Social Security Reform and Management: The Case of Three Member Territories of the Organisation of Eastern Caribbean States

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***Abstract*—It has been recognized that some social security and national insurance systems in the Eastern Caribbean are experiencing ageing populations and economic and other crises that will present a financial challenge of being unable to pay pension benefits in fifteen to twenty years. This has implications for the fiscal and economic positions of the countries themselves. Hence, organizations would need to address the issue urgently. The study adds to the body of knowledge on social security systems and social security reforms in Small Island Developing States (SIDS). It also makes recommendations for the types of reforms that social security systems in other SIDS can implement given their special circumstances. Secondary research is used to gather financial and other related information on three social security schemes in the Eastern Caribbean. Actuarial and financial reports and other documents of the social security systems are analysed to obtain financial and static data on each of the schemes. The findings show that the three schemes studied are experiencing steady increases in benefit expenditure versus contributions and increasing pensioner to insured ratios. The schemes will deplete their reserves between 2038 and 2050. Two of the schemes have increased their retirement age while the other has not embarked on any reforms. One scheme has made changes to its contribution percentages. Due to their small size, small populations and other unique circumstances, the social security schemes in the identified territories are not likely to be able to take advantage of all of the reform initiatives that the developed world embarked on when faced with similar problems. These schemes will need to make incremental changes that align with the timeframes recommended by the actuarial studies.

***Keywords*—Pension benefits, pension, Small Island Developing States, Social Security Reform.

Open Science Index, Social and Business Sciences Vol:17, No:10, 2023 publications.waset.org/10013277.pdf

I. Introduction

THE financial viability of Social Security systems all over the world has been challenged with ageing populations, increase in longevity and persons leaving employment earlier, resulting in the doubling of the dependency ratio in some countries [1], [2]. Gruber and Wise [3] posit that the very structure of social security provisions is contributing to this trend. In the Eastern Caribbean, the dependency ratio is indeed increasing due to aging populations and the initial slow movement towards increasing the retirement age in some countries. The onset of the COVID-19 pandemic has resulted in many of these tourism dependent countries experiencing increasing unemployment and declining contributions. The future of Social Security in the Eastern Caribbean is therefore uncertain, much like the rest of the world. Some have embarked on parametric type reforms, aimed at increasing their contribution percentages, and the retirement age based on the actuarial studies [4], [5]. However, the question must be asked whether or not this will be sufficient to keep the schemes financially viable into the next fifty years.

Background

The Organisation of Eastern Caribbean States (OECS) is a grouping of islands located in the Eastern Caribbean. The islands fall in the category of SIDS. The OECS was established in 1981 with the signing of the Treaty of Basseterre by the heads of Government of the former West Indies Associated States Council (WIASC) which was made up of the non-independent British Colonies that were a part of the West Indies Federation. The countries that make up the OECS are Grenada, St. Lucia, St. Vincent and the Grenadines, The Commonwealth of Dominica, Antigua and Barbuda, St. Kitts and Nevis and Montserrat. The OECS was established to provide member states with assistance in negotiating at the international level in several areas; to promote unity and cooperation in the areas of law and justice, economic development and integration. This is achieved through several sub-regional organisations including, the Eastern Caribbean Supreme Court, the Eastern Caribbean Civil Aviation Authority, the Eastern Caribbean Central Bank and OECS Commission [6]. This same grouping along with the island of Anguilla make up the Eastern Caribbean Currency Union (ECCU). The currency union is administered by the Eastern Caribbean Central Bank (ECCB), an associate institution of the OECS. It is the monetary authority for the participating governments. The main objective of the ECCB is "to maintain the stability of the Eastern Caribbean Currency and the integrity of the banking system" [7].

The SIDS of this grouping, like most other SIDS, have small open economies with low growth and are vulnerable to natural disasters, climate change and other exogenous shocks. The principal industries are tourism, financial services and agriculture [8]. There have been significant declines in the agricultural sector as a result of globalisation which resulted in the removal of preferential access to markets in Europe and the United Kingdom. The recent COVID-19 pandemic and Russia's war with Ukraine have dealt a significant blow to the

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territories. The International Monetary Fund (IMF) in its latest Article IV Mission of June 2022 [7, p.1], notes that "the ongoing pandemic has inflicted large output losses in the ECCU, leaving scars on the tourism and transportation sectors, education, labor force, and fiscal position." That same report pointed to rising headline inflation and a widening current account deficit. Though a gradual recovery is expected, the IMF [9, p.1] has cautioned that policy priority should focus on the vulnerable through spending in the area of health, temporary transfers and establishing safety nets. Like the other SIDs, the small populations and limited land masses add to the challenges they face, adequate social protection systems being one of them [8]. The territories are continuing to experience high debt to GDP ratios, high unemployment and low growth, see Table I.

TABLE I
ECCU GDP AND DEBT STATISTICS [10]

ECCU	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
GDP %	1.05	2.67	5.85	5.47	4.63	2.61	5.71	4.33	-19.22	6.21
Debt to GDP %	83.24	82.3	78.98	72.79	71.84	70.03	68.71	65.84	88.14	88.29

Individual territories have experienced debt to GDP ratios as high as 90% while economic growth has been mostly low and unstable [10]. Table I reflects this instability in growth with fluctuations during the referenced period. The countries took a significant hit in 2020 due to the COVID-19 pandemic.

The research to be carried out will investigate the state of social security and national insurance schemes and their viability into the next forty to fifty years based on actuarial studies in the islands of St. Kitts and Nevis, Antigua and Barbuda and St. Lucia. It will investigate the reforms that have taken place over the years in the three specified countries. The financial state of the schemes will be assessed by an analysis of their financial statements over a five-year period. These three islands were selected because their social security systems are representative of the other islands in the OECS. St. Kitts and Nevis represent the islands with smaller populations. The Statistics Department of the Government of St. Kitts and Nevis reported a population of 47,195 in their 2011 population census [11]. Antigua represents those with slightly larger populations. Antigua's population is estimated at 100,967 [12], while St. Lucia is the island with the largest population of the group with a population of approximately 184,401 [13].

