60**
2018	25 000	**212.96**
2019	25 000	**287.55**
2020	25 000	**319.14**
2021	35,000	**338.31**
2022	**35,000**	**365.31**

Qualifying conditions and benefit rates

Old scheme and new scheme: A comparison

(a) Old Age Pension (Superannuation pension)

Contribution requirement:

Old scheme: At least 240 months' contributions in aggregate (art. 35(1)(a), PNDCL 247).

New scheme: At least 180 months' contributions in aggregate (Sec. 70 & 76, Act 766).

Age requirement: Compulsory retirement – 60 or 55 in the case of workers engaged in arduous jobs such as mining, or 55 for voluntary retirement with a reduced pension (art. 35(1)(b)(2), PNDCL 247; Sec. 70, 75 & 76, Act 766).

Amount of benefit:

Old scheme: Monthly payments equivalent to 50 per cent of average earnings over the best three years (in real value), plus an additional pension of 1.5 per cent of average earnings over the best three years for every 12 months of contributions in excess of 240 months (art. 36, PNDCL 247).

New scheme: Monthly payments equivalent to 37.5 per cent of average earnings over the best three years (in real value), plus an additional pension of 1.125 per cent of average earnings over the best three years for every 12 months of contributions in excess of 180 months (art. 77, Act 883).

The benefit is subject to the following limits:

- *Minimum pension:* set each year by the Board of Directors and is currently the minimum monthly pension applicable in 2010 (GHS 42.11) increased at the beginning of each year by the same increase as applied to other pensions in payment. The minimum monthly pension payable in 2011 was GHS 45.06, and GHS 300 in 2020, as shown in table A1.2.

▶ Table A1.2. Minimum monthly Old Age Pension, 2011–2022

Year	Monthly minimum pension newly awarded (GHS)
2011	**45.06**
2012	**50.46**
2013	**100**
2014	**200**
2015	**230**
2016	**276**
2017	**276**
2018	**276**
2019	**300**
2020	**300**
2021	**300**
2022	**300**

- *Maximum pension:* For the old scheme, the lower of 80 per cent (60 per cent for the new scheme) of average earnings over the last three years (art. 36(3), PNDCL; art. 77(3), Act 883), or 80 per cent (60 per cent for the new scheme) of the average of the highest salaries in the top 5 per cent of contributing members (art. 36(4), PNDCL 247). In practice, the second limit is not applied.

  A reduced pension is payable to those retiring between ages 55 and 60 with a minimum of 240 months of contributions (in the old scheme) or 180 months of contributions (in the new scheme) in aggregate (art. 34(1)(a)(ii), 35 & 36(1), PNDCL 247; Sec. 70(1)(b), 76 & 77, Act 766). Their pension is reduced according to their age at retirement, using the factors set out in table A1.3.

▶ Table A1.3. Reduction factors applied to the Old Age Pension for early retirement

Retirement age	Factor
55	**60.0**
56	**67.5**
57	**75.0**
58	**82.5**
59	**90.0**

PNDCL 247 gives an option to commute up to 25 per cent of the pension to a lump sum payment equivalent to the 12-year annuity (art. 36(1), PNDCL 247). Before June 2019, the lump sum is calculated at the prevailing Treasury Bill rate (the average annual Treasury Bill rate at the year of retirement) or 10 per cent, whichever is smaller, available only in the old scheme at the time of retirement.[8] The Discount Rate for computing the 25 per cent lump sum has been changed from 10 to 4.73 per cent, effective June 2020.

Pensions in payment are reviewed annually, taking account of the increase in the salary of SSNIT contributors (Sec. 80, Act 766). The indexation consists of an increase by a fixed rate plus an additional flat amount, as shown in table A1.4.[9] In 2016, pensions were indexed by 20 per cent on average.

▶ Table A1.4. Old Age Pension indexation, 2011–2022

Year	Fixed rate (%) (first)	Flat amount (GHS)
2011	0.0	**10.03**
2012	5.0	**15.27**
2013	12.0	**21.36**
2014	10.0	**9.52**
2015	5.0	**36.92**
2016	12.0	**39.29**
2017	15.0	**17.41**
2018	10.0	**–**
2019	9.0	**15.89**
2020	6.6	**37.38**
2021	9.34	**6.47**
2022	**9.68**	**3.44**

(b) Lump sum payment

Contribution requirement:

Old scheme: Contributors with less than the minimum of 240 months are paid a gratuity (art. 34(1)(b), PNDCL 247).

New scheme: Contributors with less than the minimum of 180 months are paid a gratuity (Sec. 72, Act 766).

Eligibility: The person must be ineligible for an Old Age Pension.

Age requirement: In both schemes, 60 or before (from 55 years old) (art. 34(1)(b), PNDC 247; Sec. 70, Act 766).

8 The 91-Day Treasury Bill rate of the first week of the month is considered constant for the whole month. Due to inconsistencies in the rate, a discount of 10 per cent has been issued since 1991 by the SSNIT.

9 The flat amount aims at increasing lower pensions more than the higher ones.

Amount of benefit:

Old scheme: Member's contributions (employer and employee contributions) plus interest at 50 per cent of the prevailing rate of Treasury Bills. This amount is paid as a lump sum (art. 34(1)(b), PNDCL 247).

New scheme: Member's contributions (employer and employee contributions) plus interest at 50 per cent of the prevailing rate of Treasury Bills up to 31 December 2009 and 75 per cent of the prevailing rate of Treasury Bills thereafter (Sec. 72(1), Act 766). This amount is paid as a lump sum.

(c) Invalidity benefit

Contribution requirement: In both schemes, at least 12 months of contributions within the last 36 months (art. 34(1)(c), PNDCL; Sec. 71(1)(a), Act 766).

Eligibility: In both schemes, the person must be under pensionable age and certified by a medical board as incapable of any normal employment by virtue of a permanent physical or mental disability (art. 34(1)(c), PNDCL; Sec. 71 (1)(b), Act 766). Where a person has fully recovered and has not attained compulsory retirement age, that person may rejoin the scheme (art. 34(1)(c), PNDCL; Sec. 71(2) Act 766).

Amount of benefit: For both the old and new schemes, the amount of benefits for invalidity is the same as for Old Age retirement benefit (Art 36 & 38, PNDCL 247; Sec. 79, Act 766; art. 77, Act 883).

For the old scheme, an option to commute 25 per cent of the pension to a lump sum payment equivalent to the 12 years annuity calculated at the prevailing Treasury Bill rate is available at the time of retirement (art. 36(1), PNDCL 247). Insured members who contributed for less than 12 months within the last 36 months are entitled to a lump sum corresponding to the accumulated contributions and interest (employer and employee contributions).

