Master's Thesis of Public Administration

Analysis of the Sustainability of Public Service Pension Scheme (PSPS) of Sri Lanka:

A Case Study of Non-Contributory Pension Program in Socialistic Democratic Republic of Sri Lanka

스리랑카 공무원 연금제도의 지속가능성에 대한 분석:

스리랑카 민주 사회주의 공화국의 기초연금제도 사례분석

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Abstract

Analysis of the Sustainability of Public Service Pension Scheme (PSPS) in Sri Lanka:

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As an agent of the society, governments are introducing varied social security schemes to protect the lives of their citizens all over the world. Pension scheme is one of the social security schemes used by governments to protect the living conditions of their senior citizens during retirement. In essence, Civil Service Pension Schemes (CSPS) are one of the systems introduced by governments to protect their former employees from the economic and social vulnerabilities and to ensure the peaceful living of their rest of the life during retirement. These schemes are often costlier than the other schemes which cover the beneficiaries who worked in both private and public sectors. According to scholars, most of the civil service pension schemes are introduced to avoid the employee turnover as well as to transfer employee benefits to the future, since governments do not have sufficient

financial allocations to compete with the private sector when the economies are in developing stage.

In Sri Lanka, there are two major pension schemes at present, namely Public Service Pension Scheme (PSPS) and Employee's Provident Fund (EPF). This research paper has analyzed the sustainability of the PSPS which is a Pay-As-You-Go (PAYG) pension scheme fully financed by the consolidated fund of the government through the annual budget. Pension Economists argue that PAYG schemes are cost benefited only at the beginning of the scheme and when the system matures, it is always expensive to the funding sources. Accordingly, this research mainly focused on analyzing the financial sustainability of the PSPS in Sri Lanka and identified the best policy options to strengthen the system.

A simulation approach is used to analyze the financial sustainability of the system. The sustainability of the system measured for the next 18 years from 2018 to 2036. Projected future pension expenditure compared with the various macro-economic and demographic factors to measure the sustainability. In conducting the comparison, various ratios were calculated and compared with the average of the ratios of non-OECD countries. According to the results, it was observed that pension expenditure to GDP ratio will be decreasing throughout the next two decades from 1.33percent to 1.18percent. This is the only factor that showed the favorable results against the future pension expenditure compared to the Non-OECD average. Other factors such as pension dependency ratio, pension expenditure to government Income/Expenditure ratios, pension coverage among the elderly population resulted negatively compared to the Non-OECD averages. Furthermore, it was observed that government income and or revenue is not sufficient enough to finance the government recurrent expenditure including pension payments and also the gap between Income and Expenditure will increase

in future. Over all findings of the research showed that PSPS of Sri Lanka is not sustainable in future and needs to be reformed.

Keywords: Civil Service, Pension, Pay-As-You-Go system, Sustainability, Reform

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Acronyms

COLA	-	Cost of Living Allowance
CSP	-	Civil Service Pension
DB	-	Defined Benefits
DC	-	Defined Contribution
Emp.	-	Employees
EPF	-	Employee Provident Fund
ETF	-	Employee Trust Fund
FDI	-	Foreign Direct Investment
GDP	-	Gross Domestic Production
LKR	-	Sri Lankan Rupees
Mn.	-	Million
OECD	-	Organization for Economic Co-operation and Development
PAYG	-	Pay-As-You-Go
PSPF	-	Public Service Provident Fund
PSPS	-	Public Service Pension Scheme
UK	-	United Kingdom
UN	-	United Nations
USA	-	United States of America
W&OP	-	Women and Orphans Pension

Chapter 1: Introduction

1.1 Background of the Study

Sri Lankan Public service implement its non-contributory pension scheme for the all confirmed civil servants since year 1901. The monthly pension bill is financed by the General Treasury itself and these funds come from the general taxation. However, Minister of Finance of the country proposed to reform this pension scheme by his speech in the Parliament when he was presenting the budget proposal for 2017. He argued that a lot of countries which had these kinds of non-contributory pension schemes are being reformed and they are implementing the contributory pension schemes which maintain a separate pension fund for the future payment of the beneficiaries. In the meantime, Minister of Finance emphasized that due to demographic changes of the country, public service pension scheme is no longer be sustained in future. After his speech there were lots of protests against his speech, especially by the unions of professionals such as doctors, Engineers, lawyers etc., because most of the professionals joined to the Public service expecting future pensions. Professionals argued that there is no such evidence to prove it. However, a proper analysis about the future sustainability of the PSPS is not found in the current context. On the other hand, the government can abolish the civil servants' pension scheme without any notice, since this scheme has not maintained a pension fund. Therefore, no obligation is there for the government to pay pension for the new recruitments. But it will lead to serious issues such as lack of attraction of young talented career bureaucrats in to the civil service who are much needed to deliver the public service in an efficient and effective manner with innovative ideas.

Therefore, this research is aiming to analyze the sustainability of the Public Service Pension Scheme (PSPS) of Sri Lanka and it tries to find out the possible alternatives to continue the pension program for future pensioners.

Traditionally, Sri Lankan older population depends on the familial support in the latter part of their life at present. This is no longer be viable, due to reduction of the family size and the migration of new generation to other countries. On the other hand, due to low fertility rate and the population ageing, there will be smaller groups of youth who are economically active to support for the older generations inside the country.

In 2012, Sri Lankan population was 20.4 million and it is expected to increase to about 24 million by 2046 and thereafter it will start to decline. (United Nations, 2015) According to the latest projections done by the UN, in the developing countries share of the elderly (60+) population will increase from 5.5percent (2005) to 14.7percent (2050). Simultaneously, Population of Sri Lanka is ageing rapidly and age 60 and above population is estimated to increase from 9.5percent (2001) to 19.7percent (2036) compared to the total population. If those older citizens are no longer able to access a sufficient income, then they will fall in to poverty. Accordingly, dependency ratio[1] among Sri Lankan citizens are expected to be raised. At present, there are 40 children and 20 elders per every 100 prime-age adults and it is expected to be increased by 2060 to 50 elders and 30 children per every 100 Prime-age adults.

[1] Dependency ratio is defined as number of dependents to every 100 people in the working age group (De Silva, 2012) accordingly both children (People under age of 15) and elders (People above age of 60) are considered as dependents. People who are age Between 15 to 59 are considered as prime –age adults.

Large number of elder populations in Sri Lanka will expose to an economic vulnerability due to lack of retirement income at the latter part of their life, if there is no assurance of the retirement benefits. Therefore, to overcome this impending situation, Sri Lanka has introduced several pension schemes that are also popular tools used in the today's world. There are four schemes in the public sector; two schemes in private sector and ten schemes in the informal sector that can be identified at the end of the 2016 as active pension schemes in the country. However, maintaining the sustainability of these schemes are another challenge faced by the implementers due to changing environment. Financial sustainability is a core principle of the social security schemes including the pension schemes (Billig & Menard, 2013) (Grech, 2013). According to the available literature this study defines financial sustainability as government annual income becomes equal or exceeds the government annual recurrent expenditure.

One of the researchers mentioned that most of the governments are not in a position to fulfill the retirement promises of their employees (Mahler & Chingos, 2014). Therefore, they suggested to distribute the burden among the taxpayers, public sector workers and retirees as well as the future generations to solve these fiscal difficulties regarding the payment of the civil service pension. It is also mentioned that defined-benefit pension systems are unable to ensure the fiscal sustainability though it provides an adequate retirement security (Mahler & Chingos, 2014).

In 1996, Sri Lankan government abolished the pension for the new recruiters of the three mega government banks due to unavailability of sufficient future finance. It was a non-contributory scheme and was fully funded by the banks themselves. After analyzing the fiscal sustainability of the future payments, government realized that there were no sufficient funds to pay the future

pensioners of the banks and decided to abolish the pension for the recruitments after 1996 and that decision still remains unchanged.

In late 1990s South Korean government had the same experience and reformed their public service pension scheme due to unmanageable pension finance due to following reasons (Kwon & Kim, 2011).

1) Sudden increase of number of pensioners due to demographic changes as well as increase the number of entitled employees since the fulfillment of the minimum service period required
2) Due to impressive economic development, life expectancy went up and the payment period of the pension was expanded
3) Pension-dependency ratio[2] was increased

Changes in public service and the growth trajectory are two important factors for the implementing of non-contributory pension scheme in the public service. Life expectancy and the lower birth rates will adversely affect the future pension payments of the public servants (David, 2011). To overcome this issue (Escriva, 2010), it is suggested that the retirement age should be increased in accordance with the life expectancy, to provide a better preparation for the future generations with a well-designed pension plan to meet the pension objectives. According to the survey done in the Chile, Mexico, Colombia and Peru, in 2050, the population at the retirement age will pass the working age population and it will increase the ratio of pension dependency as well. They released that it will affect the whole pension system including civil service as well. Therefore, those four countries have already taken measures to reform

[2] "Proportion of the pensioners to working civil servants" (Kwon, 2003)

their pension schemes from non-contributory schemes to contributory pension schemes.

Even though Sri Lanka has 16 active pension schemes in the country only 3 schemes are popular among the employees since others are implementing in the informal sector of employees. Among these three schemes, Public Sector Pension Scheme (PSPS) is the only one scheme which is a non-contributory scheme and it covers more than 10percent of the workforce of the country and it is the only one scheme that pays an adequate pension allowance to the beneficiaries to keep them out of the poverty (ESCAP, 2015).The average monthly pension for the beneficiaries of the PSPS raged from 307percent to 441percent which is well over the country's poverty line.

PSPS has covered more than 1.1 million employees in the public service which represents 7percent of the registered voters in Sri Lanka and has ability to change the ruling party at the elections. Therefore, maintaining the PSPS is a more crucial for the any of the existing governments to secure their political power in future.

Since PSPS is a non-contributory and fully funded pension scheme by the annual budget of the country, it is important to know about the future financial sustainability of the system to pre-prepare the strategies to face the upcoming challenges of the national budget.

There are limited studies done on analyzing the implementation of a universal pension system in Sri Lanka. However, no analysis can be found on the sustainability of the Public Service Pension Scheme (PSPS) in Sri Lanka. Therefore, this topic needs to be analyzed to give a better understanding about the future of the PSPS for policy makers of the country to find out a better solution for future challenges in a scientific way. This study intends to fill the

gap by analyzing the future sustainability of the PSPS and identifies critical factors that can adversely affect the sustainability of the scheme.

1.2 Purpose of the study and Research Objectives

Public Service Pension Scheme is one of the largest social security schemes currently providing the monthly allowance for the majority of the 60+ old population who are receiving the any kind of pension after their retirement. Until year 2016 it is smoothly paying to the retirees who worked in the government. However, after the speech of Minister of Finance of his budget speech for 2017 all the bureaucrats trying to find out the possibility of the future payments of the scheme. Still the sustainability of the PSPS is unknown due to lack of research regarding this topic. In this context, following are the objectives of this study;

1) To measure sustainability of public service pension scheme in Sri Lanka
2) To find out the best practices and strategies to finance the future pension payments
3) To identify the problems related to the pension payments
4) To find out what kind of reform would be required to further strengthen and sustain the PSPS

The purpose of this study is to analyze sustainability (ability of the national budget to finance the scheme) of the PSPS in Sri Lanka in future using the existing pattern of income generation. To analyze the sustainability of the pension scheme, as an independent variable, sustainability, as a dependent variable, Public Service Pension Scheme in Sri Lanka can be identified. This study also want to determine the impact of the macro-economic and

demographic factors towards the sustainability of the future payments of the pension scheme (Tax rates, Inflation, GDP growth rate, aging population, life expectancy, change of the pension age, etc.).

1.3 Scope of the study

This study is based on case study research design to find out the context of sustainability of PSPS in future Sri Lanka, using the existing fiscal situation in the country. To analyze the sustainability of the system total public sector cadre will be considered as a unit of analysis along with the total number of the existing civil service pensioners. Public service consists of 36 service categories and the pension is determined in accordance with the table introduced by the Department of Pensions which is focus on the service period of the employees. The study will focus on ability to finance the future payments of the pension for the future retirees as well as the existing retirees.

1.4 Methodology

This study uses the secondary data to analyze the research questions. Secondary data will be gathered from the various sources such as annual reports published by the various Sri Lankan Ministries, Departments and other local institutions, web sites of the local institutions as well as the foreign institutions, publications of the Department of census and statistics and the department of pensions in Sri Lanka and the budget estimates of the previous years. The objective of this study to find out the future sustainability of the current pension scheme of the public service in Sri Lanka. Therefore, first it will analyze the age of the employees in the active service and accordingly calculate the pension bill for each year for next 10 years. After that it will calculate the impact of macro-

economic factors towards the pension bill separately and the collectively. Then it will be compared with the forecasted future income and expenditure of the government using the descriptive analysis.

Chapter 2: Literature Review

2.1 Pension Schemes

2.1.1 Introduction

From the beginning of the human history, societies have tried to protect their people from the economic and social adversities. Historically, they have to take care of their families, communities, tribes, religious groups, and lords, chief or the king to meet their social security needs which has recognized as an instrument for social transformation and progress. Social security represents the need of the protection which are beyond the control of the individuals in the society such as retirement, resignation, retrenchment, death, disablement etc. As an agent of the civil society government should have the responsibility to introduce the systems to ensure the such protection. Civil Service Pension (CSP) Schemes are one of the systems that are introduced by the governments to protect their former employees from the economic and social vulnerabilities and to ensure the peaceful living of their rest of the life after the retirement of the service.

According to the (Robert & Hinz, 2005)"the primary goals of a pension system should be to provide adequate, affordable, sustainable, and robust retirement income" considered as Pension scheme. One study (Blake, 2006) defined pension as a "stream of payments that starts when someone retires and continues until they die". One Scholar (Bodie, 1990) describes pension as a life time income security after the retirement of the employee until they die. However, other scholar (Wise,1986) provide the different definition for the pension and he explain it as an incentive device in the labor contract which affects the employee turnover, work effect and the timing of the retirement. One other study (Friedberg and Webb, 2005) defined pension as a "form of compensation deferred until a worker leaves his or

her job". One of the researches stated that productivity of the public work force will increase due to the pension schemes. According to them employees who are more productive should be more compensated. However, it doesn't mean that productivity always line up with compensation in every moment and it can be paid the along the service period of the employee. The structure of compensation package can create the productivity and the retention of the job of the employees. The meaning of the compensation includes the pension allowance too (Mahler & Chingos, 2014).

Another study found out that pension can have an impact on children's wellbeing (Barrientos & Peter, 2002). The study done in South Africa and Brazil observed that there was a significant improvement of height of the children resulting of the pension payments. Girls in the household containing an older person receiving a pension are 3-4 cm taller than the girls in the other households as a result of improved nutrition. Simultaneously in the same countries access to the education of the children improved in the person living in the household where a person receiving a pension rather than the other households (Samson, 2004). Accordingly, following three can be stated how pension benefits on children (HelpAge International, 2008).