Antigua

In the early 1970s, the countries of the Eastern Caribbean passed legislation to establish provident funds to support retiring individuals. In Antigua and Barbuda, a National Provident Fund act was passed in 1970. This was followed by the enactment of the Social Security Act 1972. Antigua and Barbuda was the first in the group now known as the OECS to develop a full social security system. The Social Security Fund provides contributing individuals and their dependents with benefits for sickness, maternity, invalidity, retirement and death. As part of the legislation there is also provision for an employment injury benefit [14]. Social Security in Antigua and Barbuda is governed by a Board of Directors and falls under the Ministry of Finance. The Organization's Administrative Directorate – comprising the Director, the Deputy Director and the Executive Assistant – has responsibilities for all functional areas, namely Finance & Investment, Research & Communications, Compliance, Benefits, Information Technology, Human Resources, Legal, Internal Audit, Customer Relations, and Facilities Maintenance [14].

St. Lucia

Like Antigua and Barbuda, the island of St. Lucia also established a National Provident Fund in 1970. The fund was described as a way to help people to save. The employer and employee contributed equal amounts of 5% each. The employee was then paid with interest when claiming at the then retirement age of sixty years. The provident fund issued three benefits, old age, survivor's and invalidity.

Following the pattern of the other islands, the Government of St. Lucia enacted the National Insurance Corporation (NIC) in April 1979. Regulations were later established in 1984 to guide the operations of the NIC. The NIC provided more benefits than the provident fund [15].

The NIC is a statutory corporation governed by a Board of Directors that reports to the Minister of Finance. The operations are managed by a director and staff [15].

St. Kitts and Nevis

St. Kitts and Nevis established its Social Security program in 1978. The Social Security Act was passed in 1977. It took effect on February 1, 1978. This replaced the National Provident Fund which had been in operation for ten years prior to the passing of the Act. The Provident Fund was more of a savings fund for specific categories of workers. The Social Security Act established the Social Security Board as a statutory corporation. Administrative oversight and political and legislative responsibility for Social Security are provided by a cabinet minister in the Government of St. Kitts and Nevis. The powers and functions of the minister responsible for social security are outlined in the Social Security Act of St. Kitts and Nevis. Social Security provides a number of benefits to both workers and special categories of individuals. The St. Kitts and Nevis Social Security Board has its headquarters in St. Kitts with a branch office in Nevis. The office in Nevis facilitates the collection of contributions from employers and the payment of benefits [16].

Aims of the Research

1. To determine the financial position of the Antigua and Barbuda Social Security Board, the St. Kitts and Nevis Social Security Board and the NIC of St. Lucia over the period 2009-2019.
2. To assess the viability of the social security schemes in St. Kitts and Nevis, Antigua and Barbuda and St. Lucia;
3. To propose the type of reform that the schemes should embark on to best suit the environment and needs of pensioners in the islands

The research is critical because the social security and national insurance organisations have been experiencing declining reserves due to a number of factors including aging populations, exacerbated by reduced contributions caused by

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the effects of COVID-19 on employment and general decline in economic growth over the past ten years [8], [4], [17]. This decline in reserves will eventually impact the fiscal affairs of the Governments in each country and their economies. In Antigua and Barbuda in particular, the law prescribes that the Government should fund any shortfall in social security contributions so that benefits can be paid to pensioners and other beneficiaries. This has implications for how Governments manage not only their fiscal affairs in the future, but the quality and quantity of social protection services. It also has implications for the future of Social Security and National Insurance schemes. The political realities of these SIDS and the structure of their economies make the effective management of contributions critical; hence, the prescriptions that may work for the developed world may not be effective in these small, developing islands. The move to privatize social security pensions in some developed countries to deal with the issue of schemes going broke may not be entirely viable in some countries given that a significant percentage of the working population is employed by Government.

The findings of the research will inform the types of reform that are most relevant for SIDS in the Caribbean and in other SIDS with similar economic and social profiles. There is very little literature on social security and pension fund management in general in SIDS.

Organisation of the Paper

Section II of the paper will present a review of the literature on social security reform in specific regions around the world. It will also give a general discussion on the reasons for reform and the result of some of the reforms that have taken place and the implications going forward. Section III will outline the methodology of the research while Section IV will present the findings, a discussion and recommendations for the way forward for SIDS in the Eastern Caribbean.

II. Literature Review

Types of Reform

Social Security reform is categorised into two main types, structural and parametric. Parametric reform refers to incremental reform and is used as a supporting tool to structural reform. It has been used by some countries as an alternative to structural reform when political pressures cause governments to hold back on structural reform [18]-[20]. It can be summarised as changing the parameters of the pension system or pension plan. Parametric reform does not follow a specific pattern. Hong [20] identifies several entry points in parametric reform in which some focus on a change in the calculation formula of pension; adjustments to the contribution rate and period; change in the retirement age; some countries utilise all of the tools at once or in different combinations. The objective is to achieve "healthier" and "more sustainable" systems [20].

Structural reform is more of a change in the system itself whether it be from public to private, or partial public and partial private with the use of different pillars [20]-[22]. Structural reform has followed three pillars recommended by the World Bank. The model popularly known as the "World Bank Model" has been applied in a bid to "avert the old age crisis". The pillars are a publicly managed, pay-as-you-go, defined benefit pillar; a privately managed, mandatory, defined contribution pillar; and a voluntary private pillar, as given by Weaver (1998) in [22].

Reasons For Reform

Social security reforms have been taking place across the globe for many years. Reforms have been in response to studies that show that social security will go broke if changes are not made in the overall structure of pension systems around the world. Attanasio et al. [1] posit that there will be significant changes in demographics in the 21st century. They cite three demographic events that would prove to be significant: "(i) a significant increase in longevity which will increase life expectancy; (ii) a decline in fertility which was expected to induce negative rates of population growth for the following 50 years; (iii) the retirement of the baby-boom generations, born in the 1950's which would accelerate the rise of the old-dependency ratio (population 60) after 2010." Attanasio et al. [1, p.1]. Gruat [18] also identified the following as reasons for social security and pension reform: increased interest; privatization of pensions; the globalization of markets, and the growth of the informal sector which left a large sector of populations uncovered.

