

**THE IMPACTS OF FISCAL AND MONETARY POLICIES  
ON EMPLOYMENT: A STUDY OF THAILAND  
FROM 1983-2008**

**Marisa Laokulrach**

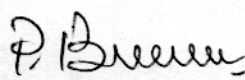
**A Dissertation Submitted in Partial  
Fulfillment of the Requirements for the Degree of  
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School of Public Administration  
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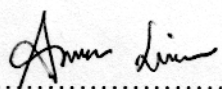
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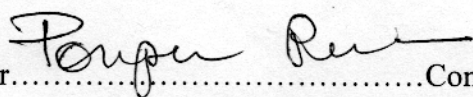
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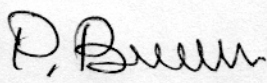
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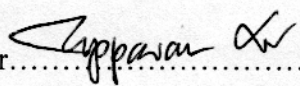
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## ABSTRACT

<b>Title of Dissertation</b>	The Impacts of Fiscal and Monetary Policies on Employment: A Study of Thailand from 1983-2008
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<b>Degree</b>	Doctor of Philosophy (Development Administration)
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Employment is one of the key economic indicators. Schools of economics have different perspectives toward the policies to stabilize employment. Keynesian theory states that deficiency of aggregate demand causes unemployment, and consequently the use of fiscal and monetary policies to increase aggregate demand can increase employment level. Classical, monetarist, and real business cycle theories state that macroeconomic policies cannot influence employment; instead, employment is generated by supply-side factors and nonintervention markets.

Employment is also affected by socioeconomic factors. This research aims to study whether the employment level in Thailand is affected by monetary and fiscal policies, or if the effect comes from other policies. Secondary data from 1983 to 2008 were used in the study, and multiple regression analysis was applied.

The employment of the entire nation, and also in each production sector, including agricultural, service, and industrial sectors, was studied. The researcher also studied the impacts of fiscal and monetary policies on underemployment in Thailand.

The model analysis was divided into three models with the objective of studying the factors that really impact employment. The first model included monetary and fiscal policies as the independent variables. The second model included macroeconomic policies, and supply-side policies. The third model included all independent variables: macroeconomic policies, supply-side policies, and socioeconomic factors.

The study of first model of impacts of macroeconomic policies on employment identified the positive impact of expansionary monetary policy on agricultural employment. Service sector employment was affected negatively by expansionary monetary policy. The second model showed that the reducing in tax rate increased the industrial sector employment.

The third model showed that employment was affected by supply-side policies rather than fiscal or monetary policies. The results of the study confirmed classical, monetarist, and real business cycle theories. Socioeconomic factors in terms of industrialization and urbanization also affected employment significantly. However, the impacts of those supply-side and socioeconomic factors on each production sector's employment were different.

Agricultural sector employment had a disadvantageous impact from trade and financial openness. Further, Thailand has experienced a higher degree of industrialization during past two decades; thus the agricultural sector has had a lower production value and has been able to absorb less labor. Trade openness has also caused the agricultural sector to face higher levels of underemployment. The other supply-side factor that has affected the agricultural sector is the minimum wage rate. The increase in the minimum wage rate has caused laborers to have more purchasing power to consume agricultural products, and this finally increases employment level.

Service and industrial sector employment has benefited from higher levels of trade and financial openness. The labor absorption ability of these sectors has increased. Service sector underemployment has also been reduced by trade openness.

Most employees in the service and industrial sectors are in the formal sector, which means that they are covered by labor protection laws. The increase in the minimum wage rate has in turn increased the burden on corporations and has caused a reduction in employment level, as the results of the study indicate for service-sector employment.

Since the employment and underemployment in each sector has been impacted by policies and factors differently, the government needs to use appropriate policies to stabilize the employment in each production sector.

Regarding the agricultural sector, the government should continuously provide channels for raising funds. The improvement of infrastructure, such as water sources

and land development, also needs to be emphasized in order to sustain production level in the long run. The government should try to profit from the increase in international openness so that it can expand the market for the agricultural sector. Investment privileges should be given to agricultural product export firms so that they can increase their competitive advantage in foreign markets and finally create employment.

Regarding the service and industrial sectors, the government needs to encourage commercial banks and financial institutions to grant loans more to business sector, especially to small-and medium-enterprises that are labor intensive or have productions based in provincial areas. The government should provide tax advantages to firms in the industrial sector.

There have been expansions in the free trade agreement between Thailand and other countries. The government should study each agreement in detail and make certain that Thai businesses can utilize those agreement preferences. The new open market will increase opportunities for the service and industrial sectors in terms of market share and in hiring more laborers.

## **ACKNOWLEDGEMENTS**

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## **TABLE OF CONTENTS**

	<b>Page</b>
<b>ABSTRACT</b>	<b>iii</b>
<b>ACKNOWLEDGEMENTS</b>	<b>vi</b>
<b>TABLE OF CONTENTS</b>	<b>vii</b>
<b>LIST OF TABLES</b>	<b>ix</b>
<b>LIST OF FIGURES</b>	<b>xi</b>
<b>CHAPTER 1 INRODUCTION</b>	<b>1</b>
1.1 Overview	1
1.2 Research Question	4
1.3 Research Objectives	4
1.4 Benefits of the Research	4
1.5 Scope and Limitations of the Study	5
1.6 Outline of Dissertation	5
<b>CHAPTER 2 EMPLOYMENT AND RELATEDPOLICIES IN THAILAND</b>	<b>6</b>
2.1 Employment in Thailand	6
2.2 Employment Policies in Thailand	19
2.2.1 Monetary Policy	20
2.2.2 Fiscal Policy	24
2.2.3 Quasi Fiscal Policy	29
2.2.4 Skills Development and Training	34
2.2.5 The Development of Openness	34
2.2.6 Labor Protection Laws	36

<b>CHAPTER 3 REVIEW OF LITERATURE AND CONCEPTUAL FRAMEWORK</b>	<b>39</b>
3.1 Employment	39
3.2 Theories of Macroeconomic Policies Affecting Employment	50
3.3 Theories of Supply-Side Policies Affecting Employment	66
3.4 Theories of Socioeconomic Factors Affecting Employment	86
3.5 Conceptual Framework	94
3.6 Hypothesis Development	97
<b>CHAPTER 4 RESEARCH METHODOLOGY</b>	<b>98</b>
4.1 Research Approach	98
4.2 Data Collection	99
4.3 Unit of Analysis	105
4.4 Data Analysis	105
4.5 Operational Definitions and Measurements	107
<b>CHAPTER 5 RESULTS OF THE STUDY</b>	<b>113</b>
5.1 Descriptive Analysis	113
5.2 Impacts of Monetary and Fiscal Policies on Employment	117
5.3 Impacts of Monetary and Fiscal Policies on Underemployment	152
<b>CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS</b>	<b>170</b>
6.1 Conclusions	170
6.2 Contribution to Theory	178
6.3 Recommendations	180
6.4 Further Research	186
<b>BIBLIOGRAPHY</b>	<b>187</b>
<b>BIOGRAPHY</b>	<b>196</b>

## LIST OF TABLES

Tables	Page
2.1 Average Employment and Unemployment Rate during the Past 25 Years	8
2.2 Production Sector Employment	9
2.3 Formal and Informal Sector Employment	13
2.4 Underemployment Rate as a Percentage of Employment in Each Production Sector	15
2.5 Percentage of Gross Domestic Product (GDP) from Each Production Sector	17
2.6 Education Level Attainment of Unemployed Persons	19
2.7 Corporate Tax Rate for Small and Medium Enterprises	25
4.1 Operational Definition and Measurement	108
5.1 Descriptive Analysis	113
5.2 Correlation Matrix	116
5.3 Output Impacts of Fiscal and Monetary Policies on Employment	119
5.4 Output Impacts of Fiscal and Monetary Policies on Employment of One Year Time Lag	125
5.5 Output Impacts of Fiscal and Monetary Policies on Agricultural Sector Employment	129
5.6 Correlation Matrix	133
5.7 Output Impact of Fiscal and Monetary Policies on Agricultural Sector Employment (Using Agricultural Product Export in Relation to Total Exports as One of the Independent Variables)	135
5.8 Output Impacts of Fiscal and Monetary Policies on Service Sector Employment	138
5.9 Correlation	144

5.10	Output Impacts of Fiscal and Monetary Policies on Service Sector Employment (Using Number of Tourists as One of the Independent Variables)	145
5.11	Output Impact of Fiscal and Monetary Policies on Industrial Sector Employment	148
5.12	Descriptive Analysis for Underemployment	154
5.13	Output Impact of Fiscal and Monetary Policies on Underemployment of the Entire Nation	155
5.14	Output Impact of Fiscal and Monetary Policies on Agricultural Sector Underemployment	157
5.15	Output Impacts of Fiscal and Monetary Policies on Agricultural Sector Underemployment (Using Agricultural Employment as a Part of the Independent Variables)	159
5.16	Output Impact of Fiscal and Monetary Policies on Service Sector Underemployment	162
5.17	Output Impacts of Fiscal and Monetary Policies on Industrial Sector Underemployment	166
5.18	Output Impacts of Fiscal and Monetary Policies on Industrial Sector Underemployment (Using Industrial Employment as a Part of the Independent Variables)	168

## LIST OF FIGURES

<b>Figures</b>	<b>Page</b>
3.1 The Aggregate Demand Function	42
3.2 Aggregate Demand with Government Intervention	53
3.3 Increases in Taxes or Decreases in Government Spending Can Decrease Aggregate Demand	54
3.4 Decrease in Taxes or Increases in Government Spending Can Increase Aggregate Demand	55
3.5 Conceptual Framework	96

# CHAPTER 1

## INTRODUCTION

### 1.1 Overview

Employment is a situation that the government sector gives importance to. Many countries include employment rate as part of macroeconomic growth variables. Employment is volatile by the economic situation. Employments of many countries especially open countries decreases significantly when the nation faces with the economic downturn or crisis. Governments implement economic policies both fiscal and monetary policies with the targets of increasing the employment rate and of also stabilizing the economy.

The average employment rate in Thailand is approximately 95-98 percent for the past 25 years. The employment structure in Thailand has changed during the past two decades as a result of economic development from higher degree of international trade, capital inflows and foreign direct investment. The employment structure has been changed from the agricultural sector absorption to more of industrial and service sectors absorption. The agricultural sector employment was the highest percentage of 65 percent of total employment in year 1983-1990. During year 1991-1996, Thailand had a very high growth rate from the high volume of international trade. The employment in agricultural sector had been declined to 45 percent with the increasing of the employment in industrial and service sectors. From year 1997-2008, the agricultural employment has been declined slowly to 39 percent. The industrial employment has increased from about 12 percent in year 1983 to 21 percent in year 2008, and service sector employment has increased from 22 percent to 40 percent in year 2008.

Thailand's production structure has changed from agricultural production to more level of industrialization. The industrial sector generates higher value in Gross

Domestic Product and also in term of export value. The moving of economy into industrialization also increases the development of urban areas and employees have moved into urban areas for better job opportunities.

There is low open unemployment rate in Thailand. The reason is high proportion of labor force is in the informal sector. About 60 percent of employed persons are working in the informal sector. The informal sector is highest in the agricultural sector followed by service sector and least in the industrial sector. The informal employed persons are not in the social security system and also are not protected by law, so the government is trying to include them into the formal sector and also trying to expand the protection coverage for the informal sector.