1) older people themselves share their pension with children
2) families no longer have to pay the cost of caring for older people and can channel their other income to children
3) working adults do not face the same pressures to save for old age and can spend their limited income on their children

"Pensions can also support older people and their families in increasing their productivity. In the absence of regular and predictable cash transfers, poor older people and their families live lives that are highly uncertain. They do not know whether they will be able to eat tomorrow, next week or next month. As a result,

they are unable to plan for the future or manage the risks and shocks that occur in their lives. Pensions provided by the state can put predictability into the lives of poor older people and their families by offering them a guarantee of a minimum standard of living for themselves and their families. And, there is increasing evidence that this transforms the economic behavior of poor families. They can plan for the future with a degree of certainty and are more likely to engage in productive activities" (HelpAge International, 2008).

2.1.2 Objectives of the Civil service Pension schemes

In the modern world, universal pension schemes are the most popular pension schemes among the citizens of the countries which aims to mitigate the economic vulnerability of all the senior citizens and ensure the sufficient income at the later part of their lives along with the intention eliminate the poverty of the senior citizens. However, introducing the civil service pension is somewhat different from the objective of the universal pension schemes. The rationale for providing pensions for the civil servants were the followings (Whitehouse & Palacios, 2006).

- securing the independence of public servants
- making a career in public service attractive
- shifting the cost of remunerating public servants into the future; and
- retiring older civil servants in a politically and socially acceptable way

2.1.3 Challenges of the Civil service pension schemes

In general, Civil service pension schemes are always hit by the changes of the economic factors such as inflation, fiscal stress, etc. as well as the social factors such as demographical changes, women participation in the civil service etc. However, the most important issue is the financing of the schemes through the proper channels. Most of the civil service pension schemes are defined-benefit plans with the contribution of the both parties from employer and the employees (Pay-As-You-Go). The other schemes are non-contributory and the fund allocation will be done by the annual budget of the countries. According to the study (Whitehouse & Palacios, 2006) these kinds of schemes are still existing in the former British colonies in the Caribbean, sub-Saharan Africa and South Asia.

To a certain extent, whether or not pension spending is financed through contributions, as opposed to direct budget support, is immaterial. This is particularly clear with employer contributions from the government where it would simply entail re-labeling the flows with no impact on consolidated deficits. Even in the case of an employee contribution, it can be argued that since civil service wages are not determined freely and negotiations are based on net wages, the incidence of an employee contribution would still fall on the budget. The important point to be taken from this brief look at financing arrangements is that pre-funding of retirement-income liabilities is less common for civil servants' pensions than for national programs. Combined with the greater generosity that characterizes civil-service schemes and the large share of the formal sector working in low-income countries' public sector, the burden of civil-service pensions on the budget may be significant.

According to the pension database of the of the World Bank indicates that OECD countries spend 1.2percent of GDP as annual pension payments for their

retired civil servants while Non-OECD countries spend 1.33percent on average. Sri Lanka spend 1.32percent of the GDP for the pension payments of the former civil servants in 2017. It is slightly lower than the Non-OECD countries and lower than the south Asian region as well.

However, the ratio of spending to GDP provides an incomplete picture of the fiscal burden of civil-service pension schemes. In OECD countries, tax revenues average nearly 37percent of GDP. Revenues are more limited in most developing countries (Non-OECD). Ultimately, both the wage and pension bills of the public sector are constrained by the revenues available to the government and its ability to borrow. It follows, therefore, that the opportunity cost of paying civil-service pensions is more accurately captured by the share of available public money that this expenditure consumes. A better indicator of the fiscal pressure of civil-service pension spending than its ratio to GDP is therefore its ratio to government revenues.

Accordingly, the pension payments of the OECD countries for the former civil servants are 5percent on average from the government revenue while it is 6.8percent in the Non-OECD countries which is significantly higher than the OECD countries. Sri Lanka spend almost 10percent of the government revenue as civil service pension payments. These data indicate some whistle blowing of the payment system regarding the future payments in Sri Lanka. However, this indicator does not capture the 'inter-temporal' nature of the pension promise. Nor does it reflect the demographic challenges that will be faced by pension systems in the future too.

2.1.4 Importance of Pension Schemes

One study (Barr & Diamond, 2006) argue that "from an individual viewpoint, income security in old age requires two types of instruments. Pension is an income security in the old age of the employee from the individual point of view. This requires two types of instruments.

1) Mechanism to consumption smoothing
2) Means of Insurance

Furthermore, they observe that "a second reason for government involvement is that public policy generally has objectives additional to improving consumption smoothing and insurance, notably poverty relief and redistribution".

Consumption smoothing means that process enables an employee to transfer him or her productive middle years to retired years, allowing to choose preferred time path of consumption over working and retired life. Accordingly, consumption smoothing is the central purpose of the retirement pension.

Insurance is the essence of annuities, whereby an employee exchanges his or her pension accumulation at retirement for regular payments for the rest of the life. This is allowing to employees to insure against the risk of outliving their personal savings. Pension system can also protect the spouse and young children when an employee die or disabled before retirement.

2.1.5 Types of Pension schemes

The World bank (WorldBank, 1994)has identified the three pillars of pension systems namely, publicly managed unfunded DB schemes, privately managed funded DC schemes and voluntary retirement savings designed schemes. In this

study will only be focused on the first pillar of pension schemes narrow down to the Civil Service Pension Schemes. Accordingly, there are many different ways that can be seen where the pension is arranged in the public sector in the many different countries. Those can be arranged in to two main groups. Accordingly,

1) The way pension is organized
2) The relation between contributions and the benefits

Can be grouped. Under the first group there are three kinds of schemes can be seen namely fully funded, Partially Funded and Pay-As-You-Go (PAYG) pensions. In the fully funded schemes, pensioners are paid their monthly allowance based on the fund built over the period of years from its member's contribution which was deducted previously when there are in-service. These contributions are invested in the various financial instruments and returns on the investment credited to the same account to enhance the fund. This ensure the sufficient reserve to pay the beneficiaries as pension allowance in monthly basis.

Pay-As-You-Go (PAYG) pension schemes are usually managed by the government of the countries. These schemes don't maintain a separate fund. Usually pension claims are funded by the annual budget of the state. Every year national budget of the state should allocate the money to pay allowances for the pensioners under this type of schemes. Ultimately tax payers are the people who bear the pension provision of the retired generation of the public sector. In other words, the states are taxing the one group of people and transferring the money to another group who was sacrificing their lives to serve the country earning lessor monthly salaries which compared to the private sector at the same period.

However, there are some debates over the PAYG and other funded schemes as well. Those are,

1) How to model individual behavior (Right basic economic model)
2) Labor supply elasticities and change in life expectancy in future (Empirical Magnitude)
3) Extent of the Institutional capacity of the country
4) Political Economy of reform
5) Role of the state regarding to the poverty relief and smoothing of the consumption

There are two kinds of approaches which explain the relationship between contribution and the benefits of the pension system.

1. Defined-Contribution schemes (DC)

   These schemes are funded to the individual accounts which each employee pay their fixed contribution monthly from their earnings. These funds are used to purchase the financially viable assets and returns on those investments accumulated to the same accounts. This is assured that pension payments are ready to pay for the consumption of the retiree when the pension starts. In this scheme pension calculation should be done on the basis of given life expectancy and the interest rate over the accumulation of the contribution.

2. Defined-Benefit schemes (DB)

   These schemes are totally based on the employee's wage history. Further there are no accumulated fund for the pension payment in the future and employer should bear the cost of the pension value. In the public sector, tax payers have to be born the cost of the pension

payments. These schemes are generally run by the employer or the states and the pensions are calculated based on the last month/year salary and the number of years served in the respective institution/sector by the employee. Most probably contribution of the employee of these schemes are fraction or Zero. Workers with the DB pension schemes with employer provided pension benefits has two types of compensation.

a. Current salary
b. Differed income after the retirement

These kinds of plans affect the job retention of the employees since they have to sacrifice the part of the current compensation for the future benefits. One study (Costrell & Podgursky, 2009) describe that sometimes mid-career employees may willing to resign their job for the different job, however they have to give up the large portion of their differed compensation as pension benefits.

Another study (Lazear, 1917) argues that defined-benefit pension systems have the ability to resolve a common problem for many employers: the inability to tell how much effort workers are putting toward their job. Being fired is costlier for workers with a defined-benefit pension plan because so much of their total compensation is tied up in these deferred benefits – benefits which they only receive the full value of if they keep their job for a long time. In other words, employees are working hard to retain in the organization to enjoy the differed compensation which is owned to them in future period.

The picture in the public sector is very different in Sri Lanka when compared to the most the countries in the world. In the public sector, a DB pension is still the primary retirement income benefit offered to employees. However, other state-owned enterprises have followed the

private sector and shifted towards a DC system. Going forward, fiscal pressures are likely to generate more movement in this direction. Most of the countries with a primary DB plan presently offer supplemental DC plans. The difference between DB and DC plans is an important one. In a DB plan, participants have little impact on the income that they will receive in retirement other than through their choice of when to leave their job. Plan sponsors dictate the formula that determines the payments to retired participants. Sponsors also decide with the help of highly trained financial professionals how much money to save today to fund these future payments and where these savings are invested. In a DC plan, participants usually must choose how much to spend out of their assets during retirement, how much to contribute to the plan before retirement, and how to invest plan assets with limited guidance from their employer or plan sponsor.

Defined-benefit pension schemes are the dominant models in the public sector at present. This type of pension schemes is defined as some fraction of previous income. However, the ultimate financial result of these schemes is financed by the employer himself. Accordingly, these kinds of civil service pension schemes are ultimately financed by the general treasury of the respective government when it comes to the non-contributory schemes.

Further, (Grech, 2010)described that, throughout the 1990s several countries have shifted to defined contribution formulae – where benefits are linked to contributions made and projected longevity. In particular, in most of Eastern Europe labor market entrants now depend mostly on personal accounts for their main retirement provision.

One scholar (Zaidi, 2006)points out “policy-makers need to remember that pensions were not introduced by chance”. Spending on pensions is but a means

to an end – the alleviation of poverty and the provision of income replacement during retirement. While spending is an important constraint, having low spending should not be elevated to the status of an objective. A pension system is not successful just because it involves little spending – a successful system is that which achieves its goals with the least pressure on constraints.

2.1.6 History of the Public Service Pension Scheme (PSPS) in Sri Lanka

Since 1815 when Sri Lanka became a British crown Colony, widows and orphans' pension has been introduced to the Employees of the public sector in the country. However, it had been legalized by Widows and Orphans' Pension Ordinance No. 01 of 1898 to compensate the Widows and Orphans when the public officer is dead before the retirement age. At that time officers who served for British Government were entitled for this scheme. This system implemented up to 1906 as a Widows and orphans' fund. However, it has been transformed to a pension scheme with the abolition of the fund in 1906. Accordingly, all the contributions, which have been recovered, have been credited to the Consolidated Fund of the Government. All officers who joined public service with pensionable appointment are required compulsorily to make contributions to widows' and orphans' pension scheme from 01.08.1983. Moreover, all female officers should also compulsorily make contributions to widowers' and orphans' pension scheme too. Widows' and orphans' pension ordinance which had come to effect from 23.06.1898 had been amended timely and accordingly the amended Act no 08 of 2010 is implemented at present for the purpose.

The first pension minute was introduced by section number 2 of the ordinance number 2 of 1942. However, the pension payments were in the Sri Lankan legal

system since the beginning of the 19th century before it comes as one single document. Currently provisions of the pension minute dated 05th May of 1972 are implementing and it is formulated doing the lots of amendments for the previous minute drafted in 1942. As per the sources available in the history followings are some information with regard to the pension and salary payments in year 1920 in Sri Lanka.

Table 2.1 – Comparison of the Expenditure among the Civil servants and Pensioners - 1920

Category	**Number of persons**	**Expenditure LKR in Mn.**
Public Servants	No data	20.67
Pensioners	1200	2.13

Source-Department of Pensions, Sri Lanka

However, followings are the present status of the payment of pension and the salary for the public sector employees as at 31/12/2016.

Table 2.2 - Comparison of the Expenditure among the Civil servants and Pensioners - 2016

Category	**Number of persons**	**Expenditure LKR in Mn.**
Public Servants	1,126,581	633,000
Pensioners	579,508	171.903

Source-Annual Report-2016, Ministry of Finance, Sri Lanka

Accordingly, Sri Lankan civil service has two major types of pension schemes and one small scheme which has lessor number of beneficiaries compared to the others.

1. Widows' and Orphans' Pension Scheme (W&OP)
2. Public Service Pension Scheme (PSPS)
3. Public Service Provident Fund (PSPF)

Table 2.3 shows the summery of the 3 types of pension schemes including arm forces pension scheme

Table 2.3 – Public Sector Pension Schemes

Name	Year established	Administration	Financing
PUBLIC SECTOR PENSIONS			
Public servants pensions scheme[1]	1901	Department of Pension	Treasury
Armed Forces Pensions and Gratuities[1]	1981	Department of Pension	Treasury
Widows/widowers [1]	1983	Department of Pension	Contributory subsidized by government
Public servants provident fund[1]	1942	Department of Pension	Joint contribution; Worker (8%); employer (12%)

Source- United Nations ESCAP, 2015

Widows' and Orphans' Pension Scheme (W&OP) is a contributory scheme of the employee by 6% ~ 7% of their monthly consolidated salary and which is compensating the dependents of the officer who died before his retirement age or if the officer retired as a bachelor then a moiety of the contributions made by such bachelor shall be refunded without any interest to him or if the bachelor is dead then his or her representative will eligible to receive the said amount.

The Public Service Provident Fund is affected as per the PSPF Ordinance since 01-04-1942 and it is entitled to the officers who are non-pensionable, casual, substitute, temporary and Ministerial staff officers (Officers who are recruited as Patronage) who are serving in the central and provincial governments and officers who are serving in the foreign mission as non-pensioners who get the benefit of this scheme after their retirement. Accordingly, relevant institution should credit 12% of the employee monthly consolidated salary as an employer's contribution while employee should contribute 8% of his or her monthly consolidated salary to receive the lump-sum amount after the retirement.

Public Service Pension Scheme (PSPS) is a Defined Benefit type pension scheme which is non-contributory for Civil Servants and fully funded by General Treasury through the Annual Budget. Funds are supplied by the general taxation for this scheme since it has no accumulated fund from its beginning.

All the employees who are confirmed in their permanent positions are eligible for the PSPS after their retirement. Women are entitled to receive at the age of 50 and men are entitled receive at the age of 55 and both must be taken by age of 60 which is the compulsory retirement age of Sri Lankan Public Service. In the event of the death of the officer, dependents are entitled to an unreduced pension. The monthly pension is calculated based on the last month salary before the retirement and the period of service. Further it is compulsory to complete the 120 months of active service to get the entitlement of the benefits of the PSPS. Therefore, maximum age limit of the public service recruitment is 45 since alternative retirement age is 55 years.

According to the Data published by the department of pensions in Sri Lanka there are 579,508 civil service pensioners were received monthly pension allowance end of year 2016 under the PSPS. It is almost equal to the 1/2 of the total public service employment in the same year.

Table 2.4 – Pensioners and the Incurred Expenditure 2006-2016

Year	Number of Pensioners	Total Payment in LKR Mn.
2006	450,153	58,147
2007	438,190	68,602
2008	445,120	75,910
2009	456,113	85,020
2010	473,762	91,995
2011	493,549	98,962
2012	510,343	101,682
2013	532,455	122,766
2014	546,383	126,103

2015	560,462	155,291
2016	579,508	171,903

Source-Annual Reports of Ministry of Finance and Department of Pensions

Table 2.4 clearly indicates how the public service pensioners are dramatically increased in the past 10 years.