With the expected demographic changes, the developed world addressed the public policy issues that resulted from these changes. In most parts of the world, social security pensions were funded by pay-as-you-go (PAYG) systems. This was the case whether pension systems were developed in the 1930's or the 1970's [21]. As populations aged the great fear was that the PAYG system would be placed under significant pressure. That prompted many studies which concluded that large countries' social security systems would experience a deficit in the mid 2000's as early as 2016 while others will experience a deficit by 2042 if the matter was not addressed [1], [2], [8]. Attanasio et al. [1] point out that the developing world (in the south) have different demographic trends whereby the old-age dependency ratios are less than half of those in the north and as a result, the dependency ratios will converge much later after 2100. Jgeremaia et al. [23] also point to the changing demographics across the globe with most countries experiencing declining fertility rates, stagnant fertility and increasing life expectancy as being the cause of financial problems in South Eastern Europe. Thus, pension systems will continue to face challenges. Other factors that have been identified as negatively affecting pension systems are slowing and less stable economic development, higher inflation and unemployment rates [2]. Oran [24] posits that the pension reform was being driven by the fact that PAYG schemes existed where there was increasing wages, fertility and participation in the labour force.

In the Eastern Caribbean the above listed factors are real and may in fact be the most critical factors to be considered at this time and not whether or not the dependency ratio is increasing. The issues that policy makers must consider do not only involve ensuring that systems remain viable but also ensuring that other

social and economic factors are considered. Introducing new measures to address the "pension problem" has implications for politicians as these measures are likely to negatively impact cross sections of society and their supporters. Aging populations will become a challenge for pension systems in the Caribbean. A number of countries are expected to face "accelerated aging process over the coming decades, straining the financial sustainability of pension schemes" [8, p.30]. The paper goes on to note that the rate of aging along with increased life expectancy will result experience issues that will impact defined-benefit pension schemes.

Reform in Selected Countries

Latin America

Chile led reforms in Latin America starting in 1981. Chile was followed by Peru, Columbia, Argentina, Uruguay, Mexico, Bolivia and El Salvador in the 1990s. The other countries including the Dominican Republic started their reforms in the early 2000s [21]. Reforms in this region saw changes from public pension systems to structural type reform with multiple pillars and also included privately administered systems, [25], [11]. It was felt that the success of the reforms in Chile prompted reforms in other countries such as China. Holtzman [26] notes that as many as 28 countries followed the example of Chile and other countries in Latin America between 1988 and 2008 in reforming their pension systems.

The reform in Latin America made it possible for workers and pensioners to maintain their benefits when the plans were changed. Most of the countries maintained or re-organised the PAYG system with a system/plan to ensure this. One such plan had a safety net function [21]. The multiple pillars included the first pillar that continued to be managed by the Government and a private pillar with defined contributions. Some countries maintained a contributory pension while others instituted individual retirement accounts managed by investment managers. The changes in Uruguay and Ecuador are described as "tiers" in which it is not compulsory for all individuals to migrate to individual accounts [21], [26].

Although Latin American countries are credited with these forward-looking reforms, there are concerns as to the sustainability. Alonso et al. [25] suggests that following the reforms of the early 2000s, Latin American Countries may encounter fiscal problems due to significant increases in pension spending as the demographics change. Thus, implying that further reform will be necessary in the not-too-distant future. They posit that the region should learn from the experience of the European Countries such as Greece. The results of reforms which are presented in a separate section support this notion.

Europe

The shift in the economic structure of Central and Eastern Europe to market type economies after the end of the cold war necessitated a change in pension systems across Europe. The expectation was that the development of financial markets would facilitate improved economic growth thus improving fiscal management [26]. Oran [24] aptly describes the relationship between the development of pension systems and financialization. He shows how pension funds direct the flow of funds to the capital markets and forces the further development of the market through demand for innovative products as the funds mature. An examination of Turkey's pension system highlights not just pension reform in Turkey but also the role of financialization or rather the role of pension funds in triggering financialization. Turkish authorities implemented the "World Bank Prescription" as described in [26]. They went step by step in implementing by changing the rules for pension entitlement; implemented the Individual Pension System; and made some structural changes in the management of their pension institutions. By 2008 Turkey's pension system had two pillars, the traditional PAYG pillar and the Voluntary Pillar [24]. This change in the pension system contributed to the further development of Turkey's financial markets. Oran [24] notes that the pension funds were the most significant contributor to the capital market in Turkey as reported by the Capital Markets Board in Turkey in 2014. The development of capital markets in Europe in general benefited from reforms in the other countries in Europe.

Approximately 12 of Europe's 30 countries engaged in pension fund reform. Some countries have implemented funded pillars; for example, Latvia, Bulgaria, Kazakhstan and Kosovo. Other countries have implemented the privately funded pillars to include Poland, Lithuania, Croatia, and Estonia, Slovakia, Macedonia and Romania [24], [2]. The pension systems in the south-eastern countries of Italy, Greece, Portugal and Spain were also affected by the economic crisis of the mid 2000's. As such they also implemented reforms as the public pension system struggled to keep up with payments. Jgeremaia et al. [23] suggest that any progress made in making the system financially sustainable was because benefits were not being adequately provided for. The European Commission (2012) [27] posits that the reform efforts in Europe together with the retirement of baby-boomers will significantly impact (negatively) Europe's fiscal affairs and by extension the economy. The Commission is concerned that the pressure on the public purse will necessitate additional reform efforts to mitigate against this. Jgeremaia et al. [23] see this as an issue.

Pension Systems in Small Developing States

Studies of pension systems in SIDS are principally done by international institutions such as the World Bank and the IMF [9], [21]. These studies are prompted more by the impact of social security/public pension fund expenditure on the fiscal position of these countries. The social security programmes in some Caribbean SIDS are fully contributory programmes which are designed to provide an income at retirement and are used as a way to redistribute income, as given by UNECLAC, 2005 in [8]. The programmes are very similar across countries. Williams et al. [8] in their study found that the majority of pension systems in the Caribbean SIDS are managed by governments through social security organisations and national insurance systems. Both Caribbean SIDS and Latin American SIDS have mainly PAYG systems.