Duration of pension: For both schemes, in practice, as long as invalidity continues, even if the retirement age is reached. If the member recovers and returns to work, they can contribute again without losing any benefits (art. 34(1)(c), PNDCL 247; Sec. 71(2), Act 766).

(d) Survivors' benefit

Contribution requirement:

Old scheme: Deceased member should have contributed for at least one month prior to death (art. 37, PNDCL 247).

New scheme: Deceased member should have contributed for at least for at least one month prior to death. The amount of benefit varies in accordance with the accumulated contribution period (Sec. 78, Act 766).

Eligibility:

Old scheme: Member deceased whilst contributing to SSNIT or in receipt of pension payments and below age 72. The beneficiaries are the nominated dependants of the deceased member (art. 34(d), 37, 40 & 45, PNDCL 247).

New scheme: Member deceased whilst contributing to SSNIT or in receipt of pension payments and below age 75. The beneficiaries are the nominated dependants of the deceased (Sec. 73, 78, 81 & 211, Act 766).

Amount of benefit:

Old scheme: (i) Where a member dies having satisfied the minimum contribution period (at least one month of contribution prior to death): a lump sum payment computed on the present value of pension payments that would have been due at the date of death for a period of 12 years, using the prevailing Treasury Bill rate, shall be made to the nominated dependants (art. 37(1), PNDCL 247).

(ii) Where a member dies prior to satisfying the minimum contribution period: a lump sum equal to the present value of the member's proportional pension for a period of 12 years shall be made to the nominated dependants (art. 37(2), PNDCL 247).

(iii) Where a member retires (including old age retirement, early retirement or invalidity) but dies before the age of 72 years: a lump sum payment based on the present value of the unexpired pension up to 72 years, not exceeding 144 months, shall be made to the nominated dependants (art. 37(3), PNDCL 247).

New scheme:(i) Death of contributor who has made at least 12 months of contribution within the last 36 months prior to death: a lump sum equal to the net present value for a period of 15 years, plus interest at the smaller of the prevailing Treasury Bill rate during that year or 10 per cent (Sec. 78(1), Act 766).

(ii) Death of a contributor who has made less than 12 months of contributions within the last 36 months prior to death: a lump sum equal to total contributions and interest (at a rate of 75 per cent of the Government Treasury Bill) (Sec. 78(2), Act 766).

(iii) Death of pensioner (including old age retirement, early retirement or invalidity) before the age of 75: the net present value of the unexpired pension, up to a maximum of 15 years (Sec. 78(3), Act 766).

Under both the new and old schemes, the Survivors' benefit is split: 60 per cent for children under 18 years old[10] and 40 per cent for the other nominated beneficiaries (Sec. 81(7), Act 766).

(e) Emigration benefit

The emigration benefit did not exist under the old scheme, but was introduced by article 73A of the National Pensions (Amendment) Act (Act 883).

Contribution requirement: At least one month of contributions into the scheme.

Eligibility: The non-Ghanaian member has satisfied the Trust that they are emigrating or have emigrated permanently from Ghana. This shall include an endorsement from the member's Consulate or Embassy confirming their permanent emigration.

10 Under certain conditions (gainful employment before the age of 18 or engagement in continuing education or training), this obligation may apply beyond the age of 18 (art. 53 & 54 Children's Act, 1998 (Act 560)).

Amount of benefit: The member's benefits shall be computed and commuted to a lump sum benefit. In particular:

- Where the member qualifies for a pension, the present value of the member's earned pension over the guaranteed period of 144 or 180 months shall be paid as a lump sum benefit, depending on the law under which the member falls.
- Where the member does not qualify for a pension, a return of contributions together with interest (at a rate of 75 per cent of the prevailing 9-Day Government Treasury Bill) shall be paid as a lump sum benefit.
- Where the applicant is already a pensioner (whether Old Age or Invalidity Pension) and is emigrating permanently, the present value of the remaining guaranteed monthly pensions will be calculated using the remainder of the guaranteed period.

Transitional arrangements

(a) Contribution requirement

In the new scheme, the minimum number of months required to be eligible for receipt of an Old Age Pension is reduced from 240 months in 2010 to 180 months in 2015 and later years, as shown in table A1.5.

▶ Table A1.5. Minimum number of months of contribution required to be eligible for an Old Age Pension

Year	Minimum number of months
2010	**240**
2011	**228**
2012	**216**
2013	**204**
2014	**192**
2015	**180**

Where within five years after the commencement of Act 766, a member retires on attaining the age of 55 years and has contributed to the scheme for a period of less than 20 years but more than 180 months, that member is entitled to a reduced pension computed as under PNDCL 247 (art. 94(1)(b), Act 883).

(b) Benefits

Individuals who have previously contributed to the PNDCL 247 scheme and who were below age 50 at 1 January 2010 joined the first tier of the Act 766 scheme at that date and earn benefits in the normal way for their contributions to that tier. In addition, they will be awarded credits in respect of their previous contributions to the PNDCL 247 scheme. These credits comprise two elements:

- a credit equal to the number of months' contributions they paid to the PNDCL scheme up to 31 December 2009 (Sec. 94(1)(a), Act 766); these contributions count for pension in the same way as the future contributions to the first tier (that is, broadly 75 per cent of the benefits payable under the PNDCL 247 scheme); and
- a credit, in theory replacing the 25 per cent lump sum that the member would have been able to receive under the PNDCL 247 scheme, of the accumulation of 4 per cent of the member's salary from the date of joining the scheme until 31 December 2009 plus

the accumulated interest to date. Benefits are paid in the form of a lump sum (Sec. 94(1)(d), Act 766). The Past Credit is to be computed using the Government 91-Day Treasury Bill Rate compounded quarterly.

In addition, the accumulated amount in the second-tier account of the member will also be received (Sec. 101, Act 766).

Those who are aged 50 and over who joined the new scheme on 1 January 2010 and who qualify for a monthly pension on retirement are currently given lump sum credits based under PNDCL 247.

▶ Appendix 2. Methodology of the actuarial valuation

This actuarial valuation is based on long-term projections. These were mainly performed using the Excel/VBA models developed by the ILO. The generic versions of these models were adapted to consider the specific situation of Ghana and of SSNIT.

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

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

For each of these steps, a figure (diagram) illustrates the process. These show the interrelationship between the models, the data sources and the results generated. The assumptions as well as the details about the data are not dealt with here but rather in section 2.4 and Chapters 3 and 4.

A2.1. Demographic projections

Figure A2.1 illustrates the demographic projection process. The population of Ghana is first projected. In the process of establishing the employed population, it is necessary to project the general population using the fertility, migration and mortality assumptions. Next, the focus is on the insured population of SSNIT. The models used are briefly described below.

