Report
to the
Government of St. Kitts and Nevis

8th Actuarial Review Of the Social Security Fund As of 31 December 2005

ST CHRISTOPHER AND NEVIS SOCIAL SECURITY BOARD

Striving for Social Justice

(March 2007)

8th Actuarial Review of the St. Christopher & Nevis Social Security Fund as of 31 December 2005

Horizonow
ACTUARIAL & FINANCIAL CONSULTANTS

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Abbreviations and Acronyms

CSME	CARICOM Single Market & Economy
CSSA	CARICOM Social Security Agreement
EC$	Eastern Caribbean Dollar
EIB	Employment Injury Benefits
GDP	Gross Domestic Product
ICE	Indexed Career Earnings
ILO	International Labour Office
IPS	Investment Policy Statement
LTB	Long-term Benefits
NPF	National Provident Fund
PAYG	Pay-as-you-go
SKN	St. Kitts-Nevis
SS	Social Security
STB	Short-term Benefits
TFR	Total Fertility Rate

Introduction

St. Christopher & Nevis Social Security began operations in February 1978. Prior to this, a National Provident Fund system was in place. Social Security currently covers all employed and self-employed persons in the Federation and offers three main types of social security benefits – short-term benefits, long-term benefits or pensions and employment injury benefits. The system is financed by contributions which are levied on employment earnings up to a wage ceiling and are paid by employers, employees and self-employed persons. Surplus funds are invested locally, regionally and internationally in various types of securities.

This is the report of the 8th Actuarial Review of Social Security Fund and it is being prepared three years after the 7th Actuarial Review.

The main purpose of periodic actuarial reviews is to determine if the social security system in St. Kitts-Nevis operates on sound financial and actuarial bases and if it provides adequate and affordable levels of income protection. Where considered necessary, recommendations aimed at ensuring that these objectives can be achieved for current and future generations are made.

During discussions with the Social Security Board, and representatives of the Government and various stakeholders in St. Kitts and Nevis in June 2006, requests for analysis and discussion of specific issues were made. These and other matters are discussed throughout the report.

For this actuarial review, 60-year demographic and financial projections have been performed. It should be noted that these projections are dependent on the underlying data, methodology and assumptions concerning uncertain future events and that the outcomes and eventual experience will most likely differ, possibly materially, from that indicated in the projections. Therefore, in accordance with the Social Security Act, periodic actuarial reviews should be conducted. The next Actuarial Review of the Social Security Fund is due as at December 31, 2008.

The author wishes to thank Mrs. Sephlin Lawrence, Director, Ms. Paulette Eddy, Administrative Officer, and all other members of the Social Security staff who assisted with this review.

Executive Summary

In line with a growing economy, Social Security finances were favourable during the period 2003 to 2005 with income from contributions and investments exceeding projections. Although total expenditure was slightly higher than expected, the pension increases granted in 2005 ensured that the real value of pensions is being maintained. At the end of 2005, reserves stood at $738.5 million or 22.7 times total expenditure in 2005, making the St. Christopher-Nevis Social Security Fund one of the best funded systems in the Caribbean. This report's assessment of policy and design indicators also reveals favourable results in almost all aspects, thus confirming that current contribution and benefit provisions provide reasonable and adequate coverage to workers and pensioners.

Continued population and economic growth for the next few decades form the basis for the *Best Estimate* 60-year projections made in this report. However, towards the end of the projection period, the ageing of the population is likely to result in slower economic growth as the number of working-age persons declines. Therefore, it is quite likely that a trend that sees more persons working well into their sixties and seventies will emerge, adding support to current considerations of gradually increasing the age for receipt of a full Age pension from 62 to 65, or even 67.

Core projections of Social Security finances are based on best-estimate population and economic assumptions and the contribution and benefit provisions in place on January 1, 2006. Following is a summary of the results of the projections of this 8th Actuarial Review which assume that the contribution rate and benefit provisions will remain as they were on January 1, 2006:

1. It is projected that contributions will be sufficient to meet annual expenditure through 2034.
2. The Fund is projected to be depleted in 2052.
3. Expenditure, expressed as a percentage of insurable wages, is expected to gradually increase, surpassing the 11% contribution rate in 2021 and reaching highs of around 26% of insurable earnings.
4. The average level contribution rate required for the next 60 years to fully cover expenditure in that period is 16.6%.
5. The current contribution rate would have to be increased immediately from 11% to 13.7% so that reserves would be adequate to meet expenditure through 2065.
6. The number of active contributors per pensioner is projected to decrease from 7.7 in 2005 to 1.8 in 2065.

The results of the *Best Estimate* projections are slightly less optimistic than those of the *Intermediate* scenario of the 7th Actuarial Review due mainly to the ¼% higher inflation assumption used. For these projections, pensions are assumed to increase in line with long-term inflation which has been estimated at 2.75% per annum.

Since there is a wide range of possible outcomes for projections that extend as long as 60 years, projections have also been performed using two alternative sets of assumptions. For these two scenarios the ratio of older persons to working-age persons is higher than under the *Best-Estimate* scenario (*High Dependency* scenario) and lower for the *Low Dependency* scenario. As expected, the Social Security Fund will be depleted sooner if experience is more in line with the High-Dependency scenario and later if demographic and economic experience is more favourable.

Once the report of the 8th Actuarial Review is complete, the Social Security Board appears set to engage in a period of consultation with stakeholders and the general public regarding Social Security reform. The Board is to be commended for planning this initiative as Social Security's policies and objectives should always be consistent with prevailing socio-economic conditions. It is expected that the reform discussions will encompass all Social Security provisions and thus an identification of the public's main concerns, wishes and goals should emerge. Therefore, only a few recommendations that are considered critical for either change or consideration have been made in this report.

These recommendations are:

1. The pending social security reform discussions should review all policies, objectives and provisions. These include issues of governance, contributions and benefits, qualifying conditions and benefit formulae. A more detailed list may be found in Chapter 5.
2. Formalise the manner in which the wage ceiling, pensions in payment and all fixed-dollar parameters are adjusted. Ideally, these should be increased annually with the rules regarding adjustments stated in Regulations but at a minimum, regulations should provide for a review of all payment rates and the wage ceiling at regular intervals. (Section 5.2)
3. Given that there is empirical evidence that the cost of living in Nevis is higher than it is in St. Kitts, review cost of living patterns between the two islands to determine whether or not different minimum pensions should be established. (Section 5.3)
4. Through an analysis of the contribution patterns of recent Age grant recipients, determine why one-third of Age benefit applicants in recent years received a grant instead of a pension. (Section 5.5)
5. Consider paying Survivors pension for more than one year to widow(er)s who are under 45 when their spouse dies. Two reasonable alternatives for extended payments are for 3 or 5 years or if there are dependant children, as long as at least one child is under 16, or 18 if still in school. (Section 5.6)
6. Review the current policy which limits the amount that can be reimbursed for medical care costs associated with employment injuries and diseases. The current limit of $25,000 appears low and many employers and workers may not be aware of this limit. If a limit is considered necessary to control potential abuse and excessive costs, then employers may wish to purchase Workers' Compensation to cover amounts that exceed Social Security's limit. (Section 5.7)
7. Consider new methods for the payment of contributions by self-employed persons and the expansion of the benefit package available to them, so that higher levels of coverage can be achieved. (Section 5.8)
8. Review the composition of the Board to provide for at least two members to be nominated by the Nevis Island Administration and other stakeholders in Nevis. Additional changes that bring greater independence to the Board should also be considered. One's competencies, skills and experience should also play a major role when selecting persons to serve on the Board and Investment Committee. (Section 5.9)
9. Transfer excess reserves from the Short-term and Employment Injury benefits branches to the Long-term Benefits branch and change the allocation of contribution income among the three benefit branches. (Section 5.10)
10. Immediate steps should be taken to either change the Fund's investment allocation to one that is more diversified and consistent with the Investment Policy, or if the current mix is considered acceptable by policymakers, revise the Investment Policy to reflect current thinking. (Chapter 6)

St. Christopher & Nevis Social Security currently provides adequate and affordable levels of income protection and in line with the financing mechanism adopted, is being operated on sound financial and actuarial bases. Therefore, no fundamental change in the systems' structure or contribution rate is recommended at this time. Some new benefits and changes to current benefit provisions may be considered, however, to both reduce long-term costs and ensure that workers and pensions have adequate coverage against most employment-related risks.

The one area in which urgent attention is required is investments. The current asset mix which is highly concentrated in short-term deposits and government or government affiliated securities, possesses a higher than desirable level of risk. As a result, considerable change in the financial outlook of the Fund could occur if there is default or impairment to even a small portion of the Fund's investments.

The ongoing ability of Social Security to remain meaningful to insured persons, yet affordable to future generations, will be dependent on continued existence of the following four ingredients:

i. A growing economy,
ii. A well designed system,
iii. Effective and efficient administration, and
iv. Good governance.

Policymakers have limited control over future economic patterns, but an economy in which employment and wages are increasing will contribute positively to Social Security's long-term sustainability. Meantime, with good governance practices from each of Government, the Board and senior management, significant influence can be brought to system design and operational effectiveness, both of which will likely come under close scrutiny during the proposed reform exercise. It is expected, therefore, that following these Federation-wide discussions, and with the assistance of suitably qualified experts, appropriate changes to legislation and operational practices aimed at strengthening both social and financial aspects of Social Security will be made.

Chapter 1 Activities & Experience Since Last Actuarial Review

1.1 Amendments To Act & Regulations

The 7th Actuarial Review of the Social Security Fund was conducted as of December 31st, 2002. No amendments were made to the Act or Regulations during the three-year review period. However, the following changes for which amendments are pending took effect on July 1st, 2005.

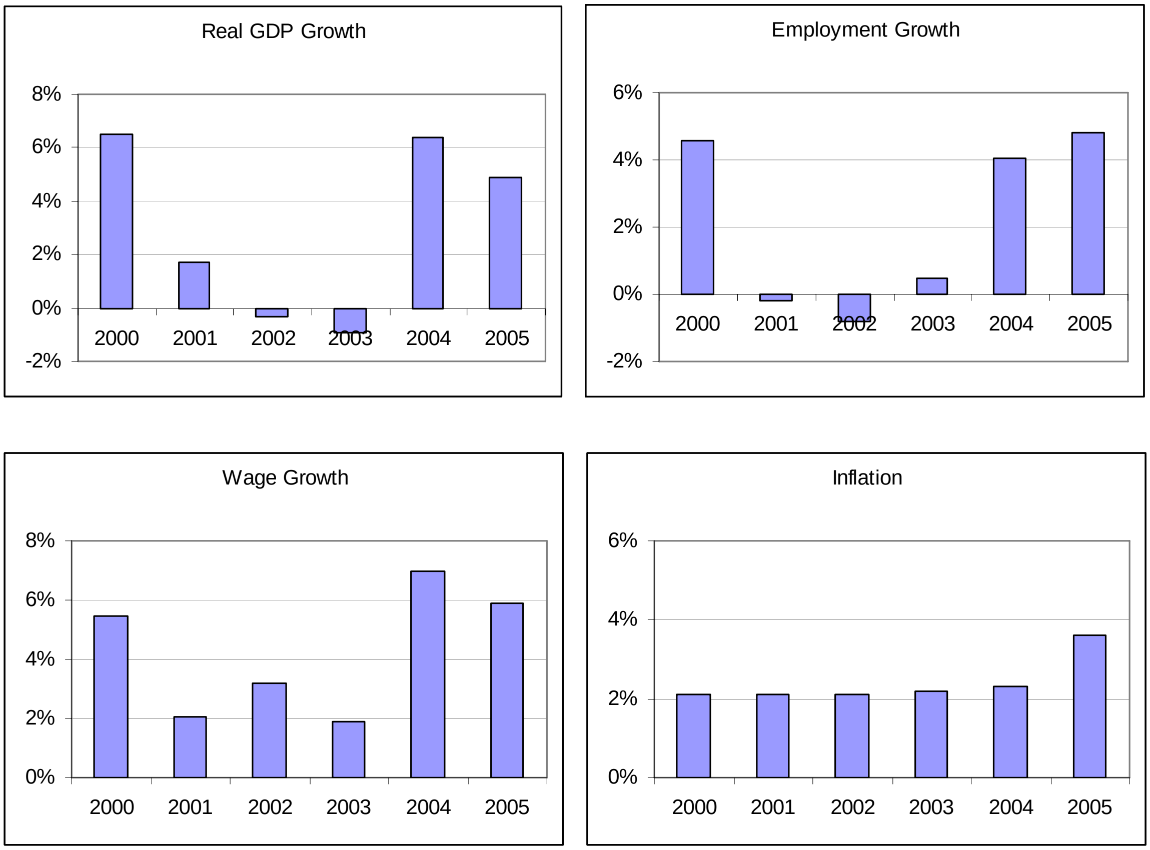
- All pensions in payment, other than those paid at the minimum rate, were increased by 3%.
- The minimum Age and Invalidity pension was increased by 20% from $250 per month to $300 per month.
- The minimum Survivors pension payable to widows and widowers was increased by 20% from $125 per month to $150 per month.
- The minimum Survivors pension payable to children and parents was increased by 20% from $60 per month to $72 per month.
- The Non-contributory or Assistance pension was increased by 5% from $200 per month to $210 per month.
- For persons who may be entitled to both an Age pension and a Survivors pension, instead of only receiving the greater of the two pensions, the pensioner is now entitled to the full Age pension plus 50% of the Survivors pension, subject to a minimum of 100% of the Survivors pension.

1.2 Economic Experience

Social Security finances are closely linked to economic performance and labour market changes. As shown in the charts in Figure 1.1, after three years of little or negative real economic growth, the economy rebounded well in 2004 and 2005, a result of increases in both wages and employment. Inflation between 2000 and 2004 held steady at just over 2%, increasing to 3.6% in 2005.

After the 2005 crop, the sugar industry in St. Kitts-Nevis was officially closed. This decision affected some 1,200 workers, many of whom have since been absorbed into other areas of the economy. Based on contribution revenue in late 2005 and the first half of 2006, the suspension of the sugar production appears to have had little overall impact on Social Security collections.