The number of employees who are eligible for PSPS was 1,126,623(table 2.2), which was about 14percent of the total work force in the country. In 2016 there were 579,508(table 2.4) persons are benefited from this scheme. In other words, about 14percent of the total elderly population in the country benefited from this scheme in 2016.

According to one study (Gaminiratne, 2004), Sri Lankan PSPS provides a generous replacement income for the civil service pensioners compared to the other countries. However still pension is not indexed to the wages or prices and not adjust with the inflation. The Government has made sporadic efforts to adjust the public sector pensions to increase their real value but such adjustments have been below the rate of inflation on average. Thus, the pension loses value in real terms and this leads to a deterioration of the living standards of public sector pensioners.

Sri Lankan government has made huge investment under the public officer's pension scheme to ensure the social security of the retired officers. For this purpose, government allocate approximately 10percent of its total revenue in annually which is equivalent to 1.3percent of the Gross Domestic Production (GDP) in the country in 2016. Since Sri Lankan public sector doesn't maintain a pension fund from its beginning, government has to allocate money from the consolidated fund to pay pension by annually through the national budget.

This is huge burden to the national budget as well as the tax payers of the country.

At present, as per the information written in the Annual Performance Report-2015 of the Department of Pensions (P.26) clearly stated that nearly LKR 13,500Mn released monthly by the General Treasury for the payment of pensions from the loan taken based on the issuing of Treasury Bonds. This cannot be done repeatedly. Therefore, alternatives should be identified and implemented without any delay to ensure the continuation of the smooth pension payments of the retired public officers.

Sri Lanka implement the Public Service Pension Scheme when the life expectancy of the people was around the 60 years. At that time compulsory retirement age also 60 years. Accordingly. At that time beneficiaries of the PSPS was very low. However, at present life expectancy increased up to 75 years on average and some studies found out that civil servants in the most of the countries are live longer than the average life expectancy since they have good living conditions during their employment period. Therefore, future pension payments period will be longer than the past of the civil servants as well.

Sri Lanka doesn't have the strong private sector compared to the other developing countries in the Asian region. Most of the large enterprises are owned by the government such as Sri Lanka Airlines, Sri Lanka Ports Authority and Bank of Ceylon etc. These public owned enterprises are monitored by the public service bureaucrats and they are the policy entrepreneurs of these institutions. At present civil service pension is one of the motivate factor to attract the professionals into the public service. To recruit and retain the professionals in the civil service it is important to ensure the sustainability of

the public service pension scheme. Therefore, it is timely and important to analyze the sustainability of the PSPS in Sri Lanka to identify the future challenges and possible solutions in advance to ensure the ability of the government to service the future pension obligations without adverse effect to the economic prosperity as well as the social security.

2.2 Sustainability

2.2.1 Definition

According to one study (Howse, 2004)that most pension reformers were believe that it is unfeasible to maintain the existing situation of the pension schemes by increasing taxes and/or the contributions of the pension or using public borrowing since the level of the government expenditure has already been approached the limits of the political acceptability and the economic efficiency. Therefore, he argues that if this is correct then, this "does not mean, of course, that the policy task is simply that of ensuring that these limits are not transgressed", but that "the real problem for governments is how to ensure that people have adequate income in retirement without transgressing these limits".

Another study (Mahler & Chingos, 2014) describes pension system sustainability relies on two mechanisms.

1) Government Accountability
2) Balance of Tax payer cost and Benefits

Fiscal sustainability is also related to taxpayers' preferences and the balance between costs and benefits. The costs to the system include both the generosity of the pension benefits and the expenses associated with the risks the pension system has borne. Thus, the ways that workers' risks are mitigated are directly

related to the risks that taxpayers bear. The taxpayers receive benefits from the pension system if the system improves the public services that are provided. These benefits would occur through the recruitment and retention of high-quality workers. These benefits should offset the costs mentioned above. If they do not, then voters have an incentive to "vote with their feet" and leave a locality where costs outweigh benefits. In reality this is only an option to the extent that alternative localities have a more attractive cost-benefit balance that outweighs the transition cost of moving, which could be the case for mobile individuals in states that have amassed a large amount of debt.

2.2.2 Types of Sustainability

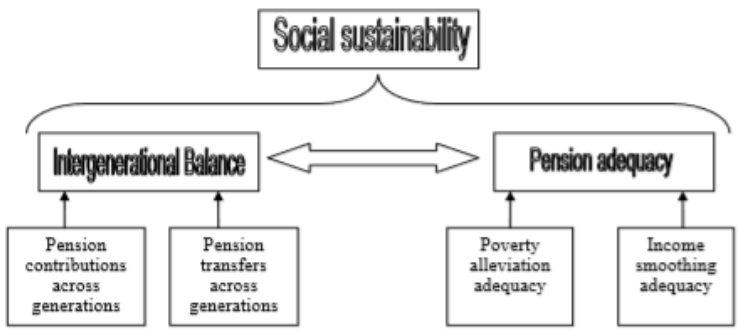
In general, ability to be maintained a certain rate or level can be defined as sustainability. Accordingly, existing literature explained the three dimensions of sustainability measures of the sustainability of a pension system.

1) Political sustainability
2) Social sustainability
3) Financial/fiscal sustainability

Political sustainability of the pension schemes means, average voter needs to be ensured by the said scheme (Grech, 2010). In other words, majority of the voters should be satisfied by the pension scheme and they should be seen the benefits of the scheme. Otherwise it could be voted out by the electoral majority too. If the pension schemes are not helping to maintain the living standards of the beneficiaries and not able to mitigate the poverty then political pressure will be emerged. Accordingly, number of beneficiaries, reduction of elderly poverty, and life expectancy of the citizens can be identified as some indicators for the measurement of the political sustainability.

Figure 2.1 explain about the social sustainability of the pension system (Grech, 2010).

Figure 2.1 – Definition for Social Sustainability



Source: Grech, 2010

The balance between intergenerational pension transfers and the adequacy of the pension scheme can be considered as social sustainability of the pension system. However Political and social sustainability are more relevant to the universal pension system in a country. Since Sri Lankan public service has a non-contributory state funded pension scheme for their retired civil servants, financial sustainability may be the most important thing to maintain the stability of the system to ensure the future payments. As per the report on long term sustainability of the European commission published in 2006 described that fiscal sustainability of the pension scheme can be positively affected when the pension generosity declining. According to one study (Grech, 2010) "Fiscal sustainability and pension system adequacy are not conflicting aims, but rather two sides of the same coin. Real fiscal sustainability cannot be achieved without ensuring pension system adequacy. If pension systems fall short, there could be strong political pressure for higher government spending on other support".

Accordingly, adequacy and the generosity of the pension system are the factors that affected to the fiscal sustainability of the pension scheme in general (Grech, 2010)also argue that "many defined-benefit pension plans have not been successful in maintaining fiscal sustainability. For some states, the political incentives to push funding responsibilities on to future generations were too tempting to withstand. The lack of transparency and the long lag between pension promises and benefit payouts make all pension plans potentially susceptible to a funding crisis. Likewise, providing overly generous benefits could make any system fiscally unsustainable. Policymakers need to carefully consider both the way pension benefits are structured as well as the overall benefit level, particularly as it relates to the balance between current and deferred compensation".

Accordingly, it recognized that political and social sustainability are more deals with the pension systems which are introducing for all the citizens as equal manner. Because, general voters are more concern about what they receive from the government.

Therefore, having reviewed the literature regarding the sustainability, this research more emphasis of the ability to pay the future pensions for the retired civil servant in Sri Lanka considering the financial position of the annual budget of the country as a sustainability of the PSPS. In other word operational definition for the financial sustainability of the PSPS would be government annual income equivalent or exceeds the government annual recurrent expenditure.

2.2.3 Studies on Civil Service Pension Systems

"The main objectives of any the pension system security are consumption smoothing over an individual's lifetime; insurance (particularly against

longevity and inflation risks); income redistribution for society as a whole; and poverty relief" (Asher,….). According to him these three objectives have to be traded off against the labor market efficiency and the economic growth of a country. Further, the resources allocated to the pension payment always have opportunity cost since there are other needs such as education, health and education etc. Therefore, allocation for these needs have to be trade off against the allocation for pension benefits. In most of the countries, civil servants were the first group of employees who covered by the pension schemes introduced by the government in the first round of the implementation of the social security schemes and after that civil servants are not willing to shift to the common national schemes which were introduce later part implementation of the social protection schemes. This is because these new national arrangements did not meet the demand of the government human resource management objectives as well as the there were no incentive to migrate the new system since those were less generous schemes compared the specific schemes which were introduced only for the civil servants (Pallares-Miralles & Whitehouse, 2012). Accordingly. there are half of the countries in the world have government sponsored separate schemes for the civil servants.

One study carried out in India (Dhillon & Preet, 2005)found out that even though still there are some gender difference in India, retirement is not badly affected men than the women. However, they further observed that financial security and the health condition are the common factors that are highly relates to the wellbeing of the retiree. The other study done in 1997 (Ekebrand, 1997) regarding the Civil Service Pension in five different countries namely France, Germany, Netherlands, Sweden and UK are pointed out that design of the Civil Service Pension Schemes should ensure the flexibility, stability and the security of the system as well as the simplicity. Further he emphasis that pension should be linked with the earnings of the employee.

One of the studies (Kalisch & David & Aman, 1998)had provided some features of the Public Pension Systems using the analysis of OECD countries done by the OECD in 1997. This study done in the ten central European countries including Albania, Bulgaria, The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, and Slovenia. According to the study it is observed that most of public sector employees in these countries are covered by the national pension scheme which is common for the all the citizens in the respective countries. However, to improve and ensure the quality and the professionalism of the service provided, they are defining the civil service pension through the separate legislations instead of using the common legislation.

On the other hand, another study (Whitehouse, 2007) found out three main differences among the Civil Service Pension systems. According to the study, the first difference is the target replacement rate which is differ from country to country. The study conducted in 53 countries and found out the replacement rate is varied from 30percent to 116percent from Ireland to Iran respectively. In Luxembourg, Yemen and Uruguay are the countries which have more than 100 percent replacement rate and Middle East, North Africa, Turkey, Greece and Spain are also have the higher pension replacement rate while country like Australia, Denmark, Mexico and USA have the low rate of replacement which is below the 40percent. The second difference is the government emphasis on the pension redistribution towards the pension replacement rate. Some countries such as Australia, Argentina, Canada, Denmark, Iceland, Norway, Switzerland and UK are low or no given emphasis on redistribution on pension system with a pension entitlement and the preretirement. Therefore, in those countries replacement rate is higher for the low paid employees. However, in Middle East and North African countries emphasis on providing the similar or the same replacement rate to all employees. The third difference is involvement

of providing the pension provision between public and private sectors. They found out the there are no involvement of private sector in Middle East and North African countries providing mandatory pension requirements while private sector in 33percent of the OECD high income countries are involving to provide the mandatory pension provisions.

According to the study (Noord, et al., 1993), done in seven countries (Canada, Germany, Italy, France, Japan, UK and USA) showed that during 1980's pension expenditure had steadily increased due to ageing of population and increasing coverage of the pension including the Civil Service Pension as well. According to another survey (Iyer, 1993)done in developing countries regarding the status of the institutionalized pension schemes had observe that most of the developing countries implement the DB social insurance model and few countries have the DC national provident fund model.

One study (Palacios & Whitehouse, 2006) try to analyze the link between pension entitlement at the retirement and the earnings at the employment in 53 different countries. Study analyzed the different pension schemes with regard to the parameters and the rules of the pension schemes as well as the pension expenditures. Accordingly, researchers are of the view of that Civil Service Pension schemes tend to be more generous and less financially viable than the other schemes in the formal sector and without reforming the Civil Service Pension schemes may crowed out the important social programs.

2.2.4 Factors that are affected to the sustainability of a Civil service pension system

Pension schemes are faced large risks that are hard to predict due to rapidly changing environment. Following are common to the civil service pension schemes.

- Demographic shocks – Life expectancy, Women participation in the work force
- Macroeconomic shocks – Market price, Salary Hike in the public sector
- Political Risks affect because of all depends critically on effective government
- Bureaucratic expansion
- Economic growth of the country
- Tax income

Chapter 3: Research Design

This chapter will focus on justifying the selected methodology that will enable the achievement of the research objectives and help to provide solutions for the research questions. Different methods and strategies such as the research design, population, data collection procedures and data analysis techniques that would be used for the study will also be emphasized.

3.1 Analytical Framework

Following questions are going to be answered through this research.

1) Can government manage the pension payment using the existing pattern of income in future?
2) What are the critical macro-economic factors that can affect the pension payments and what would be the impact? (Ex. General Taxation, Inflation, GDP growth Rate, Etc.)
3) What are the impacts of demographic changes such as change of the life expectancy and the bureaucratic expansion towards the future payments?
4) What are the most critical adjustments to be made to overcome the future challenges of public service pension?

To answer these questions simulation methodology will be used. Accordingly, following steps will be followed.

1) According to the data gathered from the public service survey in 2016, pensioner intake for the system will be calculated and each year pension population will be estimated up to 2036.

2) Each year pension bill will be predicted using the annual average pension allowance per person and the pensioners of the year. It is assumed that all the new commers will be entered in to the system at the beginning of each year. However, for comparison purposes pension payments will be projected under two different scenarios. Those are pension expenditure under current pension policies and pension expenditure under full wage indexation policy.
3) GDP value for the next 18 years (From 2018-2036) will be estimated using the data from 1952 to 2017. For this estimations trend analysis will be used. Further GDP calculation will be done in accordance with the existing policy frame work.
4) Government Income, Recurrent Expenditure, Tax Income and Personal Emoluments will also be estimated in accordance with the existing policy frame work using trend analysis for next 18 years.
5) Population, 60+ population and labor force will be projected using the average annual population growth rate, mortality rate and the trend analysis.
6) After calculate the all projections those numbers will be compared with each variable which is affected to the pension payments of the PSPS.
7) Accordingly, ratios will be calculated and presented in tables and graphs to show the impact of each variable over pension expenditure.
8) All the calculation methods will be described under technical notes of this research paper.
9) Finally, conclusion will be done with compared to the non-OECD country data of the pension payments, system dependency, coverage as well as the way of financing the future pension expenditure.

Following are the factors that are going to be projected and calculated the impact on the future pension expenditure

1. Change in Life expectancy of the civil servants
2. Bureaucratic expansion in the public service
3. Annual income and tax income of the government
4. GDP growth rate of the country
5. Wage Indexation
6. Recurrent expenditure and its' composition of the government

Accordingly, it will be calculated the impact of each macroeconomic factors mentioned in the above towards the future pension payments over the next 18 years of the country from year 2018.

These calculations are based on the following basic assumptions.

1) There will not be economic crises or unexpected shocks in the economy during the next 18 years of period
2) All the civil servants will retire at the age of 60
3) Trend of the income generation and expenditure will be remained unchanged

To analyze and compare the generated results through the various calculations, several parameters will be used. Accordingly, 6.8percent of the government income or less than that should be considered as sustainable level for the pension payments since this is the average level of the Non-OECD countries. Based on the comparison of the all the variables, it will be decided whether the system will sustain or not within the existing policy frame work. If not, then research will go further step and try to find out the possible solution to overcome the problem of the system by changing the following factors.