Other studies on social security systems in SIDs focused on

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early reform in the OECS territories. Henry [5] notes that there was major reform in the region when the islands transitioned from national provident funds to social security systems. The other reforms according to Henry [5] are considered to be small and parametric. Over time there have been changes to the contribution ceilings and introduction of new benefits. The territories of the OECS signed reciprocal agreements as early as 1991 in the Grande Anse Declaration (OECS). The member territories of the wider body, CARICOM signed reciprocal agreements 1993 [28]. Social security systems in some Caribbean SIDS will begin experiencing cash flow deficits as early as 2025 while some will deplete their reserves as early as 2035 [4], [8], [17].

Soto et al. [29] make reference to an IMF study of the pension system in Mauritius in which they revealed that the reforms in Mauritius should assist with, in part, the increasing growth of pension expenditure [29]. The reform had both parametric in and structural elements. The pension age was gradually increased from 60 years to 65 years over a ten-year period for both private and public pensions. There was additional structural-type reform with the defined benefit pension for public sector workers only being accessed by persons who joined the service prior to 2012. Weber [30] found that Mauritius would be able to withstand economic shocks and not compromise the pension system. He however notes that the non-contributory pension may not be sustainable. Weber [30] concluded that future reforms should be structural. Soto et al. [29] and Weber [30] conclude that reform is necessary. However, where Berenice suggests that the reforms should be structural, Soto et al. [29] point to parametric reform to include increases in the retirement age; income protection measures for those persons who cannot continue to work; disability pensions for older persons along with social assistance programmes.

Galasso and Profeta [19] place the burden of finding a solution or rather sustaining social security on political sustainability. They identify two key aspects to the ageing process, an economic effect and a political effect. The economic side really refers to the dependency ratio. The intriguing part of this is that Galasso and Profeta [19] believe that aging has a political impact. They posit that an older electorate increases the relevance of pension spending on the agenda of the policy makers. This leads to a more generous system. Their research showed that the political effect dominates even when labour market considerations are included even though they are smaller. Galasso and Profeta [19] feel that it is up to governments to address the problem. The World Bank with its prescriptions and the IMF also support this notion as in both the World Bank's 2009 paper on pensions and the IMF [9] acknowledge that spending on pension is one of highest areas of spending for government. Hence, the implications for both fiscal and overall economic stability are serious and very concerning. The following statement highlights the seriousness with which the IMF views public pension spending.

> "Countries need to take a broad, long-term perspective when evaluating the possible macro-criticality of public pension spending and determining the appropriate policy responses. Pension systems aggregate, over a multi-decade horizon, individuals' career decisions and earning and saving histories. Reforms therefore need to recognize that those later in their careers have little time to adjust to new pension system parameters, for example, by adjusting labor supply or savings decisions. This puts a premium on gradual and transparent reforms and, where possible, avoiding large spending adjustment over the short term" [9, p.4].

This holds true for the countries of the Eastern Caribbean where everything impacts the economy and the fiscal affairs of the Government. This too is due to the openness of the economies and the dependence on a very narrow range of industries to drive economic growth.

Padisson [31] highlights a number of challenges that face social security in the Caribbean SIDS. On the other hand, Williams et al. [8] view the systems as well structured with good general designs. They however also highlight some issues with the systems but specifically in relation to social protection and their role in supporting social protection. Padisson's [31] identified challenges include the method for calculating benefits, limited eligibility requirements, and the need to adjust wage ceilings each time there is a related problem. Both Williams et al. [8] and Padisson [31] emphasize that there are issues in the labour market that need to be addressed such as high unemployment in some territories, and attendant issues of high labour mobility.

Results of Reform Over Time

The information gathered in the literature as detailed in the foregoing sections suggests that the approach to pension reform has changed as countries have adjusted their objectives based on advice from the World Bank and the IMF and also on the experiences they have had with the reforms in the 1990's and early 2000's. Holzman [26] identifies the following: protection for the poor and elderly; reform experience that necessitates a change in strategy and the changes in the pension environment - effectively the realities of the times. The pressures of the economic realities in particular have resulted in an about turn in pension reform in some countries. Countries in Latin American and Europe have relooked their objectives given that not all expected outcomes have been achieved [32], [26].

The financial crisis, the European debt crisis of 2008 through 2009 and most recently, the COVID-19 pandemic are a few of the realities that have allowed countries to stop and take a look at pension policy and the reforms of the 1990's and the early 2000's. The declines in GDP across the world resulted in a decline in pension fund assets severely affected pension schemes to include the largest scheme, social security. The transition economies in Central and Eastern Europe suffered, Hinz et al. [33] and so did those in the Caribbean region as noted in Section I of this paper. Holzman [26] highlights the need to redouble efforts to deal with the other critical issue that faces the world, population ageing. Some countries including Argentina, Hungary and Slovakia have removed the funded pillar and moved funds to pay down debt while some implemented temporary and or permanent reductions in the contribution rates for the funded pillar [26].

Other post early reform action has seen countries implementing additional reforms including adjustments to the eligibility ages, various benefit eligibility criteria and other criteria in public pension [34], [35]. Coile et al. [35] note that the reforms over time have provided stronger incentives for working longer. Countries have come to recognise that the solutions to the issues arising out of ageing populations are: to increase contribution percentages, reduce benefits or increase the retirement age and it does not matter whether the system is funded or unfunded. In other words, the solutions work together, not in isolation along with other incentives for remaining in the labour force [27]. Chile's reforms of the early 1990's has resulted in low replacement rates relative to OECD peers, because over time it did not adjust the parameters in response to the changes in its demographics and global returns. In addition, Chile's labour market has retained its high level of informal employment [36]. It is expected that replacement rates will decline and fiscal costs will increase significantly as the effects of the COVID-19 pandemic continue to be felt [36].