Figure 1.1. Key Economic Indictors, 2000 to 2005

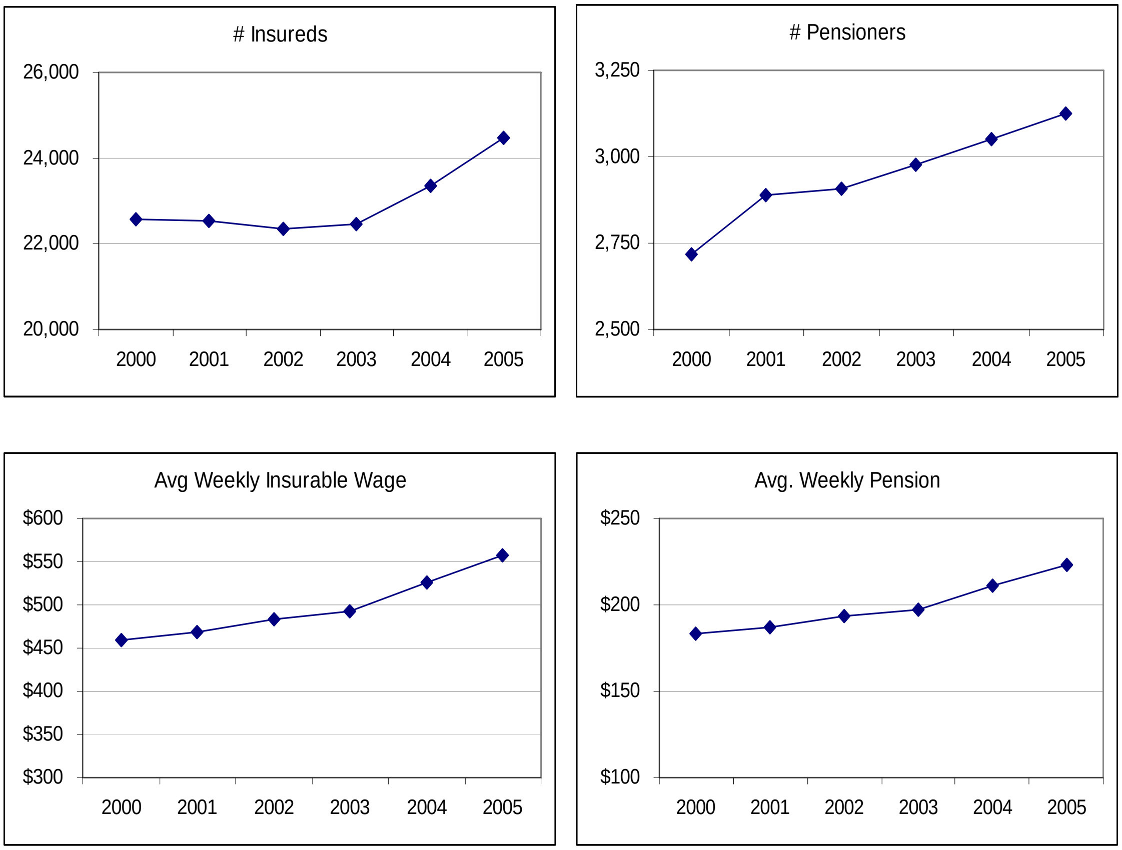


Note: Employment growth has been estimated from the number of Social Security contributors.
Source: Inflation and GDP - Planning Unit; Wages and Employment - Social Security

1.3 Social Security Experience

Contribution income is directly related to employment and wage levels. Thus, in line with recent economic patterns, the number of insured persons making contributions and their wages increased significantly in 2004 and 2005. For pensions, which account for 70% of total benefit expenditure, changes to the number of pensioners and their average pension have greatest influence on year-over-year changes to benefit expenditure. The charts in Figure 1.2 highlight recent changes in the number of contributors and their average insurable wage and the number of pensioners and the average overall pension. While there has been no increase in the wage ceiling for many years, pensions in payment were increased in 2002 and again in 2005.

Figure 1.2. Contributors & Pensioners, 2000 to 2005



The following table provides summary income and expenditure amounts for years 2003 to 2005. A more detailed version of the Social Security finances for these years may be found in Appendix D.

Table 1.1. Social Security Finances, 2003 – 2005 **(millions of $'s)**

	2003	2004	2005
Income			
Contributions	48.0	53.8	58.1
Investment	34.5	39.2	41.8
Other	0.6	0.7	0.6
Total	**83.2**	**93.7**	**100.4**
Expenditure			
Benefits	20.4	22.1	24.9
Administrative	7.1	7.7	7.7
Total	**27.5**	**29.7**	**32.6**
Excess of Income over Expenditure	**55.7**	**64.0**	**67.8**
Benefit Reserves	**595.3**	**659.3**	**727.2**

Notes: Totals may be off due to rounding.

1.4 Benefit Branch Experience & Reserves

Social Security administers three major types of social security benefits – long-term or pensions, short-term benefits and employment injury benefits. While the summary of Social Security finances presented in the previous section shows total income and expenditure, internal accounting procedures separate finances into three branches. Since the three benefit types have different characteristics and financing mechanisms, the separation allows for better monitoring of experience. Each benefit is allocated to one of the three branches and each benefit branch is allocated a certain percentage of contribution income, investment income, and administrative costs.

For the Short-term benefit and Employment Injury benefit branches, a pay-as-you-go method of financing is used. Under this method current contributions are expected to meet current benefits with only a small reserve. Therefore, the contribution rate allocated to these benefits should approximate expected expenditure and reserve levels should be small, relative to annual expenditure. As shown in the following table, the contribution rate allocated to these branches exceeded benefit expenditure (expressed as a percentage of insurable wages) in all years.

Table 1.2. Summary Branch Experience (% of Insurable Earnings)

Benefit Branch	Contributions Allocated	Total Expenditure		
		2003	2004	2005
Short-term	2.0%	1.48%	1.40%	1.52%
Employment Injury	1.0%	0.30%	0.28%	0.30%
Long-term	8.0%	4.53%	4.40%	4.35%
All Branches	**11.0%**	**6.30%**	**6.08%**	**6.18%**

Long-term benefits are partially pre-funded with the portion of the contribution rate not allocated to Short-term and Employment Injury benefits. Given that Social Security is still relatively young, expenditure remains well below contribution income. The following table shows changes in total reserves and relative funding levels for each branch between 2002 and 2005. Also shown are suggested funding targets for the Short-term and Employment Injury Benefit branches.

Table 1.3. Benefit Reserves & Reserve-Expenditure Ratios, 2002 & 2005

Benefit Branch	Year-end Reserve (in millions)		Reserve-Expenditure Ratio		
	2002	2005	2002	2005	Suggested Target
Short-term	$ 50.2	$ 69.3	8.6	8.6	1.0
Employment Injury	$ 63.9	$ 88.4	46.3	56.0	2.0
Long-term	$425.5	$569.5	23.7	24.8	Not Applicable
Total Benefit Reserves	**$539.6**	**$727.2**	**21.5**	**22.7**	Not Applicable

Note: The Reserve-Expenditure ratio is the size of the year-end reserve relative to total expenditure in that year.

As shown in Table 1.3, reserve levels have increased during the 3-year review period and at the end of 2005, actual funding ratios for the Short-term and Employment Injury benefit branches were well in excess of target funding ratios. Therefore, reserve transfers out of these branches to the Long-term branch and a reallocation of the contribution rate between branches are justified. (See Section 5.10)

Additional benefit experience details for years 2003 to 2005 may be found in Appendix E.

In addition to the reserves for the Short-term, Long-term and Employment Injury benefit branches, there are three additional types of reserves included in Social Security financials.

Table 1.4. Non-Benefit Reserves

Reserve	Description	Dec. 2005 (in millions)
National Provident Fund Reserve	Accumulated NPF balances less members' claims settled.	$15.7
Revaluation Reserve	Cumulative gains and losses on revaluation of freehold properties and investments designated as "available for sale"	$11.3
Staff Supplemental Benefit Reserve	Assets of the Staff Pension Plan	$ 3.4

While the Staff Supplemental Benefit Reserve is not available for the payment of future benefits, amounts currently designated as Revaluation Reserves and any remainder of the NPF reserve once all NPF obligations have been met will be available for the payment of future benefits and operating costs. For this report, total reserves considered available for the payment of benefits and other costs are $738.5 million - the sum of the three benefit reserves and the Revaluation Reserve.

1.5 Experience Compared With Projections of 7th Actuarial Review

In the 7th Actuarial Review, dollar-value projections were presented for the entire Social Security Fund. When compared with the *Intermediate* Scenario projections for 2003 to 2005, actual experience was better than projected – especially contribution income which in total was 6% better than projected.

Table 1.5. Projections from 7th Actuarial Review Compared With Actual Experience

	2003-2005 Projected (millions of $'s)	2003-2005 Actual (millions of $'s)	Difference
Contribution Income	$150.5	$159.9	6.2%
Investment Income	$113.1	$115.5	2.1%
Benefit Expenditure	$ 65.0	$ 67.4	3.7%
Administrative Expenditure	$ 23.6	$ 22.5	(4.7%)
2005 Year-end Reserves	$732.5	$738.5	0.8%
Reserve-Expenditure Ratio	24.2	22.7	(6.2%)

Note: Total reserves includes the Revaluation Reserve

For contributions, significant growth occurred in 2004 and 2005, a result of a combination of insurable wage increases of 7.0% and 5.9%, respectively, and an increase in the number of contributors from 22,454 in 2003 to 24,489 in 2005. Benefit increases were slightly higher than projected due to the general pension adjustments granted in 2005. The projections of the 7th Actuarial Review did not anticipate these adjustments to occur until 2006.

Although reserves at the end of 2005 were slightly higher than projected, the funding level, assessed by comparing reserves to annual expenditure, was slightly lower than expected. This was due to benefit expenditure in 2005 being higher than projected.

1.6 Investments

At the end of 2005, Social Security investments (including NPF investments) stood at $706.3 million, up from $524.8 million at the end of 2002. During this period the average yield on investments was 6.5%. With inflation averaging 2.7%, the real rate of return over the 3-year period was 3.8%. At the end of 2005, total investments were approximately 60% of GDP.

The following table provides a summary of the investment mix of the Social Security Fund at year-end 2005 and 2002. As shown, other than for the addition of property to the portfolio, there has only slight change in the asset mix over the 3-year review period.

Table 1.6. Summary of Investments, Year-end 2005 & 2002 (millions of $'s)

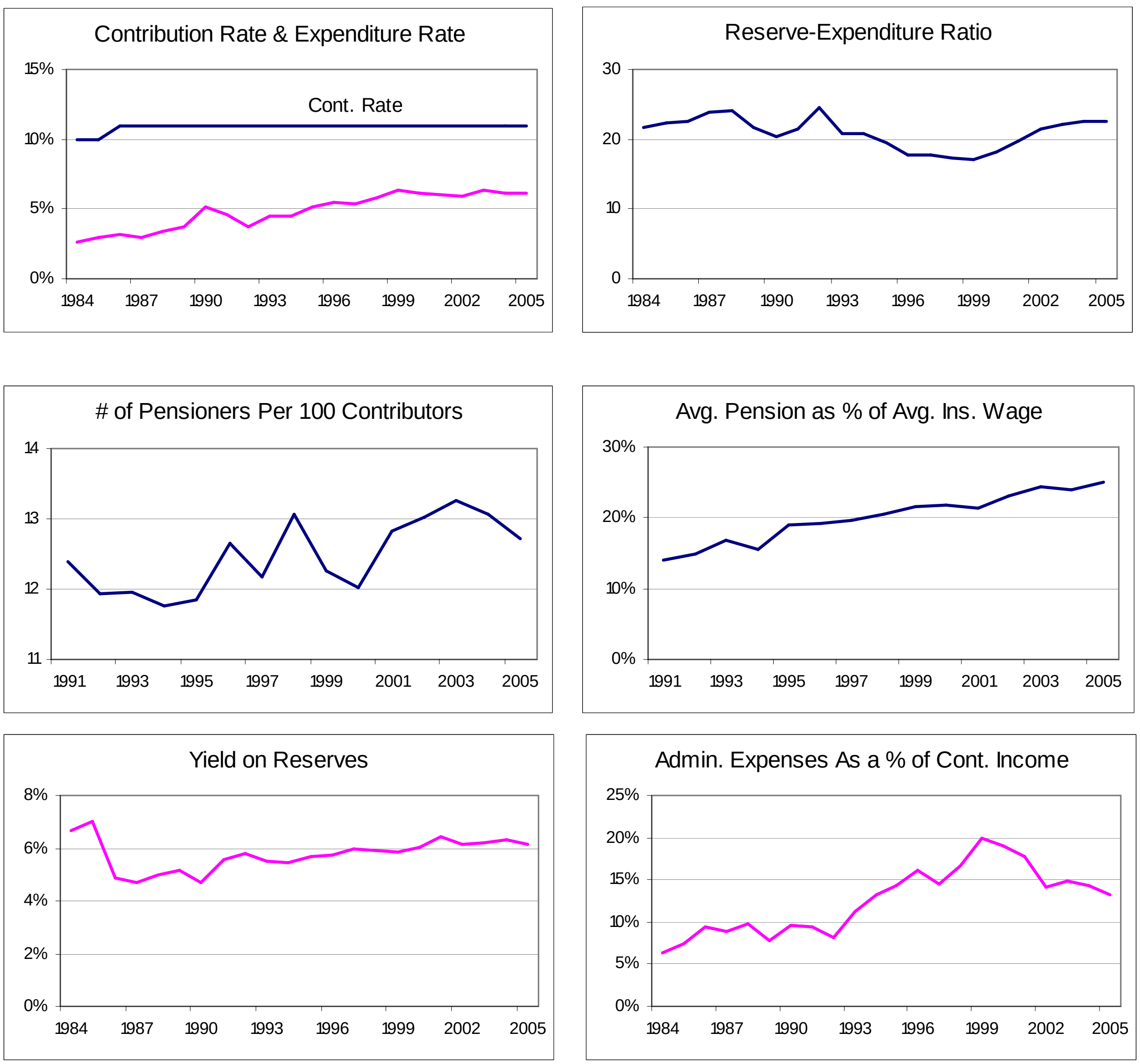
Investment Category	2005		2002	
	$'s	%	%	
Government Securities & Loans	114.9	16.3%	94.4	18.0%
Fixed Deposits	425.3	60.2%	343.7	65.5%
Notes & Bonds	11.6	1.6%	5.6	1.1%
Other Loans	121.6	17.2%	68.8	13.1%
Equities	26.3	3.7%	12.3	2.3%
Property	6.7	0.9%	-	0.0%
Total	**706.3**	**100%**	**524.8**	**100%**

Chapter 2 Assessment Of Performance & System Design

2.1 Historical Performance, 1984 – 2005

Social security systems have long-term horizons – workers may contribute for over 40 years and then receive pensions for over 30 years. Therefore, an assessment of performance should not be limited to one or two years, but instead entail a review of experience over a long period and an understanding of why changes over shorter periods have occurred. Also, some experience factors can act as leading indicators, thus assisting with identifying potential future short-term performance before it actually occurs. Experience for key financial factors from 1984 to 2005 are presented in the following charts:

Figure 2.1. Social Security Experience



During the last few years there has been a reversal in key trends usually noticed in maturing social security schemes. After almost 30 years of existence, it is generally expected that expenditure would grow at a faster pace than income and overall reserves, leading to a gradual deterioration in funding levels if the contribution rate is not increased. However, in the case of St. Kitts-Nevis, several positive economic and Social Security factors have resulted in continued favourable experience to the Fund.

Up to 1999, expenditure relative to insurable earnings generally increased while the contribution rate remained fixed at 11%. However, with the expenditure rate remaining relatively constant since then and investment returns being strong, reserves have increased faster than expenditure. As a result, the system's relative level of funding is higher at the end of 2005 than it was six years ago and almost the same as it was in 1984. Also contributing to positive overall finances has been the gradual decline in the proportion of contribution income consumed by administrative costs.

There are two main factors that drive current expenditure – the number of pensioners per 100 contributors or the demographic ratio, and the average pension compared with the average insurable wage or the replacement ratio. While the replacement ratio has steadily increased over time, the demographic ratio has fluctuated between 12 and 13 pensioners per 100 contributors. There is a slight general upward trend, however, for the demographic rate, a pattern consistent with the gradual maturation of the social security system.

Following are values for several key indicators as of the dates of the last three actuarial reviews along with a brief analysis of the changes that have occurred.

Table 2.1. Social Security Performance Indicators

	1999	2002	2005	Comments
1. Contribution Rate	11%	11%	11%	Increased only once from 10% in 1986 when EIB's were added.
2. Expenditure Rate	6.3%	5.9%	6.2%	Little change – expenditure increases have closely matched increases in the insurable wage base.
3. Investment Income as % of Total Income	35%	39%	42%	Investment income contributes significantly to SS finances.
4. Benefits as % of GDP	1.8%	1.9%	2.1%	Gradual increase expected as scheme matures.
5. Reserves as % of GDP	48%	57%	62%	High. Gradual increase expected for some time.
6. Reserve-Expenditure Ratio	17.1	21.5	22.7	Decrease expected but increasing due to increasing contributions and strong investment returns.
7. 3-year average yield on investments	5.9%	6.2%	6.3%	Although yields have been high, the risk associated with achieving these returns is also high.
8. 3-year average real yield on investments (net of inflation)	0.7%	4.2%	3.6%	Low inflation in recent years.
9. Administrative Expenses as a % of Contribution Income	20.0%	14.1%	13.3%	Significant fall in operating costs between 1999 and 2002.
10. # of Pensioners Per 100 Contributors	12.3	13.0	12.7	Gradual increase expected but employment levels increasing in recent years.
11. Average Pension as % of Average Insurable Wage	22%	23%	25%	Gradual increase expected until system 35 to 40 years old.