Among the employed persons, some of them don't work with full capacity or full time. They are underemployed persons which means employed person who is working less than 30 hours a week and available to work more. The underemployment rate is highest in agricultural sector, followed by service sector, and least in industrial sector. The underemployment problem exists in agricultural sector. The agricultural sector now has least absorption employment power, and also face with the underemployment problem. This indicates the labor surplus in the agricultural sector in Thailand.

Employment rate in Thailand is also affected by the economic cycle. During year 1991- 1996 of the economic expansion from high degree of openness, there was the shortage of skilled labor and also unskilled labor. In year 1997 of big time economic crisis, Thailand faced with the high rate of unemployment. Many employees were laid off as the bankruptcy of business sector. The underemployment rate was also higher.

The Tenth National Economic and Social Development Plan which is the master plan of policies for year 2007-2011 aims Thailand to promote agricultural sector to produce more foods to serve world market, attract more investment to expand the production base in the industrial sector, and build up the service sector to be the major sector to generate highest income to the nation.

Government uses monetary and fiscal policies to stabilize the economic activities and employment. Bank of Thailand uses policy interest rate to maintain price stability, and then consumption and investment rate can also be stable to benefit

the employment level. Government uses credit policy to each production sector through the Specialized Financial Institutions (SFIs) with the objective to support sectors especially agricultural sector and small and medium enterprises to increase their production and employment level. Tax policy is also used to support the employment generation for example the Investment Promotion Act which provide tax exemption period for corporations who invest in Thailand and comply with Board of Investment (BOI)'s requirements. The Small and Medium Enterprises also get the tax advantage. Government usually uses the budget deficit to increase the government spending with the objective of stimulate the consumption and investment to benefit the employment.

Aside from the monetary and fiscal policies, the other policies have been also used to increase and stabilize the employment level. The development of skills training and education has been the focus from the government since the Eight National Economic and Social Development Plan after facing with economic crisis in year 1997. Government has policy to develop workforce to match with the skills and labor demand. Social Security System has been developed to increase the benefits coverage and unemployment insurance for participants. The development of infrastructure and technology has also been emphasized to increase the competitive advantage of production sectors, and also to facilitate the openness in Thailand. The higher degree of trade and financial openness can expand the market share for products in Thailand and benefit the employment level.

The roles of fiscal and monetary policies, and also the other policies in creating employment are identified differently by schools of economists. Keynesian theory believes that monetary and fiscal policies have important role in term of increasing the aggregate demand and also can increase employment. Classical theory, Monetarist theory, and Real business cycle theories states that the supply-side factors can increase the employment better than the monetary and fiscal policies. It is questionable if monetary and fiscal policies or the other policies can more effectively increase the employment in the nation.

This research studies the effectiveness of fiscal and monetary policies which were used during year 1983-2008 in stabilizing employment in each production sector in Thailand. The study of the supply-side policies for example trade openness, human

capital development, infrastructure and technology development, and deregulation are also included here. The socioeconomic factors of labor force growth, economic growth, urbanization, and industrialization which may affect the employment are also taken into account in this study. The study of the overall employment and each production sector employment will be examined. The study of government policies to solve the underemployment in each production sector is also part of this research.

This study is expected to contribute the effectiveness of the government's policies to stabilize the employment and reduce the underemployment in each production sector to achieve the goals of the nation.

## **1.2 Research Question**

Do fiscal and monetary policies have substantial and significant impacts on employment in Thailand?

## **1.3 Research Objectives**

1.3.1 To study the impact of monetary, fiscal policies, and also the other policies/factors affecting to the employment in each production sector which are agricultural, industrial, and service sector in Thailand.

1.3.2 To study the impact of monetary, fiscal policies, and also the other policies/factors affecting to the underemployment in each production sector which are agricultural, industrial, and service sector in Thailand.

1.3.3 To recommend the effective policies for employment sustainability in each production sector.

## **1.4 Benefits of Research**

This research will provide deeper understanding in conducting fiscal and monetary policy to influence employment. The research will also identify the interaction of macroeconomic policy and other public policies such as human capital

development, trade and financial openness, and deregulation to create the employment and reduce the underemployment. The study will benefit the conducting of appropriate public policies to stabilize the employment in each production sector.

### **1.5 Scope and Limitations of the Study**

This is the study using the annual data of each independent variables and dependent variable. The short term impacts of the independent variables to the dependent variable are not examined here. The study will cover the overall employment and underemployment of the overall and in each production sector. The production sector is classified to agricultural, industrial, and service sectors.

### **1.6 Outline of The Dissertation**

The outline of the dissertation is as follows:

Chapter 1 Introduction

Chapter 2 Employment and Related Policies in Thailand

Chapter 3 Review of the Literature and Conceptual Framework

Chapter 4 Research Methodology

Chapter 5 Results of the Study

Chapter 6 Conclusions and Recommendations

## **CHAPTER 2**

### **EMPLOYMENT AND RELATED POLICIES IN THAILAND**

This research aims to study the impacts of fiscal and monetary policies on employment in Thailand by using data from 1983-2008. The situations and problems of employment during the last two decades, as well as policy implementation regarding employment issues, are presented here.

#### **2.1 Employment in Thailand**

##### **2.1.1 Employment During 1983-2008**

Labor force statistics have been compiled by the National Statistical Office (NSO) since 1963, when the survey was initiated. From 1984 to 1997 three rounds of the survey for the entire kingdom had been conducted each year; the first round enumeration was held in February, coinciding with the non-agricultural season; the second round is normally held in May when the new labor force comes from students that have just finished their schooling; and the third round is held in August, during the agricultural season. Commencing from the year 1998, another round of the survey in November has been conducted. Due to the increasing demand of data for formulating plans and policy at the provincial level, the National Statistical Office has expanded the sample size to propose statistical data at the provincial level commencing from a survey in February and August, 1994. For the fourth round in November 1998, data were presented for the first time at provincial level.

After the economic crisis in the middle of 1997, the need for labor force data for planning and policy making became more in demand. In 2001, a survey was conducted monthly. The survey data of three months were combined to present the quarterly employment. Further, the data from February, May, and August were presented in order to compare it with the previous labor force survey, and since

September 2001, data have been presented monthly. Beginning with the survey in January 2001, 5 items have been revised; the age of persons in the labor force was changed from 13 years and over to 15 years of age and over in order to agree with the child labor law. The standard classification of occupation, industry, and employment status was adopted.

The labor force in Thailand has increased during the past two decades, from 50 percent of the total population in 1983 to 60 percent in 2008. Additionally, the population in Thailand has increased from 49 million to 63 million people, while the labor force has increased at decreasing rate (NSO, 1983-2008).

The labor force in Thailand includes all persons 15 years of age and over who, during the survey week, were either employed or unemployed. Employed persons mean persons 15 years of age and over during the survey week, and: 1) worked for at least one hour for wages/salary, profits, dividends or any other kinds of payment, in kind; or 2) did not work at all or worked less than one hour but (1) received wages/salary, profits from business enterprise or farm during the period of absence; or (2) did not receive wages/salary, profits from business enterprise or farm during the period of absence but had a regular job or business that they would return to, or 3) worked for at least one hour without pay in a business enterprise or on a farm owned or operated by household heads or members.

Unemployed persons mean persons 15 years of age and over who during the survey week did not work even for one hour, had no job, business enterprise or farm of their own. Persons in this category include: 1) those that had been looking for work, applying for a job or waiting to be called to work during the last 30 days before the interview date. 2) those that had not been looking for work during the last 30 days before the interview date but were available for work during the last 7 days before the interview.

**Table 2.1** Average Employment and Unemployment Rate during the Past 25 Years

	1983-1987	1988-1992	1993-1997	1998-2002	2003-2008
Labor Force	100.00%	100.00%	100.00%	100.00%	100.00%
Employed Persons	91.68%	94.77%	95.78%	94.43%	97.67%
Unemployed Persons	5.09%	3.22%	2.00%	3.58%	1.72%
Seasonally Inactive Labor Force	3.23%	2.01%	2.22%	1.99%	0.61%

**Source:** National Statistical Office of Thailand, 1983-2008.

From table 2.1, it can be seen that the employment rate during the past 25 years was at 94-95 percent on average and the unemployment rate was at 2-3 percent on average. There are several reasons for the low open unemployment rate. First, a large proportion of the labor force comprises own-account workers (self-employed) and unpaid family workers, mainly in agriculture. According to the Labor Force Surveys (LFSs) by the National Statistical Office of Thailand, (1983-2008) self-employed and unpaid family workers accounted for 54 percent of the total employment in 2008. Second, as in many other developing economies, the informal sector plays an important role in providing employment opportunities for the labor force.

The Thai labor market can be characterized as a segmented labor market, consisting of formal and informal labor markets. Laborers that work in the formal market get higher wages and are covered by the Labor Protection Act, as well as by many social security programs. Informal employed persons mean employees that are not in the social security system of the government, state government agencies, or local government agencies.

The labor market is also classified into 3 sectors-the agricultural, industrial, and service sectors. In the following section, an overview of the employment in each production sector, and formal and informal sector, is presented.

### 2.1.2 Production Sector Employment

The labor market is also classified into 3 sectors: the agricultural, industrial, and service sectors. Agricultural sector employment includes employees in agriculture; hunting and forestry; and fishing. The industrial sector includes mining and quarrying; manufacturing; construction; and electricity, gas, and water supply. The service sector includes wholesale and retail trade; repair of motor vehicles and motorcycles and personal and household goods; hotels and restaurants; transport; storage and communications; financial intermediation; real estate; renting and business activities; public administration and defense; compulsory social security; education; health and social work; other community social and personal service activities; and private households with employed persons. Employment in the agricultural sector was the highest in the past but has decreased during the last two decades. The industrial and service sectors currently dominate employment absorption in the labor market.

**Table 2.2** Production Sector Employment

	1983-1987	1988-1992	1993-1997	1998-2002	2003-2008
Employment	100.00%	100.00%	100.00%	100.00%	100.00%
Agricultural Sector Employment	63.13%	60.25%	48.11%	43.92%	39.63%
Industrial Sector Employment	12.97%	15.55%	22.24%	20.99%	21.85%
Service Sector Employment	23.83%	23.83%	29.59%	35.05%	38.39%
Other	0.07%	0.37%	0.06%	0.67%	0.13%

**Source:** National Statistical Office of Thailand, 1983-2008.

#### 2.1.2.1 Agricultural Sector

Agricultural sector employment includes employees in agriculture; hunting and forestry; and fishing. Employment in the agricultural sector has changed

dramatically during the past 25 years. The agricultural sector was the major sector to absorb employment in the past, but this absorption degree has reduced significantly. Table 2.2 indicates that the agricultural sector had the highest capacity to absorb employees at 60-63 percent of total employment from 1983 to 1992. From 1993 onwards, agricultural sector employment has declined, while industrial and service sector employment has increased.

The agricultural sector lost its domination of the labor market. From 1991 to 1996 when Thailand had a high economic growth rate, agricultural employment declined from 63 percent to 45 percent. This shows the changes in the economic structure in Thailand—from being agriculturally-oriented to being more industrially-oriented; a greater number of employees began to work in the industrial and service sectors. After the economic crisis of 1997 to 2008, agricultural employment declined slowly to 40 percent.

Thailand has the highest population in rural areas, where most people work in agriculture. We would expect that the agricultural sector would be able to absorb employment to the highest degree, but the fact is the opposite. The value of agricultural products in the GDP has declined, but the value of the industrial and service sectors has increased, so employees have moved to these other sectors.

The employees in this sector must depend on the likelihood of agricultural products and prices, so there is high uncertainty in their career compared to the other sectors. The uncertainty of production and also season-dependent products causes volatility in wages or in the income of employees and also causes them to face non-consecutive working hours.