Other reforms that came under review were the pre-funded old age income provisions as one of the casualties of the financial crisis and recession. The decline in asset prices, the instability in return and the then possibility of lower real adjusted return were concerns for pension funds in Europe [26]. The European Commission [27] notes that in addition to the above, the reforms will result in lower replacement rates in the future [as seen in Chile]. The European Commission [27] also opined that labour force participation is currently still too low in persons below the retirement age.

III. Methodology

The research draws on secondary sources. The financial reports and contribution statistics of the Social Security systems in Antigua and Barbuda, St. Kitts and Nevis and St. Lucia for the period 2014 to 2018 are used to obtain information on the financial aspects of the schemes. This identified period is used because it is the period for which information is available for the three schemes and therefore will allow for better comparison. Additionally, the period is recent enough to be still relevant for assessing the potential viability of the schemes into the next 10 to 20 years. The applicable information would be available in the actuarial reports completed during the 2014-2018 period. Another consideration in selecting the period is that the economic growth during that period was relatively consistent. Financial information that is available for individual schemes beyond the identified period is also utilised in the analysis. The reform action taken from inception will be investigated and presented. The research examines actuarial reports of the three entities along with legislation and regulations governing the management of the schemes.

IV. Findings, Discussions, and Recommendations

Findings

Table II shows that there has been reform in two of the three schemes studied. Antigua and Barbuda and St. Lucia increased the age of retirement. St. Lucia raised the age to 65 in 2014 while in Antigua and Barbuda the retirement age was moved in stages from age 60 and will not get to 65 until 2025. The change in the retirement age in Antigua and Barbuda was due to recommendations in the Morneau Shepell 10th and 11th Actuarial Report [37].

TABLE II
REFORMS [16], [38], [39]

Reform Categories	Antigua and Barbuda	St. Kitts and Nevis	St. Lucia
Change in Retirement Age	2017-2018 - 60/61 2019-2020 - 62 2021-2022- 63 2023-2024 - 64 2025 onwards - 65	No Change	2014 - 65
Change in Contribution Rates	Progressive - 2017 to 2025 - ½% increase annually	No Change	
Other Reforms	None	January2020: Payment amounts of pensions increased; between 1% and 5%	

Table III shows that the three schemes offer similar benefits categorised into short-term and long-term benefits. The benefits offered by the three schemes are consistent with the benefits offered by most schemes in the Eastern Caribbean.

TABLE III
BENEFITS [14]-[16]

Benefit Category	Antigua and Barbuda	St. Lucia	St. Kitts and Nevis
Short Term	Sickness Maternity Funeral Grant	Sickness Maternity Employment Injury	Sickness Maternity Employment Injury Funeral Grant
Long Term	Age Invalidity Survivors Old-age Assistance	Age Invalidity Survivors Old-age Assistance	Age Invalidity Survivors Non-Contributory Pensions

TABLE IV
ANTIGUA AND BARBUDA INSURED AND PENSIONER DATA AS AT 2017 [15]

	Insured/Pensioners	Pensioners/Insured
Cases	3.96	25%
Annual Insurable Earnings/Pension expenses	10.38	10%
Insurable Earnings Average/Pension	2.62	38%
Average Contribution rate 14%		

TABLE V
ST. KITTS (ST. CHRISTOPHER) AND NEVIS- INSURED AND PENSIONER DATA AS AT 2020 [17]

Cases	
No. of Contributors per Pensioner	3.9
Average Pension/ % of Average Wage	36.8%
Avg Contribution rate	11%

TABLE VI
ST. LUCIA 11TH ACTUARIAL REVIEW SUMMARY - DATA AS AT 2014 [40]

Contribution rate	8.3%
Long term reserve	Projected to be exhausted by 2050
Reserve Ratio - long term branch	22.7
Contribution rate	8.3%

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TABLE VII
SUMMARY OF CHANGES IN LEGISLATION AND REGULATIONS

Year	Antigua and Barbuda	St.Kitts & Nevis	St. Lucia
2014	None	None	Retirement age increased
2017	1.Retirement age increased 2.Gradual contribution rates increase: ▪ Public sector from 9% to 15% of insurable earnings ▪ Private sector from 10% to 16% of insurable earnings - Gradual increase in age (from 60 to 65 years) and contribution weeks (from 500 to 750) for age pensions.	None	None
2020	None	None	Economic Relief Programme implemented for insureds who lost their jobs as a result of COVID-19 pandemic

The insured to pensioners in Antigua and Barbuda and St. Kitts (St. Christopher) and Nevis is approximately four persons. The contribution rates for all three schemes vary and with St. Lucia having the lowest contribution rate. This is reflective of the overall scheme data for the St. Lucia NIC. It is also a not as mature as the schemes in Antigua and Barbuda and St. Kitts (St. Christopher) and Nevis.

The changes in legislation and regulations as shown in Table VII indicate that the Antigua and Barbuda and St. Lucia have successfully embarked on reform measures in the last eight years with Antigua and Barbuda not only changing the retirement age but also increasing its contribution percentages with the increases being gradual.

Financial Reports

The three social security systems studied were Antigua and Barbuda, St. Kitts (St. Christopher) and Nevis and St. Lucia. Table VIII shows the total contributions received and benefits paid by each scheme over the five-year period 2014 to 2018. See additional details in Appendix.

TABLE VIII
CONTRIBUTIONS AND EXPENDITURE - AMOUNTS IN EASTERN CARIBBEAN DOLLARS - US$1 = EC$2.70 (XCD2.70)

Country	2014	2015	2016	2017	2018
Antigua and Barbuda - Contributions	$112,252,563	$119,078,848	$124,133,876	$144,622,078	$144,540,000
Benefits Paid	$105,434,174	$114,125,094	$121,661,342	$132,048,289	$141,010,000
Benefits/Contribution%	93.9%	95.8%	98.0%	91.31%	97.56%
St. Lucia - Contributions	$104,336,132	$111,280.951	$112,431,487	$114,548,961	$120,110,230
Benefits Paid	$72,270,354	$77,521,333	$84,810,092	$92,954,811	$98,865,531
Benefit/contribution%	69.2%	69.7%	75.4%	81.2%	82.3%
St. Kitts and Nevis - Contributions	$82,494,154	$90,643,594	Not available	$94,746,932	$95,689,018
Benefits Paid	$59,575,652	$57,739,437	Not available	$83,680,326	$91,924,583
Benefits/contribution%	72.2%	63.7%	Not available	88.32%	96.07%

Extracted from Financial Statements and Actuarial Reports - See Appendix.