In general, Social Security demographic and financial experience has been favourable in recent years, with positive results in almost all areas.

2.1 Design & Policy Indicators

Social security systems have wide-ranging objectives such as the provision of adequate income coverage for all workers which lead to the provision of adequate lifetime pensions for the retired, invalid and survivors of insured persons. Given that the St. Kitts-Nevis Social Security system has a large pool of assets which together with future contributions will meet future expenditure, ensuring that these assets realise market rates of return without exposure to excessive risk is also an important objective.

While assessing whether or not these objectives are being met can be somewhat subjective, by setting dollar values to certain key parameters such as the earnings ceiling and minimum pension, or through policy guidance issued to the Social Security Board, policymakers influence to a large extent how well such objectives are achieved. The following table provides an analysis of a few key design parameters and indicators of coverage, benefit levels and investment prudence, by reviewing current levels and changes between 1999 and 2005.

Table 2.2. Assessment of Key Design Parameters & Achievement of Policy Objectives

Policy	Measured By	1999	2002	2005	Comments
1. Level of Insurance Coverage	Ratio of Ceiling to Average National Wage	3.5	3.1	2.7	Ceiling still at a high level but gradual decline in insurance coverage since 1999.
2. Minimum Floor of Income Protection	Minimum Age Pension as a % of Average National Wage	11%	12%	13%	Minimum Pension increased in 2002 & 2005 but still slightly low relative to national wages.
	Minimum Age Pension as a % of Poverty Line	69%	79%	89%	With the minimum pension increasing faster than inflation, current Minimum Pension approaching poverty line.
3. Coverage For All Employed Persons	% of Employed Persons Contributing	> 90%			Very good.
	% of Self-employed Persons Contributing	Not Available	15%	20%	Very low but improved since 2002.
4. Investment Diversification	% of Assets held in Government Securities	21%	18%	16%	Acceptable.
	% of Assets held in short-term deposits	65%	65%	60%	Excessive. Asset mix not consistent with long-term nature of liabilities.
	% of Assets held locally	98%	98%	97%	Excessive. Greater exposure to other markets desirable.

Notes: # of self-employed persons in population taken from 2001 Population Census. Poverty line taken from 1999 Poverty Assessment Report and adjusted by inflation for 2000 to 2005.

Chapter 3 Best-Estimate Projections

Many demographic and economic factors such as changes in the size and age structure of the population, economic growth, employment and wage levels and inflation influence Social Security finances. Therefore, to best estimate future Social Security's long-term sustainability, projections of St. Kitts-Nevis' total population and the economy are required. For this review 60-year projections have been performed.

In developing all of the assumptions used for the projections, historical trends and reasonable future expectations, as well as the interrelationships between the various assumptions, have been taken into account. Core projections have been performed using assumptions that reflect best estimates. As a result, the set of demographic and financial projection results based on this assumption set is referred to throughout this report as the "*Best Estimate.*"

Given the significant uncertainty inherent in forecasting such a long period, projections have also been performed using two additional sets of assumptions. These alternative projection sets, which encompass assumptions that are generally more optimistic and more pessimistic than best-estimate assumptions, are presented in Chapter 4.

3.1 Population Projections

3.1.1 Assumptions

Projections of the St. Kitts-Nevis population begin with the results of the 2001 census and in each projection year thereafter, fertility, mortality and migration assumptions are applied. Fertility rates are used to estimate the number of births each year while mortality rates determine how many, and at what ages, people are expected to die. Net migration represents the difference between the number of persons who permanently enter and leave St. Kitts-Nevis and is the most volatile of the three factors.

The 2001 population census placed the combined St. Kitts-Nevis population at 46,325, an increase of 5,493 over the 1991 census population of 40,618. With births exceeding deaths by 4,565, there was implied net in-migration of some 929 persons, an average of around 93 persons per year over the 10-year period.

The total fertility rate (TFR) represents the average number of children each woman of childbearing age would have if she had all her children in a particular year. If there is no migration, a TFR of 2.1 is required for each generation to replace itself. The St. Kitts-Nevis TFR is estimated at just under 2.0 in 2005, having fallen from 2.71 in 1991. For this set of projections it is assumed that TFR's in St. Kitts-Nevis will remain below replacement level, falling to an ultimate rate of 1.85 in 2015.

Current population estimates and the number of deaths in the past few years, suggest life expectancy at birth in 2005 of around 69 for males and 73 for females. While further improvements in life expectancy are expected, the increasing prevalence of HIV and AIDS in St. Kitts-Nevis may retard the rate of previously expected improvements. For these projections improvements in mortality are assumed to occur in accordance with UN estimates. While deaths due to HIV and AIDS have not been

explicitly accounted for, the rate of mortality improvements chosen considers the effects of the HIV/AIDS pandemic.

The economic assumptions used for this report assume stable and positive economic growth and labour productivity in all years. Although simplistic, they approximate usual economic cycles and volatility that encompass periods of expansion and recession. They also account for projected changes in the population and labour force that will provide the capacity for additional output through more workers and increased productivity (real wages).

The following table indicates the principal demographic and economic best-estimate assumptions. Further details may be found in Appendix B.

Table 3.1. Principal Demographic & Economic Assumptions

Ultimate Total Fertility Rate (from 2.0 in 2001)		1.85
Mortality Improvements^		Slow
Net In-Migration Per Annum		100 in 2001 to 2005, decreasing to 0 in 2015, constant thereafter
Real GDP Growth Rates*	Med.-term	2.5%
	Long-term	1.25%
Inflation		2.75%

^ UN mortality improvement rates
* GDP Growth rates up to 2010 taken from IMF estimates

In totality, these assumptions are slightly more optimistic than those of the 7th Actuarial Review.

3.1.2 Projection Results

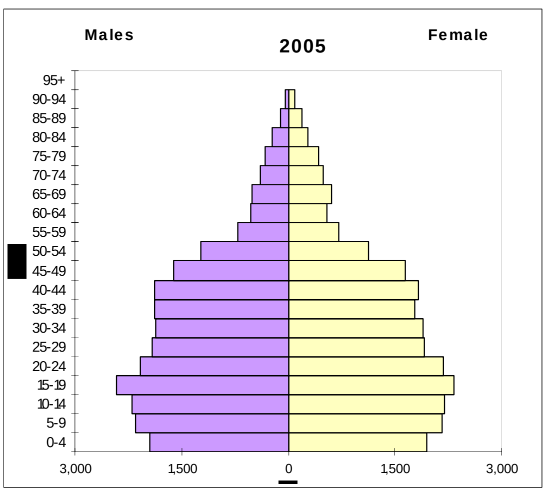
From the 2001 Census population of 46,325, the St. Kitts-Nevis population is projected to increase to just over 60,000 by around 2040, declining only slightly thereafter. While projected future population size is important, the age distribution of the population is more critical for Social Security, as pensions to the elderly represent the bulk of expenditure. For the projections under these best-estimate assumptions, the anticipated ageing pattern is highlighted in the last column of Table 3.2 which shows the ratio of the number of pension age persons to working age persons in the population, projected to increase from 0.14 to 0.48. The inverse of this ratio is the number of working-age people for each person of pension age, which is projected to decrease from 7 to 2.

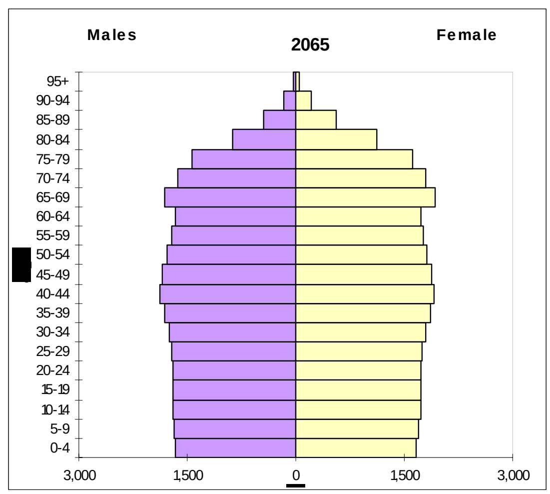
The projected ageing of the St. Kitts-Nevis population is also illustrated in Figure 3.1 through the use of population pyramids. In 2005 (left chart) the decreasing number of births in the last 15 years is evidenced by shorter bars for the three 5-year age groups below age 15. The current population may still be considered relatively young, however, with very few persons 55 and above. In the 2065 (right chart) it is expected that the number of people in 5-year age groups among pensioners will be larger than among working age groups. The median age of the populations is projected to increase from 31.1 in 2005 to 45.5 in 2065.

Table 3.2. Projected St. Kitts-Nevis Population (*Best-Estimate* scenario)

Year	Total	Age 0 - 15	Age 16 - 59	Age 62 & over	Ratio of Persons 62+ To Persons 16 to 61
2001	46,325	14,356	27,658	4,311	0.16
2005	48,399	13,574	30,500	4,325	0.14
2010	50,893	12,852	33,568	4,473	0.13
2015	53,166	12,350	35,614	5,203	0.15
2020	55,345	12,255	36,363	6,727	0.18
2025	57,320	12,328	36,424	8,568	0.24
2030	58,856	12,276	36,393	10,187	0.28
2035	59,866	12,008	36,456	11,402	0.31
2045	60,573	11,271	36,102	13,200	0.37
2055	60,313	11,019	34,117	15,177	0.44
2065	59,315	10,822	32,795	15,699	0.48

Figure 3.1. Population Age Structure, 2005 & 2065 - *Best Estimate* scenario





3.2 Social Security Projections

Building on the population and economic projections presented in the previous section, Social Security demographic and financial projections have been modelled under best-estimate assumptions. These projections encompass several Social Security specific assumptions and the contribution and benefit provisions in place on January 1, 2006. While increases to the contribution ceiling and pensions in payment are not legislated, periodic adjustments are expected, and thus have been assumed.

3.2.1 Assumptions

Key Social Security assumptions are shown below.

Table 3.3. Social Security *Best Estimate* Assumptions

Contribution Rate	11% in all years
Insurable Wage Ceiling	Increases annually by the change in average wages beginning in 2008
Short-term Benefits	Increases from 1.25% to 1.5% of insurable earnings over 60 years
Employment Injury Benefits	Increases from 0.13% to 0.25% of insurable earnings over 60 years
Pension Increases	8% in 2008 then 2.75% each year thereafter
Long-term Yield on Reserves	5.0%
Admin. Expenses as a % of Insurable Wages	Decrease from 1.45% to 1.0% over 20 years

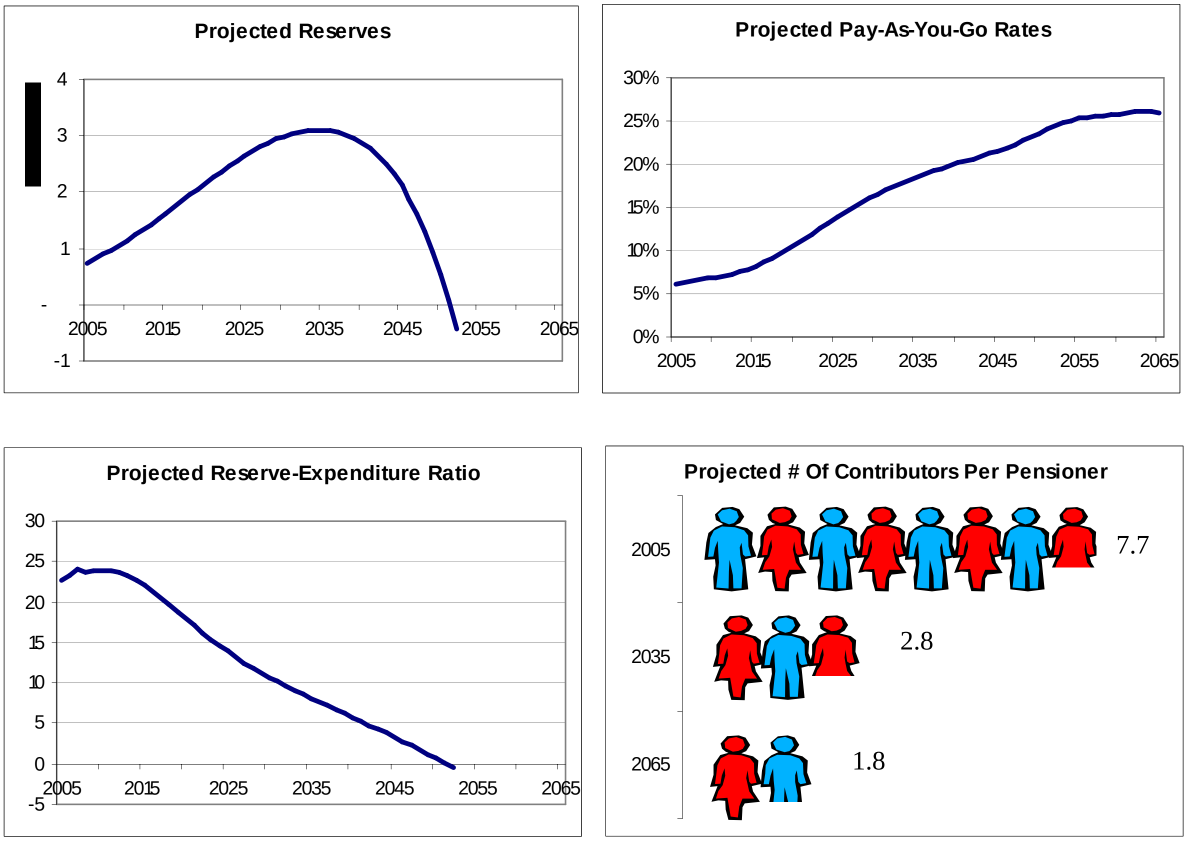
With these assumptions it is being assumed that the current level of coverage and income security made possible by the wage ceiling and the minimum pension will be generally maintained throughout the projection period.

3.2.2 Projection Results

For accounting purposes, Social Security finances are separated into the Short-term, Employment Injury and Long-term Benefit Branches, representing the three major benefit types that are offered. However, provisions exist for transferring reserves between branches and changing income allocations. Therefore, shortfalls in one branch may be met from surplus reserves of another. For this report, the projections for the three benefit branches have been consolidated so that the complete financial picture may be shown. The December 2005 reserve total is the sum of the three benefit branch reserves and the Revaluation Reserve - $738.5 million.

The charts in Figure 3.2 highlight the key projection results of the *Best Estimate* scenario.

Figure 3.2. Projection Results – *Best Estimate* Scenario



The key results of these projections are summarised as follows:

1. Reserves are projected to continue growing through 2035 reaching more than $3 billion. At this point, total expenditure will exceed total income for the first time and unless the contribution rate is increased, assets will have to be sold each year to meet expenditure
2. Reserves are projected to be exhausted in 2052.
3. While actual reserves will increase for many more years, the size of these reserves relative to annual expenditure (reserve-expenditure ratio) will remain relatively constant for a few more years before gradually declining to zero when reserves are exhausted.
4. Annual expenditure relative to total insurable wages is commonly referred to as the pay-as-you-go rate. This rate is projected to increase gradually, surpassing the 11% current contribution rate in 2021, and stabilizing at around 26% towards the end of the projection period.
5. While the number of pensioners is projected to more than triple over the 60-year projection period, reaching around 15,000, the number of insured persons is estimated to reach a maximum of around 30,000, and decrease slightly thereafter. The decrease in insured persons is partly due to the change in coverage status from insured contributor to pensioner for workers who reach 62 and continue to work. The number of contributors for each pensioner is expected to fall from 7.7 in 2005 to 1.8 in 2065.