There is a seasonal nature in agricultural production. During the dry season, there is a lack of agricultural activities, and a very high proportion of the labor force becomes seasonally unemployed. The dry season in Thailand occurs during the first quarter of the year, when we have higher seasonal unemployment compared to the other periods of the year.

This uncertainty in production, prices, and income in the agricultural sector, in addition to the higher degree of industrialization in Thailand since 1991, has caused employees in the agricultural sector to work in the industrial and service sectors for higher wages and better job opportunities.

### 2.1.2.2 Industrial Sector

The industrial sector includes mining and quarrying; manufacturing; construction; and electricity; gas, and water supply. The highest percentage (75 percent) of employed persons in the industrial sector is in manufacturing, followed by construction, electricity, gas, and water supply, and the least percentage is in mining and quarrying.

The data according to table 2.2 indicate that industrial sector employment had increased continuously from 13 percent in 1983-1987 to 15.55 percent in 1988-1992. In 1993-1996, with economic expansion, the industrial sector employment increased to 22 percent, and then dropped during 1998-2002 as the result of the economic crisis. The employment rate of this sector increased again in 2003-2008. The employment in the industrial sector fluctuated following the economic cycle. In 1997, when Thailand experienced the economic crisis, industrial sector employment declined by 1.5-2 percent. The recent economic crisis in 2008 caused the industrial employment to decline by 0.7 percent.

The industrial sector has earned the labor absorption ability in the past two decades, which is in line with the value of industrial production value in the GDP. Considering the GDP according to industrial activities, the data also show that manufacturing production has contributed the highest value as well. This shows that employment in manufacturing has increased productivity.

The increase in the degree of absorption is also caused by the higher degree of industrialization and higher degree of openness in Thailand. Most corporations in this sector are exporters, and the employees in this sector usually earn higher wages than agricultural sector employees, so this causes the movement of labor between sectors.

The industrial sector is absorbing more employees now, so the government needs to stabilize the employment situation in order to protect the employees. The government may have to provide a tax advantage either in the form of a corporate tax to encourage more investment or in terms of an import tax on raw materials and production equipment for the industrial business sector in order to increase competitive advantage in the world market.

### 2.1.2.3 Service Sector

The service sector includes wholesale and retail trade; the repair of motor vehicles and motorcycles and personal and household goods; hotels and restaurants; transport; storage and communications; financial intermediation; real estate; renting and business activities; public administration and defense compulsory social security; education; health and social work, other community social and personal service activities; and private households with employed persons.

The service sector has also absorbed more employees during the past 25 years. The service sector employment rate has increased from 24 percent to 38.39 percent on average. Again, according to table 2.2, during 1983-1992 employment in the service sector was quite stable at 24 percent on average. After 1993, the absorption ability increased to 30 percent during 1992-1997, and 35 percent during 1998-2002. From 2003 to 2008, employment was at an average of 38.39 percent.

The wholesale and retail trade, hotels and restaurants, transportation, and public administration subsectors are the major sub-sectors and absorb the highest employment in the service sector, especially after 1997. This is again the result of a higher degree of international trade and international capital flows in Thailand. There is increasing the number of tourists traveling to Thailand as well as improvement in the logistics and transportation system.

### **2.1.3 Formal and Informal Sector Employment**

The employed persons in the formal sector are those that work as government employees, state-enterprise employees, and private employees and employers in the non-agricultural sector. Since these workers are protected by the Labor Protection Act and are covered by many kinds of social insurance, those that work in the formal sector face various barriers to entry; for example, they must have a high level of education, be able to access some job-related information, be able to network well or be a land owner. Some might say that private employees in small firms employing 10 or fewer workers should be considered under the informal labor market, as they are in a perfectly competitive labor market. Since private employees in small firms are protected by the Labor Protection Act and the Social Security Act, in the same way as employees in medium- and large-size firms, in this discussion we consider them as being in the formal labor market.

The definition of “Informal Employed Person” means employees that are not in the social security system of the government, state government agencies, or local government agencies. These are employees that earn lower wages than the minimum wage rate, work for longer hours, earn income based on the units of products, and have no work agreement. Informal employed persons include part-time workers, home-based workers, sub-contract workers, and short-time workers.

**Table 2.3** Formal and Informal Sector Employment

<b>Year</b>	<b>Formal Employment (%)</b>	<b>Informal Employment (%)</b>	<b>Informal Employment in the Agricultural Sector (%)</b>	<b>Informal Employment in the Industrial Sector (%)</b>	<b>Informal Employment in the Service Sector (%)</b>
2005	37.92	62.08	38.94	5.32	17.82
2006	38.54	61.46	35.34	7.18	18.93
2007	37.29	62.71	38.75	5.85	18.10
2008	36.29	63.71	39.56	5.71	15.98
2009	36.63	63.37	38.46	5.88	19.03
Average	37.33	62.67	38.21	5.99	17.97

**Source:** National Statistical Office of Thailand, 1983-2008.

The informal sector employment data has been collected by the NSO only since 2005. The employment rate in Thailand has been on average 94-95 percent of the labor force during the past 25 years. Table 2.3 shows the proportion of formal and informal sector employment. Regarding employment rate, 62-63 percent of employed persons are in the informal sector, and fewer are in the formal sector. The informal sector in Thailand is quite big; this shows that most employees are not protected by law or the social security system.

The highest percent of informal employees is in the agricultural sector, which consists of 38-39 percent of total employment. The average of 5-7 percent of total employees work in the informal sector under the industrial sector, and 18 percent of total employees are in the informal service sector. This shows that nearly all employees in the agricultural sector are working in the informal sector, so this means

that they are not covered by legal protection or the social security system. Half of service employees also work in the informal sector.

Most of the informally-employed persons have a lower education level than formally-employed persons, and most of the informally-employed persons have an education level lower than elementary school. This is a barrier which causes them to have less chance of entry into the formal sector, and also causes them have no negotiation power over employers.

The informal sector is bigger than the formal sector, and this causes employees to face several problems which will finally lead to national-level problems. They are facing no work stability, no health care coverage, no job security, and lower living standards.

Informally-employed persons are not covered by the social security or by legal protection, so they have no work stability, no health care protection, no income stability, no negotiation power with employers, and a lower living standard compared to formally-employed persons.

In addition to workers' welfare, new economic conditions also call for improvements in Thai labor protection laws and for their enforcement. Massive layoffs due to technological changes, for instance, will not be permitted. This problem could be avoided, or at least mitigated, if firms carried out advanced planning in training and retraining workers. Occupational health hazards, such as cotton dust disease and illnesses/diseases due to chemical substances, also continue to persist. Present labor protection laws are far from up-to-date and are unable to cope with these newly-emerging problems. Thus employers continue to avoid their responsibility towards workers who fall victim to these occupational health disorders. Future policy hopes to provide more adequate coverage of social security and labor protection for informal sector employees.

#### **2.1.4 Underemployment**

Within the high percentage of employment in Thailand, there are underemployed persons. An underemployed person means a person that is working fewer than 30 hours a week and is available to work more. Work data hours are collected by the NSO.

The underemployment rate in Thailand is not high. According table 2.4, considering the underemployment in each production sector, the underemployment rate is highest in the agricultural sector compared to the industrial and service sectors. During the past 26 years, the agricultural sector has had underemployment at an average of 2.70 percent. The service sector has had less underemployment at 1.11 percent on average, followed by the industrial sector underemployment rate at only 0.98 percent. Agricultural underemployment is always higher than the other two sectors in every period.

**Table 2.4** Underemployment Rate as a Percentage of Employment in Each Production Sector

	1983-1987	1988-1992	1993-1997	1998-2002	2003-2008
Agricultural Sector Underemployment	2.07%	2.18%	2.60%	3.97%	2.69%
Industrial Sector Underemployment	1.43%	0.87%	0.77%	1.07%	0.78%
Service Sector Underemployment	1.62%	1.10%	0.99%	1.26%	0.59%

**Source:** National Statistical Office of Thailand, 1983-2008.

Underemployment in every sector increased during the economic crisis, but the agricultural sector underemployment rate increased more than the other sectors. As seen in table 2.4, during 1998-2002 of Thailand's economic crisis, agricultural underemployment increased from 2.6 to 3.97 percent, which was a 1.37 percent increase, while the service and industrial underemployment rate increased by 0.3 percent.

The employment in each production sector shows that the agricultural sector has less and less absorption degree of employment but the underemployment rate is higher than in the other two sectors. This shows that employees in this sector do not work at full capacity, and it also shows that there is a labor surplus problem in the agricultural sector.

The government needs to use its policies to reduce the underemployment rate in agricultural sector. Programs that generate jobs during the dry season may need to be provided for farmer, and skill training and development are also needed to increase the full capacity of workers.

### **2.1.5 Economic Activity and Employment**

The nature of employment changes according to economic activity, and there has been a shift away from agricultural and toward industrial and service sector employment in Thailand during the past two decades. The economic situation and employment from 1983 to 2008 is reviewed below.

The economic growth rate of Thailand was at 5-6 percent from 1983 to 1986, and then increased to two digits from 1987 to 1990. The GDP was at the high level of 8-9 percent until 1995 before the economic crisis in 1997, when Thailand experienced a negative economic growth rate. The economic recovery took place in 1999 and the growth rate was at an average of 4-6 percent in 2000-2007. Thailand faced another economic recession again in 2007-2008, which resulted in a negative growth rate of 2.25 percent. During most of the period, Thailand had a satisfactory level of economic development, with increases in the international trade and service level as well as in international capital flows.

The value of the GDP derives from three major sectors: the agricultural, industrial, and service sectors. The agricultural sector includes production in agriculture, hunting and forestry, and fishing. The industrial sector includes production from mining and quarrying, manufacturing, construction, and electricity, gas, and water supply. The service sector includes wholesale and retail trade repair of motor vehicles motorcycles and personal and household goods; hotels and restaurants; transport; storage and communications; financial intermediation; real estate; renting and business activities; public administration and defense compulsory social security; education; health and social work; other community social and personal service activities; and private households with employed persons.

**Table 2.5** Percentage of Gross Domestic Product (GDP) from Each Production

Sector	1983-1987	1988-1992	1993-1997	1998-2002	2003-2008
Agricultural Sector	16.97%	13.74%	10.69%	10.42%	10.68%
Industrial Sector	32.16%	36.95%	39.11%	40.54%	43.37%
Service Sector	50.87%	49.31%	50.20%	49.04%	45.95%

**Source:** National Economic and Social Development Board, 1983-2008.

The structure of the GDP value changed from 1983 to 2008. According to table 2.5, during 1983-1987, 16.97 percent of the GDP came from the agricultural sector, but this declined continuously to 10.68 percent during 2003-2008. The industrial sector has increased its importance in the economy lately. The value of industrial productions in the GDP was on average 32.16 percent during 1983-1987, and had kept increasing most of the time (except during the economic crisis in 1997-1999) to 43 percent in recent periods. The last one is the service sector, which is also important in terms of GDP generation. The service sector value has changed by a small range of 45-50 percent of the GDP during the past 25 years.

The Thai economy is mainly driven by sharp increases in manufactured exports and also the service sector. International trade and financial openness has increased. The level of exports increased dramatically, from 6.3 million baht in 1983 to 150 billion baht in 2008. Thailand had a trade deficit from 1983 to 1997, and since then we have had a trade surplus. The highest proportion of the export value comes from the industrial sector. The capital inflow and outflow also increased during the last 25 years as a result of the higher degree of openness, especially in terms of foreign direct investment.