A2.1.1. General and employed population model (ILO-POP-LAB)

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

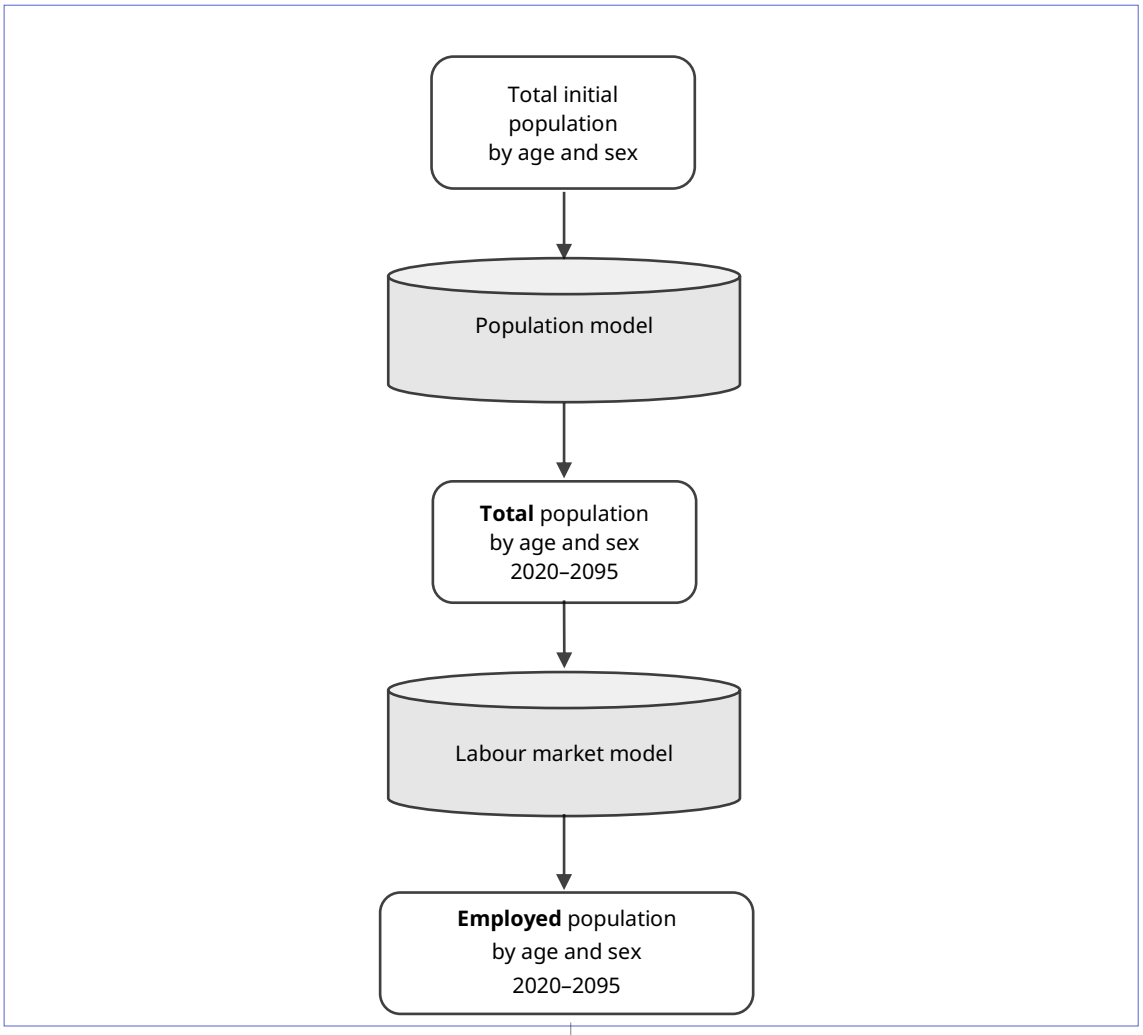
The general population projection is performed using a methodology based on cohorts by age and by sex. The main variables considered are fertility, migration and mortality. Chapter 3 presents more details about this. From the initial population by age and by sex in 2020, the model projects its evolution from 2021 to 2095.

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

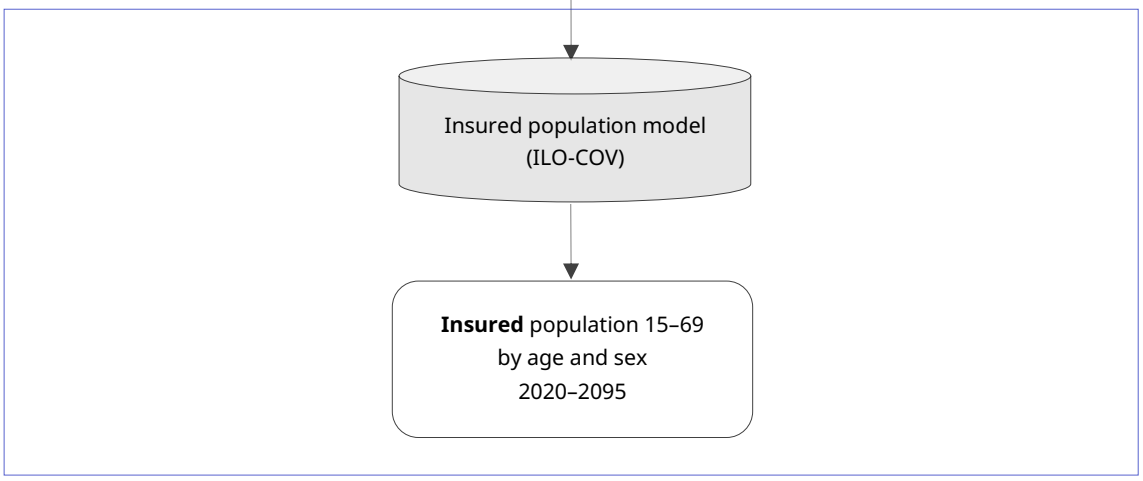
Then, the unemployed are removed from the active population, thus obtaining the employed population. The number of unemployed is calculated by applying the active population unemployment rates by age and sex for each year of the projection.

▶ Figure A2.1. Demographic model

General population and employed population



Insured population



A2.1.2. Insured population (ILO-COV)

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

- First, the total coverage rate is established for the initial population. The coverage rate is the ratio of the initial insured population over the employed population.
- Next, the assumption related to the evolution of the coverage rate is established. For this actuarial valuation, a continuous increase in the coverage rate throughout the projection period, as explained in section 4.1.1, has been used.
- Once the growth of the insured population is determined, the model will use assumptions, as discussed below, (entry rates, mortality rates, retirement rates, invalidity rates and net leaving rates) to project the population by age and sex for the entire projection period.
- This model is based on a cohort approach. The insured population obtained is an input to the ILO-PENS model.