Numerical details of the financial and demographic projections for the *Best Estimate* scenario are provided in Tables 3.4 to 3.6.

Table 3.4. Projected Income, Expenditure & Reserves - *Best Estimate* (millions of $'s)

Year	Cash Inflows				Cash Outflows				Reserves	
	Contribution Income	Investment Income	Other Income	Total	Benefits & Pensions	Admin. Expenses	Total	Surplus/ (Deficit)	End of Year	# of times current year's expenditure
2005	58.1	41.8	0.6	**100.4**	24.9	7.7	32.6	**67.8**	**738.5**	22.7
2006	61.3	45.9	0.6	**107.8**	26.9	7.9	**34.9**	**72.9**	**811.4**	23.3
2007	65.5	49.6	0.6	**115.7**	28.8	8.3	**37.1**	**78.6**	**890.0**	24.0
2008	67.6	54.2	0.6	**122.4**	32.4	8.6	**41.0**	**81.4**	**971.4**	23.7
2009	71.8	56.7	0.6	**129.1**	35.3	9.0	**44.4**	**84.7**	**1,056.1**	23.8
2010	75.9	58.9	0.7	**135.5**	38.5	9.4	**47.9**	**87.6**	**1,143.7**	23.9
2011	80.2	60.8	0.7	**141.7**	42.0	9.8	**51.7**	**90.0**	**1,233.7**	23.8
2015	98.6	76.7	0.9	**176.2**	62.3	11.2	**73.5**	**102.7**	**1,623.9**	22.1
2025	151.6	127.0	1.4	**280.0**	176.4	14.1	**190.5**	**89.5**	**2,647.5**	13.9
2035	226.5	151.4	2.0	**380.0**	360.5	20.6	**381.1**	**(1.1)**	**3,101.5**	8.1
2045	327.5	108.4	2.9	**438.8**	612.5	29.8	**642.3**	**(203.5)**	**2,117.0**	3.3
2055	465.4	(96.9)	4.2	**372.6**	1,027.5	42.3	**1,069.8**	**(697.1)**	**(2,340.5)**	(2.2)
2065	688.2	(629.0)	6.2	**65.4**	1,565.1	62.6	**1,627.7**	**(1,562.3)**	**(13,677.8)**	(8.4)

Negative reserves indicate the indebtedness of the Fund and negative investment income is the current cost of servicing that debt.

Table 3.5. Projected Benefit Expenditure - *Best Estimate* (millions of $'s)

Year	Pensions, Grants & Benefits						Benefits as a % of:	
	Age	Invalidity	Survivors	Assistance	Short-term	Emp. Injury	Insurable Wages	GDP
2005	13.1	1.0	1.4	1.9	6.5	1.0	4.7%	2.1%
2006	14.4	1.1	1.7	1.8	6.8	1.1	4.9%	2.2%
2007	15.6	1.3	1.8	1.8	7.3	1.1	5.0%	2.2%
2008	18.1	1.5	2.1	1.7	7.7	1.3	5.3%	2.3%
2009	20.0	1.6	2.3	1.8	8.2	1.4	5.4%	2.4%
2010	22.2	1.8	2.5	1.8	8.7	1.5	5.6%	2.4%
2011	24.6	2.0	2.7	1.8	9.3	1.6	5.8%	2.5%
2015	40.3	2.8	3.6	1.9	11.6	2.2	7.0%	3.0%
2025	139.2	4.8	7.6	2.3	18.3	4.1	12.8%	5.4%
2035	299.8	7.7	14.7	2.9	28.3	7.1	17.5%	7.5%
2045	518.6	12.0	24.3	3.7	42.1	11.7	20.6%	8.8%
2055	889.8	16.4	36.8	4.7	61.7	18.0	24.3%	10.3%
2065	1,358.4	23.3	55.1	6.0	93.8	28.4	25.0%	10.8%

Table 3.6. Projected Contributors & Pensioners at Year-end - *Best Estimate*

Year	# of Contributors	# of Pensioners					Total # of Pensioners	Ratio of Contributors to Pensioners
		Age	Invalidity	Survivors	Assistance	Death & Disablement		
2005	24,489	1,557	153	651	752	52	**3,165**	**7.7**
2006	24,121	1,637	162	702	721	58	**3,280**	**7.4**
2007	24,784	1,713	175	726	698	62	**3,373**	**7.3**
2008	25,385	1,787	187	745	678	67	**3,463**	**7.3**
2009	25,969	1,869	199	767	661	71	**3,567**	**7.3**
2010	26,433	1,960	211	785	645	75	**3,677**	**7.2**
2011	26,893	2,063	223	800	632	80	**3,798**	**7.1**
2015	28,480	2,717	276	816	593	98	**4,499**	**6.3**
2025	30,063	5,911	343	971	558	137	**7,919**	**3.8**
2035	30,627	8,729	388	1,206	563	180	**11,065**	**2.8**
2045	30,598	10,502	421	1,331	564	218	**13,037**	**2.3**
2055	29,333	12,527	396	1,368	560	233	**15,084**	**1.9**
2065	28,614	13,192	382	1,394	553	251	**15,772**	**1.8**

For social security systems that are partially funded and designed to be perpetual, costs are usually presented in terms of the pay-as-you-go-rate, which represents annual expenditure as a percentage of covered wages. For private pension plans, however, where full funding is the financing objective, there are other measures of the system's cost and, where applicable, financing shortfall, that may be useful for social security policy makers to be aware of.

3.2.3 General Average Premium

The general average premium is the average level contribution rate required over the next 60 years to fully cover total expenditure during that period. This rate may be looked at as the average long-term cost of the complete Social Security benefits package. For the *Best Estimate* projections, the general average premium is 16.4%, 5.4% higher than the current contribution rate.

3.2.4 Actuarial Balance

Another measure of the financial sustainability of a social security system is called "actuarial balance." For a given period, the actuarial balance can be defined as the difference between:

a) the sum of the beginning reserves and the present value of future contributions (money available to meet expenditure), and
b) the present value of future expenditure,

divided by the present value of future insurable earnings. This formula produces a rate that indicates the adequacy or insufficiency of the present contribution rate for a given period. In Social Security's case, the deficiency expressed in dollars and as a percent of GDP is shown in Table 3.7.

Table 3.7. Actuarial Balance 2006 – 2065 ($'s are in millions)

	2005 Year-end Reserves	739
Plus	**PV of Future Contributions**	2,985
Minus	**PV of Future Expenditure**	(4,455)
Equal	**PV of Surplus/(Shortfall)**	(731)
	Actuarial Balance (% of Insurable Earnings)	(2.7%)
	Actuarial Balance (% of GDP)	59%

Consistent with previous discussions, the negative actuarial balance indicates that together with reserves, the current contribution rate is insufficient to meet future expenditure for the next 60 years. The shortfall of 2.7% indicates that the contribution rate would have to be increased to 13.7% for the entire period in order for reserves to last up to 2065. In dollar terms, the shortfall of $731 million is almost equal to current reserves. This means that benefits payable for the next 60 years are only 50% funded by current reserves and future contributions at the 11% contribution rate.

3.3 Financing Future Social Security Benefits

By design, Social Security obligations are only partially funded, a mechanism considered suitable for national pension systems. While depletion of reserves is not expected for another 45 years, and the current level of funding is higher than that of most Caribbean social security systems, policymakers should not ignore the unsustainable nature of the Fund at current contribution rates. Therefore, reforms aimed at reducing long-term costs along with upward adjustments to the contribution rate should be considered as such changes will serve to reduce the future level of contributions that may have to be levied on future generations of workers.

There is no right or wrong time to increase the contribution rate. Instead, factors such as affordability, investment opportunities and whether or not advanced funding is considered superior to pay-as-you-go financing should guide this decision. However, adopting some explicit funding objectives may help guide the decision to at a minimum, discuss the need for rate increases.

A funding objective which was recently adopted by the Barbados National Insurance Fund, calls for projected reserves of at least 5 times annual expenditure 30 years from each actuarial review date. This objective is appropriate for the St. Christopher-Nevis Social Security Fund. Also considered appropriate for a system that is almost 30 years old are the following shorter term objectives:

a) Income from contribution will exceed expenditure for at least the next 10 years;
b) Total income will exceed total expenditure for the next 20 years.

The *Best Estimate* projections presented earlier meet all three of these objectives. Therefore, no adjustment to the contribution rate is recommended at this time.

Chapter 4 Sensitivity Analysis

Best Estimate projections up to 2065 presented in the previous chapter provide estimates of future Social Security demographics and finances under best-estimate assumptions. Given the uncertainty in forecasting such a long period, two alternative scenarios that highlight the sensitivity of the results to differences in assumptions regarding future outlook have been performed.

The two alternative projection sets encompass assumptions that are generally more optimistic and more pessimistic than those of the *Best Estimate* projections. However, since Social Security long-term financial sustainability will likely be more sensitive to future demographic changes than future economic changes, the basis for the alternative scenarios focus on differences in the projected dependency ratio (population 62 and over to population 16 to 61) or ratio of retirement-age persons to working-age persons. The scenario which may be considered more optimistic will have fewer retirees per worker and thus is referred to as the *Low Dependency* scenario. Conversely, the more pessimistic scenario will have a larger number of retirees per worker and will be referred to as the *High Dependency* scenario.

Following is a summary of the main assumptions that differ between the three projection scenarios. The values for all other assumptions are similar across scenarios.

Table 4.1. Principal Demographic & Economic Assumptions

		Low Dependency	***Best Estimate***	***High Dependency***
Ultimate Total Fertility Rate (from 2.0 in 2001)		2.0	1.85	1.7
Mortality Improvements^		Very Slow	Slow	Medium
Net Migration Per Annum (In less out)		115 in all years.	115 in 2001 to 2005, decreasing to 40 in 2015, constant thereafter.	Decrease from 115 in 2001 to 40 in 2005, then to -35 in 2015, constant thereafter.
Ultimate Real GDP Growth*	Med.-term	3.0%	2.5%	2.0%
	Long-term	1.5%	1.25%	1.0%
Inflation & Pension Adjustments		2.5%	2.75%	3.0%

^ UN mortality improvement rates
* GDP Growth rates up to 2010 taken are IMF estimates

The main population and Social Security demographic and financial results of the three projection sets are presented in Figure 4.1 and Table 4.2. As expected, the outlook for Social Security finances is linked very closely to the size and age distribution of the general population. Social Security performance indicators such as yield on investments and administrative cost rates will also impact future finances, but to a lesser extent when compared to the factors for which different assumptions have been modelled.

Figure 4.1. Projection Results – All Scenarios

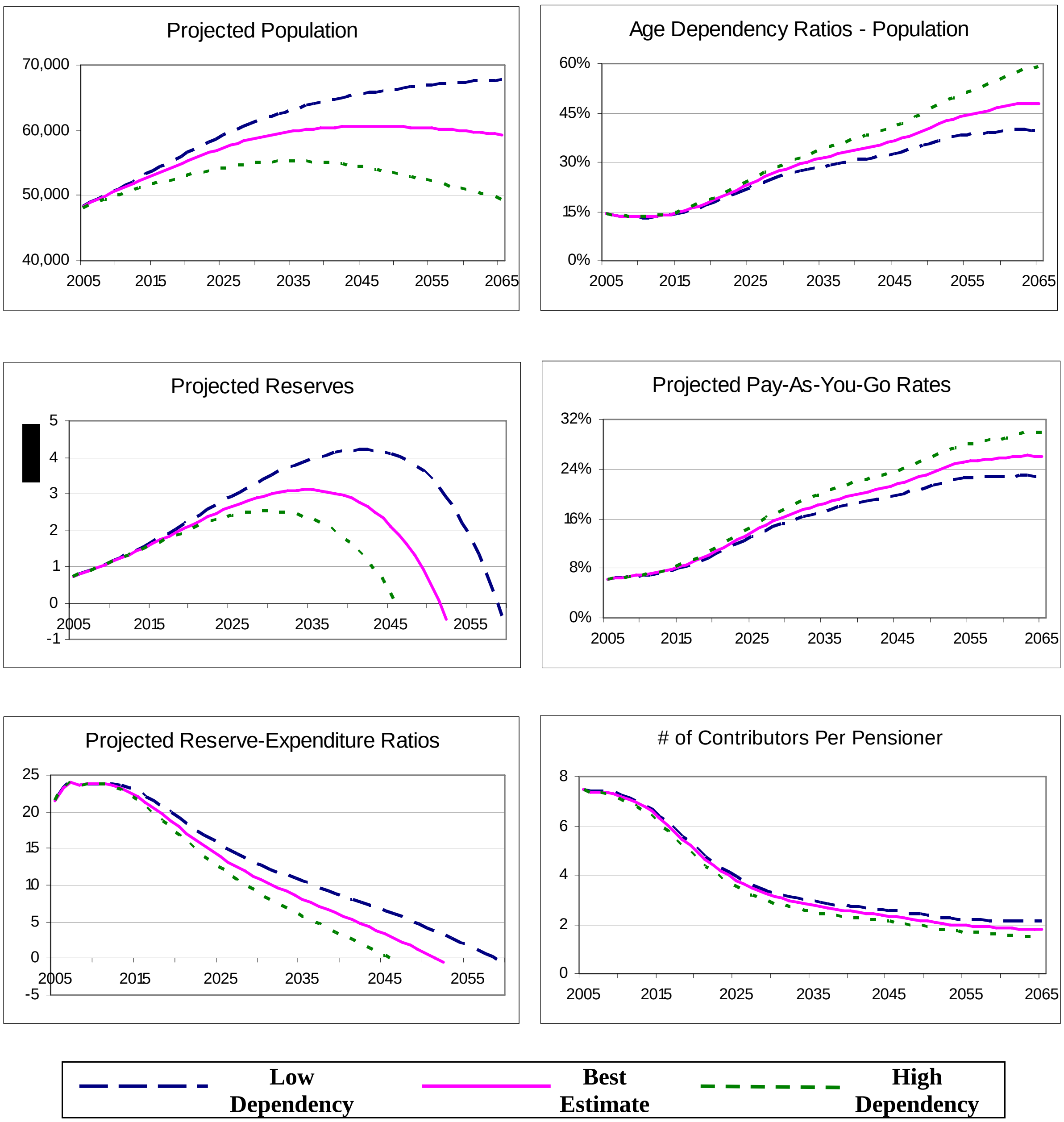


Table 4.2 Summary Results – All Scenarios

	Low Dependency	*Best Estimate*	*High Dependency*
Expenditure First Exceeds Contributions	2022	2020	2020
Expenditure First Exceeds Total Income	2042	2035	2031
Reserves Depleted	2059	2052	2046
General Average Premium	14.8%	16.4%	18.4%
Pay-as-you-go rate in 2035	17.2%	18.5%	20.2%
Pay-as-you-go rate in 2065	22.7%	26.0%	30.0%
# of Contributors per pensioner - 2065	2.1	1.8	1.5
Actuarial Balance (% of Insurable Earnings)	-1.0%	-2.7%	-4.8%
Actuarial Balance (% of GDP)	20%	59%	111%

Chapter 5 Social Security Reform

Social Security systems ought to be dynamic institutions ensuring that the coverage provided to current and former workers, and their dependents, meets stated objectives. While amendments to the Act and Regulations have been made during the past 28 years, including upgrades to the ceiling and pensions in payment, there has not been a comprehensive review of the many polices and objectives that form the basis for the current set of contribution and benefit provisions. Also, since it is projected that reserves will be depleted within the next 50 years, issues regarding enhancing long-term sustainability should not be ignored. Therefore, the Board's plan to engage in a process of social security reform that involves broad consultation is indeed timely.

The pending reform exercise should look at all aspects of the Social Security system establishing several fundamental social and financial goals. Once such broad objectives are set, decisions on how the many coverage, contribution and benefit provisions can together ensure that these policy goals may be met can then be devised.