1) Retirement age of the civil servants
2) Change in compulsory service period to get the entitlement of the pension payment
3) Change in pension calculation table

3.2 Data collection and Methodology

To find out the answers to the above-mentioned research questions, case study research methodology will be used. Public service pension scheme is a single system and this research focus to analyze the future sustainability of the scheme using the existing data. Therefore, single case study research method will be adopted. Accordingly, secondary data will be used and collected from the various domestic and international sources such as Annual reports and other related reports published by the various Sri Lankan institutions (Central Bank, Ministry of Finance, Department of Senses and Statistics, etc.) and International journal articles, various reports publish by International organizations (World Bank, International Monetary Fund etc.). The study will be conduct covering the whole public sector employment. However, data collecting and record keeping with regard to public service employment and pensioners are still in the unsatisfactory level in Sri Lanka. Therefore, all the calculations will be done using the data from 1995 to 2017 except GDP calculations.

To arrange the collected data MS-Access or MS-Excel data sheets will be used. To forecast the future figures of the related variables trend calculation method will be used. The data will be analyzed by using qualitative and quantitative techniques and comparative tools will be used to determine the parameters. It will be supposed to use the tables and graphs to show the analysis and in order to respond the research questions.

During the analysis, it is going to calculate some necessary ratios which help to explain the research questions such as the ratio of pension expenditure to GDP, the equilibrium tax rate, the coverage index and the ratio of pension expenditure to government income are built starting from the aggregate amount of entrances into and expenditures of the public pension system. These are projected into the future within reasonable demographic and economic scenarios, based on aforesaid assumptions. Finally, recommendations and conclusions will be explained with compared to the established parameters.

Chapter 4: Analysis of Pension Expenditure

4.1 Introduction

Rising of pension expenditure is a common problem for most of the countries while the share of the budgetary allocation for the Public Service Pension Schemes (PSPS) have already been growing since last couple of decades (Barr, 2006). The current Government in Sri Lanka has considers this issue as critical, since the Public Service Pension Expenditure of the Country is on rise and it has led to financial and political unsustainability inside the country. Therefore, this chapter is an attempt to analyze the future Public Service Pension Payments in Sri Lanka to get an understanding of the sustainability of the scheme.

4.2 Pension Expenditure in Sri Lanka

The payments of Pension in Sri Lanka consists of pension and retirement benefits for retired Military personnel who served 22 years or more in the one of the tri-forces in Sri Lanka, Pension payment for the widows and orphans, Pension payments for the disabled military personnel, pension payments for the officers who have already retired from three Government Banks but joined the service before 1996 and the pension payments of former civil servants who served for the Government. However, compared to the percentage of payments, Civil Service Pension is taking the majority of the annual budgetary allocations of pension. Therefore, it is a timely requirement to analyze the sustainability of future pension payments for the civil servants of Sri Lanka. Since military service has a separate pension scheme and the pension allocation of bank officers are transferred by the respective banks, those schemes will not be considered for this study.

At present, Sri Lankan civil service pension scheme costs 1.32percent of the GDP and it is lower than the regional average of 1.9percent as well as the Non-OECD, 1.33percent of GDP. However, it is important to evaluate the future cost of the pension expenditure to make a proper assessment of the system.

As mentioned in the Chapter 2, Sri Lanka has significantly higher percentage of public sector employment compared to the South Asian region as a percentage of the population. Table 4.1 indicates the number of public servants and pensioners in last 20 years.

Table 4.1- Public Servants Vs. Pensioners, 1995-2016

Year	Public Service Employees	Public Service Pensioners
1996	No data	332,820
1997	No data	342,340
1998	561,163	346,360
1999	No data	358,220
2000	No data	363,780
2001	No data	371,720
2002	587,805	393,300
2003	No data	401,166
2004	No data	413,200
2005	No data	425,596
2006	626,306	430,153
2007	No data	438,190
2008	847,752	445,120
2009	904,431	456,113
2010	957,855	473,762
2011	1,006,647	493,549
2012	1,040,770	510,343
2013	1,059,471	532,455

2014	1,081,045	546,383
2015	1,097,280	560,462
2016	1,126,581	579,508
2017	1,141,650	599,424

Source: Annual Reports of Ministry of Finance and Department of Pensions

According to Table 4.1, it is clearly shown that the number of public sector employees and the pensioners of the country have steadily increased during the last two decades. Mainly, this was due to the intervention of the Government regarding solving of unemployment among the Youth. There were no huge private sector economic activities since Sri Lanka had 30 years civil unrest in the country since 1983 until 2009. Therefore, governments had to provide the job opportunities in the public sector to control the youth unemployment rate and it was led to broaden the public employment and the pension population of the public service. However, this has continued and according to the population data in the country, public sector employees to the population remains at 1:15 in 2016 while it was 1:18 in 2001 (Annual Report of Ministry of Finance, 2016). This is because of government recruited unemployed graduates in large numbers.

However, it is also important to look at the relationship between the labor force and the number of the pensioners in the public sector, since public sector pensioners are sponsored by the tax payers of the country. Accordingly, in 2017, Sri Lanka PSPS covers only 3 percent of the population and 7 percent of the labor force. To pay the pensions for pensioners, the Government has to spend 1.33 percent of the GDP and 10 percent of the Government income. Even though Sri Lanka has spent only 1.33 percent of the GDP for pension payments to cover 3 percent of the population in 2017, it contrasts with the level of coverage on Pensions with other countries as most of the developed countries such as Denmark, Norway, Finland, Sweden and Austria cover 100 percent of the labor force while India and China and Brazil cover 10.5, 24 and 50 percents

respectively. These countries are spending only 1 to 3 percent of the GDP on public pensions. Therefore, it is observed that the coverage of the scheme is not sufficient compared to the spending of the tax payer's money. Table 4.2 shows evidence of the Government's spending on the public pensions in some countries.

Table 4.2 - Labor force coverage by public service pensions in Different Countries

Country	% GDP spent on public pensions	% Labor enrolled in public pensions
Singapore	2.2	76
China	2.6	24
India	0.64	10.5
Brazil	2.9	50
Sri Lanka	1.32	7
Malaysia	1.6	45

Source: World Bank Data

Although the cost of PSPS of Sri Lanka does not seem to be excessive in terms of the GDP outlays, compared to the regional average, the coverage of the PSPS with respect to its costs leave much to be desired. Therefore, the challenge of the PSPS in Sri Lanka is not merely one of that contains the costs but also of increasing the coverage, in terms of labor force, in order to provide for the retirement income of the rapidly increasing elderly population.

4.3 Sustainability of the PSPS in Sri Lanka

Increase of the old age population (60+) with respect to the percentage of working age population (Work Force) in a country is called population ageing. An increase of the ratio of elderly population means that the work force has reduced demographically. In other words, the number of pensioners is increasing and the formal sector work force is decreasing. This has led to increase the ratio of system dependency, which has defined as a percentage of

receiving pensions or the kind of living allowance in the old age in relation to the percentage of formal sector labor force. A researcher who did their study on the sustainability of the civil service pension schemes has realized that there is a strong relationship between demography and the pension burden in the countries which are running mostly the unfunded, finance through the special payroll taxes or general revenues to finance the pension payments. Sri Lankan Public Service Pension Scheme (PSPS) is funded by the general revenues of the government and it is mostly representing the tax revenue. This tax revenue is mostly collected from the consumers and they are representing the workforce of the country. Accordingly, it was identified that in order to maintain the sustainability of the system, the tax has to be increased as the percentage of the aged population increases and as the percentage of labor force decreases in the population. However, this may be a huge burden to the workforce as well as to the Government of developing countries, since they are struggling with the constraints of financial allocations. Table 4.3 indicates the projected population groups for the purpose of identifying the system dependency.

Table 4.3 – Projected Groups of Population from 2018-2036

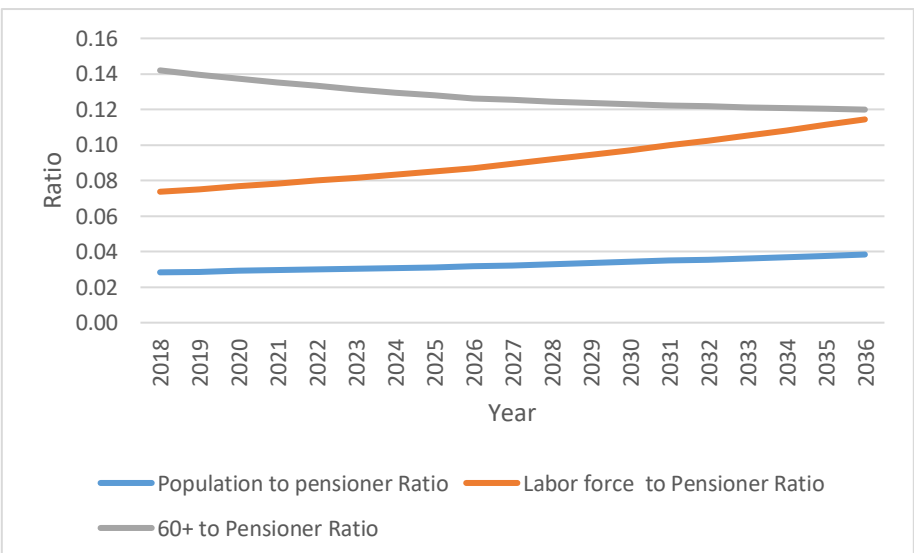
Year	Population in 000'	Labor Force in 000'	Population 60+ in 000'	Pensioners in 000'
2018	21,685	8,336	4,326	614
2019	21,930	8,376	4,508	629
2020	22,178	8,414	4,696	645
2021	22,428	8,451	4,890	661
2022	22,682	8,487	5,089	678
2023	22,938	8,522	5,295	695
2024	23,197	8,556	5,506	713
2025	23,459	8,589	5,723	732
2026	23,725	8,621	5,945	750
2027	23,993	8,652	6,174	774
2028	24,264	8,682	6,408	798
2029	24,538	8,712	6,648	823

2030	24,815	8,740	6,894	848
2031	25,096	8,768	7,146	874
2032	25,379	8,796	7,403	902
2033	25,666	8,823	7,667	929
2034	25,956	8,849	7,936	958
2035	26,249	8,874	8,210	988
2036	26,546	8,899	8,491	1,018

Source: Researcher's own calculations

To simulate Table 4.3, population growth rate, mortality rate in 2017 are mainly used to project the future value, while other figures are calculated through a trend analysis. Accordingly, Table 4.3 shows that the number of pensioners and the 60+ population are increasing in a higher rate, while population and the labor force are increasing at a lower rate. This has further been explained by Figure 4.1.

Figure 4.1 – Projected System Dependency in each category of population



Source: Researcher's own calculations

Figure 4.1 indicates that in 2018, the dependency ratio of the population to pensioners is almost 3percent and it will reach 4percent in next two decades, while the labor force to pensioners ratio will increase from 7percent to

11percent in the next two decades. However, while increasing those two ratios, the ratio of 60+ population to pensioners will gradually decline from 14percent to 12percent in the next two decades due to the rapid increase of aged population and the restrictions placed on the government employment. (The restrictions on Govt. employment have been described in the latter part of this analysis under assumptions) These ratios indicate that the labor force has to contribute more to finance the PSPS in next two decades, due to demographic ageing in the future.

As mentioned above, Sri Lankan PSPS is entirely financed by general revenues which are earned through the tax income of the government. Therefore, there are only limited number of options available to earn the extra income or to save the income for mandatory payments such as personal emoluments, pension, etc.

1) Increase the consumer taxes
2) Reducing the capital investments
3) Reduce the subsidies
4) Increase the government budget deficit

Most of these options cannot be implemented due to lack of income among the citizens in developing countries and it will not be politically interested too. However, it can be offset by the growth of GDP of the country. The growth of GDP will increase the size of the national income available to support the pension system. Further, the growth of GDP will increase the income of the workforce and it will lead to pay more taxes to increase the government income to finance the pension payments.

4.4 Fiscal Burden of existing pension arrangement in Sri Lanka

Table 4.4 - Existing pension burden of the PSPS in Sri Lanka

Year	Pension Expenditure in LKR Mn.	Pension to DGP	Pension to Recurrent expenditure	Pension to Government Income	Pension to Personal Emolument
1995	13,585	0.02	0.10	0.10	0.59
1996	14,458	0.02	0.08	0.10	0.55
1997	18,280	0.02	0.10	0.11	0.58
1998	18,858	0.01	0.09	0.11	0.48
1999	19,056	0.01	0.09	0.10	0.44
2000	20,366	0.01	0.08	0.10	0.41
2001	24,902	0.02	0.09	0.11	0.45
2002	31,083	0.02	0.10	0.12	0.47
2003	32,674	0.02	0.10	0.12	0.48
2004	36,416	0.02	0.10	0.12	0.49
2005	46,705	0.02	0.11	0.12	0.47
2006	58,147	0.02	0.10	0.12	0.48
2007	68,602	0.02	0.11	0.12	0.44
2008	75,910	0.02	0.10	0.12	0.47
2009	85,020	0.02	0.10	0.12	0.40
2010	91,995	0.01	0.10	0.11	0.39
2011	98,962	0.01	0.10	0.10	0.39
2012	101,682	0.01	0.09	0.10	0.37
2013	122,766	0.01	0.09	0.11	0.40
2014	126,103	0.01	0.09	0.11	0.38
2015	155,291	0.01	0.09	0.11	0.36
2016	171,903	0.01	0.10	0.10	0.38
2017	181,007	0.01	0.10	0.10	0.27

Source: Annual Reports of Ministry of Finance and Central Bank of Sri Lanka

Currently, the annual pension bill of the PSPS amounted over 01percent of GDP and 10percent of total income of the Government. As mentioned in Chapter 2, the ratio of pension payment to Government income has increased slightly higher than the Non-OECD country's average (6.8percent).

Accordingly, it shows some whistle blowing of an upcoming payment crisis of the pension in National Budget of the Country. Further, the current figures show that the recurrent expenditure to pensions and the personal emoluments are also taken 10percent and 27percent respectively.

4.5 Projections for the future cost of the PSPS in Sri Lanka

4.5.1 Projection method

As a result of the policies made based on the promises made in the past by the Governments, current pension costs have been arisen. Likewise, future pension costs will depend on the policies and promises made at the present and it will decide the sustainability of the system as well. Therefore, it is important to forecast future figures with current policies that are affecting the future pension cost, in order to evaluate the sustainability of the PSPS in Sri Lanka.

There is a one study (Rannan-Eliya, 1998) could be be found regarding the projections of the future pension costs of the PSPS in Sri Lanka. However, it the projection has been done in 1998 and the forecasted figures are no longer valid, since the current actual figures are far above the projections. For an example, the Projected Pension Cost for the year 2017 was LKR 83Mn. by the said study, while the actual amount of the pension cost was LKR 181Mn. Therefore, those projections of this study are considered inaccurate.

For the purpose of this study, all the projections are done using recent data with regard to the pensioners, wages, civil service employment, population, government income and expenditure, etc. which is collected from secondary data sources where they have been available.

Accordingly, Table 4.5 given below shows an age analysis of the existing employees of the public service.