Over the last two decades, the disparities between agriculture and non-agriculture, between regions, and between income groups have been widening. While industrialization is now proceeding very rapidly, the importance of agriculture in the GDP has continually been on the decline. In 1983, the share of agriculture in the GDP was 20 percent. This declined to 11.5 percent in 2008.

The nature and functioning of the labor markets are clearly related to problems of structural imbalance. Changes in the structure of production lead to changes in the composition of demand for labor, by sector, by location, and by skill types. Lags in the labor market, or rigidities, will lead to structural imbalances in employment, which may reinforce other imbalances.

The disparity between agriculture and non-agriculture was obviously reflected in the disparity between the urban and rural areas. Most of the dynamic and successful export industries are located in and around the capital city. People moved to urban areas for more opportunities for better jobs and also higher wages. In the past 25 years, Thailand has seen a higher ratio of its population in urban areas to total population, which has increased from 18 percent to 36 percent. The key question for the future is how to maintain the pace of economic growth while ensuring a more balanced development, with the benefits from development spreading more evenly among the population.

### **2.1.6 Education Level of Unemployed Persons**

The educational level attainment of unemployed persons is classified by the National Statistical Office (NSO) as no education, less than elementary, elementary level, lower secondary level, upper secondary level, and higher level.

During the past two decades, the education attainment of unemployed person has changed. In 1983-1992, 70-75 percent of unemployed persons finished only elementary school, and 6-7 percent finished lower secondary level, followed by the 7-8 percent that attained the upper secondary level. Only 5-6 percent of unemployed person received a bachelor's degree. During 1993-1997, the structure of unemployed persons' education had begun to change; a higher percentage of unemployed persons finished secondary and higher level. From 1998, there was a significant decrease in the percentage of unemployed persons that completed elementary level, and an increase in the proportion that finished upper secondary school, vocational, and higher levels. In 2003-2008, 21.17 percent of unemployed persons finished elementary school, 39.77 percent finished lower and upper secondary school, and 27.57 percent finished a higher level of education.

**Table 2.6** Education Level Attainment of Unemployed Persons

	1983-1987	1988-1992	1993-1997	1998-2002	2003-2008
None	3.82%	3.57%	3.28%	1.84%	1.77%
Less than Elementary	2.65%	2.20%	2.30%	12.67%	11.54%
Elementary Level	75.42%	73.70%	62.22%	26.00%	20.57%
Lower Secondary Level	5.81%	6.95%	12.60%	19.06%	21.17%
Upper Secondary Level	6.64%	7.49%	9.39%	16.37%	17.20%
Higher Level	5.54%	6.02%	10.18%	23.89%	27.57%
Other	0.12%	0.07%	0.03%	0.17%	0.18%

**Source:** National Statistical Office of Thailand, 1983-2008.

The changes in the level of education attainment of unemployed person show the mismatch between demand and supply of labor skills in the market. Thai people have a higher education level following the 9-year minimum compulsory education level regulated by the Education Act in 2002. The government has the objective of increasing the level of education and competency of the Thai people. People must at least finish the lower secondary level. As stated in table 2.6, the information shows a higher percentage of unemployed persons that finish lower secondary and upper secondary school, and a higher level. However, even though they have a higher education level, they are still unemployed. This shows the excess supply of higher education persons in the labor market, or their skills do not match the demand in the market. The government needs to study this issue further if the education system cannot produce a workforce that matches the market demand.

## 2.2 Employment Policies in Thailand

Following the Tenth National Economic and Social Development, Thailand wants to promote the agricultural sector to produce foods serving the world market,

promote investment and expand the production of the industrial sector, and support the service sector as the main national income source. The government is attempting to provide job stability to the agricultural sector, as this sector faces seasonal employment issues, and also labor surplus (as can be seen from higher underemployment compared to the two other sectors). Increasing employment in the industrial and service sectors is also expected to take place. The following policies have been implemented in Thailand to influence and support employment level.

### **2.2.1 Monetary Policy**

#### **2.2.1.1 Price Stability**

The main objective of the Bank of Thailand (BOT) is to ensure price stability in the economy, which is defined as low and stable inflation. Price stability helps to facilitate decision-making and the planning of consumption, production, and savings and investment by the private sector, which in turn supports sustainable economic growth and employment in the long run. This is because low and stable inflation helps to: 1) preserve the purchasing power of consumers and savers; 2) maintain the price competitiveness of businesses in both domestic and international markets. This will benefit international trade; 3) reduce the volatility of the real interest rate; 4) and promote a good overall economic environment through reduced uncertainty, which would otherwise negatively affect private-sector consumption and investment planning and decision-making.

The Bank of Thailand (BOT) has used an inflation targeting policy since 2000 to maintain price stability. The inflation target from May 2000 to December 2008 was between 0.0-3.5 percent, and narrowed down to 0.5-3.0 percent in year 2009 and 2010.

#### **2.2.1.2 Policy Interest Rate**

In conducting monetary policy under the inflation-targeting framework, the monetary policy stance is signaled through the policy interest rate (the 14-day RP rate was used at the policy interest rate until 16 January 2007, after which the policy interest rate was switched to the 1-day RP rate). Since 12 February 2008, with the closure of the BOT-run RP market, this was switched to the 1-day bilateral PR rate.

### 1) Transmission Mechanism

The impact of monetary policy on inflation incurs a 1-2 year time lag from the announcement of the policy rate decision. Transmission follows 5 main channels, including:

#### (1) Interest Rate Channel

When the central bank decides to decrease the policy rate, adjustments in short-term money market rates occur. Given that prices are sticky, real interest rates (i.e. inflation-adjusted nominal interest rates decline first in the short-run and then in the long-run, in line with the term structure). Part of these adjustments can be explained through the portfolio management of financial institutions in order to maintain competitiveness and to generate profit, ultimately resulting in a decline in deposit and lending rates.

From the above, it can be seen that a decline in real interest rate lowers the opportunity cost in consumption and investment, causing private domestic demand to expand. Subsequently, the economy grows at a higher pace and employment can increase.

#### (2) Exchange Rate Channel

This channel of transmission can also be explained through price level expectations since an accommodative monetary policy stance also leads to a higher price level and inflation expectations. As a result, real interest rates decline and higher economic growth is achieved, as above.

When the central bank decides to decrease the policy rate, adjustments in short-term money market rates occur. Returns on domestic investment decline relative to those from foreign investments, thus causing outflows of capital. As a result, the baht depreciates, benefiting exports, employment, and income. This would in turn stimulate consumption. At the same time, depreciation in the baht causes imports to be lower. Thus, net exports increase and this leads to higher economic growth (Tarin Nimmanhamin, 1998: 11-13).

#### (3) Asset Price Channel

When the central bank decides to decrease the policy rate, adjustments in short-term money market rates occur. People then reallocate their savings towards non-interest bearing assets such as real estate and equity. A rise in

demand for these assets results in higher prices. As a result, wealth increases and higher consumption follows. Moreover, higher equity prices also increase the market value of firms, thus making it more worthwhile for investment. Ultimately, an expansion in domestic demand would lead to higher economic growth and employment.

#### (4) Credit Channel

When the central bank decides to decrease the policy rate, adjustments in short-term money market rates occur. Debt obligations of businesses decline, thus strengthening their balance sheets. In turn, financial institutions are more willing to lend to businesses, given the lower risks. As a result, investment increases, resulting in higher economic growth. Business sectors also can increase the level of employment, especially in the industrial and service sector.

#### (5) Expectation Channel

Changes in monetary policy stance affect the expectations of the public concerning inflation, employment, growth, future income, and profits/losses. Such changes in expectations in turn determine private economic activities. However, the impact of monetary policy through this channel is the most uncertain of all channels, as it depends on the public's interpretation of such changes in monetary policy stance. For example, the public may view a decrease in the policy rate as a signal that the economy is going to expand higher in the future, boosting their confidence in consuming and investing. On the other hand, they may believe that the economy is weaker than previously expected, lowering their confidence and ultimately consumption and investment.

Inflation forecasts help guide inflation expectations, which are important determinants of wage increases and actual inflation in each year, as well as long-term interest rates. Thus, inflation targeting countries are committed to anchoring the inflation expectations of the public through the announcement of an inflation target.

#### 2.2.1.3 The Development of Financial Markets

The Bank of Thailand plays an important role in promoting sound practices to encourage the development of the financial markets, in particular the money market and the bond market. Such development will foster greater efficiency and competition in these markets. The development of debt markets in Thailand has a

strong potential to become one of the main pillars for Thailand's financial structure. With the ultimate goal of having a more sustainable financial system, Thailand's bond market has been developed significantly during the past few years. This has been witnessed by consistent issuance of both government and corporate securities. The BOT has also developed a secondary market for bonds.

A deep and liquid market requires efficient trading of bonds in the secondary market, where bondholders can easily liquidate their bond holdings any time they wish. An efficient secondary market is an integral part of the price discovery process, where both issuers and borrowers are confident of a fair market price.

The development of a primary and secondary market for money and debt instruments can facilitate the business sectors in terms of raising funds to expand their investment level. Business sector can have more alternatives for raising funds for expansion rather than borrowing from commercial banks only. Firms have a higher liquidity and capital level; if they can expand their production level or market share, they will tend to increase the number of workers as well.

#### 2.2.1.4 Financial assistance to priority economic sectors

In order to promote and support the sustainable growth of the Thai economy, the Bank of Thailand provides financial assistance to priority economic sectors through commercial banks and specialized financial institutions. They are then able to lend to qualified customers at lower-than-normal interest rates. Examples of programs are as follows:

1) Providing credit to Small Enterprises by using Promissory Notes as Collateral

The BOT grants loans to SMEs units through commercial banks, the Government Savings Bank, the Bank for Agriculture and Agricultural Cooperatives, the Export-Import Bank of Thailand, and the Small Enterprise Development Bank of Thailand. Small enterprises can borrow money by using promissory notes as collateral with a 3-year term loan and an interest rate of less than the minimum loan rate (MLR). Fifty percent of the loan amount is credited by the Bank of Thailand, and the other 50 percent by a financial institutions. The BOT has the objective of providing liquidity to small enterprises so that they can continue and expand their operation smoothly.

2) Providing credit to Small and Medium Enterprises (SMEs) for productivity enhancement

The BOT grants loans to small and medium enterprise units through commercial banks, the Government Saving Bank, the Bank for Agriculture and Agricultural Cooperatives, the Export-Import Bank of Thailand, and the Small and Medium Enterprise Development Bank of Thailand. These loans are for SMEs that want to improve productivity, technology development, and production processes. The amount of loan is 50 million baht maximum for each enterprise with a 3-year term and an interest rate of MLR-2.25 percent. Fifty percent of the loan is credited by the BOT and the other fifty percent credited by a financial institution. These loans can support the business sector in terms of improving production processes and also in creating a competitive advantage.

From the above example of programs supported by the BOT, it is seen that the small and medium enterprise can raise funds at a lower interest rate in order to enhance its operations and also its investment level, which finally will benefit the employment generation level of the nation.

### **2.2.2 Fiscal Policy**

Fiscal Policy concerns the use of government expenditure and revenue collection to influence economic stability. The following tax and spending policies can influence the employment level of the nation.

#### **2.2.2.1 Tax Policy**

The government provides a tax advantage to certain sectors to support them in achieving lower costs of operation and a higher level of profits. The government expects those sectors to generate higher income for the nation and also to maintain and increase the level of employment.