Following is a list of questions that should be addressed during the reform exercise:

- Are the current benefits meeting the needs of current workers and pensioners?
- What new benefits, such as unemployment, partial invalidity or health care, could be added to the benefits package?
- Should any changes be made to the eligibility requirements and benefit formulae for each benefit to make them more equitable and/or relevant?
- Should the Age pension be paid even if one is gainfully employed and should the pension be based on career earnings or on best 3-year average earnings? Also, should the Age pension be progressive whereby lower income persons receive a proportionately higher pension than higher income persons?
- What is the appropriate age for the payment of full and reduced Age pensions?
- What is the appropriate level for the minimum pension and how should it, along with other pensions and grants, be adjusted over time?
- What specific means test is appropriate for the award and continued payment of Assistance pensions?
- What is the appropriate level for the wage ceiling and how should it be adjusted over time?
- What new approaches to dealing with changing employment patters such as self-employment, job-work and outsourcing, could enhance compliance among other-than formally employed workers?
- Should self-employed persons be entitled to all benefits and should they be able to choose which benefits they wish to be covered for?
- What level of funding is desirable for future benefits and what is the contribution rate policy for maintaining the desired level of funding?
- Are the current rules regarding the Board's composition and how persons are selected to serve on the Board appropriate to ensure good governance?
- Are there differences between St. Kitts and Nevis that warrant different rules for workers or pensioners in the two islands?

- What is a suitable policy for how and where Social Security assets should be invested?
- Are current penalties and fines appropriate?

Some of these issues are discussed in the following sections with a goal of providing some background to each issue. For issues considered fundamental to the achievement of basic social security objectives a few recommendations have been made. However, these recommendations should not discourage discussion at all levels as the St. Kitts-Nevis social security system should meet the collective desires and wishes of Kittitians and Nevisians.

5.1 Impact of Scheme Modifications

During the reform exercise it is expected that ideas for extending the life of Social Security reserves that involved changes to current provisions will be discussed. Two such changes which were presented in the report of the 7th Actuarial Review and that have also been adopted by many social security schemes are:

i. Increases to the age at which full Age pensions are payable, and
ii. Age pensions based on career earnings instead of the best three years of insurable earnings.

These two potential changes could produce significant long-term savings. At the same time, increasing the normal pension age is consistent with changing employment patterns as workers remain employed to older ages and a pension based on career earnings produces greater equity between insureds as there is a closer relationship between one's actual lifetime earnings and the pension they ultimately receive. It is therefore recommended that these two issues be given serious consideration during reform discussions.

To illustrate the potential impact on long-term finances that these changes could have, projections have been performed using best-estimate assumptions. Therefore, the results are readily comparable to those of the *Best Estimate* scenario. This comparison is presented below. For the career average pension it is assumed that the average new Age pension gradually declines over 10 years to 90% of the expected average new pension under current rules. When modelling the increase in pension age, it is assumed that around 50% of workers will elect to receive their Age pension at age 62. The increase from age 62 to 65 is assumed to occur over a 9-year period. As the results indicate, even though the system would remain unsustainable, these two modifications could produce significant savings.

Table 5.1. Impact Of Considered Scheme Modifications

Projection Scenario	General Average Premium	PAYG Rate in 2065	Year Reserves Exhausted
***Best Estimate* Projections**	**16.4%**	**26.0%**	**2052**
New Age Pension Formula with 10% lower average new pension	15.2%	23.8%	2057
Normal Pension Age Increased From 62 to 65	14.4%	22.7%	2061
New Age Pension Formula (as above) and Normal Pension Age Increased From 62 to 65	13.6%	21.2%	2067

5.2 Ceiling & Pension Increases

There are three general approaches to adjusting the earnings ceiling and benefit payment rates such as the minimum pension rate, Funeral and Maternity grants.

Table 5.2. Ceiling & Pension Adjustment Approaches

Adjustment Type	Description
1. Ad Hoc Adjustments	Law does not contain any provisions for periodic review.
2. Adjustment in Principle	Law provides for periodic review without specifying procedure, mechanism or degree of adjustment.
3. Systematic or Automatic Adjustment	Law prescribes the procedure, mechanism and degree of adjustment

Social Security Regulations are silent as to when and how the earnings ceiling and pensions should be increased and thus adjustments that have been made can be described as ad hoc. Ideally, the law should prescribe the procedure, mechanism and degree of adjustment so that all dollar indexes as well as all pensions above the minimum pension can be upgraded regularly. Frequent adjustments will ensure that the social security system remains relevant to both workers and pensioners.

Although periodic adjustments to pensions, grants and the earnings ceiling have taken place, they have not been at regular intervals with the same basis for each adjustment. Therefore, while a systematic approach to adjusting parameters is preferred, it is strongly recommended that at a minimum, Regulations be amended to provide for adjustments in principle for all fixed dollar indexes and pensions in payment.

As part of the reform process, appropriate levels for the wage ceiling and payment rates for the Minimum Pension, Funeral grants and Maternity grant should be established.

5.3 Cost of Living in St. Kitts Versus Nevis

Social Security serves St. Kitts and Nevis with one system and a single set of eligibility rules and payment rates. While the economies are closely linked and are more similar than they are different, there is growing concern that the higher cost of living in Nevis may warrant, at a minimum, different minimum pension rates depending on where the pensioner resides.

Differences in the cost of living between Nevis and St. Kitts were noted in the 1999 Poverty Assessment Report which set the poverty line for an individual living in St. Kitts at $280.05 per month and at $328.40 for a Nevis resident. If these rates are adjusted for actual inflation between 1999 and 2005, the poverty lines would be $322 and $378 per month in St. Kitts and Nevis respectively, a difference of $56 per month or 17%. The minimum Age pension in 2006 is $300 per month.

While this differential in poverty lines between islands provides support for the argument of different minimum pensions for residents of St. Kitts and Nevis, several other factors should be considered

when deciding on whether or not the current single rate policy should be revised. These include issues related to the ongoing determination of island of primary residence as well as the reliability of regular assessments of changes in the cost of living in each island. Currently, the Consumer Price Index is based on prevailing prices in St. Kitts only.

5.4 Age Grants & Assistance Pensions

Under current regulations, it is possible for former contributors who were awarded an Age grant because they had insufficient contributions to qualify for an Age Pension, to later be awarded an Assistance pension. To some, this appears to cause excess burden to the Fund since two benefits are paid even though very few contributions were made. It has also been suggested that instead of paying an Age grant, that a pension with a rate below the minimum pension be paid.

The Age grant is designed to return to the insured a portion of the cumulative contributions made where he/she fails to meet the qualifying conditions for a lifetime pension. The Assistance pension, meantime, is a poverty alleviation mechanism by which a regular pension is paid to elderly and invalid persons who are deemed to be in need, regardless of any prior contributions. The two payments, therefore, have completely different objectives and thus there is no inconsistency with the possible receipt of an Age grant and an Assistance pension by an individual.

Since the Assistance pension is non-contributory, adequate safeguards should be put in place to ensure that persons in receipt of Assistance pensions are indeed poor, thus reducing potential abuse and cost escalation of the Assistance pension programme. Also, successful efforts at improving compliance among informal sector workers persons should result in fewer Assistance pensions being paid in the future.

5.5 Age Pensions And Grants

As shown in the following table, there continues to be a large number of Age grants awarded each year relative to the number of Age pension awarded.

Table 5.3. Age Pension & Grant Awards

	2001	2002	2003	2004	2005
# New Age Pensions	134	106	101	141	114
# Age Grants	65	53	55	64	57

From 2001 to 2005, 33% of persons awarded an Age benefit received a grant while 67% received a pension. 500 weekly contributions (approximately 10 years) are required for an Age pension. This condition is considered appropriate and is consistent with other regional Social Security systems. With the existence of the CARICOM Agreement on Social Security, it would be expected that persons who have worked in St. Kitts-Nevis and other CARICOM territories would receive a pension, given that contributions in other countries would count towards benefit eligibility.

No change to qualifying conditions for either the Age pension or grant is recommended. However, while some changes to contribution or benefit rules that will result in a larger percentage of 62-year

olds qualifying for a pension instead of grant may be considered, an analysis of the employment characteristics of persons who have been awarded grants in recent years should be conducted to better determine why so many persons still qualify for a grant even though Social Security has existed for almost 30 years.

5.6 Survivors Pension

In 2005, a significant change to Survivors pension was made whereby persons who have satisfied the conditions for both Age and Survivors pensions can get 100% of the Age pension and 50% of the Survivors pension instead of only the higher of the two. This change will enable surviving spouse to better maintain the standard of living enjoyed before the death of their spouse.

There still remains a concern regarding Survivors pensions for young spouses, however, who because of their age are only entitled to a pension for one year, even if they have young children. Although the pension for the children will continue until age 16, or 18 if still in school, the impact of the lost income of the deceased spouse could extend well beyond one year.

The Board may therefore wish to consider allowing spouses under the age of 45 to continue receiving a Survivors pension as long as they continue to have dependent children, or at a minimum, for a period longer than one year – possibly 3 or 5 years. While there will be cost increases associated with such a change, given that Survivors benefits account for just under 6% of total benefit payments, such a change will have negligible impact on long-term finances.

5.7 Limit on Medical Expenses

An employed person who is injured or contracts a disease connected to his/her employment and needs medical care is entitled to a reimbursement of reasonable expenses for doctors’ fees, medication, hospitalization, travelling, constant care and other specified costs incurred as a result of the injury/disease. The amount that can be reimbursed is capped at $25,000.

While safeguards are required to ensure that there is little or no abuse by persons entitled to medical care, the existence of a limit means that Social Security does not accept full liability for all costs associated with job-related injuries. ILO Convention 121 states that an injured worker is entitled to every type of care, without limit or time, and does not have to meet any of the costs.

Although the Government of St. Kitts-Nevis is not a signatory to ILO Convention 121, it should decide on whether or not Social Security should cover all expenses related to medical care provided to insureds affected by job-related illnesses. Otherwise, workers and employers should be educated so that additional insurance protection may be purchased to cover medical care costs that exceed the Social Security limit.

5.8 Enhancing Self-employed Participation

Although low, the estimated 20% compliance rate for self-employed persons is among the highest in the Caribbean. However, this leaves approximately 2,000 self-employed persons without adequate income protection coverage. Therefore, along with additional education and better enforcement a new

approach that will make participation by self-employed persons simpler and contributing more flexible, should be considered.

The current contribution system works well for the largest group of contributors – formal sector workers. However, the employment nature and income pattern of self-employed persons is quite different. Therefore, a new approach that entails increased flexibility and reduced paperwork should be introduced. Suggestions for such an approach are found in the report of the 7th Actuarial Review and the report on the *State of Social Security in The CSME*.

While reviewing new approaches for more effectively covering self-employed persons, other emerging forms of employment should also be considered. These include job work and the provision of workers by contracted external employment agencies. Consideration should also be given to expanding the benefits available to self-employed persons to include Employment Injury benefits.

5.9 Board Composition

Section 4 of the Social Security Act sets out the composition of the Board which is appointed by the Minister as follows:

- The Board shall consist of not less than six nor more than nine members;
- Two members representing employers shall be appointed after consultation with associations that represent employers;
- Two members representing employees shall be appointed after consultation with associations that represent workers.

The governance structure within the Federation sees the Nevis Island Administration (NIA) oversee most of the public affairs of Nevis and the Government of St. Kitts-Nevis oversee all public matters in St. Kitts and some in Nevis. The Minister with responsibility for Social Security is a Minister in the St. Kitts-Nevis Government. Therefore, although Nevis residents currently account for approximately 25% of contribution income and 18% of pension payments, the NIA has no statutory position regarding the governance of Social Security. Historically, though, one Board member has been selected by the NIA.

Given the manner in which the affairs of the Federation are managed and the significant portion of Social Security funds that are generated, invested and paid in Nevis, consideration should be given to providing for two Board members to be appointed by officials in Nevis– one of whom will be selected by the NIA and the other to represent either workers or employers in Nevis on a rotating basis.

At the same time, consideration may be given to fixing at a specific number the size of the Board and making the Board more independent by having the employer and insured persons' representatives nominated by their respective umbrella bodies. Also, given the increasing importance that good governance plays in the management of any organisation, especially one with the large pool of assets as in the case of Social Security, careful consideration should be given to the skill-set and competencies of Board members.

5.10 Branch Allocations &Transfer of Reserves

At the end of 2005, both the Short-term and Employment Injury benefit branches were significantly over funded as shown in the following table. Therefore, reallocations of contribution income and the transfer of reserves from both branches to the long-term benefits branch are recommended.

Table 5.4. Benefit Branch Reserves, Contribution Allocation & Expenditure

Benefit Branch	Dec. 2005 Reserves	Reserve-Expenditure Ratio		Current Contribution Allocation	Projected Expenditure
		2005	Target		
Short-term	$ 69.3	8.6	1.0	2.0%	1.55%
Employment Injury	$ 88.4	56.0	2.0	1.0%	0.35%

The recommended changes to the allocation of contribution and transfer of reserves between branches are shown below.

Table 5.5. Recommended Changes to Contribution Allocation & Reserve Transfers

Benefit Branch	Contribution Income Allocation		Reserve Transfer
	Current	Recommended	
Short-term	2.0%	1.6%	$60 million to LTB Branch
Employment Injury	1.0%	0.4%	$85 million to LTB Branch
Long-term	8.0%	9.0%	$145 million from STB & EIB Branches
All	**11.0%**	**11.0%**	

It should be noted that the change in allocations of contribution income and transfer of reserves between branches has no impact on the overall present or future funded position of the Social Security Fund. These adjustments are for internal accounting purposes only and are consistent with the manner in which Social Security has elected to finance and account for the various types of benefits.

5.11 Unemployment Benefit

The report of the 7th Actuarial Review contained a brief discussion of the issues surrounding the introduction an Unemployment benefit. Such a benefit would provide temporary income replacement to persons who are involuntarily unemployed once certain contribution requirements are met. This benefit is similar to the current Sickness and Maternity benefits that replace income lost due to sickness and maternity.

Barbados remains the only CARICOM country with a national unemployment benefit. This benefit has been in place since 1981 and by all reports, has worked well for the economy and insured persons.

This report does not seek to repeat issues discussed in the 7th Actuarial Review. Instead, it provides estimates of the contribution rate that would be required to finance various levels of benefits. If serious consideration is given to adding an Unemployment benefit to the Social Security benefits package, it is recommended that an in-depth review of the history and operational aspects of the Barbados programme be conducted.

The factors that have the greatest impact on the cost of an unemployment insurance benefit are:

1. the benefit rate or the rate applied to average wages;
2. eligibility conditions, waiting period and maximum benefit duration;
3. the actual average benefit duration once implemented;
4. the actual percentage of contributors that will claim and receive a benefit each year;
5. the relationship between the average wage of contributors and the average wage of beneficiaries.

Factors 1 and 2 are design factors and thus will be set by local authorities. Factors 3 and 4, however, will be influenced by scheme design but will also be impacted by economic conditions and changes in employment levels. Factor 5, meantime, will be determined by which classes of workers experience greater unemployment levels and on the cyclical nature of various economic sectors.

Unemployment benefit costs will be directly related to the proportion of contributors who claim (incidence rate) and the average number of weeks that benefits are paid for (duration). The following matrix shows projected costs as a percent of insurable wages for several combinations of incidence rates and average benefit duration. For example, if the benefit rate were 40% of previous earnings, incidence rate 15% and the average duration 10 weeks, benefit costs would be 1.5% of insurable wages.