A2.2. Projection of salaries and benefits, and financial results

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

A2.2.1. Salary distribution and projection

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

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

A2.2.2. Pension model (ILO-PENS)

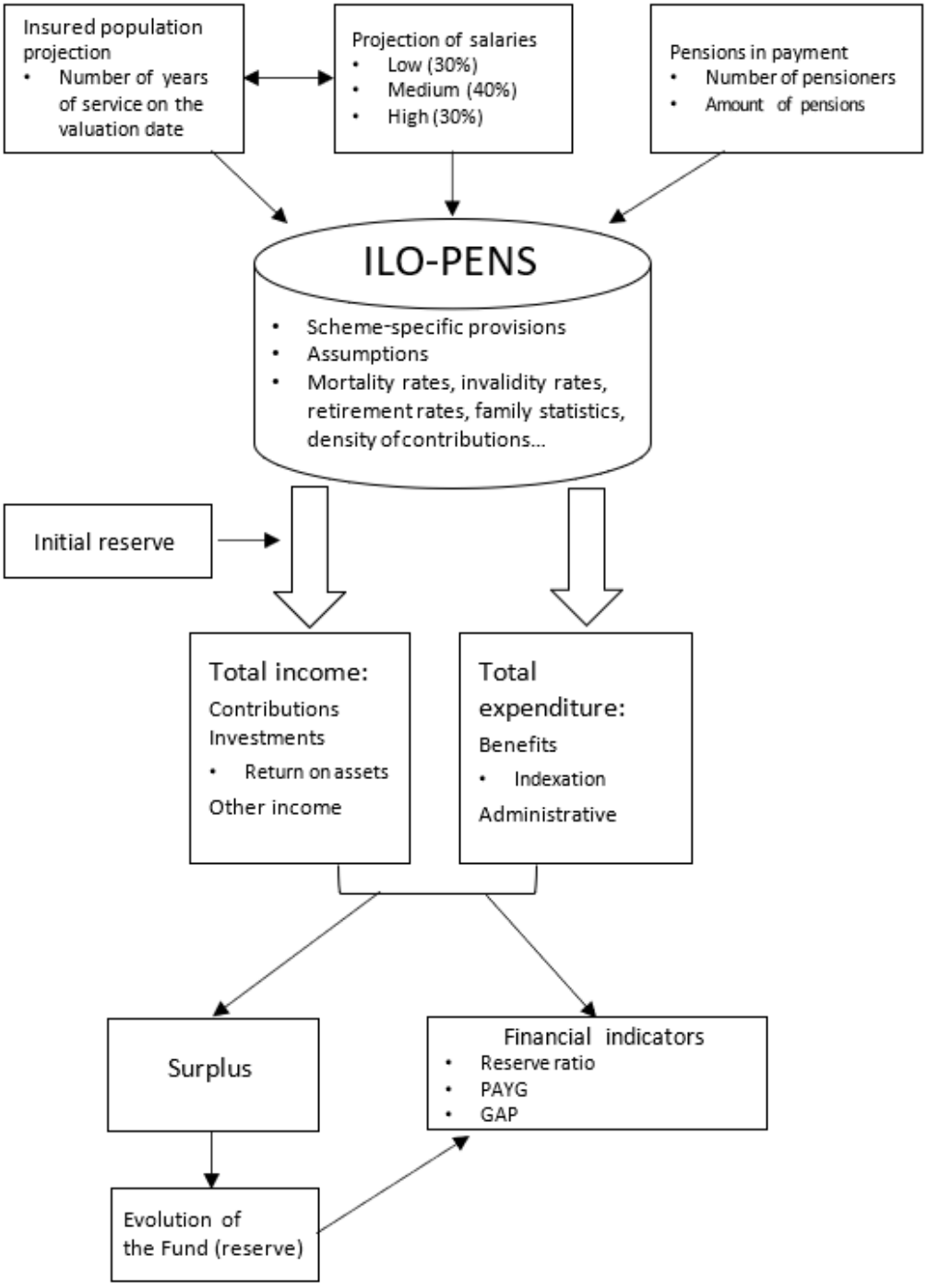
The ILO-PENS model allows the long-term projection of benefits and insured salaries. This model uses a methodology based on cohorts by age and sex to project, over the next 75 years, the population of actives, retirees, invalids, surviving spouses and orphans, as well as their benefits, years of service and salaries (as appropriate). Based on these populations and their characteristics, the model generates the numbers of beneficiaries and the amounts paid for each type of benefit, and also the insured salaries. The outputs are used to calculated different financial indicators (reserve ratio, PAYG rates and GAP). In addition to the assumptions, which are discussed in Chapters 3 and 4, this model uses the following main sources of data as its starting point:

- the insured population by age (15–69) and sex, projected for each future year using the ILO-COV model (see section A2.1.2);
- the distribution of the number of years of credited service of the initial insured population, for each age/sex combination;

- the total pensions in payment on the actuarial valuation date for each combination of age, sex and type of pension (old-age, invalidity);
- the average salaries by age and sex, as well as their distribution for all projection years; and
- the provisions of the scheme (as described in Appendix 1).

All the projections described above are finally combined, and supplemented by the calculation of some additional elements, in order to produce the final results of the valuation. This process is illustrated in figure A2.2.

▶ Figure A2.2. Projection of financial results



▶ Appendix 3. Concepts on the funding of social insurance

A3.1. 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 scheme 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 scheme 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 scheme, it would involve frequent revisions of the contribution rate. The annual expenditure under a new pension scheme would begin at a comparatively low level and increase continuously over a long period of time. This is because there will be an increasing number of surviving pensioners. Another reason for escalating annual expenditure is that each new group of pensioners will be drawing higher rates of pension due to longer insurance periods compared to the previous generations of pensioners. Pure assessment is not appropriate for a new pension system. For a mature scheme, however, this financial system could be adopted.

A3.2. General average premium system

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

A3.3. Scaled premium system

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

1. The contribution rate must not be excessive (with respect to the capacities of the members and the economy in general).
2. The initial and any subsequent contribution rates established under the system of finance applied to the scheme 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 scheme 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 scheme. 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.