##### **1) Tax Benefits to SMEs**

The companies with paid-up capital of 5 million baht and below are eligible for a special rate of corporate income tax, as follows:

**Table 2.7** Corporate Tax Rate for Small and Medium Enterprises

Net Profit (Baht)	Tax Rate
Up to 1,000,000	15%
More than 1,000,000 to 3,000,000	25%
More than 3,000,000	30%

**Source:** The Revenue Department of Thailand, 2008.

SMEs also can benefit from the depreciation of tax deductible expenses. The special depreciation rate on assets is as follows:

(1) Computer Hardware and Peripherals

Enterprises can depreciate on the acquisition date at 40 percent of its total cost. The remaining will be depreciated at a regular rate for at least 3 accounting periods.

(2) Durable Buildings and Plants

The enterprises are on the acquisition date at 25 percent of its total cost. The remaining will be depreciated at a regular rate not exceeding 5 percent of the total cost per annum.

(3) Machinery and Equipment

Enterprises can depreciate on the acquisition at 40 percent of its cost. The remaining will be depreciated at a regular rate not exceeding 25 percent of the total cost per annum.

The government provides tax benefits and also depreciation deductible expenses to SMEs with the objective of reducing their expense and burden so that they can have the capability to expand their operation and hire more labors.

2) Tax Benefits to Promote Investment

Tax benefits are provided to firms that comply with the Board of Investment's requirements. The providing of tax benefits aims to promote investment, production, and also employment in the industrial sector. These tax advantages is provided to firms in the investment promotion zone throughout the

nation, and also to business activities related to energy conservation and alternative energy, eco-friendly materials and products, and high-technology businesses. The rights and benefits for the activities under No. 1.2 are as follows:

- (1) Exemption of import duties on machinery
- (2) Exemption of corporate income taxes for eight years without being subject to a corporate income tax exemption cap
- (3) Fifty percent reduction of corporate income tax on the net profit generated from the investment for not more than five years from the end of the incentive period
- (4) Double deduction for transportation, electricity, and water costs for 10 years from the date of first income derivation from promoted activity
- (5) Deduction of infrastructure installation or construction costs from net profit in addition to normal depreciation of not more than 25% of the investment in the promoted project. Such deduction can be made from the net profit in one or several years during the period of 10 years from the date of the first income derivation from the promoted project.

3) Extension of Deadline for the Discount of the VAT from 10% to 7%

The time frame for the Value Added Tax (VAT) discount from 10% to 7% has been extended to the 30th of September 2010, with the objective of encouraging private spending for a stretch of time towards economic recovery.

4) Allocate the Revenue to the Local Administration Organization

Since 1997, the government has provided for increased government decentralization as a way of reducing regional inequalities. Under the amended National Decentralization Act (Determining Plans and Process of Decentralization to Local Administrative Organization Act) B.E. 2542 (1999), the National Decentralization Committee was formed to implement and monitor the decentralization process, to be fully implemented by fiscal year 2010. The local administration is to become self-reliant and capable of providing efficient public services according to its duty and responsibility.

The 1999 Act specified that at least 20% of total government revenue would accrue to local governments in fiscal year 2001, and that this would rise to a minimum of 35% by fiscal year 2006. Decentralization Act No. 2 (2006) postponed the time frame for achieving the target of 35% by 2006, but did not specify a new target year for this. According to the authorities, the target share of local authority revenue to government revenue increased from 12.63% in fiscal year 2000 to 20.68% in fiscal year 2001; from fiscal year 2002 to 2007 it rose annually as follows: 21.88%, 22.19%, 22.75%, 23.50%, 24.05%, and 25.17%. The new law states, however, that the share of local government revenue to central government revenue shall not be less than the fiscal year 2007 target of 25% and that the amount of funds transferred shall correspond to the activities transferred to the local governments.

An overall master plan was set in 1999 to decentralize administrative powers to local governments. The functions to be transferred to local governments within four years included infrastructure and planning, education, health, social welfare, social order, promotion of investment, commerce, tourism, environment, and local culture. The allocation of the revenue to the local areas can improve the standard of living and create for work for the local people.

#### 2.2.2.2 Government Spending Policy

The government uses its spending allocation to increase the capacity of people and the labor force to match the demand for skills, and also to improve the healthcare and services for people so that they can work more efficiently. The other important spending from the government is for infrastructure and technology development in order to increase the competitive advantage of Thailand in the world market. This development benefits trading and finally the employment level.

##### 1) Spending on Human Capital Development

The government expenditures on human resource development as a percentage of GDP have increased since 1997 according to the main objective set forth in the Eight National Economic and Social Development Plan. These expenditures are allocated to human resource development at the highest percentage compared to other allocations. The human resource development expenditure has been about 7 to 7.5 percent of GDP since 1997. The government aims to develop the formal and informal education, training, healthcare, and living standard of people to

cope with changing economic situation and to increase the capacity of workers so that they can compete with others in world market. The issue has been raised if the human development in Thailand can cope with the changes in the demand for labor skills and the volatility of world economics.2) Spending on Infrastructure and Technology Development

The government also allocates a budget to improve the fundamental factors in the country with expectation of increasing the capacity of the country to produce more and qualified products to serve the world market. The government also aims for higher foreign direct investment in the country in order to generate economic activities and growth.

The government has the capital expenditures on economic services to improve the infrastructure of the country. The spending has the following purposes:

- (1) To develop research and development for productivity enhancement and competitive advantage in every production sector;
- (2) To facilitate the distribution channel of the products from rural areas to main markets. This can help with agricultural sector employment;
- (3) To facilitate the trading within countries and also across countries. This will affect the productivity of different sectors and also benefit employment.
- (4) To increase the labor for public works

### 2.2.2.3 Fiscal Policies and Economic Situation

The Thai government has declared a budget deficit to counter the economic downturn and a budget surplus for economic expansion. From 1982 to 1987, Thailand was badly affected by the world economic recession. This resulted in low economic growth, high unemployment among educated workers, and underemployment among the less educated. The government declared the budget deficit at an average of 40 billion baht. During 1988 to 1996 with the normal and expansion of economy, the government declared a budget surplus. Thailand faced a tremendous economic recession during 1997, with a negative GDP and high unemployment. The government had a budget deficit for a long period of time, from 1997 to 2004, to help the business sector, grassroots people, unemployed persons, and

to stabilize the economy. From 2005 to 2007, Thailand had a budget surplus. From 2008 to the 2010, Thailand has been affected by the world economic crisis, and the export volume declined sharply in 2008 and 2009, which caused a higher unemployment rate. The government has used a stimulus package and declared a budget deficit since 2008 and expects a deficit until 2013.

During the economic crisis, the business sector faced lower revenue from lower demand, causing them to lower salaries or to lay off workers. Household consumption decreased and the unemployment rate increased. The government usually uses a stimulus package by reducing the tax burden for businesses and the household sector, and increasing expenditures in order to stimulate the economy (Pisit Leeatham, 2000: 36)

### **2.2.3 Quasi-Fiscal Policy**

Special Financial Institutions (SFIs) have an increasing role in driving economic activities, and the Thai government uses quasi-fiscal policies to stimulate the economy through loans granted by these SFIs. SFIs are under the supervision of the Ministry of Finance, and the government uses these institutions to increase fund raising opportunities for people and for the business sector. Thailand's SFIs serve as the government's arm for economic and social development, as well as for certain policy implementation agencies in order to provide financial assistance to specific sectors of the economy. There are 8 SFIs in Thailand, which are:

2.2.3.1 The Government Savings Bank

2.2.3.2 The Government Housing Bank

2.2.3.3 The Bank for Agriculture and Agricultural Cooperatives

2.2.3.4 The Small and Medium Enterprise Development Bank of Thailand

2.2.3.5 The Export-Import Bank of Thailand

2.2.3.6 The Islamic Bank of Thailand

2.2.3.7 The Small Business Credit Guarantee Corporation

2.2.3.8 The Secondary Mortgage Corporation

The first 6 institutions grant loans to the public, so their objectives and examples of loans that can generate employment are reviewed here.

2.2.3.1 The Government Savings Bank (GSB): The bank aims to bring optimum benefits to all people in the nation, especially those that are at the grass roots level. The GSB also concentrates on strengthening the society to ensure that it can stand on its own feet and also be adaptable to continuous changes.

The Government Savings Bank grants the following loans to implement the government's policies:

1) People's Saving Bank: loans to support careers, and also to solve the informal debt of people. The credit limit was 100,000 baht with a 0.5 percent interest rate per month, and a 5-year term.

2) Lending Row House: Lending to a row house operator to increase liquidity, funding, and working capital in the business. The credit limit was 500,000 baht, classified into short-term loans and long-term loans. Short-term loans were charged at the Minimum Overdraft Rate (MOR) and at the Minimum Loan Rate (MLR) for long-term loans.

3) Credit for New Entrepreneurs: Loans for those that wish to file a new business to be used as capital or working capital in the business profession. The credit limit was 200,000 baht for less than 5 years, and the interest rate was the MLR plus 2 percent.

4) Credit for Rural Development: Loans to support the people that contribute to and develop a sustainable community; for academic, public health, and career development; and community well-being. The credit limit was no more than five times the savings or capital accumulation.

2.2.3.2 The Government Housing Bank: Bank aims to help as many Thai people as possible to own their dream homes. The low interest rate loans from the bank can also stimulate the real estate sector in Thailand, and this also can create work in this sector. The bank lends different loans following government policy as outlined below:

1) Special Interest Rate Loans: provides credit to government officers, special career officers, and customers of real estate leading firms that want to buy a first home with 0 percent interest? for 6 months.

2) Loans for low income individuals: provides credit for persons that have an income lower than 10,000 baht a month, with a fixed interest rate of 2.99 percent for 2 years and a floating rate after that.

2.2.3.3 Bank of Agricultural and Agricultural Cooperatives: mainly provides credit to individual farmers and farmer institutions to support the agricultural sector to increase liquidity, production level, and also employment level. Credit services are classified by types of loans, as follows:

1) Short-Term Loans for Agricultural Production: The objective of this type of loan is to meet production costs during a given production season, such as the cost of land preparation, seeds, fertilizers, and labor hiring. This type of loan must be repaid within twelve months, except in extraordinary cases where the repayment may be made within a period of eighteen months.

2) Loans for the Postponement of the Sale of Farm Products: The objective of this type of loan is to help farmers meet their household expenses while they postpone the sale of products in order to avoid selling during periods of over-supply and low prices. This type of loan must normally be repaid within six months.

3) Medium-Term Loans: Medium-term loans are intended for investment in agricultural assets that can be used for more than one year, for example loans for investment in agricultural land reclamation or improvement or the purchase of agricultural machinery or livestock. The repayment of this type of loan is normally required within three years, except in extraordinary cases where the repayment may be extended to five years.

4) Cash Credit Loans: A cash credit line is a kind of short-term loan for crop production, which provides great convenience for farmer clients. Once a farmer has entered into a cash credit agreement he or she can make several withdrawals up to the loan ceiling and within the period of the agreement, which will not exceed five years.

5) Long-Term Loans for Refinancing Old Debts: This type of loan is for the redemption and repurchase of agricultural land that originally belonged to farmers, their married partners, children, or parents. These loans are intended to maintain the farmers' land ownership. They are also provided for the agricultural expenses of the first planting season, investment in necessary farm assets, and expenses involving the mortgage of immovable property.

6) Long-Term Loans for Agricultural Investment: This type of loan is intended for investment in fixed agricultural assets to improve existing production enterprises or to introduce new ones. These investments are relatively expensive and require a long period of time before the enterprises can be expected to break even. Repayments of this type of loan are normally required within fifteen years, or within twenty years in extraordinary cases. A grace period for the repayment of the principal and/or the payment of interest may be allowed but normally not for more than the first five years. This type of loan can be available to individual borrowers and to farmers in special projects.