Table 5.6. Projected Unemployment Benefit Costs

	Benefit Rate 40%			**Benefit Rate 50%**			**Benefit Rate 60%**		
Incidence Rates	**Avg. Benefit Duration**			**Avg. Benefit Duration**			**Avg. Benefit Duration**		
	7 wks	**10 wks**	**13 wks**	**7 wks**	**10 wks**	**13 wks**	**7 wks**	**10 wks**	**13 wks**
10%	0.7%	1.0%	1.3%	0.9%	1.4%	1.7%	1.1%	1.7%	2.0%
15%	1.1%	1.5%	2.0%	1.3%	2.1%	2.5%	1.6%	2.5%	3.0%
20%	1.4%	2.1%	2.7%	1.8%	2.8%	3.3%	2.2%	3.4%	4.0%

In addition to benefit costs, provisions should be made for costs related to administering an unemployment benefit. Therefore, in the example presented above, a contribution rate of slightly more than 1.5% would be required to meet both benefit costs and administrative costs.

Unemployment levels in St. Kitts-Nevis are presently low and continued strong economic growth, at least for the next few years, is being forecasted by local authorities. Therefore, the incidence of unemployment among insured persons should be relatively low. Rough estimates of the incidence of unemployment claims and the likely average duration suggest that a contribution rate between 1.0% and 1.5% of insurable earnings should be sufficient to meet expenditure for a scheme that replaces 40% of earnings for a maximum of 13 weeks.

If unemployment benefits are introduced, no portion of the current contribution rate or monies from the Social Security Fund should be used to meet expenditure. Instead, unemployment benefits should be financed with a separate contribution rate paid by both the employer and employee, and these payments should be held in a newly created Unemployment Benefits Fund.

5.12 National Health Insurance

Several Caribbean countries, namely Anguilla, The Bahamas, The British Virgin Islands, Belize, St. Lucia and Trinidad & Tobago are at various stages of introducing a revised financing mechanism for health care. One approach to health care financing that works in a similar way to the current social security system is social health insurance that provides for contributions by workers that are pooled for the purchase of health care services for themselves and their families.

A more in-depth discussion of health financing, either administered by Social Security or anther entity, is beyond the scope of this report. However, if the Government wishes to consider alternatives to the current approach to providing health care in St. Kitts-Nevis, it should review current initiatives of other Caribbean governments and engage suitable consultants that can provide extensive advice on the subject.

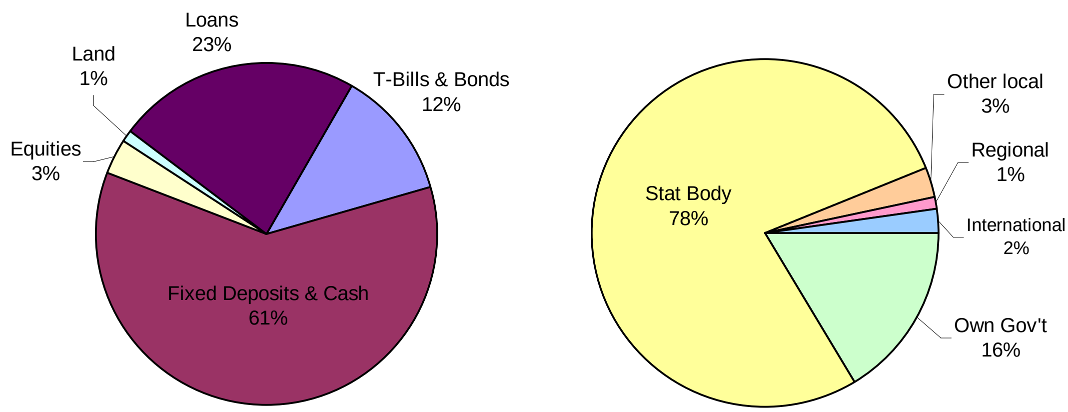
5.13 Social Security Data

Social Security gathers monthly data on employment and wages of almost all workers in the Federation along with the residency status of pensioners. A vast amount of information can therefore be drawn from this database. If certain aspects of such data were made available to policymakers and indeed private sector businesses, it could allow for more informed decision-making to be made by both private and public sector institutions. Also, regular monitoring of employment and wage patterns observed from Social Security data may provide advance notices of positive or negative future economic occurrences. Therefore, the Board may wish to establish a mechanism whereby ongoing ana Unemployment levels in St. Kitts-Nevis are presently low and continued strong economic growth, at least for the next few years, is being forecasted by local authorities.

Chapter 6 Investments

At the end of 2005, Social Security (including NPF) investments stood at $708.3 million ($524.8 at end of 2002). The following charts highlight portfolio diversification by asset type, by who issued the securities and the location of these investments as at December 2005.

Figure 6.1. Distribution of SSF Investments, December 2005



As illustrated above, fixed deposits account for 60% of the portfolio with other fixed income securities (bonds, T-bills and loans) accounting for all but 4% of the remainder. Of the amount held in fixed deposits, 92% was deposited with the National Bank of St. Kitts, Nevis & Anguilla, a majority owned Government bank which is categorised above as a statutory body. With Government of St. Kitts-Nevis loans, bonds and t-bills accounting for 16% of the portfolio, 93% of the investments are either fully or partially backed by Government.

Social Security investments continue to be poorly diversified with asset allocations well outside the target allocations set out in the Fund’s Investment Policy Statement. Significant concentrations are noted in four categories:

- In fixed deposits – 60%
- In government or government associated securities & institutions – 93%
- In one institution – 56%
- In local investments – 97%

The following table shows a comparison of the target asset allocations stated in the Investment Policy Statement and the actual allocations as at December 2005.

Table 6.1 Actual & Target Asset Allocation

Asset Class	Target Policy Asset Allocation	Actual Allocation Dec. 2005
T-Bills	5% - 10%	4.0%
Term Deposits	20% - 30%	60.2%
Gov't Securities^	20% - 30%	12.3%
Corporate Securities	5% - 15%	-
Equities	10% - 30%	3.4%
Real Estate	3% - 7%	0.9%
Other Investments	5% - 10%	19.1%

^ Includes Loans but excludes T-bills

As recommended in previous actuarial reviews, the Board is once again encouraged to bring increased diversification to Social Security investments. While the current asset mix generates fairly good returns, it is an extremely high-risk portfolio given that almost all assets are linked to the Government of St. Kitts-Nevis. The highly indebted position of the Government of St. Kitts-Nevis also raises the risk level inherent in the portfolio. It is therefore recommended that immediate steps be taken to rebalance investments so that there is a gradual move to the more prudent asset mix that is called for by the Investment Policy Statement - one with a good balance of private and public investments, local and overseas investments and assets with longer maturities that better match the nature of Social Security liabilities. It is also recommended that at least two persons selected to serve on the Investment Committee have investment management training and/or experience.

Statement of Actuarial Opinion

It is my opinion that for this report of the 8th Actuarial Review of the St. Christopher & Nevis Social Security Fund:

- the data on which the projections and analysis are based are sufficient and reliable;
- the assumptions used are, in the aggregate, reasonable and appropriate, and
- the methodology employed is appropriate and consistent with sound actuarial principles.

This report has been prepared in accordance with the *International Actuarial Association Guidelines of Actuarial Practice For Social Security Programs*.

Derek M. Osborne, FSA
Chief Actuary
Horizonow Consultants Ltd.

References

Selected section of 2003 IMF Article IV Consultation Report, IMF
7th Actuarial Review of The Social Security Fund, ILO
Social Security Act & Regulations
Social Security Financial Statements – 1984 to 2005
State of Social Security in The CARICOM Single Market & Economy, Derek Osborne, 2004
Statistical Review 2005, Planning Unit, Ministry of Finance, Development & Planning

Appendix A Summary of Contribution & Benefit Provisions

I.1 Benefits, Insured Persons & Contribution Rates

St. Christopher & Nevis Social Security provides for the following benefits:

(a) ***Long-term benefits:*** Age, Invalidity and Survivors' benefits.

(b) ***Short-term benefits:*** Sickness benefit, Maternity allowance & grant, Funeral grant.

(c) ***Employment Injury benefits:*** Injury benefit, Disablement benefit, Medical Expenses, Death benefit and Burial grant.

Employed, self-employed and voluntary insured persons aged 16-61 are covered for the above contingencies as follows:

- Employed persons: All contingencies.
- Self-employed persons: All contingencies except employment injury benefits.
- Voluntary insured persons are covered for Age & Survivors' benefits only.
- Employed persons under age 16 or over age 61 are covered for employment injury benefits only.

Earnings used for determining contributions and benefits are limited to $6,500 per month. Earnings include basic salary and all other earnings paid in cash.

The ceiling on insurable wages has increased since 1978 as follows:

1978 to 1983	$24,000.00 per annum
1984 to 1992	$48,000.00 per annum
1993 to 1995	$62,400.00 per annum
1996 to 1997	$70,200.00 per annum
1998 to present	$ 6,500.00 per month

Contributions are computed as a percentage of insurable earnings. The contribution rate is 11%, 5% paid by the employee and 6% by the employer. Before Employment Injury Benefits were introduced in 1986, the contribution rate was 10%. Self-employed persons pay a 10% contribution rate and voluntary contributors pay at 5% of insurable earnings. Contributions at 1% of insurable earnings are payable for those less than 16 or over 61.

I.2 Summary of Benefits Provisions

I.2.1. LONG-TERM BENEFITS

(a) OLD-AGE CONTRIBUTORY PENSION

Contribution Requirement: 500 paid or credited weekly contributions of which 150 must be paid.

Age Requirement: 62. The pension is not dependent on retirement from the workforce.

Amount Of Benefit: 16% of average insurable earnings over the best three years in the last 15, plus 2% for every 50 weeks credited between 150 and 750, plus 1% for every 50 weeks credited over 750.

Maximum Pension: 60 % of average earnings over the best three years.

Minimum Pension: $300.00 per month. The minimum pension also applies to Invalidity pension. It was last increased in July 2005 from $250 per month.

(b) AGE GRANT

Contribution Requirement: 50 paid or credited weekly contributions.

Eligibility: Other than for the contribution requirement, the applicant must be eligible for Age Benefit.

Amount Of Benefit: 6 times average weekly insurable earnings for each 50 weekly contributions paid or credited. This amount is paid as a lump sum.

(c) INVALIDITY PENSION

Contribution Requirement: 150 paid weekly contributions.

Eligibility: The applicant is:

- (i) Less than 62,
- (ii) Medically declared an invalid, other than as a result of an employment injury,
- (iii) Has exhausted the maximum period for sickness benefit.

Amount Of Benefit: Calculated in the same manner as for Age benefit, except that the minimum pension is 30% of average insurable earnings or $300 per month, whichever is higher.

Duration Of Pension: Payable as long as invalidity continues. A review of the person's continuing eligibility is made at least every three years.

(d) SURVIVORS' BENEFITS

Contribution Requirement: The deceased, at time of death, was receiving or had paid enough contributions to qualify for an Invalidity or Age pension.

Eligibility: Widow or widower married for at least three years (includes common-law spouse), child(ren) under 16, 18 if in full-time education or invalid, and dependent parents.

Amount Of Benefit: The proportion of Invalidity pension shown below:

Widow or widower: 50%;

Child or parent: 16 2/3%;

Child (orphan or disabled): 33 1/3%;

Maximum benefit: 100% of pension deceased would have been entitled to.

Minimum pensions: Widow(er) - $150.00 per month
Child/parent - $72.00 per month

If the claimant is also entitled to an Age Pension, the Age pension plus 50% of the Survivors pension is paid, subject to a minimum of 100% of the Survivors pension.

Duration Of Benefit:

- Widow or widower aged 45 or over at time of death, or disabled: life pension or until the beneficiary is entitled to a larger Age pension in his/her own right. The pension will cease upon remarriage or cohabitation;
- For a widow(er) under age 45 and not disabled, or not married for at least 3 years: one year;
- For dependent children, up to age 16, or 18 if attending school or college.
- For an invalid child, for as long as invalidity continues.
- For a parent under 62 and not invalid, one year. If invalid or over 62, pension payable for life.

(e) SURVIVORS' GRANT

Contribution Requirement: 50 contributions paid or credited by the deceased insured person.

Eligibility: Other than for the contribution requirement of the deceased, the applicant must be eligible for survivors pension.

Amount Of Benefit: The same proportion of the Age grant as Survivors' pension bears to the Age pension.

(f) ASSISTANCE PENSION

Eligibility: The applicant must be:

(i) Either aged 62 or over or an invalid,
(ii) Not gainfully employed,
(iii) In need,
(iv) Ordinarily resident in St. Kitts-Nevis,
(v) Not previously awarded an Age or Invalidity pension.

Amount Of Benefit: $210.00 per month.

I.2.2. SHORT-TERM BENEFITS

(a) SICKNESS BENEFIT

Contribution Requirements: 26 paid contribution weeks with at least 8 weeks in the last 13. The insured must be 16 or over and under age 62, and was employed immediately before onset of the illness.

Waiting Period: 3 days. If incapacity lasts for more than 3 days, benefit is payable from the first day. Two periods of illness separated by less than eight weeks are treated as one.

Amount Of Benefit: 65% of average weekly insurable earnings during the 13 weeks prior to illness.

Duration Of Benefit: Maximum of 26 weeks.

(b) MATERNITY ALLOWANCE

Contribution Requirement: 39 paid contribution weeks with at least 20 contributions in the last 39 weeks immediately preceding the week that is 6 weeks before the expected week of confinement or the week from which benefit began, if later.

Amount Of Benefit: 65% of average weekly insurable earnings during the last 39 weeks.

Duration Of Benefit: 13 weeks, starting no earlier than 6 weeks before the expected date of confinement.

(c) MATERNITY GRANT

Contribution Requirement: Same as for Maternity Allowance. If the mother fails to qualify for Maternity Allowance but her legally married husband’s contributions satisfy these conditions, the Maternity Grant is payable.

Amount Of Grant: EC$450. The Maternity Grant has increased as follows:

1978 – 1983	50.00
1984 – 1998	100.00
1989 – 1992	200.00
1993 – 1995	300.00
1995 – 1998	400.00
1998 – present	450.00

(d) FUNERAL GRANT

Eligibility: The insured person must have made at least 26 contributions. A grant is also payable in respect of the death of the spouse or a dependant child of the insured. If death results from employment injury, no prior contributions are required.

Amount Of Grant: $4,000 for the insured or his/her spouse. The amount for a dependant child ranges from $400 to $1,600. The funeral grant for the insured has been increased as follows:

1978 – 1983	$	200.00
1984 – 1988		500.00
1989 – 1992		1,000.00
1993 – 1994		1,500.00
1995 – 1997		2,000.00
1998 – 2002		2,500.00
2002 - present		4,000.00

I.2.3. EMPLOYMENT INJURY BENEFITS

(a) INJURY BENEFIT

Eligibility: Incapable of work as a result of an accident arising out of insured employment, or as a result of an illness related to employment. There are no qualifying contribution requirements for Employment Injury benefits.

Amount Of Benefit: 75% of average insurable earnings in the last 13 weeks before the accident or disease occurred (or less if the person was insured for a shorter period.)

Duration Of Benefit: 26 weeks.

Waiting Period: 3 days. If incapacity lasts 4 or more days, benefit is payable from the first day.

(b) DISABLEMENT BENEFIT

Eligibility: Partial or total loss of any physical or mental faculty as a result of a job-related accident or disease.

Waiting Period: The payment period of injury benefit.

Amount Of Benefit: The payment of a pension or a grant is based on the percentage loss of faculty suffered.

- If degree of disablement is less than 20%, a grant equal to 365 times the weekly benefit rate times the degree of disablement is paid.
- If degree of disablement is 20% or more, a weekly benefit of the injury benefit amount times the degree of disablement is paid.
- In the case of temporary disablement, the benefit is payable for as long as the disablement lasts up to a maximum of 365 weeks.

(c) DEATH BENEFIT

Eligibility: Dependants are defined as for survivors' benefit.

Amount Of Benefit: Proportion of disablement pension, the same percentage as for Survivors benefit.