A3.4. Fully-funded system

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

▶ Appendix 4. Legal compliance with the ILO Social Security (Minimum Standards) Convention, 1952 (No. 102)

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)	Section 70 NPA (1) A member of the social security scheme who: (a) retires on attaining the compulsory retirement age of sixty years; or (b) retires voluntarily on attaining the age of fifty-five years	✓
Assessment	The prescribed age for entitlement to a regular old age is 60 years for compulsory retirement below the maximum prescribed age set in Convention No. 102, i.e. 65 years. As such the national law is aligned 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	Section 58 NPA: (1) The social security scheme applies to (a) every employer and to each worker employed by its establishment; (b) any other employer, worker and self-employed to whom the Social Security Act, 1991 (P.N.D.C.L. 247), applied immediately before the commencement of this Act, and (c) self-employed persons, who opt to join the social security scheme. Section 20 Social Security Act, 1991 (P.N.D.C.L. 247): (1) The Law shall apply to: (a) every employer of an establishment and to every worker employed therein; (b) every other employer and worker to whom the Social Security Decree, 1972 (N.R.C.D. 127) applied immediately before the commencement of this Law, and (c) all self-employed persons, who opt to join the Scheme. The Report for 2020 identifies a total of 1,607,728 contributors (insured persons) in table 2.4.2. The total number of employees (in 2020): 3,209,500 (table 3.5)	✗

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
		Unemployment population (in 2020) was: 518,400 (ILO STATS) Population (in 2020): 32,180,000 (ILO STATS) Accordingly, in line with the requirement of the Convention, 43% of all employees are covered (employees protection/ all employees (public and private) and unemployed persons, or 1,607,728/ (3,209,500 + 518,400)) Accordingly, in line with the requirement of the Convention, 5% of the population is covered (economically active population covered/ all residents or 1,607,728/ 30,378,475 =0.053)	
Assessment	The effective coverage does not meet the minimum requirements of Convention No. 102 as 5% of the population is effectively covered, 15% below the required minimum.		
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)	Section 76 (1)(c) NPA: Entitlement (...) to a pension payment for each month beginning with the first month in which the person becomes entitled to the payment. Article 77 (Act 883): A member may be paid full or reduced pension. (2) The minimum pension payment shall be based on thirty-seven and half per centum of the average annual salary for the three best years of a member's working life. (3) Where a member works beyond the minimum contribution period, the amount of pension payable shall be increased by one and half per cent for every additional twelve months worked up to a maximum of sixty per centum. (4) Where there are grounds to suspect that the salary has been inflated with intent to defraud, the Trust shall investigate and the right pension based on a formula determined by the Trust shall be paid to the member. Based on the date provided in the report, the earnings of a standard beneficiary calculated according to article 65 are 2,076.875 (1,773 (total men) + 1,550 (total women) = 3,323 ÷ 2 = 1,661.5 (Total average monthly earnings) x 1.25 (100%) = 2,076.875) As such, a standard beneficiary would be entitled to receive a pension equal to 54.375% after a contributory period of 30 years (37.5% + 15 x 1.125% =54.375%)	☑

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Assessment	Under the National Pensions (Amendment) Act 2014 (Act 883), the benefit corresponds to 37.5% of the average annual salary of the insured person's best three years of salary after a minimum contribution period of 15 years plus an additional 1.5% of that same average for each additional year of contributions. This amounts to 60% of the average annual salary of the insured person's best three years of salary after 30 years of contributions. At first sight, the Old Age Benefit appears to be above the minimum set out in Convention No. 102 (at least 40% of former earnings for 30 years of contribution). However, the insurable earnings used for the calculation of contributions and benefits exclude social allowances, which appears to be cost-of-living allowances as referred to in Convention No. 102. The overall purpose of social security benefits, according to Convention No. 102, is the maintenance of the beneficiary's standard of living. Thus, the Convention specifies that the wage to be taken into account when calculating previous earnings should be the wage determined on the basis of the rates of wages for normal hours of work fixed by collective agreements, by or in pursuance of national laws or regulations, where applicable, or by custom, including cost-of-living allowances if any. In addition, the Convention allows a ceiling on the rate of the benefit or on insurable earnings, as is the case in Ghana, where a ceiling is fixed by the Board of Trustees of SSNIT. For a ceiling on insurable earnings to be in conformity with the Convention, it should not be lower than the earnings of a standard beneficiary (i.e. around 2077 GHS/month according to the information set forth above) According to the information and data provided by SSNIT, the ceiling is currently set at 25,000 GHS/monthly, which is far beyond the earnings of a standard beneficiary. This test should be repeated if the legislation is modified to include social allowance in insurable earnings. The requirements of the Convention would thus be met in respect of the level of the ceiling. The determination method and formula of the ceiling, however, should be set out in the law to fully comply with Convention No. 102.		
Benefit duration	From the prescribed age to the death of beneficiary	The NPA is silent on this matter	
Assessment	As the national legislation and practice does not set a time limit for the provision of the Old Age Pension, it seems implicit that pensions are paid until the death of the beneficiary. The national legislation is thus in compliance with this requirement of Convention No. 102.		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Qualifying period – reduced pension	Maximum of 15 years of contribution or employment (for contributory schemes) for entitlement to a reduced pension	Section 76 NPA: (1) A person who has (a) satisfied the minimum contribution period of not less than one hundred and eighty months (...) (2) or has opted for voluntary retirement with reduced pension. Section 70 NPA: (1) A member of the social security scheme who (a) retires on attaining the compulsory retirement age of sixty years; or (b) retires voluntarily on attaining the age of fifty-five years and has contributed to the social security fund for a period of not less than fifteen years in the aggregate or one hundred and eighty months in the aggregate is entitled to a superannuation pension. Section 72 NPA: (1) Where a member of the social security scheme has made less than fifteen years contribution to the Fund before the member retires either compulsorily or voluntarily, the member is entitled to: (a) a lump sum of money equal to the member's contribution as benefit; and (b) an interest of seventy-five percent at the prevailing government treasury bill rate on the lump sum. Article 77 (Act 883): A member may be paid full or reduced pension. (2) The minimum pension payment shall be based on thirty-seven and half per centum of the average annual salary for the three best years of a member's working life. (3) Where a member works beyond the minimum contribution period, the amount of pension payable shall be increased by one and half per cent for every additional twelve months worked up to a maximum of sixty per centum. (4) Where there are grounds to suspect that the salary has been inflated with intent to defraud, the Trust shall investigate and the right pension based on a formula determined by the Trust shall be paid to the member.	✓
Assessment	Convention No. 102 requires that a pension of reduced amount is paid after a contributory period of at least 15 years. As the law grants a pension corresponding to 37.5% of the insured person's annual average salary of the best three years after at least 15 years of contributions, the entitlement conditions set out in the law are in compliance with Convention No. 102. Moreover, the law provides for a lump sum payment to those contributors who have less than 15 years of contributions consisting of: (a) the contributor's contribution; and (b) the interest equal to 75% on the lump sum at the prevailing government Treasury Bill rate. This is not a requirement of the Convention but is one of the good practices that countries have put in place for equity to those who have contributed but are not eligible to receive a pension given that they do not meet the contribution criterion.		