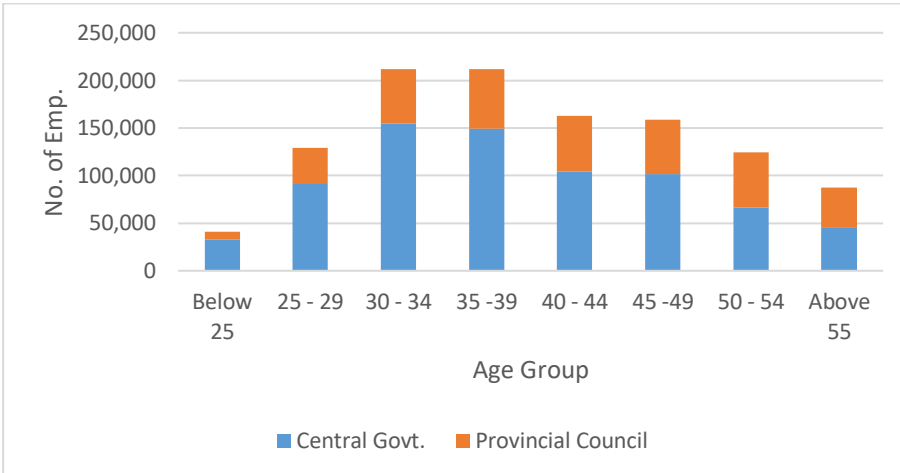
Table 4.5 – Age analysis of the Existing Cadre in the Public Service

Age	Central Govt.	Provincial Council	Total
Below 25	33,218	7,732	40,950
25 - 29	92,193	37,169	129,362
30 - 34	154,959	56,543	211,502
35 -39	148,940	62,607	211,547
40 - 44	104,228	58,192	162,420
45 -49	101,424	57,409	158,833
50 - 54	66,441	57,834	124,275
Above 55	44,980	42,266	87,246
Total	**746,383**	**380,198**	**1,126,581**

Source: Census Report 2016, Department of Census and Statistics of Sri Lanka

According to Table 4.5 there are two types of employees in the Sri Lankan Public Service with regard to the appointing authority of the employees. Central Government has 746,383 employees and it includes employees of the Government Ministries, Departments as well as Independent Government Bodies. Employees in Provincial Councils represent the nine Provincial Ministries, Sub Ministries, Provincial Departments and Local Authorities. The total public sector employment at the end of the year 2016 was 1,126,581. The following Figure 4.2 shows the number of employees in each age category.

Figure 4.2 - Number of Public Servants in each Age category at the end of 2016



Source: Public Service Census Report 2016, Department of Census and Statistics of Sri Lanka

The highest number of employees is in the age of group of 30-39 years, while age below 25 and above 55 years is representing the lower number of employees in the public service. Accordingly, in the next two decades there will be more pensioners in addition to the pension system, since the employees of 35 years and above will retire from the service. However, according to Figure 4.2, there will be more than 400,000 public service pension beneficiaries entered in to the pension system, in the period from year 2036 to 2046.

4.5.2 Projection of future influx of pensioners

Since the public service employee survey has been done in the latter part of the year 2016, the projection of the future pensioners started from the year 2017. However, the projections will be done from 2018 and actual figure of 2017 will be used for further calculations to ensure the reliability of information.

Following assumptions are made to calculate the number of future public service pensioners.

1) Even though optional retirement age of the public servants is 55 years, currently, none of the employees are willing to retire at the age of 55 and they continue their service until 60 years which is the compulsory retirement age in Sri Lankan Public Service. Therefore, age of 60 years is assumed as the retirement age for all employees.
2) Since the Department of Pensions and the Department of Census and Statistics were unable to supply data on the existing demographic profile of the current pensioners, the annual death rate of the population was taken in to account to calculate the number of beneficiaries who exited from the pension system annually due to death. Therefore, it is assumed that death rate among the pensioners and the general citizens are same for the purpose of calculation of future pensioners.
3) For existing public sector employees, the age analysis only available for a term of five-years. Therefore, the annual average rate of change of pensioners in last 20 years has been considered to divide the future pensioners in annual basis.

Table 4.6 shows the future pensioners of PSPS in Sri Lanka.

Table 4.6 - Projected pensioners in PSPS from 2018-2036

Year	Pensioners
2018	614,214
2019	629,468
2020	645,199
2021	661,422
2022	678,151
2023	695,400
2024	713,187
2025	731,526

2026	750,435
2027	773,805
2028	797,871
2029	822,654
2030	848,175
2031	874,457
2032	901,521
2033	929,393
2034	958,095
2035	987,654
2036	1,018,095

Source: Researcher's own calculation

According to the data presented in Table 4.6, the number of pension beneficiaries is dramatically increasing in the system and it is expected to exceed one million number of pensioners in year 2036. This is almost a 100percent of increase compared to the existing pensioners in the system. Due to the nature of pension payments and the existing pension policies of PSPS, the rate of exit of beneficiaries from the system will be less in next two decades, since if the pensioner is dead, then his dependents are eligible to get the monthly pension allowance. The first option will be spouse of the pensioner and after that, children under 26 of age will be eligible to receive the monthly pension allowance until they reach the age of 26 years. However, if the pensioner has a fully disabled child, then he or she has the eligibility to receive the monthly pension allowance until their death. Therefore, in Sri Lanka, PSPS usually covers two generations.

4.5.3 Cost projections of the PSPS and other factors which are highly related to the pension payments

Since PSPS in Sri Lanka is financed by the tax revenue of the Government; Government Income, Recurrent Expenditure, Tax Revenue, GDP Growth Rate, Expenditure on Personal Emoluments and the Pension Bill for every year are

considered as important factors to measure the future sustainability of the system. These calculations are done using the existing patterns of the data since there is no universally accepted method to calculate such data. However, the following assumptions have been considered for the projections.

1) All the ad-hoc adjustments that were made to the pension payments were incorporated into the distribution of pension payments as inflation and wage indexation adjustments, assuming that the rate of indexation was the same for every person.
2) The existing pattern of income and expenditure will remain unchanged until 2036
3) There will not be any changes in the existing pension policies throughout the period of projection
4) Public service employment is fixed and will not change in future

However, it is important to caution the readers that these forecasts are based on the aforementioned assumptions and there will be a probability of failing the predictions when yield an error of projected trends.

Table 4.7 indicates a comparison of projected future figures relevant to the pension bill of each year.

Table 4.7 – Projected Pension Expenditure and comparison with other factors

Year	Pension Expenditure in LKR Mn.	% of GDP	% of Government Income	% 0f Tax income	% of Government Recurrent Expenditure	% of personal Emoluments
2018	195,619	1.30	10.19	11.47	9.26	36.70
2019	211,977	1.28	10.13	11.40	9.22	36.44
2020	229,043	1.27	10.07	11.33	9.19	36.21
2021	246,817	1.26	10.01	11.26	9.16	35.99
2022	265,300	1.25	9.96	11.20	9.13	35.80
2023	284,491	1.24	9.91	11.15	9.10	35.61
2024	304,391	1.24	9.87	11.10	9.08	35.45

2025	324,999	1.23	9.83	11.05	9.05	35.29
2026	346,315	1.22	9.79	11.00	9.03	35.15
2027	368,340	1.22	9.75	10.96	9.01	35.02
2028	391,073	1.21	9.72	10.92	8.99	34.89
2029	414,514	1.20	9.69	10.89	8.97	34.78
2030	438,664	1.20	9.66	10.85	8.96	34.67
2031	463,523	1.19	9.63	10.82	8.94	34.57
2032	489,089	1.19	9.60	10.79	8.92	34.47
2033	515,364	1.19	9.58	10.76	8.91	34.38
2034	542,348	1.18	9.55	10.73	8.89	34.30
2035	570,039	1.19	9.53	10.71	8.88	34.22
2036	598,440	1.19	9.51	10.68	8.87	34.14

Source: Researcher's own calculations

Table 4.7 shows the projected pension expenditure from 2018 to 2036. Accordingly, the bill of the pension payments has gradually increased during the projected period and it is almost 250percent increase from 2018 to 2036. However, the pension bill is decreasing during the projected time period as a percentage of the GDP and it is under the 2percent at all times that is in a good position compared to the Non-OECD average (1.33%) as mentioned in Chapter 2. The other rates are also declining in the projected time period. Personal Emolument to pension rate is bit higher and anybody can complain that the Government spends more money for the uneconomical things such as pension payment, because it doesn't have any contribution to the economy of the country. The final point is that even though the Government's income to pension ratio is running under the 10percent at all time, it is marginally higher than the Non-OECD average (6.8percent) and also if the government is unable to maintain the existing economic growth of the country, future pension payment will face a crisis.

There are five Salary Commissions that have been appointed recently to study about the salary anomalies and the pension anomalies in the public service in Sri Lanka during 1998 to 2017. All the commission reports have recommended to do a wage indexation to the pension that is not fully practiced in the pension

payments. Usually, the Government has increased the Cost of Living Allowance (COLA) in an ad-hoc basis when the pensioners have protested against the Government due to insufficient pension allowances and sometimes the Government has tended to implement the wage indexation for some categories of pensioners (i.e. pensioners who retired after the 01/01/2006). These kinds of decisions have led to create more anomalies in the pension payments. Therefore, it is better to forecast future pensions with full wage indexation, in order to do a comparison with the existing policies. For these projections, the same assumptions have been considered that were made to the pension projection in the existing policies. In addition to those assumptions, it is assumed that there will be two salary revisions in the projection period since public sector salary revisions happen in every 10 years in Sri Lanka. Accordingly, salary revision which was already done in 2016 was taken in to consideration for the calculations, since it was phased out until 2020. And it is also assumed that the other salary revision will be done in 2026. The last two salary revisions were amounted 113 percent increase of the consolidated salary of each employees. Therefore, calculation has been done using the same ratio. Table 4.8 represent the predicted full wage indexed pension expenditure.

Table 4.8 – Pension expenditure at the Full wage indexation and comparison with other factors

Year	Pension Expenditure at full wage indexation in LKR Mn.	% of GDP	% of Government Income	% 0f Tax income	% of Governmen t Recurrent Expenditure	% of personal Emoluments
2018	362,493	2.40	18.88	21.26	17.15	68.01
2019	371,495	2.25	17.75	19.97	16.16	63.87
2020	380,780	2.11	16.74	18.83	15.28	60.19
2021	390,354	1.99	15.83	17.81	14.48	56.92
2022	400,227	1.89	15.03	16.90	13.77	54.00
2023	410,407	1.79	14.30	16.08	13.13	51.38
2024	420,904	1.71	13.65	15.34	12.55	49.02
2025	431,727	1.63	13.06	14.68	12.03	46.88

2026	943,348	3.33	26.67	29.98	24.60	95.74
2027	972,727	3.21	25.76	28.95	23.80	92.47
2028	1,002,979	3.10	24.93	28.02	23.06	89.49
2029	1,034,133	3.00	24.17	27.16	22.39	86.76
2030	1,066,215	2.91	23.47	26.38	21.77	84.26
2031	1,099,253	2.83	22.83	25.66	21.20	81.97
2032	1,133,275	2.76	22.25	25.00	20.68	79.87
2033	1,168,312	2.69	21.71	24.39	20.20	77.94
2034	1,204,393	2.62	21.21	23.83	19.75	76.16
2035	1,241,550	2.59	20.76	23.32	19.34	74.52
2036	1,279,816	2.54	20.33	22.84	18.97	73.01

Source: Researcher's own calculations

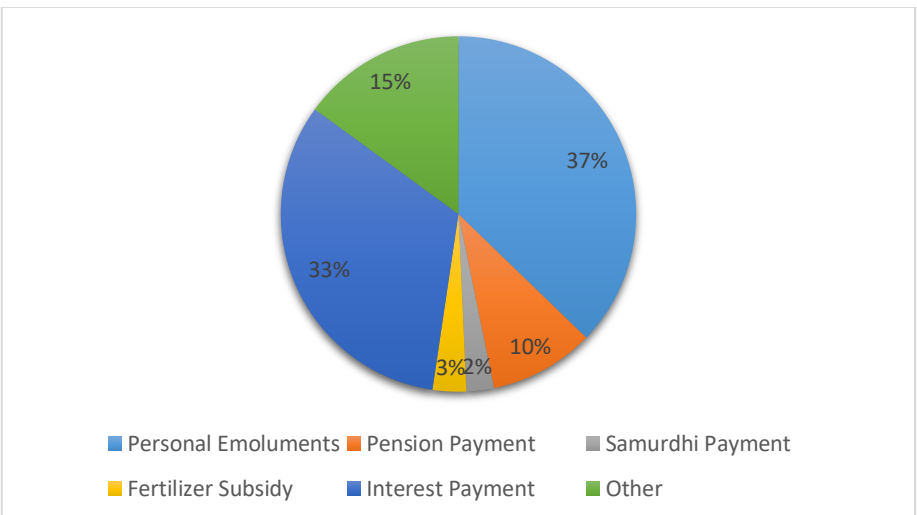
In Table 4.8, it can be seen that the there is a sudden effect for the wage index after 2016 and 2026 for the pension expenditure as well as for the other ratios which will affect the pension payments. Accordingly, if the government has decided to implement the full wage index to the pension payments, then all the expenditures will go up and it will seem to be unbearable for the National Budget. The government income to pension ratio will go up to 26percent maximum in 2026 which is the year that one of the salaries indexes has assumed to be done and it is decreasing until the next salary revision. This will happen due to sudden increase of the pension expenditure due to wage indexation to the pension payments and after that, it is decreasing since the number of annual entrances is getting smaller compared to the sudden increase. The other ratios are increasing while the pension expenditure becomes equal to 95percent of the personal emoluments in the year 2026, when it will be the beginning of the second salary revision as per the assumptions.

Accordingly, between these two projections (Pension projections at existing Policies and pension projection at full wage indexation), the existing pension policies are better than the full wage indexation for the government budget, since it generates less of a pension payment burden. Although the existing pension system seems to be sustainable according to the cost projections, it is

important to analyze the account of recurrent expenditure of the government for further clarification of sustainability of the system.

Recurrent expenditure of the national budget consists of Personal Emoluments, Pension Payments, Samurdhi Payments, Fertilizer Subsidy, Interest Payment and other recurrent payments. Following Figure 4.3 shows the composition of the recurrent expenditure in 2017.