7) Loans for Farm-Related Activities: This type of loan is intended to meet expenses and/or investment costs for activities related to agriculture. These activities use agricultural products, either from farmers themselves or provided from other sources, such as raw materials for processing as finished or semi-finished goods for sale. Qualifying activities may be for either production or services related to agriculture.

2.2.3.4 Small and Medium Enterprise Development Bank: provides loans to support the small and medium size business sector's production, capital raising, and career development. The following loans are granted:

1) Fast 50: A loan service in the Fast Track Loans Project that aims to financially support SME operators affected by the economic crisis in order to be able to gain access to financial sources effectively. The loans were to be used as capital, financial support, or loan pay-offs in order to expand, improve, or enhance the current business. The credit limit was 50 million baht with a fixed rate of 5 percent a year.

2) SME Power for Tourism: Loan to financially assist SME operators in Tourism that has been affected by the economic crisis and domestic turmoil. The credit limit was 50,000 – 5,000,000 baht with the five-year term loan with a grace period of one year. The interest rate was the MLR minus 3 percent for the first two years, and the MLR for the third year onward.

3) Loans for Hire-Purchase Natural Gas Vehicles: Loans to support the owner of vehicles for a new career. The maximum loan was not over 90 percent of asset value, determined by the bank's board of directors or sub-committees.

Asset value includes value added tax. The loan term was up until 8 years with a flat rate of not less than the MHR.

4) Factoring loans to increase business liquidity: This loan helped to solve cash flow problems due to too much investment in account receivables and also strengthened financial liquidity in order to continuously expand the business. The maximum credit was not more than 15 million baht with an interest rate of 7.5 percent annually.

2.2.3.5 Export-Import Bank of Thailand (EXIM Bank): grants loans to support the operation of exporters. The following are loans that implement the government's policies:

1) Export Credit Insurance to help prevent risks to Thai exporters from the failure to receive payment from buyers in other countries.

2) Project support loans to buyers in foreign countries (buyer's credit): this was a new service from September 2009 to support the government's policy of promoting exports of Thai goods and services. The EXIM Bank offered loans or sources of loans to overseas buyers to be used for the current purchase Thai's products. The EXIM Bank had signed cooperation agreements with banks in foreign countries under the Buyer's Credit for an aggregate amount of \$67 million in the bank, such as Indonesia, Sri Lanka, and Russia.

3) Project finance suppliers: this was a new service from August 2009 to add liquidity to the suppliers or manufacturers to exporters that were clients of the EXIM BANK.

2.2.3.6 Islamic Bank of Thailand: the other special financial institution which provided loans to individual persons and also to the business sector. The following loans were implemented to support government policy.

1) Loans for SMEs of export-import and tourism: grants low interest rate long-term loans to support SMEs with the objective of increasing liquidity and capital for the business sector.

2) Home Loans: provides long-term loans for general customers and also for government officers that want to buy a home. This aims to support the real estate sector.

### **2.2.4 Skill Development and Training**

Labor ministry works with and also cooperates with the private sector to analyze the demand for skills and then develops planning to develop the labor to meet that demand. The following policies are implemented:

2.2.4.1 Establish a system for demand-supply information of labor by coordinating with private firms in different sectors to develop the skills to meet the demand

2.2.4.2 Provide skill training programs to meet the skill demand for the industrial sector, for example, automobile factories and the real estate sector, and also for the tourism and hospitality sector

2.2.4.3 Provide training for general persons for starting their own small business, for example, cooking and baking

2.2.4.4 Provide training to improve the skills of the labor in the agricultural sector in order to increase productivity, for example, engine maintenance, basket mushroom planting, and also the new Royal Initiative New Agricultural Theory

2.2.4.5 Provide skill development programs to meet international skills standards for the industrial sector to be ready for a higher degree of openness

### **2.2.5 The Development of Openness in Thailand**

Asian developing economies have recently intensively implemented trade liberalization policies to promote growth under the multilateral, regional, and unilateral frameworks. Thailand is one of these economies, achieving a miracle in the past two decades.

Thailand has increased its level of international and financial openness since 1997 after the economic crisis and has changed its currency rate system from a fixed exchange rate to a managed float system. Thailand also has joined in Free Trade Agreements (FTAs) within the same region and across the region.

Thailand has currently enhanced and promoted intensive trade and investment liberalization and has implemented a long-term growth policy according to current regional economic integration, World Trade Organization (WTO) obligations, and

globalization. Thailand's openness now has seven major trade partners (ASEAN, Australia, the USA, the EU, China, Japan, and India).

Thailand's international trade volume increased after the economic crisis in 1997. In terms of the trend of Thailand's tariffs, there are downwards. However, the tariff rates have fluctuated less since December 1994 due to Thailand's membership in the WTO. There are many reasons that can explain the motivation for Thailand's membership in the WTO: improving and harmonizing the tariff system, and improving and expanding market access to potential member countries WTO. As a result, since 1995 the Thai government has followed several obligations of the WTO to reduce and eliminate market access barriers. However, there are a few quantitative restrictions that still exist in the agriculture, textile, and clothing sectors. Thailand has achieved many successes in trade policy reform to promote trade and economic cooperation due to WTO membership, such as tariff and non-tariff barrier elimination negotiation, regional trade liberalization, and harmonization in the issuance of standards and regulations.

The development of Thailand's trade policy is combined with many transformations. It can be clearly when the national economic and social development plan was set up and implemented. From the 1960s and 1970s, an import substitution policy was adopted in Thailand to accelerate industrialisation. Many schemes were used to reach this goal, such as the establishment of an industrial processing zone in the eastern region to promote industries utilizing domestic raw materials. Since the 1980s, trade policy has shifted to export promotion policy because of the economic recession and intense competitive environment. Further, several regimes have been implemented to enhance growth and to increase export competitiveness. The industries produce for domestic demand goods has motivated to invest in the industrial processing zone for export markets. Additionally, the EXIM bank has been set up to support, facilitate, and finance import and export entrepreneurs.

From the late 1980s to the 2000s, the export promotion policy was still dominant. This policy was adapted more intensively to solve the balance of payment crisis leading to the Asian financial crisis in 1997. The industrialization structure adjustment was implemented to support high-quality goods, including processed agricultural and manufactured goods. The Labor Skill Development Institution was

established to increase the skill of the labor supporting this policy. Severe competition and the increase of trade blocs influenced the implementation of the FTAs regime. As a result, the regional and bilateral FTAs were the important policies that commenced in 2001 to expand high potential markets and to increase trade partners.

Presently, it can be said that Thailand is the most ambitious country in the region due to its intensive effort to increase its world export market share through the establishment of both the regional and bilateral free trade agreements. The free trade agreement with India encompasses only 83 products, while with Australia it consists of more than 5,500 items. This agreement became effective in January 2005. The deadline for the tariff reduction of different products is different in countries. Thus, the free trade agreement with Australia is the most comprehensive agreement compared to other partner countries. The key of its success is the achievement of extensive market access that each country can afford via intensive tariff reductions. On the other hand, the free trade agreements with New Zealand, the United States, and Japan are under the negotiation processes. The agreement structure with New Zealand is resembled to the conclusion of the Thailand-Australia FTA. The agreement with the U.S. has confronted many difficulties related to non-trade issues. These issues consist of corruption, competition policies, and government procurement issues that have impeded the negotiation process.

With a trade policy that has supported higher export of industrial products and services, the value of industrial product exports in GDP value has increased during the past 25 years, from 30 percent to 43 percent. Agricultural product exports to total value of GDP have decreased in value from 18 percent to 11 percent. Service exports to total value of GDP is of 45 percent to . This has brought about changes in the employment structure of Thailand as well as a shift from higher agricultural employment absorption to greater industrial and service sector employment absorption.

### **2.2.6 Labor Protection Laws**

Thailand has developed labor protection laws in terms of minimum wages and also social security laws to promote living standards and the rights of laborers.

#### 2.2.6.1 Minimum Wage

The minimum wage law in Thailand has been enforced since 1972. At the beginning, it was enforced only in Bangkok and the metropolitan area. In 1974, nationwide enforcement began. At that time, the minimum wage rates were established for three areas: Bangkok and the metropolitan area, 38 large provinces, and the remaining provinces. An amendment to the Labor Protection Act in 1998 allowed the minimum wage (tripartite) committee to adjust the minimum wage in each area based on the cost of living, inflation, standard of living, cost of production, firms' competitiveness, labor productivity, GDP, and other economic and social conditions. In 2008, there were 14 minimum wage levels, ranging from 148 to 203 baht.

#### 2.2.6.2 Social Security

As a member of the International Labor Organization (ILO), Thailand has attempted to comply with ILO conventions related to the International Labor Standard. During the period when democracy began to flourish, the first labor protection law was enacted in 1975. With the changing political environment and labor market dynamism that ensued, the labor protection law was amended. Currently, Thai workers are covered under Labor Protection Act 1998. This Act protects workers in terms of the general rights of employees, working hours, women workers, child labor, wages and other payments, holidays and leave, labor welfare, occupational safety, severance pay, complaints regarding fairness, the Labor Welfare Fund, the Minimum Wage Committee, and various regulations and punishments.

Other forms of welfare for workers are the contributory social security schemes under two laws: the Social Security Act 1990 and Workmen's Compensation Act 1994. The social security schemes provide sickness, maternity, invalidity, death, old age, and survivor benefits, and child allowances for nonagricultural employees working in firms with 10 or more workers. In 2002, the coverage of the social security schemes was extended to non-agricultural employees in firms of all sizes. In 2004, the unemployment insurance program took force. Employees and employers contribute 5 percent and the government contributes 2.75 percent of insured earnings for benefits under the Social Security Act. Employers contribute 0.2-1 percent of insured earnings for benefits extended under the Workmen's Compensation Act.

At the end of 2008, there were 9.4 million insured persons. The enforcement of the social security and the labor protection acts has been inefficient. The Labor Force Survey and administrative data show that in 2008 many employees were not covered by the social security system. About half of the employees in the northeastern region and in the construction sector were excluded from it. Only 60 percent of employees working in firms with 10-99 workers were covered. Moreover, the special module of the LFS in 1998 during the economic crisis showed that approximately 95, 80 and 50 percent of laid-off workers in firms with one to nine employees, 10-99 employees, and 100 and more employees, respectively, received no severance pay as called for under the Labor Protection Act.

## **CHAPTER 3**

### **REVIEW OF THE LITERATURE AND CONCEPTUAL FRAMEWORK**

This chapter presents the definitions and also related literature concerning employment and policies and the factors that impact them. From the review of the literature, the conceptual framework and hypotheses for the study are developed.

#### **3.1 Employment**

Employment means the state of being employed or having a job. The prevalence of employment is usually measured by using employment rate, which is defined as the percentage of those in the labor force that are employed (Miles and Scott, 2005: 138).

There are different points of view in the schools of economists regarding the factors causing employment. Keynesian economics emphasizes employment resulting from the effective demand for goods and services in the economy (Kurihara, 1959: 18-25). Classical or neoclassical economics tends to reject these explanations, and focuses more on the rigidities imposed on the labor market from the outside, such as minimum wage laws, taxes, and other regulations that may discourage the hiring of workers (Kurihara, 1959: 13-17). Alternatively, some believe that trade and financial openness can bring about increases in employment. Employment is also affected by other socioeconomic factors, for example, labor force growth, economic growth, industrialization, and urbanization. The determinants and different theories of employment are presented below.