	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	Section 80 NPA: The Trust shall annually review the pension payment which shall be indexed to wage inflation rates of active members or another rate determined by the Trust in consultation with the Board of the Authority.	✓
Assessment	Convention No. 102 requires that national legislation prescribe the periodic adjustment of pensions, so as to ensure that pensions in payment maintain their purchasing power, and to provide pensioners with the security that their pensions will not lose their value. The National Pensions Act 766, provides for regular review of the pension benefits. The pensions are set to be reviewed annually and indexed to the wage inflation rates of active members or any other rate determined by the Trust in consultation with the Board of the Regulatory Authority. With regard to the method, the ILO Committee of Experts on the Application of Conventions and Recommendation (CEACR) has considered that in some cases it would be advisable to consider both price inflation and increases in wages together in order to maintain the purchasing power of the pension. In the case of Ghana, the Board has the power to determine other appropriate rates, and has included a flat rate, revised annually, to the indexation of the pension. It is unclear if the flat rate reflects the price inflation. The current social security legislation and practice is in compliance with this requirement of Convention No. 102.		

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).	Section 71 NPA: (1) A member of the social security scheme who becomes an invalid is entitled to invalidity pension. (2) (...) incapacity of normal gainful employment because of the permanent physical or mental disability.	✓
Assessment	The national legislation provides for invalidity pensions in case of any disability that prevents permanently the insured worker from performing his/her job in line with Convention No. 102.		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Coverage	At least: – 50% of all employees; or categories of active population (forming not less than 20% of all residents); or – All residents with means under prescribed threshold.	Section 58 NPA: (1) The social security scheme applies to: (a) every employer and to each worker employed by its establishment; (b) any other employer, worker and self-employed to whom the Social Security Act, 1991 (P.N.D.C.L. 247) applied immediately before the commencement of this Act; and (c) self-employed persons, who opt to join the social security scheme. The Report for 2020 identifies a total of 1,607728 contributors (insured persons) in table 2.4.2. Section 58 NPA: (1) The social security scheme applies to: (a) every employer and to each worker employed by its establishment; (b) any other employer, worker and self-employed to whom the Social Security Act, 1991 (P.N.D.C.L. 247) applied immediately before the commencement of this Act; and (c) self-employed persons, who opt to join the social security scheme. Section 20 Social Security Act, 1991 (P.N.D.C.L. 247): (1) The Law shall apply to: (a) every employer of an establishment and to every worker employed therein; (b) every other employer and worker to whom the Social Security Decree, 1972 (N.R.C.D. 127) applied immediately before the commencement of this Law; and (c) all self-employed persons, who opt to join the Scheme. The Report for 2020 identifies a total of 1 607 728 contributors (insured persons) in table 2.4.2. The total number of employees (in 2020) 3,209,500 (table 3.5) Unemployment population (in 2020) was: 518,400 (ILO STATS) Population (in 2020): 30,378,475 (table 3.1) Accordingly, in line with the requirement of the Convention, 43% of all employees are covered (employees protection/ all employees (public and private) and unemployed persons, or 1,607,728/ (3,209,500 + 518,400)) Accordingly, in line with the requirement of the Convention, 5% of the population is covered (economically active population covered/ all residents or 1,607,728/ 30,378,475 =0.053)	✕

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Assessment	The effective coverage does not meet the minimum requirements of Convention No. 102 as 5% of the population is effectively covered, 15% below the required minimum.		
Benefit	Periodic payments: at least 40% of former earnings of the insured worker after 15 years of contributions (for contributory schemes). 30% of former earnings after 5 years of contribution	Section 79 NPA: Where a member is certified by a medical board as being invalid, the member is entitled to a pension based on the minimum pension or the earned pension whichever is higher. Article 77 (Act 883): Member may be paid full or reduced pension. (2) The minimum pension payment shall be based on thirty-seven and half per centum of the average annual salary for the three best years of a member's working life. (3) Where a member works beyond the minimum contribution period, the amount of pension payable shall be increased by one and half per cent for every additional twelve months worked up to a maximum of sixty per centum. (4) Where there are grounds to suspect that the salary has been inflated with intent to defraud, the Trust shall investigate and the right pension based on a formula determined by the Trust shall be paid to the member. Based on the date provided in the report, the earnings of a standard beneficiary calculated according to article 65 are 2,076.875 (1,773 (total men) + 1,550 (total women) = 3,323 ÷ 2 = 1,661.5 (Total average monthly earnings) x 1.25 (100%) = 2,076.875) As such, a standard beneficiary would be entitled to receive an invalidity pension equal to 60% after a contributory period of 30 years (37.5% + 15 x 1.5% =60%)	☑
Assessment	Under the National Pensions (Amendment) Act 2014 (Act 883), the benefit amounts to 37.5% after a minimum contributory period of 12 months (1 year) plus an additional 1.5% for each additional year in excess of 15 years. This complies with Convention No. 102 since a benefit corresponding to more than 30% replacement rate is guaranteed after 5 years. However, as mentioned in the Old Age section above, the insurable earnings used for the calculation of contributions and benefits exclude social allowances, which appear to be equivalent to cost-of-living allowances as referred to in Convention No. 102 (Article 65(9)) and which should, therefore, be included in the earnings taken into account for the calculation of the replacement rate.		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
	In addition, the Convention allows a ceiling on the rate of the benefit or on insurable earnings, as is the case in Ghana, where a ceiling is fixed by the Board of Trustees of SSNIT. For a ceiling on insurable earnings to be in conformity with the Convention, it should not be lower than 125% of the average earnings of all the persons protected by law. (i.e. around 2077 GHS/month according to the information set forth above) According to the information and data provided by SSNIT, the ceiling is currently set at 25,000 GHS/monthly, which is far beyond the earnings of a standard beneficiary. This test should be repeated if the legislation is modified to include social allowance in insurable earnings. The requirements of the Convention would thus be met in respect of the level of the ceiling. The determination method and formula of the ceiling, however, should be set out in the law to fully comply with Convention No. 102.		
Qualifying period – reduced pension	Maximum of 5 years of contribution or employment (for contributory schemes) for entitlement to a reduced pension.	Section 71 NPA: (1) A member of the social security scheme who becomes an invalid is entitled to invalidity pension if: (a) the member has contributed to the Fund for not less than twelve months within the last thirty-six months before the occurrence of the invalidity; and (b) a medical board certifies that the member is incapable of normal gainful employment because of the permanent physical or mental disability. (2) Where a person to whom subsection (1) applies is subsequently certified by a medical board to have fully recovered and that person has not attained the compulsory retirement age, that person may rejoin the scheme.	✓
Assessment	Convention No. 102 requires that a pension of reduced amount is paid after a contributory period of at least 5 years. As the national laws under examination grant an Invalidity Pension after at least 12 months of contribution within the last 36 months before the occurrence of the invalidity, the entitlement conditions of the legislation are in compliance with those required by Convention No. 102.		
Benefit duration	As long as the incapacity to earn a sufficient income remains OR until old age benefit becomes payable.	Section 71 NPA: (1) A member of the social security scheme who becomes an invalid is entitled to invalidity pension	✓
Assessment	According to Ghanaian legislation and practice, Invalidity Pensions are paid for as long as the invalidity persists even if retirement age is reached. While there is no indication to such effect in the law, it may be assumed that in such case the payment of the Old		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
	Age Pension to which the person would have been otherwise entitled is suspended. The Convention allows for such a suspension. However, if the Old Age Pension to which the person would have been entitled is higher than the Invalidity Pension he/she is receiving, then it is good practice for the difference to be paid. Subject to confirmation that this is indeed the case, it may be concluded that the national legislation complies with this requirement of 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.	Section 80 NPA: The Trust shall annually review the pension payment which shall be indexed to wage inflation rates of active members or another rate determined by the Trust in consultation with the Board of the Authority. Section 80 NPA: Annual review in line with wage inflation or other appropriate rate determined by the Trust	✓
Assessment	Convention No. 102 requires that national legislation prescribe the periodic adjustment of pensions, so as to ensure that pensions in payment maintain their purchasing power, and to provide pensioners with the security that their pensions will not lose their value. The National Pensions Act 766, 2008 provides for regular review of the pension benefits. The pensions are set to be reviewed annually and indexed to the wage inflation rates of active members or any other rate determined by the Trust in consultation with the Board of the Regulatory Authority. With regard to the method, the ILO Committee of Experts on the Application of Conventions and Recommendation (CEACR) considers that the cost of living (price inflation) must be taken into consideration, as wage inflation alone is not enough to maintain the purchasing power of pensioners. In the case of Ghana, the Board has the power to determine other appropriate rates, and has included a flat rate, revised annually, to the indexation of the pension. It is unclear if the flat rate reflects the price inflation. The social security legislation seems to be in compliance with this requirement of Convention No. 102.		