Figure 4.3 – Composition of the Recurrent Expenditure - 2017

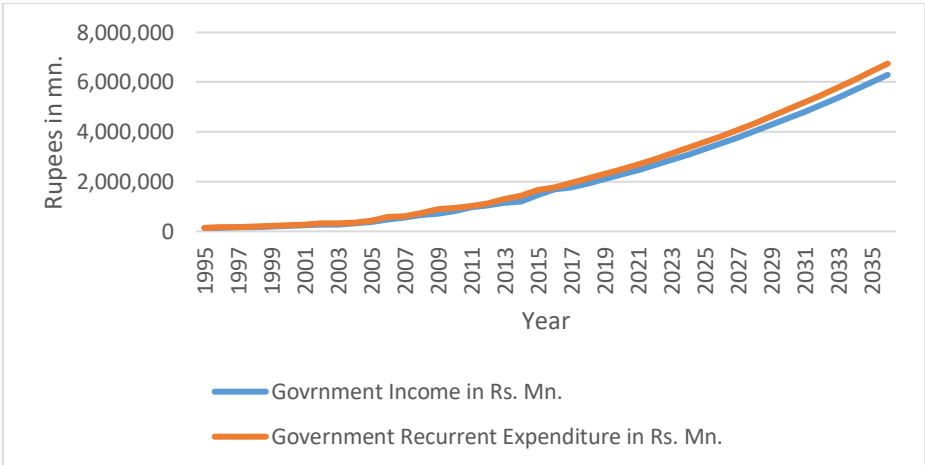


Source: Annual Report 2017, Ministry of Finance

Figure 4.3 shows that 37percent of the recurrent expenditure of the government is spent on the payment of personal emoluments that includes salaries, allowances and overtime payments, etc. of the existing public employees. The second highest percentage which is 33percent of the recurrent expenditure spent on the interest payments in 2017, while pension payments only accounts for 10percent of the recurrent expenditure. According to the economists, this high rate of interest payment is not indicating a proper financial management in the government sector, since government borrowings are getting bigger yearly due to huge amount of debt services.

Figure 4.4 shows a comparison of government income and government recurrent expenditure from 1995 to 2036 including the projected values.

Figure 4.4 – Income and Recurrent Expenditure comparison of the government 1995-2036



Source: Annual Reports of Ministry of Finance and researcher's own calculations

The Figure 4.4 comparison shows that from 1995 to 2005 the gap between government income and the recurrent expenditure was low. However, after 2005, the recurrent expenditure has begun to exceed the government income and it is continuing throughout the projected period and the gap between the two variables are steadily increasing. It means that the government has to borrow money to finance the recurrent expenditure. Usually governments have borrowed money for activities of investment from the outside world with a concessionary basis and those investing activities reflect in the capital expenditure of the government accounts. If the government borrowed money to finance the recurrent expenditure, then that money doesn't have sufficient capacity to generate profits to repay the debt. Therefore, the government has to borrow continuously to recover the recurrent expenditure. Therefore, the government has to consider this as a critical situation and try to minimize the

recurrent expenditure, while taking some measures to increase the GDP of the country. Since personal emoluments and the interest payments are compulsory payments in the recurrent expenditure, it is better to adjust the other payments to minimize the recurrent expenditure up to an accepted level in the national budget. If the government is able to make an avenue for the aforesaid suggestion, then the future debt crisis can be partially avoided.

Chapter 5: Discussions, Conclusions and Recommendations

5.1 Discussion of the Major Findings of the Study

Sri Lankan Public sector pensioners acoounted for more than 50percent of the existing employees in the public service in 2017. The existing pension policies in the country has led to this situation. According to the current pension policy in the PSPS, after the death of a beneficiary, his or her dependents will be paid until their death. Therefore, it is hard to eliminate the beneficiaries from the system. On average, approximately 3000 beneficiaries exit from the system, while around 22,000 beneficiaries are entered in to the system annually. On the other hands it is assumed that the public service cadre is fixed for the next two decades for the purpose of projection of the data. Therefore, according to the projections of data, the number of pensioners is reaching closer to the number of employees in the public service. In 2036, the number of employees in the public service and the number of pensioners will be 1,141,650 and 1,018,095 respectively. If the government decides to implement the full wage indexation to the pension payment, then the salary bill and the pension bill will be almost equal in 2036.

According to the analysis, the pension burden has decreased from 1.3 percent to 1.18 percent of the GDP during 2018 to 2036 at the existing policy framework. However, from 2005 to 2015 there was a high growth rate of GDP (7.6percent) in the country and the above figures are generated based on the assumption that the GDP growth rate will remain unchanged throughout the period. This assumption can change due to unexpected shocks such as natural disasters, policy changes of the future governments, etc. Even though GDP to

pension ratio shows the positive results compared to the same figure of Non-OECD (1.33percent on average) of the pension system, when it is compared to the government income, it is marginally above the Non-OECD average. In Non-OECD countries, pension payment represents 6.8 precent of the government income and in Sri Lanka, it is almost 10percent at present. This is due to low government income compared to other countries. Therefore, the government should have introduced income generation policies inside the country to increase the government income and to minimize the said rate. However, in the meantime, if the government decides to implement the fully wage indexation to pension payments, which is recommended by several salary commissions in order to win pensioners' votes at elections, then these results will suddenly change in to a negative value.

As already mentioned in Chapter 4, the coverage of the PSPS is not sufficient compared to the cost spending on the pension scheme. The coverage is declining due to rapidly increase ageing population as well as the employment restrictions (which is one of the assumptions in the calculations) in the public service. In 2017, 10percent of government income covers only 3percent of population in the country. This 3percent is equal to 14percent of the elderly population as well. The rest of the elderly population (86percent) doesn't have any kind of government support in their old age, since there is no budgetary support for pension scheme in the country. If citizens demand for the same kind of retirement scheme for the elderly population, then it will cost 72percent of the government income. Therefore, the government should have to balance expenditure on the social security schemes, since coverage of the schemes are also important to provide the retirement income for the elderly population which is rapidly increasing in the country.

According to the composition of the recurrent expenditure of the government in 2017, it is observed that more than 2/3 of the expenditure is spent on the compulsory payment of salaries and allowances for the existing employees of the public service and interest payment of the loans taken in the past. Pension payments amounted only 10percent of the recurrent expenditure in 2017. The crucial side of this recurrent expenditure is that the government borrowed some money to finance the recurrent expenditure, since the government income is not sufficient to meet the total recurrent expenditure. According to the Annual Reports of the Ministry of Finance, the government has continuously raised money through various financial instruments such as government bonds, short term loans from the commercial banks, etc. If this process is carried out in the long run, then the government debt will be accumulated and interest payment will be increased. According to the composition of the recurrent expenditure of the government, it is realized that the government has some debt issues which should be resolved in the near future. Otherwise the government will face a debt crisis.

According to the nature of the recurrent expenditure, it cannot be easily reduced, since those payments are spent on supply necessary services to the citizens, who pay tax as a service charge. However, it can be considered to reduce or transfer the burden of the pension payments, since those payments are not involved in any economic activities. If the government can transfer the pension burden, it will help to save 10percent of the recurrent expenditure as well as 10percent of the government income in the long-run.

5.2 Conclusion

Sri Lankan public service has 1.12Mn employees at present. According to the age analysis of the employees, 0.53Mn among them are going to be retired in the next two decades. Due to the nature of the pension policies that have been implemented in the past, the number of the beneficiaries who enters in to the system is far higher than the beneficiaries who leave the pension system. Therefore, the number of pensioners is accumulating in to the system at a higher rate. Accordingly, it was concluded that if the public service employment is fixed in to the existing number, the number of pensioners will come closer to the number of employees in 2036.

Since pension expenditure is expressed as a percentage of the GDP, the burden is slightly reduced from 1995 to 2017, due to high growth of GDP rate in the last decade of the country. It will further go down from 2018 to 2036, if the same rate of GDP growth is maintained in the country even in the future. This will happen under the existing policy framework and if the full wage indexation is considered to be a part of the existing policy framework, since several salary commission reports of the government have recommended an equivalent adjustment of pensions with every revision to the public service salaries, the pension burden will go beyond the Non-OECD average rate of 1.33percent of the GDP under the current growth rate of GDP. Accordingly, it is assumed that a high growth of GDP results in less pension burden and low growth of GDP results in a high pension burden in future, while other factors are remained unchanged. On the other hand, Full wage indexation results in a high pension burden and zero wage indexation results in a low pension burden as well.

However, GDP is not the only factor that can express the pension burden according to the previous researchers. Accordingly, coverage of the system, government income and expenditure and the way of government covers the

expenditure are also important to measure the sustainability of the pension system. Sri Lankan Public Service Pension Scheme (PSPS) will take 9 to 10percent of the government income to finance its future payments under the current policy framework, while it will consume 10 percent or more of the total recurrent expenditure as well. These figures are a bit higher than the Non-OECD average (6.8percent) in the past. Therefore, the government should consider increasing the income or decrease the pension expenditure to maintain the optimum level of pension payments in the future to ensure the system sustainability.

According to the data analysis of Chapter 4, it is observed that PSPS covers only 3percent of the total population and 14percent of the elderly (60+) population. These figures are not in a satisfactory level compared to the other countries since 1percent of the GDP or 10percent of the government income has incurred only to support the income for 3percent of the total population. When the cost is evaluated in terms of coverage of the scheme, it becomes clear that the future burden of the PSPS is not economically and politically attractive in the country.

Finally, it was also concluded that the income of the government is not sufficient to cover the recurrent expenditure at present and according to the projections, the gap between income and expenditure is gradually increasing over the next two decades under the existing policies of the government (Figure 4.4). Therefore, government has to borrow money from the outside to finance its recurrent expenditure and it leads to accumulate the interest expenditure in the current account of the national account. On the other hand, all recurrent expenditure cannot be considered to reduce or transfer except pension expenditure.

Even though pension payments as a percentage of GDP (1.32 to 1.18percent) shows a positive figure during the projected period, compared to the Non-OECD average (1.33precent), the other factors affecting to the sustainability of the pension system have not shown positive results, especially on the coverage of the system, ratio to government income and way of the finance of pension payments. Therefore, considering the lack of the government income and the coverage of the system, it is concluded that Public Service Pension Scheme (PSPS) in Sri Lanka will not sustain in the future.

5.3 Policy options to system reform

Under the existing policy framework, projections of the future pension payments will go beyond the control of the government budgetary allocations, since the income will not be sufficient to fulfil future payments.

Therefore, considering the experience of other countries, the following can be demonstrated as policy alternatives to minimize the pension burden in Sri Lankan public service in future.

1) Remove the wage indexation [3] from the pension
2) Take measures to increase the government income as well as the GDP
3) Increase the retirement age to match with the life expectancy
4) Change the pension calculation formula with the calculation table
5) Reforming the current system in to funded pension system

[3] "Indexation is a technique to adjust income payments by means of a price index, in order to maintain the purchasing power of the public after inflation". Sri Lankan public sector practices two types of wage indexation. First, adjustment of the Consolidated salary and the separate payments (COLA- Cost of Living Allowance) to ensure the purchasing power of the employees.

1) Remove the wage indexation from the pension

According to the above mentioned data, it is realized that every 10 year of time, Sri Lankan public sector had salary revisions. The last revision was done in 2016. In order meet the demand of the pensioners, there were pension revisions done to make some adjustment to the pensioners too in ad-hoc basis, parallel to the salary revisions. This wage indexation increased the pension payments. However, on the other hand even though wage indexation is costly and it is important to expressly refuse the index pension to wages, it can be a harder and an unpopular decision for any ruling party, since the pension of former Cabinet of Ministers are also formally linked to the wages at present. Therefore, removal of the wages indexation of the public servants will be politically a harder decision for any form of government in future. Further, these wages indexation was done in an informal way and it was depending on the pressure which was brought by the pensioners associations against the government at the time, when salary revisions were done. This indicates that other salary revisions in future will also be pressured on the government to grant the salary indexation for the pensioners as well.

2) Take measures to increase the government income as well as the GDP

To increase the government income, tax and non-tax revenue should be increased. However due to lack of capital in short and medium terms, it is difficult to increase the non-tax revenue. Therefore, the best option is increasing the tax revenue to collect more money from the citizens. However, this is also not a popular decision for the government, since Sri Lanka is a middle-income country and still 4.1percent of the population is living under the extreme poverty line. Therefore, it should be better considered to increase the government income, while increasing the GDP of the country. This can be done on achieving higher rates of savings and investments in the economy. Investing

on infrastructure will be one of the solutions to achieve rapid economic development, since Sri Lanka has the cheapest labor cost in the region and it will attract Foreign Direct Investment (FDI) to boost the economy in short and medium terms. However, currently, there is no government savings reflecting on the trade account. On the other hand, Sri Lanka has a huge debt stock to settle in coming two or three decades. Even though economic development can solve many of the problems in the country and provide a partial solution to the future pension burden, it is hard to expect a rapid economic development in future, considering the existing economic condition in the country. Accordingly, fiscal adjustments such as increasing taxation and cutting expenditure are not possible to meet the future pension commitments in Sri Lanka, since at present, the government has already implemented this strategy to finance their debt services. Therefore, building buffer funds will be one of the solutions to increase the government savings in order to achieve future demand.

3) Increase the retirement age to match with the life expectancy

Developing countries often have maintained a low retirement age to alleviate the unemployment problems in the countries. However, it is a well known fact that when the life expectancy of the population goes-up, then it is particularly important that the retirement age of the employees should increase to minimize the future burden of the social security schemes. If the retirement age is not increasing corresponding to the life expectancy, then the period of pension payments will be higher than the working life of an individual. Sri Lankan public service decided their retirement age when the life expectancy was 55 years and it was equal to the compulsory retirement age at that time. However, at present the life expectancy of Sri Lanka is 75 years and civil servants may live longer than that since one of the scholars found that civil servants of the

country may live more than the life expectancy of the general citizen, since they enjoy better life conditions than the general public. According to the existing data, world is also experiencing a rapid rate of ageing population. As a result of the health care development in Sri Lanka, the country will be placed in first place in South Asia by 2025 to be the home for facing the highest rate of population ageing in the history. Accordingly, labor force of the country is ageing and the cost of the social security for elderly population is also increased. Due to time constraints and the unavailability of the relevant data, it was hard to calculate the effects of the increasing of retirement age for the future pension payments in the civil service in Sri Lanka. Even though there are some disadvantages identified by the scholars regarding the increasing of the retirement age of employees, (rising of the unemployment rate) one of the best policy options that has theoretically been accepted by many scholars is to manage the future pension burden through the retirement age. Accordingly, increasing retirement age of the civil servants can delay the growth of the future pension burden in short term and permanently reduce the burden in long term in Sri Lanka. This should be one of the solutions that has to be considered at the first stage of pension reforms, since ageing population will be one of the major problems in future of Sri Lanka in several aspects. On the other hand, as a long-term solution, government should focus on change of demographic patterns of the society. At present, population growth rate of the country is 1.1, which will lead to downsize the future work force. Therefore, government has to take some actions to do the demographic adjustments through various indirect means such as tax and welfare incentives to have early marriage and have more children to build larger families, while encouraging immigration of youths as well. Changing the demography of the population is the one long term solution for the future burden of the all kinds of funded and unfunded pension schemes including Civil Service in a country. Even though the government has

only limited inroads into changing the demography, sometimes much more can be achieved through the change of the system demography. System demography involves to reduce the pension receivers in a long run as a percentage of the labor force of a country. This can be achieved through the new entrants to the labor force and limit the number of new pensioners. According to the researchers, this strategy can be succeeded through the encourage of unemployed women to come to the labor market in most developing countries.

4) Change the pension calculation formula with the calculation table

At present, Department of Pensions uses the pension formula and the table to calculate the pension allowance of the retirees, which has been introduced by the government a long time ago. The formula is as follows.

$$\begin{aligned}&\text{Monthly pension allowance of a retiree}\\&= (\text{Consolidated last drawn Salary } \times 12)\\&\times \text{Percentage relevant to Retiree's completed years of service}\end{aligned}$$

Accordingly, monthly pension allowance of each pensioner will be based on their last drawn monthly salary and the number of completed years of service in the active service. The relevant percentage used for the calculation will be determined by the following table based on the completed years of service.