1. Financial data for 2016 for St. Kitts and Nevis were not available. Financial data for 2018 and 2019 were unavailable for the Antigua and Barbuda Social Security Board as the Financial Statements were not presented to Parliament at the time of conducting this study. In Antigua and Barbuda there was a steady increase in contributions receivable increasing by more than 77% over the period 2014-2017 and 17.6% between 2016 and 2017. There is also a significant amount of contributions receivable from Government and Statutory bodies. This could threaten the viability of the scheme as the dependency ratio increases, receivables are not collected resulting in a depletion of reserves. Contributions receivable are also a reality in St. Kitts and Nevis which showed an 81% increase in contributions receivable from 2017-2018. Over the period 2014 and 2017 there was a decrease in contributions receivable. St. Lucia does not present this line in its financials. However, the financial statements suggest that if there are contribution receivables they are minimal.
2. Contribution income exceeds benefits paid over the review period. However, it is noted that in Antigua and Barbuda's case the difference in contribution income and benefits paid is significantly less than that of the other schemes. In Antigua and Barbuda benefits paid exceeded contributions starting in 2011. This was reversed with the increase in contribution percentages instituted in 2017 onwards. Generally, contributions have exceeded benefits over the study period.

Fund Projections

Antigua and Barbuda [14]

1. Benefit expenditure was projected to exceed income in 2016 and 2017. The projected deficit according to the actuarial report was XCD3.7 million in 2016 and XCD10.4 million in 2017.
2. Based on projections following the increase in contribution percentages in 2018 to 2022 contribution income would be sufficient to cover benefits payable.
3. The fund will be depleted by 2040 (after the amendment in the regulations)

St. Kitts (St. Christopher) and Nevis

LifeWorks (2021) [17] made the following projections based on specific assumptions:

1. "1. Total expenditure will exceed contribution income in all years.
2. Total expenditure will first exceed total income between 2022 and 2027.
3. The Fund will be depleted between 2038 and 2043.
4. The PAYG rate in 2040, around the time the Fund is

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projected to be depleted, will be between 27% and 30%.

5. The average long-term cost of benefits over the next 60 years, often referred to as the general average premium, is between 27% and 37%."

St. Lucia

The actuarial report for St. Lucia National Insurance Fund was not available. A summary of the key findings is presented in NIC's 2020 Annual Report [40], The total long-term expenditure is projected to exceed contribution income by 2050. Detailed information from the actuarial report was not provided in the annual report. The St. Lucia fund has a significant amount of cash compared to the other two funds and is reportedly a young fund. However, the data show a decline in cash in 2020 compared to 2019 of 37%. This reflects the additional amounts paid out in support of contributing employees who lost their jobs during COVID-19.

Effects of COVID-19

Provisional estimates from the Antigua and Barbuda Social Security Board (ABSSB) suggested a deterioration in labour market conditions in the first half of 2020 [41]. Preliminary data revealed that the average number of registered contributors fell by 12.4% in the first half of 2020 relative to the first half of the previous year, driven by declines in employment in key service-related sectors [41]. In St. Kitts and Nevis contributions fell by 11% in 2020 due to an increase in the unemployment rate. Based on information available from the NIC of St. Lucia's 2020 financial statements, contributions declined by XCD$6,298,856.00 or 5% in 2020 from the previous year. This resulted from a reported increase in unemployment. The NIC in St. Lucia and the Social Security Board in St. Kitts provided unemployment benefits to insured and uninsured persons who lost their jobs in the pandemic. In St. Lucia insured persons received 50% of their insurable earnings subject to a minimum of XCD500.00 and a maximum of XCD1500.00 for an initial period of three months. The benefit was subsequently extended in St. Lucia for a further three months.

V. Discussion of Findings

The Social Security systems in the three territories are facing some of the same issues as the countries that embarked on reforms in the 1980's and 1990's faced at the time. The issue of running out of money is a very real eventuality. St. Kitts (St. Christopher) and Nevis and Antigua and Barbuda face the possibility of the schemes going broke by 2040. St. Kitts (St. Christopher) and Nevis according to the forecasts of the actuary will run out of funds between 2038 and 2040 if it does not make the recommended adjustments [17]. Antigua and Barbuda is in a similar situation in terms of the sufficiency period. The actuarial studies show that reserves will be depleted in 2040 even after the adjustments to the retirement age, the contribution percentages and the number of insurable weeks [4]. The actuarial studies did not take into consideration the fall-out from the COVID-19 pandemic which saw significant declines in employment rates, contribution amounts and the deep decline in economic growth in 2020. Schemes would have had to dig into their fund reserves. The impact of economic declines on social security systems is well documented. The IMF's Working Paper on assessment of Chile's system [36] shows that there were withdrawals from the pension system and a pension supplement to pensions to support them in the Covid19 pandemic. These withdrawals according to the IMF will negatively impact Chile's fiscal because of the cost associated with the amounts taken from the solidarity pillar. They are predicting a cost to Chile of between 3 to 6% of GDP in 2020. This magnitude of cost if it is to be incurred by the smaller islands of Antigua and Barbuda and St. Kitts and Nevis would push GDP down even further from the 19% decline experienced in the ECCU in 2020. If the costs were to be applied to the 2021 GDP it would erode what little gains the countries had.

The IMF [36] suggested that Chile needs to embark on continued parametric reforms of increasing contribution rates and retirement age to achieve improved replacement rates. It implies that there will be the need to continually review parameters based on demographic trends over time in countries such as Antigua and Barbuda and St. Kitts and Nevis. Given the nature of Caribbean economies, similar decisions may need to be taken. The labour market in Antigua and Barbuda in particular is skewed to the public sector [4]. The caution by Alonso et al. [25] that Latin America should learn from the experience of the European countries and monitor their fiscal positions is applicable to not only the governments and social security schemes in the Caribbean but also other SIDS. The fall-out from the COVID-19 pandemic will exacerbate the problems that the islands face. The IMF in its 2022 Article IV report on Antigua and Barbuda emphasized the need for fiscal consolidation as the recovery continues [42].