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.	Section 58 NPA: (1) The social security scheme applies to (a) every employer and to each worker employed by its establishment; (b) any other employer, worker and self-employed to whom the Social Security Act, 1991 (P.N.D.C.L. 247) applied immediately before the commencement of this Act, and (c) self-employed persons, who opt to join the social security scheme. Section 73 NPA: (1) Where a member of the scheme dies, a lump sum benefit is payable to the deceased's family who: (a) are dependants of the deceased; and (b) have been validly nominated as beneficiaries of the deceased. (2) Where no nomination was made or the nomination made is found to be invalid by the Trust, the lump sum shall be distributed to the dependants in accordance with the Intestate Succession Act, 1985 (P.N.D.C.L. 111). (3) Where a deceased member failed to nominate a surviving spouse and children as beneficiaries, the spouse and children may apply to the court for a variation of the nomination to include them.	✕
Assessment	According to Convention No. 102, the surviving spouse and children should be legally entitled to a survivor's pension. In the case of a widow, the pension could be made contingent on her being capable of self-support. Children should receive the pension at least until 15 years of age or school leaving age if it is higher. Convention No. 102 allows for a total or partial suspension of benefits in a number of limited cases. However, other than the cases set out above, a survivor's pension for the dependent widow and children under school leaving age cannot be lost because they have not been nominated as beneficiaries. In other words, the C102 does not authorize for the right to a pension to be made contingent on a testimonial decision of the deceased income-earner to this effect. In line with the Convention, such beneficiaries should not be required to apply to the court to receive survivors' pensions when the conditions set by the Convention are met. As such, the national law and practice would not be considered to be aligned with the Convention on this point. The Government should consider removing this obligation, at least as far as dependent spouses and children, as defined by Convention No. 102, are concerned.		

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Coverage	– 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.	Section 73 NPA: (1) Where a member of the scheme dies, a lump sum benefit is payable to the deceased's family who (a) are dependants of the deceased; and (b) have been validly nominated as beneficiaries of the deceased. (2) Where no nomination was made or the nomination made is found to be invalid by the Trust, the lump sum shall be distributed to the dependants in accordance with the Intestate Succession Act, 1985 (P.N.D.C.L. 111). (3) Where a deceased member failed to nominate a surviving spouse and children as beneficiaries, the spouse and children may apply to the court for a variation of the nomination to include them. Section 211 NPA "dependants" include: (a) members of the family of a member as specified in the Schedule; and (b) other persons who the member is obliged to maintain under the Children's Act, 1998 (Act 560) or otherwise and who were dependent on the earnings of the member at the time of death of the member The Report for 2020 identifies a total of 1,607,728 contributors (insured persons) in table 2.4.2. Section 58 NPA: (1) The social security scheme applies to: (a) every employer and to each worker employed by its establishment; (b) any other employer, worker and self-employed to whom the Social Security Act, 1991 (P.N.D.C.L. 247) applied immediately before the commencement of this Act, and (c) self-employed persons, who opt to join the social security scheme. Section 20 Social Security Act, 1991 (P.N.D.C.L. 247) (1) The Law shall apply to: (a) every employer of an establishment and to every worker employed therein; (b) every other employer and worker to whom the Social Security Decree, 1972 (N.R.C.D. 127) applied immediately before the commencement of this Law; and (c) all self-employed persons, who opt to join the Scheme. The Report for 2020 identifies a total of 1,607,728 contributors (insured persons) in table 2.4.2. The total number of employees (in 2020) 3,209,500 (table 3.5) Unemployment population (in 2020) was: 518,400 (ILO STATS)	✕

