

**UNIVERSITI TEKNOLOGI MARA**

**OPTIMIZING CONTRIBUTION  
RATE OF SOCSO'S INVALIDITY  
PENSION SCHEME (IPS): AN  
ACTUARIAL PRESENT VALUE  
(APV) MODELLING**

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## ABSTRACT

This dissertation proposes the optimisation of the contribution rate for Social Security Organisation (SOCSCO)'s Invalidity Pension Scheme (IPS). In performing this study, four objectives were set. Firstly, this study aims to statistically analyse the current situation of the contribution fund collection and the claim benefits payment under SOCSCO's IPS. Secondly, it seeks to develop an actuarial formulation based on the benefits coverage from SOCSCO's IPS. Thirdly, it attempts to determine an optimal contribution rate to support the benefits provided under SOCSCO's IPS using an actuarial approach. Fourthly, it proposes an appropriate contribution rate to be implemented by SOCSCO. Currently, the contribution rate for SOCSCO's IPS is 1%, which is shared equally between employer and employee. This contribution rate is directly deducted from the employee's monthly gross salary. This contribution rate needs to be adjusted upwards by SOCSCO in the near future to ensure that all payments of claims are sufficiently covered. Based on the 9th Actuarial Valuation Report issued by the International Labour Organisation (ILO), recent statistics show that immediate revision of contribution rate is necessary in order to achieve the minimum loss ratio (max 20%) in SOCSCO's IPS funding systems. In this study, the Actuarial Present Value Approach is applied to all benefits under SOCSCO's IPS. SOCSCO data from 1985 until 2014 are used in this study. Seven assumptions are made in this study, namely mortality rate, salary ceiling, interest rate, retirement age, increment salary rate, age entry, and salary entry. By optimising the worst-case scenario (single simulation), this study has found that the optimal contribution rate is 2.2% rather than the current 1%. This can be attributed to the fact that since 1969, many changes have occurred in the workplace, working conditions are different and many new jobs have been created. Therefore, an Actuarial Present Value Approach with regards to actuarial modeling was conducted to optimise SOCSCO's IPS contribution rate. In conclusion, an optimal contribution rate of 2.2% should be introduced and implemented in the future as part of the efforts to reduce society's burden whilst ensuring that adequate protection is provided to the nation's workforce.

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# TABLE OF CONTENTS

	<b>Page</b>
<b>CONFIRMATION BY PANEL OF EXAMINERS</b>	ii
<b>AUTHOR'S DECLARATION</b>	iii
<b>ABSTRACT</b>	iv
<b>ACKNOWLEDGEMENT</b>	v
<b>TABLE OF CONTENTS</b>	vi
<b>LIST OF TABLES</b>	xii
<b>LIST OF FIGURES</b>	xiv
<b>LIST OF SYMBOLS</b>	xvi
<b>LIST OF ABBREVIATIONS</b>	xvii
<b>CHAPTER ONE: INTRODUCTION</b>	<b>1</b>
1.1 Introduction	1
1.2 Background Of The Study	1
1.3 Problem Statement	5
1.4 Research Questions	8
1.5 Research Objectives	8
1.6 Sifnificance Of The Study	9
1.7 Scope And Limitation Of The Study	11
1.8 Dissertation Format	12
<b>CHAPTER TWO: LITERATURE REVIEW</b>	<b>13</b>
2.1 Social Security Issues In Developed Countries	13

2.1.1	Issues Concerning Social Security in Developed Nations	14
2.1.2	Benefits of Social Security in Developed Countries	17
2.1.3	Contribution Rate of National Insurance (UK)	18
2.1.4	Benefits of National Insurance (UK)	19
2.1.5	Invalidity Pension in Developed Countries	20
2.1.5.1	Invalidity Pension in Australia	20
2.1.5.2	Invalidity Pension in New Zealand	21
2.2	Social Security Issues In Developing Countries	22
2.2.1	Contribution Issues in Developing Countries	22
2.2.2	Overview of Social Security in Singapore	24
2.2.2.1	CPF Contribution Rate	24
2.2.2.2	CPF Minimum Sum Scheme and Benefit	25
2.3	Social Security Issues In Islamic Countries	28
2.3.1	Overview of Social Security in Iran	28
2.3.2	Overview of Social Security in Qatar	29
2.4	Social Security Issues In Malaysia	30
2.4.1	Demographic and Life Expectancy	30
2.4.1	Financial System	31
2.5	Overview Of Social Security In Malaysia (SOCSO)	34
2.5.1	Social Security Principles	34
2.5.2	Definition of Employer and Employee	36
2.5.3	Definition of Wages	38
2.5.4	Contribution Rate	38
2.5.5	Social Security Protection Schemes	40
2.5.5.1	Definition of Employment Injury	40
2.5.5.2	Employment Injury Scheme (EIS) Benefit	41