The lack of data for specific periods for Antigua and Barbuda and St. Kitts and Nevis is concerning. It implies that there is a lag in the preparation of audited financial statements. This has implications for transparency and the ability of the schemes to make timely decisions which can impact schemes positively because of the nature of social security management. Availability of timely financial data is critical for effective decision making. Actuarial reports are prepared regularly for the schemes. However, based on the information presented in the 13th Actuarial report for St. Christopher (St. Kitts) and Nevis Social Security Fund and the 11th, 12th and 13th Actuarial reports for the Antigua and Barbuda Social Security fund, not all recommendations are accepted and or recommendations are implemented with lags. This affects the long-term performance of the schemes [17], [4], [37].

VI. Recommendations

The 2040 timeline for the schemes in Antigua and Barbuda and St. Kitts (St. Christopher) and Nevis to have exhausted their reserves requires immediate attention. Antigua and Barbuda through its incremental increase in contribution percentages and increase in the retirement age is on its way to slowly extending the timeline. However, if collected, the large amount of outstanding receivables could provide a significant boost to the reserves in Antigua and Barbuda. Given the fragile fiscal

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position of the Government of Antigua and Barbuda, as a result of the COVID-19 pandemic and its vulnerability to disasters, the matter of the social security board collecting on its receivables from the Government in particular is challenging. As noted by [4], there will be the need for subsequent increases in the contribution percentages. Antigua and Barbuda may wish to consider a private pillar for new entrants into the system at a specific salary level. The government should also consider a defined contribution system for new entrants to the public sector to balance out financial requirements to support the social security board and to allow it to pay public sector pensions.

The St. Kitts (Christopher) and Nevis depletion date can be pushed further out with a gradual increase in the retirement age and increases in the contribution percentages. However, the St. Kitts (St. Christopher) and Nevis scheme will need to look at further reform initiatives. St. Lucia's scheme has some time to implement reform initiatives with its fund's projected depletion date around 2050. Increases in contribution percentages in a few years could push that date out further.

Due to the small size of the territories with their special economic circumstances, small populations, underdeveloped financial markets and vulnerability to disasters and climate change which impact their economic growth and fiscal positions, the schemes will not be able to take advantage of all of the reform initiatives that the developed world has embarked on. Any reform that is embarked on should be gradual so as not to shock the system. A voluntary private funded pillar can be introduced for new entrants to the system after the relevant actuarial studies are conducted.

APPENDIX

TABLE IX
FINANCIAL DATA OF ANTIGUA AND BARBUDA SOCIAL SECURITY BOARD [37]

	2014	2015	2016	2017	2018
Current Assets					
Cash In hand and at bank	825,638.00	2,229,718.00	2,460,541.00	942,554.00	Data unavailable
Contributions receivable	19,578,205.00	22,815,503.00	29,412,226.00	34,611,179.00	
Accounts Receivable	3,129,391.00	6,307,790.00	7,612,335.00	18,647,149.00	
Interest Receivable	241,538.00	20,507.00	83,909.00	87,451.00	
Loans Receivable - Current portion	13,357,671.00	12,610,913.00	12,234,295.00	11,781,910.00	
Inventories	196,470.00	136,695.00	104,682.00	110,944.00	
Short-term Investments	6,451,021.00	174,067.00	174,386.00	2,066,926.00	
Prepayments	70,796.00	68,489.00	68,332.00	112,087.00	
Total Current Assets	43,850,730.00	44,363,682.00	52,150,706.00	68,360,200.00	
Non-Current Assets					
Mortgage receivables	681,884.00	620,791.00	549,090.00	473,709.00	
Government and stat body receivables	254,581,201.00	248,550,393.00	256,810,051.00	244,138,993.00	
Loans Receivable	6,860,218.00	6,886,425.00	6,978,434.00	7,228,851.00	
Long-term Investments	351,092,400.00	355,747,650.00	348,319,333.00	359,498,833.00	
Property and equipment	16,976,305.00	16,886,700.00	6,698,106.00	6,723,561.00	
Total Non-Current Assets	630,192,008.00	628,691,959.00	619,355,014.00	618,063,947.00	
Total Assets	674,042,738.00	673,055,641.00	671,505,720.00	686,424,147.00	
Liabilities and Fund Balance					
Current Liabilities					
Bank Overdraft	915,178.00	609,518.00	1,746,955.00	5,464,539.00	
Accounts payable and accruals	2,413,028.00	2,996,032.00	9,965,125.00	9,460,334.00	
Borrowings			3,500,000.00	3,500,000.00	
Total Current Liabilities	3,328,206.00	3,605,550.00	15,212,080.00	18,424,873.00	
Fund Balance					
Short-term benefit Fund	261,543,213.00	281,325,102.00	304,964,764.00	332,515,077.00	
Long-term benefit fund	383,578,691.00	362,532,361.00	343,002,534.00	327,157,855.00	
Total Benefit Fund	645,121,904.00	643,857,463.00	647,967,298.00	659,672,932.00	
Revaluation reserve	25,592,628.00	25,592,628.00	8,326,342.00	8,326,342.00	
Total Fund Balance	**670,714,532.00**	**669,450,091.00**	**656,293,640.00**	**667,999,274.00**	
Total Liabilities and Fund Balance	674,042,738.00	673,055,641.00	671,505,720.00	686,424,147.00	
Contributions	112,252,563.00	119,078,848.00	124,133,876.00	144,622,078.00	
Benefits	105,434,174.00	114,125,094.00	121,661,342.00	132,048,289.00	
Contributions less benefits	6,818,389.00	4,953,754.00	2,472,534.00	12,573,789.00	
Benefits as a % of contributions	93.93	95.84	98.01	91.31	