##### **3.1.1 Aggregate Supply and Aggregate Demand for Employment**

In order to achieve the goals of full employment and stable prices, policy makers must have a clear understanding of macroeconomic relationships. Two

variables, employment and level of prices, require consideration. Both are linked directly to output. Employment is tied to output through the production function, while price and output are determined in product markets (Barrett, 1972: 18). Because of its connection with employment and price level, the value of output or equivalent of income becomes the focal point of macroeconomic analysis. In an equilibrium, when the plans of firm and households are realized, the level of money income is determined by aggregate demand. Employment in turn, depends upon the equilibrium relationship between aggregate demand and aggregate supply (Barrett, 1972: 18).

#### 3.1.1.1 The Output-Income Identity

As goods are produced, factor services are performed, and income in the form of wages, rent, interest, and profits is earned. Part of income is the return to factors, labor, land, and capital in the form of wages, rent, and interest for services rendered in the process of production. The remaining part of income, profits, is the residual between the value of output and payments to factors. Thus when profits are included in income, income will always be exactly, or identically, equal to the value of output (Barrett, 1972: 18). In the discussion which follows, it is convenient to treat the aggregate demand for goods and services as a function of income, and to treat supply in terms of output value.

#### 3.1.1.2 Aggregate Supply and Employment

The aggregate supply curve is a macroeconomic analog to the individual market supply curve, which shows the output forthcoming at each level of product price. The aggregate supply curve shows the total output that firms will supply at each value of the aggregate price level (Froyen, 2005: 234).

To produce a given output, a firm will require a certain amount of factor services; and the demand for any factor of production will depend upon the cost of that factor per unit of output, as well as upon the price at which the product is sold. Consequently, it is the expected value of sales that determines the amount of factor a firm will hire when the factor cost is known (Barrett, 1972: 23).

Suppose the capital stock is fixed so that the firm can vary the amount of goods it produces and sells only by varying the number of workers it employs. The aggregate supply function relates the number of workers that firms wish to hire and the amount of total revenue firms expect to receive from sales (Barrett, 1972: 23). For

any level of expected sales, or total spending, the aggregate supply function provides an estimate of the number of workers that will be employed.

Assume that the firm will attempt to maximize profits; it will hire additional workers only if the expected contribution of those workers to total revenue exceeds their addition to total wages (Barrett, 1972: 23). This suggests that firms will hire additional workers only if they expect sales revenue to increase. The aggregate supply function can be derived from the expected total revenue functions of the individual firms in the economy. The shape of the aggregate supply curve is different in different schools of economics.

#### 3.1.1.3 The Components of Aggregate Demand

According to the aggregate supply function, the level of employment can be determined if expected total revenue is known. To estimate how much revenue firms can expect, the buyers' side of the market must be examined. Total revenue of firms will be identically equal to the total spending of buyers.

#### 3.1.1.4 The Aggregate Demand Function

Total spending by all economic groups is aggregate demand, and the aggregate demand function is the relationship between total spending and income for the economy as a whole (Hall and Taylor, 1991: 126-127).

It is important to note that total income and spending are functionally related, not identical. This means that spending and income are not necessarily always equal, but are equal only at some particular level of spending and income. In the Keynesian model, the relationship between spending and income is behavioral. Total income, however, is identically, or definitional, equal to the value of output. Therefore, not all goods will be purchased at all levels of output. Keynes was in effect denying the validity of classical economists, who asserted that "supply creates its own demand" (Barrett, 1972: 36).

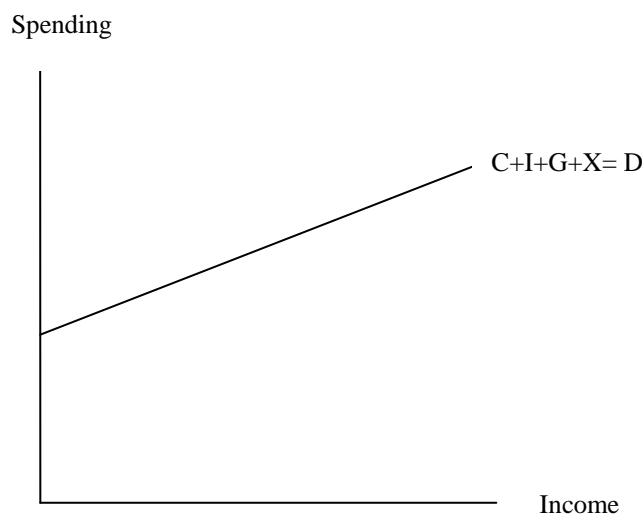
#### 3.1.1.5 Spending Units in the Economy

There are four categories of buyers: the consumer sector, or household units, that purchases consumption goods; the business sector, which purchases capital, or investment goods; economic units abroad, the foreign sector, which purchases exports; and the government or public sector, which purchases public goods. Total spending or aggregate demand,  $D$ , can be treated as the sum of consumption,  $C$ ,

investment, I, net exports, X, and government spending, G (Miles and Scott, 2005:21; Hall and Taylor, 1991: 132).

$$AD = C + I + G + X$$

The aggregate demand function is shown in figure 3.1. It is the function of consumption, investment, government spending, and net exports.



**Figure 3.1** The Aggregate Demand Function

**Source:** Barrett, 1972: 36.

So far we have examined the output-income identity and the aggregate supply and demand functions; we now shall consider how the interaction of aggregate supply and demand determines the level of national income and employment following the different economic schools.

### 3.1.2 Theories of Employment

#### 3.1.2.1 Supply-side Theories

Under supply-side theories, employment is mainly influenced by supply-side or real factors, which are factors which change the productivity of the

system. The classical, monetarist, and real business cycle theories explain the supply-side factors.

### 1) The Classical Theory of Income and Employment

Classical labor market analysis assumes that the market works well. Firms and individual workers optimize. They have perfect information about relevant prices. There are no barriers to the adjustment of money wages; the market clears. Two assumptions implicit in this classical representative of the labor market are as follows (Froyen: 2009: 49): 1) Perfectly flexible prices and wages 2) Perfect information on the part of all market participants about market prices

#### (1) Labor Demand

On the demand side of the market, purchasers of labor services are firms that produce commodities. In the classical model, perfect competitors are firms that choose their output level so as to maximize profits. The firm will hire up to the point where the additional output obtained by hiring one more worker is equal to the real wages paid to hire that worker. The implication is that labor demand depends inversely on the level of the real wage (Froyen, 2009: 37; Barrett, 1972: 56).

#### (2) Labor Supply

Labor services are supplied by individual workers in the economy. Classical economists assumed that the individual attempts to maximize utility (or satisfaction). The level of utility depends positively on both real income, which gives the individual a command over goods and services, and leisure. There is, however, a trade-off between the two goals because income is increased by work that reduces available leisure time (Froyen, 2009: 39).

Two features of the classical labor supply must be pointed out: 1) The wage variable is the real wage, and labor supply is determined by the real wage, not the money wage. The worker receives utility ultimately from consumption, and in making the labor-leisure decision, the individual is concerned with the command over goods and services received for a unit of labor. Clearly, as real wages increase (decrease), leisure decreases (increases) and hours of work increase (decrease) (Froyen, 2009: 41-42). 2) More labor is assumed to be supplied at higher real wage rates. This relation reflects that a higher real wage rate means a higher price

for leisure in terms of foregone income. At this higher price, the worker will choose less leisure. This effect is analogous to the “substitution effect” in the theory of consumer demand. There is another effect: the equivalent of the “income effect” in consumer demand theory. As the real wage increases, the worker is able to achieve a higher level of real income. At higher levels of real income, leisure may become more desirable relative to further increments in income. With successive increases in the real wage, a point may be reached at which the worker chooses to supply less labor as the real wage increases and consumes more leisure. At this point, the income effect outweighs the substitution effect. Almost certainly, at extremely high wage rates, we would reach less labor supply (Froyen, 2009: 42).

### (3) The Determinants of Output and Employment

In the classical model, the factors that determine output and employment are those that determine the positions of the labor supply and demand curves and the position of the aggregate production function (Froyen, 2009: 44).

The production function is shifted by technical change that affects the amount of output forthcoming for given input levels. The position of the labor demand curve will shift if the productivity of labor changes because of technical change or capital formation. Labor supply changes when the size of the labor force changes (population growth). The labor supply curve will also shift with changes in individuals’ preferences regarding labor-leisure trade-offs (Froyen, 2009: 44).

A common feature of the factors determining output in the classical model is that all are variables affecting the supply-side of the market for output—the amount firms choose to produce. In the classical model, the levels of output and employment are determined solely by supply factors (Froyen, 2009: 44).

Capital stock affects the aggregate production function, labor market, and thus output. The new capital that is purchased to increase levels of technology and increases the marginal product of each worker. This will increase productivity (Froyen, 2009: 44).

## 2) Monetarist Theory

Monetarism began as an attempt to reassert the importance of money and therefore of monetary policy. Four propositions characterize the monetarist position (Froyen, 2009: 192):

(1) The supply of money is dominates nominal income. The level of economic activity in current dollars is determined primarily by the supply of money. An important element in this proposition is that causation is assumed to be from money to income. For the most part, changes in the money supply are assumed to cause changes in nominal income. The level and rate of growth of the money supply are assumed to be determined primarily by the actions of the central bank.

(2) In the long-run, the influence of money is primarily on price level and other nominal magnitudes In the long run, real variables such as output and employment are determined by real, not monetary, factors.

In the long run, economic activity measured in real dollars does not depend on the quantity of money. Real output is determined by real factors such as stock capital goods, the size and quality of the labor force, and the state of technology. If, in the long run, the level of real economic activity is not affected by the quantity of money, while the level of economic activity in nominal terms is almost completely determined by the supply of money, it follows that the long-run effect of money is on price level.

(3) In the short run, the supply of money does influence real variables. Money is the dominant factor causing cyclical movements in output and employment. In the short run, output and employment are strongly influenced by changes in the supply of money. Prices are influenced as well, but in the short run, prices, including wage rates, are not perfectly flexible. Thus, when the quantity of money changes, in the short run, prices do not make all adjustments. Output and employment are also affected.

(4) The private sector is inherently stable. Instability in the economy is primarily the result of government policies. The private sector is not the source of instability in the economy; rather it is “essentially a shock-absorbing, stabilizing and self-adjusting process. Instability is produced dominantly by the operation of the government sector.”

In the monetarist proposition, short-run changes in the money supply are the primary determinants of fluctuations in output and employment. However, the monetarists place a limitation on the real effects of changes in the money supply as expressed in the second proposition: “In the long-run, the influence

of money is primarily on the price level and other nominal magnitudes. In the long run, real variables such as output and employment are determined by real, not monetary factors” (Froyen, 2009: 210).

The basis of this proposition is the theory of the natural rates of unemployment and output developed by Milton Friedman (in Froyen, 2009: 210).

According to the natural rate theory, there exists an equilibrium level of output and an accompanying rate of unemployment determined by the supply of factors of production, technology, and the institution of the economy. This is Friedman’s natural rate. Changes in aggregate demand, which Friedman believes are dominated by changes in the supply of money, cause temporary movements of the economy away from the natural rate. Expansionary monetary policies will move output above the natural rate and move the unemployment rate below the natural rate for a time. The increased demand resulting from such policy would also cause prices to rise. In the short run, the price adjustment would not be complete, as in classical theory, where increases in demand cause prices to rise but do not affect output (Froyen, 2009: 211).

Friedman believes that equilibrating forces cause output and employment to return to their natural rate over a longer period. It is not possible, in Friedman’s view, for the government to use monetary policy to maintain the economy permanently at a level of output that holds the unemployment rate below the natural rate. The natural rate of unemployment is defined by Friedman as the rate which has the property of being consistent with equilibrium in the structure of real wage rates. Thus the natural rate of unemployment, or the corresponding natural rate of employment, will be such that labor demand equals labor supply at an equilibrium real wage (Froyen, 2009: 211).