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
		Population (in 2020): 30,378,475 (table 3.1) Accordingly, in line with the requirement of the Convention, 43% of all employees are covered (employees protection/ all employees (public and private) and unemployed persons, or 1,607,728/ 3,209,500 + 518 400)) Accordingly, , in line with the requirement of the Convention, 5% of the population is covered (economically active population covered/ all residents or 1,607,728/ 30,378,475=0.053)	
Assessment	The law prescribes survivors benefits in case of the death of employed persons (and self-employed persons on a voluntary basis). In practice, 5% of employees in the country are covered, above/below the minimum level required by the convention (i.e. 50% of all employees). Section 211 of the Act provides a definition of "dependants" to members specified in the Schedule that includes the spouse and children of deceased insured workers. However, given that dependent spouses and children (as defined by the Convention) would not necessarily be entitled to a survivor's benefit when the entitlement and qualifying conditions prescribed by the Convention are met, it can be considered that there is a concern of non-alignment with Convention No. 102. As mentioned above, it would be recommended that the Government consider modify the national law and practice to ensure that, at least dependent widows and children under school leaving age are entitled to survivors pensions in all cases where entitlement and qualifying conditions are met.		
Benefit	Periodic payments: at least 40% of former earnings of the insured worker after 15 years of contributions (for contributory schemes) for a standard beneficiary (a dependent spouse with 2 children).	Section 78 NPA: (1) Where a member dies having made at least twelve months contribution within the last thirty-six months prior to the death of the member, a lump sum payment computed on the present value of the members pension for a period of fifteen years, using the prevailing treasury bill rate or ten percent, whichever is the lower, shall be paid to the members' nominated dependants. (2) Where a member dies before making at least twelve months contribution within the last thirty-six months, a lump sum equal to total contributions and interest on the lump sum at the rate of seventy-five percentum of the Government treasury bill rate shall be paid to the nominated dependants of the member. (3) Where a member retires but dies before the age of seventy-five years, a lump sum payment, based on the present value of the unexpired pension of the member not exceeding fifteen years shall be made to the nominated dependants of the member.	✕

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Assessment	Given that the national law only provides a lump sum benefit in all case the protected person dies, this is not in alignment with Convention No. 102 which requires that a periodical payment be paid to the dependent widow and children of protected persons who have contributed at least 5 years . This calculation should be provided throughout the contingency, in other words, at least until children are of school leaving age and for widows, until they are no longer considered incapable of self-support (in accordance with national laws and regulations) or until they remarry.		
Entitlement conditions	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	Section 78 NPA: (1) Where a member dies having made at least twelve months contribution within the last thirty-six months prior to the death of the member, a lump sum payment computed on the present value of the members pension for a period of fifteen years, using the prevailing treasury bill rate or ten percent, whichever is the lower, shall be paid to the members' nominated dependants. (2) Where a member dies before making at least twelve months contribution within the last thirty-six months, a lump sum equal to total contributions and interest on the lump sum at the rate of seventy-five percentum of the Government treasury bill rate shall be paid to the nominated dependants of the member. (3) Where a member retires but dies before the age of seventy-five years, a lump sum payment, based on the present value of the unexpired pension of the member not exceeding fifteen years shall be made to the nominated dependants of the member. Section 81 NPA: (1) A person who is required or entitled to become a member of the social security scheme shall furnish to the employer particulars concerning the member's beneficiaries for the receipt of benefits on the death of that member. (2) The employer shall enter the particulars in the prescribed form and obtain the signature or thumbprint impression of the person concerned and forward it to the Trust. (3) An employer shall ask a potential employee to state in writing (a) whether or not that person is a member of the scheme; (b) the member's account number; (c) the name and particulars of the last establishment if any, where that person was employed; and (d) whether anyone has been nominated to receive the benefits as survivor. (4) Where that person was a member of the scheme, the old account number and the nominated beneficiaries shall continue to be operative, and the Trust's attention shall be drawn to this by the new employer. (5) Subject to subsection (3), a member of the scheme is free to update the nomination and	✕

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
		shall review the nominations at least once every five years and forward the nomination to the Trust. (6) Where payment of benefit has been made to a person validly nominated or varied by a Court order under this section, no other person shall have any other claim against the Trust. (7) Despite subsection (6), where a member of the scheme has a child sixty percent of the survivors benefit shall be distributed to the child and forty percent to the persons nominated by the member.	
Assessment	According to the national legislation, the Survivors' Benefit is payable to the dependants of an insured person who has completed at least 12 months of contributions within the last 36 months prior to his or her death. This is in conformity with Convention No. 102, which requires that at least a reduced benefit be paid to the dependants of a deceased insured person who would have completed a contributory period of 5 years prior to his/her death. However, the law requires that a dependent family member (as defined by law) be validly nominated by the deceased as a beneficiary to become entitled to a Survivors' Benefit, including a dependent widow and children below school leaving age. If the surviving spouse and children are not nominated, they have to apply to the court to be included in the nomination and thereby obtain the benefit. This additional condition is not aligned with Convention No. 102 which requires the effective access to survivors benefits to all widows that are considered incapable of self-support according to national law and regulations and all children at least until school leaving age, in so far as the entitlement and qualifying conditions set by the Convention are met.		
Benefit duration	– For children: at least until school-leaving age or 15 years of age, as prescribed; – For widows: as long as presumed incapable of self-support.	Section 78 NPA: (1) Where a member dies having made at least twelve months contribution within the last thirty-six months prior to the death of the member, a lump sum payment computed on the present value of the members pension for a period of fifteen years, using the prevailing treasury bill rate or ten percent, whichever is the lower, shall be paid to the members' nominated dependants. (2) Where a member dies before making at least twelve months contribution within the last thirty-six months, a lump sum equal to total contributions and interest on the lump sum at the rate of seventy-five percentum of the Government treasury bill rate shall be paid to the nominated dependants of the member. (3) Where a member retires but dies before the age of seventy-five years, a lump sum payment, based on the present value of the unexpired pension of the member not exceeding fifteen years shall be made to the nominated dependants of the member.	✕

	Convention No. 102 Minimum standards	National legislation	Compatibility with Convention No. 102
Assessment	The benefit payable constitutes a lump sum payment, therefore the duration of the benefit is not in line with the requirement of Convention No. 102 which requires that survivors pensions be paid at least until children are of school leaving age and for widows, until they are no longer considered incapable of self-support (in accordance with national laws and regulations) or until they remarry		
Adjustment of pensions in payment	Adjustment of pensions in payment following substantial changes in general level of earnings and/or cost of living.		✕
Assessment	As the payment of benefit is a lump sum, there is no review for the payment once it is made. Convention No. 102 requires that the national legislation prescribes the periodical adjustment of all benefits, including survivors' benefits, so as to ensure that the benefit payment maintains its purchasing power, and to provide beneficiaries with the security that their pensions will not lose their value. By definition, a lump sum benefit cannot fulfil this requirement as it constitutes a one-off payment. The current national legislation with regard to Survivors' Benefit is thus not in compliance with this requirement of Convention No. 102.		