(d) MEDICAL EXPENSES

Expenses Covered: Reasonable expenses up to $25,000 for doctor's fees, medication, hospitalisation, travelling and constant care and other specified and other specified costs incurred as a result of an employment injury or prescribed disease.

(e) BURIAL GRANT

Eligibility: The insured person died as a result of an employment injury. No prior contributions are required.

Amount Of Grant: $4,000.

1.2.4 CARICOM Social Security Agreement

St. Kitts-Nevis is a signatory to the CARICOM Agreement on Social Security. By totalising contributions made in all CARICOM countries, persons who have insufficient contributions to qualify for a pension in one or more states, may receive pensions from all systems if the total number of contributions made exceeds the number required in that state. The pension payable would be the proportion that contributions made in that state bear to the total contributions made times the pension that would have been payable for the total number of contributions made. The Agreement covers Old-age, Invalidity, Survivors and Disablement benefits only.

Appendix B Methodology, Data & Assumptions

This actuarial review makes use of the comprehensive methodology developed at the Financial and Actuarial Service of the ILO (ILO FACTS) for reviewing the long-term actuarial and financial status of a national pension scheme. The review has been undertaken by modifying the generic version of the ILO modelling tools to fit the specific case of St. Kitts-Nevis and the Social Security Board. These modelling tools include a population model, an economic model, a labour force model, a wage model, a long-term benefits model and a short-term benefits model.

The actuarial valuation begins with a projection of St. Kitts-Nevis' future demographic and economic environment. Next, projection factors specifically related to Social Security are determined and used in combination with the demographic/economic framework to estimate future cash flows and reserves. Assumption selection takes into account both recent experience and future expectations, with emphasis placed on long-term trends rather than giving undue weight to recent experience. Projections have been made under three assumption sets for which the demographic assumptions vary.

B.1 Modelling the Demographic & Economic Developments

The general St. Kitts-Nevis's population has been projected beginning with totals obtained from the results of the 2001 national census and by applying appropriate mortality, fertility and migration assumptions. For the *Best Estimate* scenario the total fertility rate is assumed to decrease from 2.0 to 1.85 in 2015, and remain constant thereafter. Table B.1 shows ultimate age-specific and total fertility rates. For the *High Dependency* and *Low Dependency* scenarios, the ultimate total fertility rates are assumed reached in 2015.

Table B.1. Age-Specific & Total Fertility Rates

Age Group	2005	Ultimate Rates		
		Low Dep.	Best Estimate	High Dep.
15 - 19	0.059	0.027	0.025	0.023
20 - 24	0.096	0.068	0.063	0.058
25 - 29	0.094	0.108	0.100	0.092
30 - 34	0.079	0.099	0.092	0.084
35 - 39	0.056	0.085	0.079	0.072
40 - 44	0.014	0.017	0.016	0.015
45 - 49	-	-	-	-
TFR	**2.00**	**2.00**	**1.85**	**1.70**

Mortality rates have been determined using the United National mortality pattern for Latin America for life expectancies that provide totals deaths consistent with recent experience. Life expectancy at birth in 2005 has been assumed at 68.4 and 72.3 for males and females, respectively.

Improvements in life expectancy for the *Best Estimate* scenario have been assumed to follow the "slow" rate as established by the United Nations with a "medium"[1] rate assumed for the *High Dependency* scenario and "very slow" for the *Low Dependency* scenario. Sample mortality rates for the *Best Estimate* scenario and the life expectancies at birth and at age 62 for sample years are provided in Tables B.2 & B.3.

Table B.2. Sample Mortality Rates & Life Expectancies

Age	Males			Females		
	2005	2035	2065	2005	2035	2065
0	0.0412	0.0301	0.0091	0.0299	0.0056	0.0039
5	0.0013	0.0007	0.0004	0.0008	0.0003	0.0001
15	0.0008	0.0004	0.0004	0.0005	0.0003	0.0002
25	0.0016	0.0009	0.0010	0.0011	0.0010	0.0008
35	0.0023	0.0014	0.0011	0.0016	0.0010	0.0007
45	0.0043	0.0028	0.0024	0.0032	0.0023	0.0017
55	0.0098	0.0070	0.0063	0.0077	0.0063	0.0047
65	0.0234	0.0181	0.0161	0.0195	0.0156	0.0107
75	0.0553	0.0462	0.0446	0.0487	0.0439	0.0313
85	0.1254	0.1133	0.1225	0.1167	0.1239	0.1009
95	0.2600	0.2521	0.2760	0.2544	0.2805	0.2563
Life Exp at birth:	**68.4**	**73.3**	**76.0**	**72.3**	**76.5**	**79.7**

With the above assumptions, life expectancy at birth in 2065 for the *Best Estimate* scenario is estimated to be 76.0 for males and 79.7 for females. At age 62, life expectancy is projected to increase from 17.1 to 18.8 years and from 18.2 to 21.2 years for males and females, respectively.

Table B.3. Current & Projected Life Expectancies At Age 62

	2005	2065		
		Low Dep.	Best Estimate	High Dep.
Male	17.1	18.5	18.8	19.8
Female	18.2	18.8	21.2	23.0

Net migration (in minus out) for each scenario is assumed to decline over the projection period at varying rates and reaching different ultimate levels. The following table shows the age distribution of net migrants for 2005 and 2015. Age-specific rates for other years may be obtained by using the same proportions as applicable for the years shown below.

[1] Midpoint of rates depicted by "slow" improvements and no improvements.

Table B.4. Net Immigration

Age	2005			2015+		
	Low Dep.	Best Estimate	High Dep.	Low Dep.	Best Estimate	High Dep.
0 - 9	6	6	-	6	-	(6)
10 - 19	6	6	-	6	-	(6)
20 - 29	35	35	-	35	-	(35)
30 - 39	20	20	-	20	-	(20)
40 - 49	6	6	-	6	-	(6)
50 - 59	2	2	-	2	-	(2)
60 - 69	40	40	40	40	40	40
70+	0	0	-	0	-	(0)
All Ages	**115**	**115**	**40**	**115**	**40**	**(35)**

The projection of the labour force, i.e. the number of people available for work, is obtained by applying assumed labour force participation rates to the projected number of persons in the total population. Between 2005 and 2065, age-specific labour force participation rates are assumed to increase at advanced ages for males and females. Table B.5 below shows the assumed age-specific labour force participation rates in 2005 and 2065. Between these two years, rates are assumed to change linearly.

Table B.5. Age-Specific & Total Labour Force Participation Rates

Age	Males		Females	
	2005	20065	2005	2065
17	42%	42%	38%	38%
22	92%	92%	85%	85%
27	92%	92%	89%	89%
32	94%	94%	91%	91%
37	93%	93%	93%	93%
42	96%	96%	93%	93%
47	93%	96%	84%	93%
52	89%	93%	74%	84%
57	81%	89%	64%	74%

Year	Males	Females
2005	82%	75%
2015	84%	76%
2025	85%	77%
2035	85%	77%
2045	85%	77%
2055	85%	76%
2065	85%	76%

The projected real GDP divided by the projected labour productivity per worker gives the number of employed persons required to produce total output. Unemployment is then measured as the difference between the projected labour force and employment.

Estimates of increases in the total wages as well as the average wage earned are required. Annual average real wage increases are assumed equal to the increase in labour productivity as it is expected that wages will adjust to efficiency levels over time. Such increases are assumed to be gradual over the projection period from ½% to 1.5%. The inflation assumption affects nominal average wage increases. Actual projection assumptions may be found in Table 4.1.

B.2 Projection of Social Security Income & Expenditure

This actuarial review addresses all St. Kitts-Nevis Social Security revenue and expenditure items. For Short-term and Employment Injury benefits, income and expenditure are projected as a percentage of insurable earnings. For the Long-term and Employment Injury Benefit Branches, projections of pensions are performed following a year-by-year cohort methodology. For each year up to 2065, the number of contributors and pensioners, and the dollar value of contributions, benefits and administrative expenditure, is estimated.

Once the projections of the insured (covered) population, as described in the previous section, are complete, contribution income is then determined from the projected total insurable earnings, the contribution rate and contribution density. Contribution density refers to the average number of weeks of contributions persons make during a year.

Benefit amounts are obtained through contingency factors based primarily on plan experience and applied to the population entitled to benefits. Investment income is based on the assumed yield on the beginning-of-year reserve and net cash flow in the year. Social Security's administrative expenses are modelled as a percentage of insurable earnings. Finally, the end-of-year reserve is the beginning-of-year reserve plus the net result of cash inflow and outflow.

B.3 Social Security Population Data and Assumptions

The data required for the valuation of the Social Security Fund is extensive. As of December 31st, 2005, required data includes the insured population by active and inactive status, the distribution of insurable wages among contributors, the distribution of paid and credited contributions and pensions in payment, all segregated by age and sex.

Scheme specific assumptions such as the incidence of invalidity, the distribution of retirement by age, density and collection of contributions, are determined with reference to the application of the scheme's provisions and historical experience.

Projecting investment income requires information of the existing assets at the valuation date and past performance of each class. Future expectations of changes in asset mix and expected rates of return on each asset type together allow for long-term rate of return expectations.

Details of Social Security specific input data and the key assumptions used in this report are provided in tables B.6 through B.10.

Table B.6. 2005 Active Insured Population, Earnings & Past Credits

Age	# of Active Insureds		Average Monthly Insurable Earnings		Average # of Years of Past Credits	
	Male	Female	Male	Female	Male	Female
15 - 19	875	704	1,335	1,255	1.0	0.7
20 - 24	1,826	1,844	1,781	1,621	4.3	3.6
25 - 29	1,752	1,752	2,202	2,016	8.1	7.3
30 - 34	1,505	1,682	2,625	2,270	12.2	11.2
35 - 39	1,606	1,517	2,899	2,340	16.2	15.2
40 - 44	1,508	1,506	2,783	2,293	19.3	18.4
45 - 49	1,302	1,379	2,937	2,355	20.1	19.5
50 - 54	939	852	3,155	2,530	20.6	19.8
55 - 59	486	406	2,926	2,327	20.7	19.8
60 - 61	194	166	3,042	1,867	20.8	19.7
All Ages	**11,993**	**11,808**	**2,491**	**2,107**	**13.0**	**12.3**

Table B.7. Pensions in Payment - December 2005

Age	Old-Age Benefit		Invalidity Benefit		Survivors Benefits		Disablement Benefit		Assistance	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0 - 4	-	-	-	-	16	10				
5 - 9	-	-	-	-	33	44				
10 - 14	-	-	-	-	66	67				
15 - 19	-	-	-	-	59	71	-	-	1	2
20 - 24	-	-	-	-	-	-	-	-	5	5
25 - 29	-	-	2	1	-	-	2	-	5	4
30 - 34	-	-	2	4	-	3	3	-	7	10
35 - 39	-	-	7	8	-	-	7	2	4	2
40 - 44	-	-	5	9	1	-	5	1	8	9
45 - 49	-	-	11	25	2	16	-	1	8	14
50 - 54	-	-	15	16	4	26	1	1	7	10
55 - 59	-	-	10	24	9	26	1	-	3	10
60 - 64	166	157	5	9	3	34	2	-	4	18
65 - 69	234	230	-	-	2	33	-	2	20	53
70 - 74	206	180	-	-	1	39	1	-	25	78
75 - 79	114	101	-	-	1	46	1	-	45	104
80 - 84	96	39	-	-	3	27	-	-	50	77
85 - 89	20	14	-	-	-	-	-	-	28	72
90 - 94	-	-	-	-	-	-	-	-	8	36
95 - 99	-	-	-	-	-	-	-	-	-	20
# of Pensioners	**836**	**721**	**57**	**96**	**184**	**432**	**23**	**7**	**228**	**524**
Avg Monthly Pension	**$ 783**	**$ 612**	**$ 711**	**$ 506**	**$ 118**	**$ 223**	**$ 482**	**$ 513**	**$ 210**	**$ 210**

The following table shows assumed density factors, or the average portion of the year for which contributions are made. These rates are assumed to remain constant for all years.

Table B.8. Density Of Contributions

Age	Males	Females
17	49%	44%
22	72%	79%
27	76%	86%
32	78%	88%
37	78%	89%
42	78%	90%
47	80%	89%
52	82%	89%
57	82%	87%

The following table shows the expected incidence rates of insured persons qualifying for Invalidity benefit which is assumed for all projection years.

Table B.9. Rates of Entry Into Invalidity

Age	Males	Females
17	-	-
22	0.112	0.110
27	0.480	0.120
32	0.399	0.367
37	1.022	0.922
42	0.420	1.886
47	1.148	2.640
52	2.670	1.894
57	3.509	5.946

Table B.10, shows the assumed probability of Survivor benefit claims and the average ages of new claimants, groups by the age of the deceased.

Table B.10. Probability of a Deceased Having Eligible Survivors & Their Average Ages

Age	Males		Females	
	Probability of Eligible Spouse	Avg # of Eligible Children	Probability of Eligible Spouse	Avg # of Eligible Children
17	0%	-	0%	-
22	6%	0.0	0%	0.1
27	19%	0.1	0%	0.2
32	26%	0.4	4%	0.6
37	22%	0.8	14%	1.3
42	23%	1.2	17%	1.2
47	35%	1.1	8%	1.1
52	43%	0.7	8%	0.8
57	46%	0.5	22%	0.2
62	41%	0.5	24%	0.1
67	23%	0.2	10%	-
72	12%	0.1	2%	-
77	10%	0.2	2%	-
82	7%	0.1	1%	-
87	2%	0.0	0%	-

Appendix C Projection Results – Alternate Scenarios

Table C.1. Projected St. Kitts-Nevis Population, *High Dependency* Scenario

Year	Total	Age 0 - 15	Age 16 - 59	Age 62 & over	Ratio of Persons 62+ To Persons 16 to 61
2001	46,325	14,356	27,658	4,311	0.16
2005	48,196	13,537	30,333	4,326	0.14
2010	50,158	12,612	33,070	4,477	0.14
2015	51,717	11,718	34,789	5,210	0.15
2020	53,114	11,177	35,200	6,737	0.19
2025	54,278	10,916	34,802	8,560	0.25
2030	55,020	10,710	34,145	10,166	0.30
2035	55,274	10,337	33,540	11,397	0.34
2045	54,381	9,217	32,029	13,134	0.41
2055	52,196	8,511	28,845	14,841	0.51
2065	49,503	7,972	26,112	15,419	0.59

Table C.2. Projected Cash Flows & Reserve, *High Dependency* Scenario (millions of $'s)

Year	Cash Inflows				Cash Outflows				Reserves	
	Contribution Income	Investment Income	Other Income	Total	Benefits & Pensions	Admin. Expenses	Total	Surplus/ (Deficit)	End of Year	# of times current year's expenditure
2005	58.1	41.8	0.6	**100.4**	24.9	7.7	32.6	**67.8**	**738.5**	22.7
2006	61.1	45.9	0.6	**107.6**	26.9	7.9	**34.8**	**72.7**	**811.2**	23.3
2007	65.2	49.5	0.6	**115.3**	28.8	8.2	**37.0**	**78.3**	**889.5**	24.0
2008	67.2	54.2	0.6	**122.0**	32.4	8.6	**40.9**	**81.1**	**970.6**	23.7
2009	71.4	56.6	0.6	**128.6**	35.4	9.0	**44.3**	**84.3**	**1,054.8**	23.8
2010	75.3	58.8	0.7	**134.7**	38.6	9.3	**47.9**	**86.9**	**1,141.7**	23.9
2011	79.3	60.7	0.7	**140.7**	42.1	9.6	**51.8**	**89.0**	**1,230.7**	23.8
2015	96.6	68.1	0.9	**165.6**	62.9	11.0	**73.9**	**91.7**	**1,593.8**	21.6
2025	145.8	104.3	1.3	**251.5**	181.8	13.6	**195.3**	**56.1**	**2,397.6**	12.3
2035	215.8	103.2	1.9	**320.9**	377.5	19.6	**397.1**	**(76.1)**	**2,305.5**	5.8
2045	311.8	18.6	2.8	**333.1**	643.7	28.3	**672.1**	**(338.9)**	**249.8**	0.4
2055	438.1	(243.9)	3.9	**198.1**	1,078.7	39.8	**1,118.5**	**(920.4)**	**(6,007.4)**	(5.4)
2065	643.9	(856.0)	5.8	**(206.3)**	1,695.9	58.5	**1,754.5**	**(1,960.8)**	**(20,434.8)**	(11.6)

Negative reserves indicate the indebtedness of the Fund and negative investment income is the current cost of servicing that debt.