Table 5.1 – Pension Calculation Table of PSPS in Sri Lanka

Length of Service	25 yrs		25yrs 6months		26 yrs		26 yrs 6months		27yrs		27 yrs 6months		28 yrs		28 yrs 6months		29 yrs		29 yrs 6months		30 yrs and more	
Annual Salary of Retirement	Unreduced	Reduced	Unreduced	Reduced	Unreduced	Reduced	Unreduced	Reduced	Unreduced	Reduced	Unreduced	Reduced	Un Reduced	Reduced	Unreduced	Reduced	Unreduced	Reduced	Unreduced	Reduced	Unreduced	Reduced
Less than 159361	85%	75%	86%	76%	87%	77%	88%	78%	89%	79%	90%	80%	90%	81%	90%	82%	90%	83%	90%	84%	90%	85%
159361 - 162240	84	74	85	75	86	76	87	77	88	78	89	79	90	80	90	81	90	82	90	83	90	84
162241 - 166560	83	73	84	74	85	75	86	76	87	77	88	78	89	79	90	80	90	81	90	82	90	83
166561 - 171120	82	72	83	73	84	74	85	75	86	76	87	77	88	78	89	79	90	80	90	81	90	82
171121 - 175200	81	71	82	72	83	73	84	74	85	75	86	76	87	77	88	78	89	79	90	80	90	81
175201 - 201360	80	70	81	71	82	72	83	73	84	74	85	75	86	76	87	77	88	78	89	79	90	80
201361 - 272160	79	69	80	70	81	71	82	72	83	73	84	74	85	75	86	76	87	77	88	78	89	79
272161 - 360360	78	68	79	69	80	70	81	71	82	72	83	73	84	74	85	75	86	76	87	77	88	78
360361 - 383580	77	67	78	68	79	69	80	70	81	71	82	72	83	73	84	74	85	75	86	76	87	77
383581 - 453660	76	66	77	67	78	68	79	69	80	70	81	71	82	72	83	73	84	74	85	75	86	76
Over 453660	75	65	76	66	77	67	78	68	79	69	80	70	81	71	82	72	83	73	84	74	85	75

Source: Pensions Circular 5/2006, Department of Pensions Sri Lanka

Table 5.1 shows two types of ratios under each completed number of service years namely Unreduced and Reduced. Because there are two options offered by the government for their retiree to take two-year pension allowance. If the pensioner is willing to take two-year pension allowance as an advanced of the future payments, then they will be paid their pension payments using the Reduced column and others who have not taken the pension advance will be paid using the Unreduced column considering their number of active service years in the public service.

Adjustment to the pension formula has to do mainly with the changing the parameters of the pension benefits in order to accommodate effects of the future pension burden. In general, those adjustments are changing the retirement age, wage indexation formula, pension calculation formula, contribution rate, recruitment and replacement rate, etc. However, when it comes to the Sri Lankan civil service, it has limited options to change the pension formula. Those are changing the retirement age, wage indexation and changing the variables affected to the pension calculation. The first two options are already discussed in the above. Therefore, changing the variables of the pension calculation is discussed here.

Even though Table 5.1 was introduced in 2006, it was only an update of the pensionable salaries in accordance with the public service salary revision which was done in 2006. Other than that, the ratios indicated in the table were practiced before 2006 and such ratios were allocated as per the political promises done in the past. Adjustment to the table can reduce the future pension burden, especially if ad-hoc wage indexation will not be cancelled. However, change of the ratios or change of the eligibility criteria (number of service years) in Table 5.1 will change the pension payments. If the government is able to change one of those factors or both of them in the same time, there will be

positive impacts on the future pension burden. This has done in Italy by tightening the eligibility criteria to resort the pension payment.

5) Reforming the current system in to funded pension system

In addition to making adjustments to the pension calculations as well as changing other factors which are affecting to the pension payments described above, the last solution will be reform of the pension system. Pension reform has become a major policy issue in many countries specially in Latin America, East Asia as well as the European Union. Among the Latin American countries, Chile has done the radical change by pro-privatization of their pension system. However, the other Latin American countries have not introduced their pension reforms in such a way that Chile has done. Further the reforms that are done in the Chile are no more politically feasible in the democratic environment that prevails in Latin American Countries (Mesa-Lago, 1997). According to the past literature, there are three broad categories of pension transitions that can be seen in the world with reference to the civil service pension reforms.

1. Transition from PAYG systems to funded systems
2. Transition from defined benefit systems to defined contribution systems
3. Transition to mandated centralized public systems to mandated decentralized private systems

Currently, Sri Lanka has the PAYG pension system for the public service employees. This is already explained in Chapter 2 of this paper. PAYG systems are always dependent on the current workforce in the public sector. However, in Sri Lanka, tax payers are the contributors of this system, since pension payments are part of the annual budget of the country. In other words, pension payments will be financed by the taxes on consumption. Therefore, pension

system represents an inter-generational transfer sustained by the promise of similar inter-generational transfers in future. However, as explained in the above demographic ageing of the country, it will arise the sustainability of these transfers due to limits of the taxation. Accordingly, increases of the payments will make the burden to the government, since the government revenue sources are limited in the future. Therefore, funded pension systems are the sustainable alternatives to the current PAYG pension arrangement in Sri Lanka, since each generation funds its own pension promises that are being increasingly resorted. The benefit of having a funded system is that "it forces politicians to put their money where their mouth is when they make promises of higher pensions" (Rannan-Eliya, 1998). It is also protecting the problem of population ageing if the government will be able to exercise the high degree of fiscal responsibly. However, if the government uses this accrued fund to finance their other activities (mainly hogged by government borrowing for current expenditure) such as in the case of EPF[4] in Sri Lanka at present, a new system will also be vulnerable to give a solution for the future civil service pension burden.

Defined Benefit (DB) plans are paying the ratio of earning during the certain time of period when the employee is working before he retired. However, Defined Contribution plans are giving the benefits for the beneficiaries with reference to the contributions of the employees during their employment. In current Economic theory, due to lack of linkage between contributions and the benefits from a pension system there are some labor market distortions occurred. This can also be expected to reduce through the transition from DB system to DC system with individual accounts (Rannan-Eliya, 1998). However,

[4] EPF=Employee Provident Fund which is the biggest fund in Sri Lanka contributed by formal sector employers and the employees in the country except civil servants. This scheme is a defined contribution retirement plan which pay lump-sum amount for the beneficiaries when they got retirement.

this transition will not support the income redistribution and it will share the risk of the payments either across the generation or across individuals of the same generation. Accordingly, this transition will reduce the market distortions of labor and in the meantime, it will also lose the some of the insurance value of the pension system. This transition is also need to be faced out for DB liabilities that have already been accrued. For current pensioners, financing the pension income under the DB plan and for existing participants (employees) credit their accounts as past contributions.

In Sri Lanka EPF pension plan is a DC system with individual accounts while Public Service Pension Scheme (PSPS) is a PAYG type DB plan where benefits are calculated based on the last drawn salary and the number of active years of service served before the retirement. On the other hand, PSPS relates to the civil servants while EPF pay for the employees of Private and Public Enterprises in the country. This two-tier system has also led to the labor market distortions as this paper already demonstrates above. Therefore, it should be carefully considered about adopting the unified system for both private and public sectors to correct the said problem in the long-run. However, this study mainly focuses on civil service pension. Therefore possibilities of merging these two systems is not discussed in this paper.

5.4 Policy suggestions and recommendations to minimize the future pension burden

It is important to look at some studies regarding the pension system transition to identify the pros and cons of the transition from PAYG system to fully funded system. A study (Sinn, 2006) had revealed that PAYG pension schemes are always cheaper than the funded system until the number of beneficiaries is

increased. In other words, if the system gets matured and proportion of the beneficiaries is increased, then the sustainability of the PAYG schemes are going down and the temporary advantage of the PAYG scheme will disappear. This is happening because of the rising of the dependency ratio and the high unemployment rate in the country. Another study (Brown, 1995) emphasizes that once the PAYG system established, it is almost impossible to transit the PAYG system to fully funded system, since one generation has to make double contribution to pay off the actuarial liability of the PAYG system while prefunding the Fully funded system.

Several other scholars are suggesting establishing a liquidity or contingency fund in order to absorb unexpected events that might affect the financial sustainability of the schemes (Haberman and Zimbidis, 2002), (Pantelous and Zimbidis, 2008), (Gannon, Legros, Touze, 2013). Further it is suggested to maintain this fund as a buffer to absorb the contingencies in the short-run (Pantelous and Zimbidis, 2008). It is also defined that this buffer fund as a temporary arrangement of the budget balance of the pension system that ensures the future payments of the pension expenditures in line with the expected revenues (Gannon, Legros, Touze, 2013).

According to the results generated by this study it is observed that payments of the future pensions of the PSPS will be at a risk, if the government will not increase the income or reduce the recurrent expenditure. Therefore, to ensure the payments of the pensioners as well as to save the government income for the investing activities, it is a timely requirement to change the unfunded PAYG pension system to transfer the risk. Considering the demonstrations under Chapter 4, it is suggested to change the pension system from PAYG scheme to Funded scheme at the first phase of reforms in the PSPS reforms to eliminate the future pension burden of the national budget. This should be done mainly

because that the Sri Lankan public service pension scheme is a PAYG system and if the funded system starts then the payments are derived from the future beneficiaries as well as the working population as a whole through taxes on consumption. However, as discussed above, scholars point out that this transition cannot guarantee the sustainability until the system is fully transferred in to funding system with greater fiscal discipline to increase the investment as well as not being borrowed for the government consumption. Further, if the fund is managed in greater fiscal discipline to maximize the income of the investments, then this system could generate positive results. This has done in the some of the OECD countries in the past and has succeeded.

It is clear that due to demographic ageing and the other macro-economic factors which are affecting the government income, pension scheme of the public service will not be sustained in the future and will not assure the future payments as well. Therefore, any structural reform of the PSPS in Sri Lanka will be tried to avoid the burden on the national budget while ensuring the sufficient retirement income for the beneficiaries. Since existing employees are already guaranteed of their pension payments in future by the letter of appointment, it is impossible to change their status on pension without introducing them better alternatives. Accordingly, to do a smooth transition, a new system should be provided for them to generate higher retirement income than the existing PAYG system. Therefore, it is suggested to maintain the two-tier schemes until existing pension promises are expired. Because it will be the most cost effective method, rather than transiting the current system into the proposed funded system.

However, there are several short-term measures that can be made to minimize the costs of pension reforms.

1. Fiscal adjustments

   Remove the ad-hoc wage indexation and the inflation indexation from the pension payments and promote high growth of GDP in the country using better budgetary policies to increase the government income.

2. Demographic adjustments

   Promote elderly and women participation in the labor force to reduce the dependency ratio.

3. Pension system adjustments

   Gradually increasing the age of retirement in the public service to decrease the replacement rate.

Considering all the above demonstrations regarding the transition of the PSPS in Sri Lanka, it is suggested to establish a new DC pension scheme with individual accounts for new commers of the public service. As demonstrated in the above, the government cannot change the pension promises which has given for the former employees as well as the current employees in the past, when they were recruited. Therefore, future pension payments of the current employees cannot be changed. However, it is suggested to explicit the ad-hoc wage and inflation indexation of the pension in future, since pensioners need to be paid only a cost of living allowance. It is also suggested to establish a new credible institutional framework to ensure the future pension promises which can monitor the accumulated fund in proper and profitable way as well as to do the administration of the beneficiaries regarding the future pension payments. On the other hand, when the salary revisions are happening in the public sector (Usually every 10 year), the government can decide to explicit the wage and

inflation indexation from the pension calculation. From that date, the government can introduce the new pension scheme to the current employees as well. Employees can be given two options either to enter the new scheme with newer salary scales which implicit the inflation and the wage indexation of the pension contribution or they can stay in the previous with new salary scales explicit with the wage and inflation indexation for the pension calculations. The contribution rate of the new DC system should be decided to ensure the minimum cost of living of the future pensioners.

However, adjustment to the system and the reforms should be politically feasible and need wide political consensus before the implementation in the country like Sri Lanka. Pension burden has associated with the demographic ageing, and political power of the aged population has been dramatically increased. Therefore, votes of the elderly population can be major factor at the elections for countries which have open democratic systems such as Sri Lanka. Accordingly, reforms relate to pension reduction of previously promised benefits or revise the wage or inflation indexation can be politically unwillingness to implement since those kinds of policies are not popular among the public service pensioners. Therefore, it is better to attempt reducing the benefits of the future pensioners who newly recruited to the public service.

Accordingly, it is also suggested to be made aware the cabinet of ministers and the member of the parliaments regarding the gravity of the issue and sensitized the need for adopting the sustainable policies in the present. After that pension reform can be carried out with careful planning and with immediate effect to enhance the financial position of the government.

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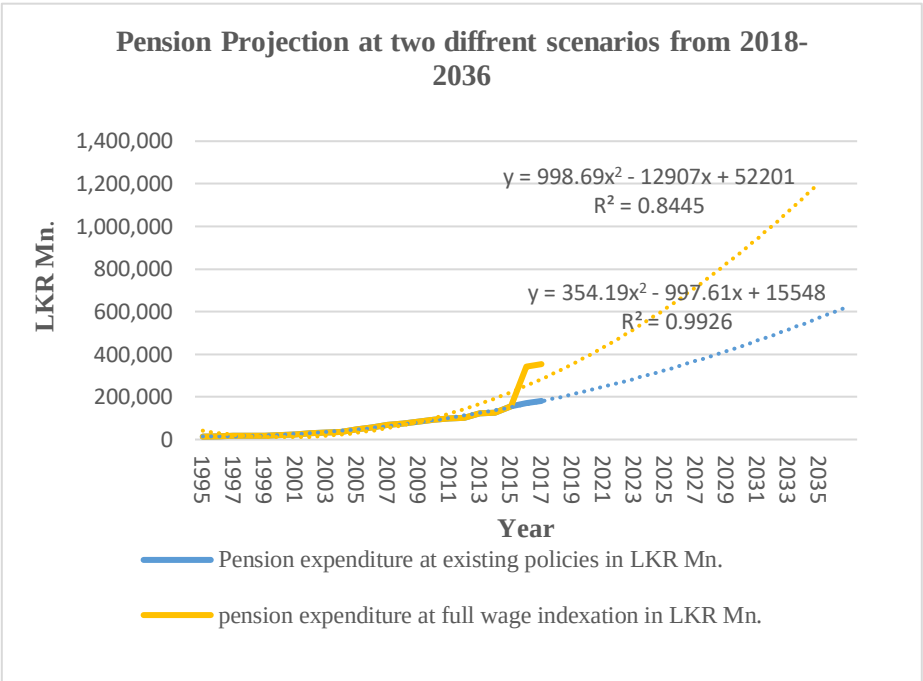
Technical Notes

Note – 01



Where, Y=Pension Expenditure

X=Year

R^2=Accuracy Rate

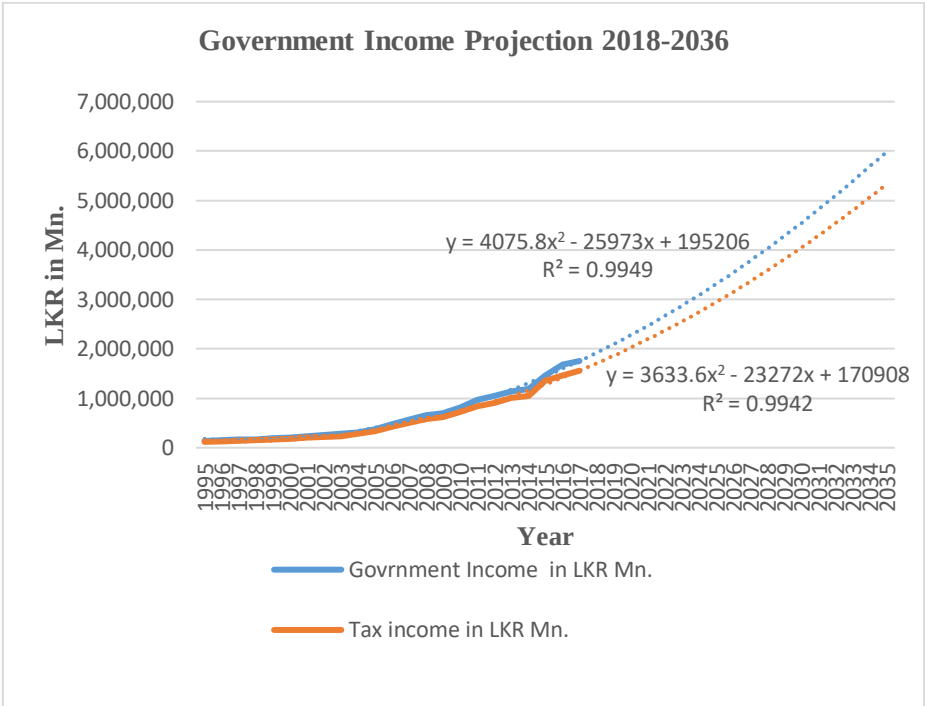
Accordingly, following table were generated.