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TABLE X
ST. KITTS (ST. CHRISTOPHER) AND NEVIS SOCIAL SECURITY BOARD FINANCIAL DATA [15]

	2014	2015	2017	2018
Current Assets				
Cash at Bank and in hand	13,652,064.00	15,008,466.00	23,644,044.00	15,851,582.00
Accrued Interest Receivable	29,805,014.00	27,914,636.00	21,426,855.00	24,352,368.00
Accounts Receivable and Prepayments	30,657,130.00	30,595,408.00	28,597,286.00	51,906,205.00
Total Current Assets	**74,114,208.00**	**73,518,510.00**	**73,668,185.00**	**92,110,155.00**
Non-Current Assets				
Property, Plant and Equipment	48,461,572.00	38,074,634.00	15,928,599.00	15,031,525.00
Intangible Assets	241,294.00	305,826.00	270,662.00	168,021.00
Investment Properties			137,323,304.00	163,149,983.00
Other Investments	1,294,882,746.00	1,244,479,689.00	1,302,863,898.00	1,374,305,164.00
Non-Current Receivable and Prepayments	6,149,761.00			
Total Non-Current Assets	**1,349,735,373.00**	**1,282,860,149.00**	**1,456,386,463.00**	**1,552,654,693.00**
Current Liabilities				
Accounts Payable	32,132.00	41,204.00	864,359.00	1,121,391.00
Sundry Creditors and Accruals	7,874,396.00	7,659,926.00	6,757,503.00	6,102,398.00
National Provident Fund Treasury Balance	32,197.00	32,197.00		
Social Security Fund				
Long Term Benefits Fund	1,003,980,324.00	1,029,166,798.00	1,088,901,284.00	1,179,099,646.00
Short Term Benefits Fund	116,776,733.00	120,076,799.00	131,054,908.00	153,592,578.00
Employment Injury Benefits Fund	189,615,757.00	202,980,969.00	231,856,016.00	251,243,025.00
National Provident Fund				
Members' Account	3,549,558.00	3,514,256.00	3,647,942.00	3,692,936.00
Reserve Fund	24,742,910.00	22,167,273.00	26,472,729.00	27,207,268.00
Revaluation Reserve	13,853,938.00	13,655,770.00	30,061,652.00	12,335,039.00
Reserve Funds				
Staff Supplemental Benefits Reserve Fund	10,621,780.00	9,853,323.00	10,429,255.00	10,370,567.00
Contributions	82,494,154.00	90,643,594.00	94,746,932.00	95,689,018.00
Benefits paid	59,575,652.00	57,739,437.00	83,680,326.00	91,924,583.00
Difference	**22,918,502.00**	**32,904,157.00**	**11,066,606.00**	**3,764,435.00**
Benefits as % of Contributions	**72.22**	**63.70**	**88.32**	**96.07**

TABLE XI
ST. LUCIA FINANCIAL DATA FROM NATIONAL INSURANCE CORPORATION [39]

	2014	2015	2016	2017	2018
Assets					
Cash and cash equivalents	88,331,391.00	151,539,903.00	140,660,664.00	175,522,996.00	201,190,572.00
Financial assets	1,452,230,968.00	1,437,396,790.00	1,568,648,182.00	1,612,667,089.00	1,650,565,682.00
Investment in associate					82,085,945.00
Investment properties	317,927,403.00	325,342,821.00	334,315,141.00	321,701,008.00	192,803,350.00
Property, plant and equipment	4,501,903.00	4,372,078.00	4,267,761.00	5,283,857.00	5,414,935.00
Projects in progress	190,049.00	1,092,170.00	4,749,869.00	7,059,832.00	7,108,947.00
Inventory	22,868.00	23,642.00	29,218.00	38,852.00	40,876.00
Income tax recoverable	25,560.00	84,548.00	114,489.00	114,489.00	114,489.00
Deferred tax asset			5,982.00	39,164.00	112,319.00
Total Assets	**1,863,230,142.00**	**1,919,851,952.00**	**2,052,791,306.00**	**2,122,427,287.00**	**2,139,437,115.00**
Liabilities					
Trade and other accounts payable	14,404,659.00	13,417,282.00	17,216,048.00	11,171,333.00	13,263,172.00
Borrowings					
Income tax liability				710.00	710.00
Deferred tax liability	8,412.00	11,639.00	0.00		
	14,413,071.00	**13,428,921.00**	**17,216,048.00**	**11,172,043.00**	**13,263,882.00**
Reserves					
Short-term benefits	66,856,630.00	69,454,190.00	74,211,626.00	76,488,064.00	77,086,928.00
Long-term benefits	1,714,615,013.00	1,765,480,707.00	1,887,251,710.00	1,953,312,631.00	1,996,701,168.00
Reserves	1,486,580.00	1,550,112.00	1,620,559.00	1,655,633.00	1,655,633.00
Retained earnings	63,511,065.00	67,463,174.00	69,875,619.00	77,140,225.00	48,655,734.00
Total Reserves	**1,846,469,288.00**	**1,903,948,183.00**	**2,032,959,514.00**	**2,108,596,553.00**	**2,124,099,463.00**
Minority interest in reserves	2,347,783.00	2,474,848.00	2,615,744.00	2,658,291.00	2,073,770.00
Reserves plus Minority Interest	**1,848,817,071.00**	**1,906,423,031.00**	**2,035,575,258.00**	**2,111,254,844.00**	**2,126,173,233.00**
Total Liabilities and Reserves	**1,863,230,142.00**	**1,919,851,952.00**	**2,052,791,306.00**	**2,122,426,887.00**	**2,139,437,115.00**
Contributions	104,336,132.00	111,280,951.00	112,431,487.00	114,548,961.00	120,110,230.00
Benefits paid	72,270,354.00	77,521,333.00	84,810,092.00	92,954,811.00	98,865,531.00
Contributions less Benefits Paid	**32,065,778.00**	**33,759,618.00**	**27,621,395.00**	**21,594,150.00**	**21,244,699.00**
Benefits as a % of Contributions	69.27	69.66	75.43	81.15	82.31

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