Table C.3. Projected Benefit Expenditure– *High Dependency* Scenario (millions of $'s)

Year	Pensions, Grants & Benefits						Benefits as a % of:	
	Age	Invalidity	Survivors	Assistance	Short-term	Emp. Injury	Insurable Wages	GDP
2005	13.1	1.0	1.4	1.9	6.5	1.0	4.7%	2.1%
2006	14.4	1.1	1.7	1.8	6.8	1.1	4.9%	2.2%
2007	15.6	1.3	1.8	1.8	7.2	1.1	5.0%	2.2%
2008	18.1	1.5	2.1	1.7	7.7	1.3	5.3%	2.3%
2009	20.1	1.6	2.3	1.8	8.2	1.4	5.4%	2.4%
2010	22.3	1.8	2.5	1.8	8.7	1.5	5.6%	2.5%
2011	24.8	2.0	2.7	1.8	9.2	1.6	5.8%	2.5%
2015	41.1	2.9	3.6	1.9	11.3	2.2	7.2%	3.1%
2025	145.1	4.9	7.7	2.4	17.6	4.0	13.7%	5.8%
2035	317.8	7.7	14.8	3.3	26.9	6.9	19.2%	8.2%
2045	551.1	12.1	24.5	4.4	40.1	11.4	22.7%	9.7%
2055	942.8	16.3	38.1	5.9	58.0	17.5	27.1%	11.2%
2065	1,493.5	23.0	56.4	7.9	87.8	27.4	29.0%	12.3%

Table C.4. Projected Contributors & Pensioners, *High Dependency* Scenario

Year	# of Contributors	# of Pensioners					Total # of Pensioners	Ratio of Contributors to Pensioners
		Age	Invalidity	Survivors	Assistance	Death & Disablement		
2005	24,489	1,557	153	651	752	52	**3,165**	**7.7**
2006	24,055	1,638	162	701	721	58	**3,279**	**7.3**
2007	24,654	1,713	175	724	698	62	**3,372**	**7.3**
2008	25,190	1,788	187	743	678	67	**3,462**	**7.3**
2009	25,706	1,871	200	764	661	71	**3,566**	**7.2**
2010	26,037	1,963	211	781	645	75	**3,676**	**7.1**
2011	26,361	2,067	223	795	632	80	**3,797**	**6.9**
2015	27,364	2,729	275	803	593	97	**4,497**	**6.1**
2025	27,727	5,946	332	930	558	132	**7,898**	**3.5**
2035	27,675	8,781	365	1,126	563	169	**11,003**	**2.5**
2045	27,115	10,425	395	1,218	564	203	**12,805**	**2.1**
2055	24,770	12,150	361	1,258	560	213	**14,542**	**1.7**
2065	22,758	12,902	329	1,224	553	217	**15,225**	**1.5**

Table C.5. Projected St. Kitts-Nevis Population, *Low Dependency* Scenario

Year	Total	Age 0 - 15	Age 16 - 59	Age 62 & over	Ratio of Persons 62+ To Persons 16 to 61
2001	46,325	14,356	27,658	4,311	0.16
2005	48,395	13,580	30,494	4,320	0.14
2010	51,053	12,974	33,634	4,444	0.13
2015	53,808	12,775	35,900	5,133	0.14
2020	56,601	13,076	36,929	6,596	0.18
2025	59,217	13,496	37,357	8,363	0.22
2030	61,436	13,635	37,877	9,924	0.26
2035	63,191	13,487	38,590	11,113	0.29
2045	65,556	13,147	39,499	12,910	0.33
2055	66,981	13,472	38,662	14,847	0.38
2065	67,702	13,648	38,736	15,318	0.40

Table C.6. Projected Cash Flows & Reserve, *Low Dependency* Scenario (millions of $'s)

Year	Cash Inflows				Cash Outflows			Surplus/ (Deficit)	Reserves	
	Contribution Income	Investment Income	Other Income	Total	Benefits & Pensions	Admin. Expenses	Total		End of Year	# of times current year's expenditure
2005	58.1	41.8	0.6	**100.4**	24.9	7.7	32.6	**67.8**	**738.5**	22.7
2006	61.6	45.9	0.6	**108.0**	27.0	8.0	**34.9**	**73.1**	**811.6**	23.2
2007	66.1	49.6	0.6	**116.3**	28.9	8.3	**37.2**	**79.1**	**890.7**	23.9
2008	68.0	54.3	0.6	**122.9**	32.4	8.7	**41.1**	**81.8**	**972.5**	23.7
2009	72.3	56.7	0.7	**129.7**	35.3	9.1	**44.4**	**85.3**	**1,057.8**	23.8
2010	76.9	59.0	0.7	**136.6**	38.4	9.5	**47.9**	**88.7**	**1,146.5**	23.9
2011	81.4	63.9	0.7	**146.0**	41.9	9.9	**51.7**	**94.3**	**1,240.8**	24.0
2015	101.3	86.4	0.9	**188.6**	61.9	11.5	**73.4**	**115.2**	**1,671.5**	22.8
2025	159.1	153.7	1.4	**314.3**	174.3	14.8	**189.1**	**125.2**	**2,933.6**	15.5
2035	240.2	209.6	2.2	**452.0**	354.5	21.8	**376.3**	**75.7**	**3,953.0**	10.5
2045	348.7	220.7	3.1	**572.6**	596.2	31.7	**628.0**	**(55.4)**	**4,092.6**	6.5
2055	497.6	106.6	4.5	**608.7**	979.9	45.2	**1,025.1**	**(416.4)**	**1,778.5**	1.7
2065	737.5	(270.2)	6.6	**473.9**	1,454.9	67.0	**1,521.9**	**(1,048.1)**	**(5,574.6)**	(3.7)

Negative reserves indicate the indebtedness of the Fund and negative investment income is the current cost of servicing that debt.

Table C.7. Projected Benefit Expenditure– *Low Dependency* Scenario (millions of $'s)

Year	Pensions, Grants & Benefits						Benefits as a % of:	
	Age	Invalidity	Survivors	Assistance	Short-term	Emp. Injury	Insurable Wages	GDP
2005	13.1	1.0	1.4	1.9	6.5	1.0	4.7%	2.1%
2006	14.4	1.1	1.7	1.8	6.9	1.1	4.9%	2.1%
2007	15.6	1.3	1.8	1.8	7.3	1.2	4.9%	2.2%
2008	18.1	1.5	2.1	1.7	7.8	1.3	5.2%	2.3%
2009	19.9	1.6	2.3	1.8	8.3	1.4	5.4%	2.3%
2010	21.9	1.8	2.5	1.8	8.9	1.5	5.5%	2.4%
2011	24.3	2.0	2.7	1.8	9.4	1.6	5.7%	2.5%
2015	39.5	2.8	3.7	1.9	11.9	2.2	6.7%	2.9%
2025	135.6	4.7	8.2	2.3	19.2	4.2	12.0%	5.1%
2035	290.4	7.7	16.1	2.9	30.0	7.5	16.2%	7.0%
2045	496.2	12.1	27.0	3.7	44.9	12.4	18.8%	8.2%
2055	833.0	16.2	41.0	4.7	65.9	19.0	21.7%	9.3%
2065	1,235.9	23.2	59.2	6.0	100.6	29.9	21.7%	9.6%

Table C.8. Projected Contributors & Pensioners, *Low Dependency* Scenario

Year	# of Contributors	# of Pensioners					Total # of Pensioners	Ratio of Contributors to Pensioners
		Age	Invalidity	Survivors	Assistance	Death & Disablement		
2005	24,489	1,557	153	651	752	52	**3,165**	**7.7**
2006	24,237	1,636	161	706	721	58	**3,282**	**7.4**
2007	25,021	1,709	174	734	698	63	**3,377**	**7.4**
2008	25,615	1,781	186	757	678	67	**3,469**	**7.4**
2009	26,167	1,860	198	784	661	72	**3,574**	**7.3**
2010	26,694	1,948	209	807	645	76	**3,686**	**7.2**
2011	27,191	2,047	221	827	632	80	**3,808**	**7.1**
2015	28,820	2,679	272	865	593	99	**4,507**	**6.4**
2025	30,855	5,760	336	1,074	558	140	**7,868**	**3.9**
2035	32,359	8,486	389	1,356	563	188	**10,983**	**2.9**
2045	33,381	10,237	431	1,533	564	233	**12,998**	**2.6**
2055	33,257	12,217	413	1,624	560	256	**15,068**	**2.2**
2065	33,800	12,832	415	1,656	553	282	**15,738**	**2.1**

Appendix D Income, Expenditure & Reserves, 2003–2005

	2003	2004	2005
Income			
Contribution Income	48,039,973	53,813,533	58,056,495
Investment Income	34,525,215	39,172,127	41,824,379
Other Income	636,530	715,927	566,884
Total Income	**83,201,718**	**93,701,587**	**100,447,758**
Expenditure			
Benefits			
Sickness Benefit	2,798,788	3,278,595	4,130,919
Maternity Allowance	1,568,462	1,341,320	1,634,097
Maternity Grant	241,650	205,650	222,750
Funeral Grant	420,161	491,300	470,400
Age Pension	10,233,488	11,375,369	12,602,537
Invalidity Pension	758,424	865,808	1,047,013
Survivors' Pension	1,234,209	1,246,227	1,410,990
Age Grant	467,406	603,749	516,628
Age Assistance	1,666,614	1,599,868	1,567,825
Invalidity Assistance	249,640	266,900	289,525
Medical Expenses	90,175	107,244	188,559
Injury Benefit	320,200	327,103	438,872
Disablement Grant	44,689	43,788	45,747
Disablement Benefit	139,051	189,499	191,363
Death Benefit	131,560	110,396	106,755
Travel Expenses	32,432	18,466	16,579
Burial Grant	4,000	4,000	4,000
Total Benefit Expenditure	**20,400,949**	**22,075,282**	**24,884,559**
Administrative Expenditure	**7,132,769**	**7,661,093**	**7,715,751**
Other Expenses	**-**	**-**	**-**
Total Expenditure	**27,533,718**	**29,736,375**	**32,600,310**
Excess of Income over Expenditure	**55,668,000**	**63,965,212**	**67,847,448**
Social Security Reserves at End of Year	**595,305,369**	**659,340,214**	**727,187,662**
Short-term Benefits Branch	55,884,565	62,697,025	69,296,651
Long-term Benefits Branch	468,209,137	517,095,052	569,517,446
Employment Injury Benefits Branch	71,211,667	79,548,137	88,373,565
Provident Fund Reserves	13,987,436	14,827,020	15,705,710
Revaluation Reserves	14,000,778	10,872,350	11,268,369
Staff Supplemental Benefits Reserve	2,511,629	2,982,660	3,446,253

Appendix E Benefit Experience & Branch Analysis

E.1 Long-term Benefits Branch

Table E.1. LTB Branch Expenditure As % of Insurable Wages, 2003 - 2005

	2003	2004	2005
Age Pension	2.34%	2.33%	2.39%
Invalidity Pension	0.17%	0.18%	0.20%
Survivors Pensions	0.28%	0.25%	0.27%
Assistance Pensions	0.44%	0.38%	0.35%
Age Grant	0.11%	0.12%	0.10%
Administrative Expenses	1.49%	1.40%	1.12%
Total	**4.53%**	**4.40%**	**4.35%**
Total Benefits (millions of $'s)	**14.6**	**16.0**	**17.4**

Table E.2. Pensions In Payment, Awarded & Terminated, 2003- 2005

Pension Type	Paid in Dec 2002	Awarded 2002 - 2005	Terminated 2003 - 2005	Paid in Dec 2005	Average Mthly Pension	
					Dec. 2002	Dec. 2005
Age	1,395	356	194	1,557	$587	$704
Invalidity	129	115	91	153	$480	$583
Survivors	553	250	152	651	$168	$191
Assistance	831	102	181	752	$200	$210

E.2 Short-term Benefits Branch

Table E.3. Sickness Benefit Experience, 2003- 2005

Year Ended	# Claims Awarded per 1,000 Insureds	Average Benefit Duration (days)	Average Weekly Benefit	Cost as a % of Insurable Wages
2003	245	10.9	$281	0.64%
2004	280	11.0	$275	0.67%
2005	312	10.6	$305	0.78%

Table E.4. Maternity Benefit Experience, 2003- 2005

Year Ended	# Claims Awarded per 1,000 Insureds	Average Benefit Duration (days)	Average Weekly Benefit	Cost as a % of Insurable Wages
2003	22	76	$252	0.36%
2004	19	76	$240	0.27%
2005	20	74	$277	0.31%

Table E.5. Maternity Grant & Funeral Grant Experience, 2003- 2005

Year	# Births	# Grants Awarded	Cost as a % of Insurable Wages	# Deaths	# Grants Awarded	Cost as a % of Insurable Wages
2003	738	530	0.06%	371	163	0.10%
2004	654	449	0.04%	395	192	0.10%
2005	654	491	0.04%	333	185	0.09%

Table E.6. Administrative & Total Expenditure – STB Branch

Year	As a % of Insurable Wages	
	Admin. & Other Expenditure	Total Branch Expenditure
2003	0.33%	1.48%
2004	0.31%	1.40%
2005	0.3%	1.52%

With an allocation of 2% of insurable earnings plus investment returns, the STB Branch incurred growing surpluses each year.

E.3 Employment Injury Benefits Branch

Table E.8. Injury Benefit Experience, 2003- 2005

Year Ended	# Claims Awarded per 1,000 Insureds	Average Benefit Duration (days)	Average Weekly Benefit	Cost as a % of Insurable Wages
2003	14	12.8	$481	0.07%
2004	12	13.1	$539	0.07%
2005	14	14.0	$534	0.08%

Table E.9. Medical And Travel Expenses & Disablement Grant Experience, 2003- 2005

	Medical Expenses		Travel Expenses		Disablement Grant	
Year	**# Claims Awarded**	**Cost as a % of Insurable Wages**	**# Claims Awarded**	**Cost as a % of Insurable Wages**	**# Claims Awarded**	**Cost as a % of Insurable Wages**
2003	185	0.02%	20	0.01%	8	0.01%
2004	215	0.02%	32	0.00%	2	0.01%
2005	275	0.04%	27	0.00%	5	0.01%

Table E.10. Disablement & Death Benefit Awards & Pensions In Payment, 2003- 2005

	Disablement Benefit			Death Benefit		
Year	**# Pensions Awarded**	**Pensioners In Payment (December)**	**Payments as a % of Ins. Wage**	**# Pensions Awarded**	**Pensioners In Payment (December)**	**Payments as a % of Ins. Wages**
2003	7	26	0.03%	-	27	0.03%
2004	6	29	0.04%	-	24	0.02%
2005	5	30	0.04%	-	22	0.02%

Table E.11. Administrative & Total Expenditure – EIB Branch

Year	As a % of Insurable Wages	
	Admin. & Other Expenditure	**Total Branch Expenditure**
2003	0.12%	0.30%
2004	0.12%	0.28%
2005	0.11%	0.30%

Note: Included in Administrative expenses in 2001 were Termination Expenses related to a Staff Voluntary Separation Plan.

With an allocation of 1% of insurable earnings plus investment returns, the EIB Branch incurred large surpluses each year.