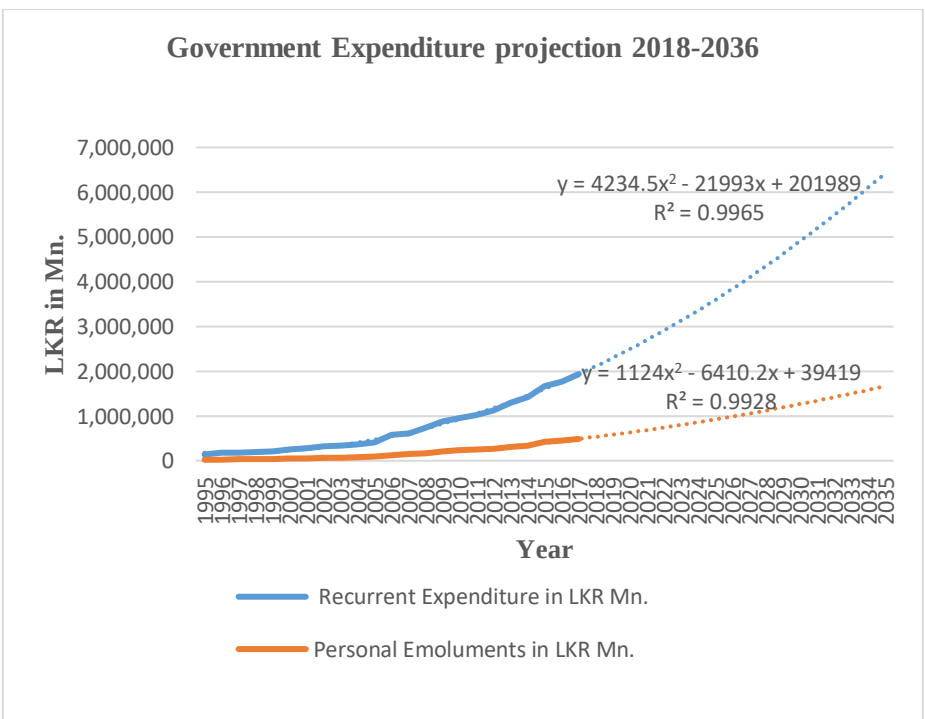
Year	No. of Pensioners	Pension expenditure at existing policies in LKR Mn.	pension expenditure at full wage indexation in LKR Mn.
1995	310,850	13,585	**13,585**
1996	332,820	14,458	**14,458**
1997	342,340	18,280	**18,280**
1998	346,360	18,858	**18,858**
1999	358,220	19,056	**19,056**
2000	363,780	20,366	**20,366**

2001	371,720	24,902	**24,902**
2002	393,300	31,083	**31,083**
2003	401,166	32,674	**32,674**
2004	413,200	36,416	**36,416**
2005	425,596	46,705	**46,705**
2006	430,153	58,147	**58,147**
2007	438,190	68,602	**68,602**
2008	445,120	75,910	**75,910**
2009	456,113	85,020	**85,020**
2010	473,762	91,995	**91,995**
2011	493,549	98,962	**98,962**
2012	510,343	101,682	**101,682**
2013	532,455	122,766	**122,766**
2014	546,383	126,103	**126,103**
2015	560,462	155,291	**155,291**
2016	579,508	171,903	**342,010**
2017	599,424	181,007	**353,764**
2018	**614,214**	**195,619**	**362,493**
2019	**629,468**	**211,977**	**371,495**
2020	**645,199**	**229,043**	**380,780**
2021	**661,422**	**246,817**	**390,354**
2022	**678,151**	**265,300**	**400,227**
2023	**695,400**	**284,491**	**410,407**
2024	**713,187**	**304,391**	**420,904**
2025	**731,526**	**324,999**	**431,727**
2026	**750,435**	**346,315**	**943,348**
2027	**773,805**	**368,340**	**972,727**
2028	**797,871**	**391,073**	**1,002,979**
2029	**822,654**	**414,514**	**1,034,133**
2030	**848,175**	**438,664**	**1,066,215**
2031	**874,457**	**463,523**	**1,099,253**
2032	**901,521**	**489,089**	**1,133,275**
2033	**929,393**	**515,364**	**1,168,312**
2034	**958,095**	**542,348**	**1,204,393**
2035	**987,654**	**570,039**	**1,241,550**
2036	**1,018,095**	**598,440**	**1,279,816**

Note – 02

Government Income/ Expenditure Projection





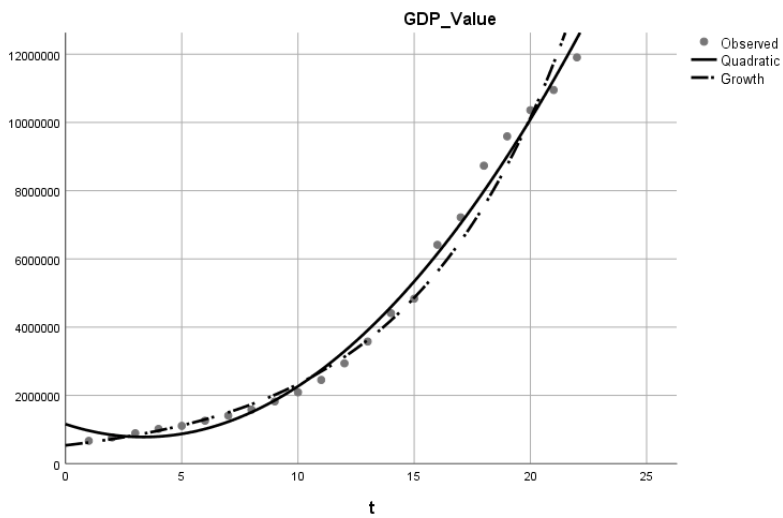
Where, Y=Income/ Expenditure

X=Year

R^2=Accuracy Rate

Note - 03

GDP Projection



Model Summary and Parameter Estimates

Dependent Variable: GDP_Value

	Model Summary					Parameter Estimates		
Equation	R Square	F	df1	df2	Sig.	Constant	b1	b2
Quadratic	.992	1173.906	2	19	.000	1158041.065	-225053.027	33587.397
Growth	.992	2585.423	1	20	.000	13.194	.147	

The independent variable is t.

According to the above formula, following table were generated

Year	GDP in LKR Mn.	Government Income in LKR Mn.	Tax income in LKR Mn.	Recurrent Expenditure in LKR Mn.	Personal Emoluments in LKR Mn.
1995	667,772	136,258	118,543	140,331	22,871
1996	768,128	148,431	130,203	175,946	26,167
1997	890,272	161,038	142,512	180,153	31,345
1998	1,017,986	169,473	147,368	200,309	39,439

1999	1,105,963	192,592	166,028	211,757	43,093
2000	1,257,636	211,282	182,392	248,115	49,559
2001	1,407,398	234,296	205,840	282,895	55,709
2002	1,581,885	261,888	221,838	325,774	66,203
2003	1,822,468	276,465	231,597	334,521	67,631
2004	2,090,841	311,473	281,552	359,757	74,522
2005	2,452,782	379,747	336,828	415,166	98,999
2006	2,938,680	477,833	428,378	578,980	121,841
2007	3,578,688	565,051	508,947	614,699	155,633
2008	4,410,682	655,260	585,621	736,593	162,828
2009	4,835,593	699,644	618,938	881,984	211,971
2010	6,413,668	817,279	724,747	951,473	236,848
2011	7,219,106	967,862	845,697	1,020,169	251,124
2012	8,732,463	1,051,462	908,915	1,117,931	272,620
2013	9,592,125	1,137,447	1,005,895	1,299,907	306,889
2014	10,361,151	1,195,206	1,050,362	1,429,179	333,708
2015	10,950,621	1,454,878	1,355,779	1,672,921	429,700
2016	11,906,752	1,686,061	1,463,689	1,770,882	452,325
2017	13,749,554	1,753,923	1,557,827	1,936,180	486,583
2018	**15,103,109**	**1,919,513**	**1,705,335**	**2,113,207**	**533,001**
2019	**16,523,839**	**2,093,254**	**1,860,109**	**2,298,704**	**581,667**
2020	**18,011,743**	**2,275,147**	**2,022,151**	**2,492,669**	**632,580**
2021	**19,566,822**	**2,465,191**	**2,191,459**	**2,695,104**	**685,742**
2022	**21,189,076**	**2,663,387**	**2,368,035**	**2,906,007**	**741,152**
2023	**22,878,504**	**2,869,735**	**2,551,879**	**3,125,380**	**798,810**
2024	**24,635,108**	**3,084,234**	**2,742,989**	**3,353,221**	**858,716**
2025	**26,458,886**	**3,306,885**	**2,941,367**	**3,589,532**	**920,870**
2026	**28,349,839**	**3,537,687**	**3,147,011**	**3,834,311**	**985,272**
2027	**30,307,967**	**3,776,641**	**3,359,923**	**4,087,560**	**1,051,922**
2028	**32,333,269**	**4,023,747**	**3,580,103**	**4,349,277**	**1,120,820**
2029	**34,425,746**	**4,279,004**	**3,807,549**	**4,619,464**	**1,191,966**
2030	**36,585,399**	**4,542,413**	**4,042,263**	**4,898,119**	**1,265,359**
2031	**38,812,226**	**4,813,973**	**4,284,243**	**5,185,244**	**1,341,001**
2032	**41,106,227**	**5,093,685**	**4,533,491**	**5,480,837**	**1,418,891**
2033	**43,467,404**	**5,381,549**	**4,790,007**	**5,784,900**	**1,499,029**
2034	**45,895,755**	**5,677,564**	**5,053,789**	**6,097,431**	**1,581,415**
2035	**47,967,007**	**5,981,731**	**5,324,839**	**6,418,432**	**1,666,049**
2036	**50,448,804**	**6,294,049**	**5,603,155**	**6,747,901**	**1,752,931**

국문초록

스리랑카 공무원 연금제도의 지속가능성에 대한 분석:

스리랑카 민주 사회주의 공화국의 기초연금제도 사례분석

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사회의 구성원으로서 세계 곳곳의 여러 정부들은 국민의 삶을 보호하기 위해 다양한 사회보장제도를 도입하고 있다. 연금 제도는 은퇴 후 노인들의 생활 환경을 보호하기 위해 정부가 사용하는 사회보장제도 중 하나이다. 간추리면 공무원 연금 제도는 정부가 그들의 전직 근로자들을 경제적, 사회적 취약성으로부터 보호하고 은퇴 후 남은 삶의 평화를 보장하기 위해 도입한 제도들 중 하나이다. 이러한 제도들은 주로 민간부문과 공공부문에서 모두에서 근로했던 수혜자들을 대상으로 하는 다른 제도들보다 높은 비용을 요구한다. 학자들에 따르면, 개발도상국의

단계에서는 정부가 민간 부문과 경쟁할 만한 충분한 재정을 갖추고 있지 않기 때문에 공무원의 이직을 방지하고 공무원에게 제공해야할 복리후생을 미래로 이전하기 위해 대부분의 공무원 연금 제도가 도입되었다고 한다.

스리랑카에는 현재 공무원 연금 제도(Public Service Pension Scheme: PSPS)와 직원 적립 기금(Employee's Provident Fund: EPF)의 두 가지 주요 연금 제도가 있다. 본 논문은 연간 예산의 정부 국고금을 통해 전액 지원되고 있는 페이고 제도(Pay-As-You-Go) 기반 공무원 연금 제도의 지속가능성을 분석하고 있다. 연금 경제학자들은 페이고 제도는 제도 도입 초반에만 비용 절약적이고 제도가 성숙함에 따라 자금 공급에 있어 언제나 고비용이 든다고 주장한다. 따라서 본 연구는 주로 스리랑카 공무원 연금 제도의 재무적 지속가능성을 분석하는데 초점을 맞추고 있으며 연금 제도를 강화하기 위한 최선의 정책 대안을 모색하고 있다.

연금 제도의 2018 년부터 2036 년까지 향후 18 년간의 재무적 지속가능성을 분석하는데 모의실험 기법을 사용하고 있다. 또한 지속가능성 측정을 위하여 다양한 거시 경제적, 인구통계학적 요인에 기반한 미래의 연금 지출을 예측하고 있다. 이러한 예측 과정에서 다양한 비율을 계산하고 OECD 비회원국들의 평균 비율과 비교하였으며, 그 결과에 따르면 GDP 대비 연금 지출은 향후 20 년 동안 1.33%에서 1.18%로 감소할 것으로 관측된다. 이는 미래 연금 지출과 관련한 비율들에 있어

OECD 비회원국들의 평균치와 비교했을 때 만족할만한 결과를 보여준 유일한 요소이다. 연금 의존도, 정부 소득/지출 비율에 대한 연금 지출, 노인들 간의 연금 적용범위 등과 같은 다른 요소들은 OECD 비회원국의 평균에 미치지 못하였다. 이에 더하여 정부 수입과 수익은 연금 지불 금액을 포함한 정부의 반복되는 지출을 감당하기에 충분하지 않으며, 또한 향후 소득과 지출 사이의 격차가 증가할 것으로 관측된다. 따라서 전반적인 연구 결과에 따르면 스리랑카의 공무원 연금 제도는 미래에 지속 가능하지 않으며 개혁이 필요하다.

주제어: 행정조직, 연금, Pay-As-You-Go 시스템(페이고 제도),
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