The natural rates of output and employment do not depend on aggregate demand. All of this is much the same as in the classical system, which depended on supply-side factors. But the difference between the monetarists and classical economists is that the monetarists do not assume the economy is necessarily at these natural levels of employment or output in the short run (Froyen, 2009: 211).

The monetarists assume that labor suppliers do not have perfect information about the real wage—they must base their labor supply decisions on the expected real wage. Therefore in the short run employment and output will not be at their natural rates (Froyen: 2009: 211).

### 3) Real Business Cycle Theory

Real business cycle pays attention to the microeconomic foundation—the individuals' optimizing decisions. Real business cycle theorists also believe that the business cycle is an equilibrium phenomenon, in the sense that all markets clear. In real business cycle modes, all unemployment is voluntary (Froyen, 2009: 246).

The real business cycle sees that fluctuation in output and employment arise from variations in the real opportunities of the private economy. Factors that cause such changes include shocks to technology, variations in environment conditions, changes in the real prices of imported raw materials, and changes in tax rates. Fluctuations in output also occur with changes in individuals' preferences, for example, the preference for goods relative to leisure. The theory of real business cycle asserts that these supply-side variables are the sources of short-run and long-term fluctuations in output and employment (Froyen, 2009: 247).

Real business cycle theorists consider the “shocks” that change the level of output from a given levels of labor and capital. The important shocks are technology, environmental factors, changes in government regulations that affect productivity, and changes in the availability of raw materials. Long-lived productivity shocks will result in changes in output, capital stock, and employment that will persist for many periods (Froyen: 2009: 248).

#### 3.1.2.2 Demand Side Theory

The demand side theory of employment is mainly stated by Keynesian theory. This theory believes that employment increase if the aggregate demand in the system increases.

##### 1) Keynesian Theory

For the production sector, income and employment equilibrium occurs when actual revenue is equal to expected total revenue for all firms (Kurihara, 1959). The attainment of equilibrium implies that total spending equals expected total

revenue or, alternatively, that aggregate demand equals aggregate supply (Barrett, 1972: 52-53).

The macroeconomic equilibrium condition can be expressed in a number of ways:

$$\text{Total income} = \text{Value of output} = \text{Expected total revenue}$$

and

$$\text{Total spending} = \text{Total revenue}$$

The firm prefers a position when

$$\text{Total revenue} = \text{Expected total revenue}$$

Given these relationships, the equilibrium condition can be expressed in the following ways:

$$\text{Expected total revenue} = \text{Total revenue}$$

or

$$\text{Expected total revenue} = \text{Total spending}$$

or

$$\text{Total income} = \text{Total spending}$$

All these relationships reflect essentially the same equilibrium condition, that is, the firms' expectations are realized. Keynes explained that the equality between income and spending is an equilibrium condition, not an identity. Expectations of firms are not necessarily realized at all levels of employment (Kurihara, 1959: 98).

If not all income is spent, not all output will be purchased and the total revenue of the firm will fall short of expectations. Aggregate supply will exceed aggregate demand, and the equilibrium position will not have been attained. Employment and income will fall until equilibrium is reached. If, on the other hand, spending units wish to spend more than their income, in the aggregate, firms will not be able to fill all orders. Aggregate demand will exceed aggregate supply, and firm will employ more workers, thereby increasing the level of aggregate income until equilibrium is attained (Barrett, 1972: 54).

The equilibrium level of income is determined by the level of aggregate demand. The equilibrium level of employment associated with that income, in turn, is determined by the aggregate demand function.

Aggregate demand, which determines the level of employment, is a function of income and other economic variables. Since equilibrium does not occur at all levels of income and employment, not everyone looking for work will necessarily find jobs. The spending decision of the major spending groups is not guided by consideration of the economy's full-employment goal.

Keynes (1936 Quoted in Barrett, 1972: 64) writing in the midst of the worst economic depression the world has ever known, envisioned the possibility of a macroeconomic equilibrium persisting at less than full employment:

In particular, it is an outstanding characteristic of the economic system in which we live that, whilst it is subject to severe fluctuations in respect of output and employment, it is not violently unstable. Indeed it seems capable of remaining in a chronic condition of sub-normal activity for a considerable period without any marked tendency either toward recovery or collapse. Moreover, the evidence indicates that full, or even approximately full employment is of rare and short-lived occurrence.

### 3.1.2.3 Socioeconomic Factors Theory

Employment is affected by demographic change, economic growth, and also structural change factors. The high growth rate of the labor force, which grows faster than the absorption of the production sector, affects employment level. The labor force is growing faster than job opportunities, resulting in growing unemployment. Many developing countries must contend with a much more rapid labor force growth than the developed countries had at a similar stage in their growth (Nafziger, 1997: 230).

The employment rate is a pro-cyclical factor in the economy. GDP growth rates will receive a boost as the unemployed are absorbed into the labor force

and as welfare claims decline, creating a “virtuous” circle of rising employment, rising demand, and rising public revenues (Hughes, 1997: 24).

Employment is also affected by the changes in the structure of the nation. Paul Casselman indicated that “Structural employment may be defined as employment resulting from changes in the economic structure and in the economic environment” (Casselman in Penz, 1969: 5).

“Structural unemployment is that unemployment which stems from major shifts in consumer demand arising from the creation of new products, spontaneous or induced changes in taste, and the growth of competition of an imported commodity which reduces job opportunities for workers in a specific industry or group of industries, specific local and region” (Wood and Ostry Quoted in Penz, 1969: 6).

The country which has a higher degree of industrialization faces moving from agricultural sector employment absorption to industrial sector absorption, and also faces a higher level of urbanization. The size of the agricultural sector (primary) tends to shrink with economic growth, as rural workers move into the industrial (secondary) and services sectors (tertiary). This transformation entails the internal migration of labor from the rural countryside to urban areas, where former rural workers become urban workers available to run the machinery of industry and to work in all of the supporting firms and institutions, including the government, that an expanding economy requires (Cypher and Dietz, 2004: 250).

Rural industrialization becomes all the more important in view of the fact that the percentage share of agriculture to gross domestic production and the percentage of population engaged in this sector have been declining all over the world (Sundar and Srinivasan, 2009: 24).

### **3.2 Theories of Macroeconomic Policies Affecting Employment**

From the theory of employment, we can see that the controversies explain between different economists’ schools explain the influences of employment differently. One school of thought believes that employment is the result of demand deficiency, so governments should use fiscal and monetary policies to influence the

aggregate demand, which increases employment. This is demand side theory derived from the Keynesian school of thought. The other schools of thought, including classical, monetarists, and real business cycle theories, believe that employment is influenced by the production functions, which are called supply-side theories. They state that fiscal and monetary policies do not affect the employment situation; instead, supply-side factors, for example, human capital development, technology development, and deregulation, can increase employment. The government should not intervene in the market, but instead should let the market operate freely.

Employment is also changed by socioeconomic factors. The growth of the labor force causes a labor surplus and unemployment. The developing countries have higher industrialization and also urbanization, which cause lower employment in the agricultural sector and also surplus labor in urban areas. These are explained by economic development theories.

This section provides details of the theories, explaining the different policies and factors affecting employment, classified as demand side theory, supply-side theories, and socioeconomic factors.

### **3.2.1 Demand Side Policy**

Employment equilibrium is determined by aggregate demand. This is the important contributions of Keynes. The central authority needs to take responsibility to change aggregate demand in order to increase spending to match unemployment when a country faces unemployment (Kurihara: 1959: 154-155). Keynes was overly pessimistic in “The General Theory” when he wrote of full employment as a “rare and short-lived occurrence.” As long as the central government can manipulate the aggregate demand function through appropriate fiscal and monetary policies, equilibrium can be effectuated at many levels of income and employment (Barrett, 1972: 68).

According to Keynes’ theory, high unemployment is the result of a deficiency in aggregate demand. Aggregate demand is too low because of inadequate investment. Keynes advocates using monetary and fiscal policies to regulate aggregate demand. The Keynesian theory of fiscal and monetary policies affecting employment is presented in the following.

### 3.2.1.1 Fiscal Policy

Fiscal policy is carried out by the executive and legislative branches of the government, which create policy regarding government spending programs and taxation (Hall and Taylor, 1991: 102).

Discretionary fiscal policy, which is used to counteract the business cycle, can be split into two parts: expansionary fiscal policy would be used to speed up the rate of GDP growth or during a recession when GDP growth is negative. A tax cut and/or an increase in government spending would be implemented to stimulate economic growth and increase employment rates. These policies will lead to higher federal budget deficits (Hall and Taylor, 1991: 103).

A restrictive fiscal policy involves raising taxes or cutting government spending in an attempt to dampen GDP (aggregate demand) growth and lower inflationary pressures (Hall and Taylor, 1991: 102).

To begin, let us take our basic equation for the GDP, which sums up consumption, investment, government spending, and net exports (Barrett, 1972: 68).

$GDP = C + I + G + NX$  and modify it to become:

$$AD = GDP = C(Y - T) + I(r) + G + NX$$

where:

Y = income

T = taxes paid

Y - T = disposable (after-tax) income

r = the rate of interest

Using this equation for GDP we can break fiscal policy into two parts:

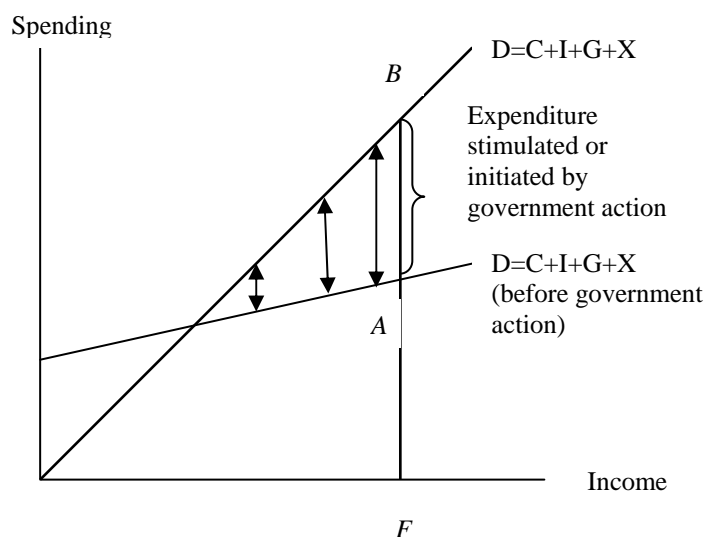
Changes in taxes or the tax rate (T) that in turn affect total consumption.

Or, fiscal policy can directly alter the growth rate of the GDP and aggregate demand by changing the level of government spending (G).

The ultimate objective is to design government policies that will always fill the gap between spending and income at all levels of income up to full employment. Keynes asserted that if investment does not fill the gap, it can be filled by expenditure stimulated or initiated by government action (Barrett: 1972: 68).

Under these circumstances a new kind of aggregate demand function can be envisioned. Government policies will always ensure that the gap between income and consumption spending is filled at all levels of income up to the level of full employment. This gap can be filled in a variety of ways: by stimulating additional consumption and investment through tax and monetary policy or by increasing government expenditure (Kurihara, 1959: 140; Barrett, 1972: 68).

The aggregate demand function, embodying this principle is shown in figure 3.2. Full employment income is at  $F$ . By stimulating or initiating expenditures in the amount of  $AB$ , government policy enables the economy to achieve its goal of full employment (Barrett: 1972: 68).



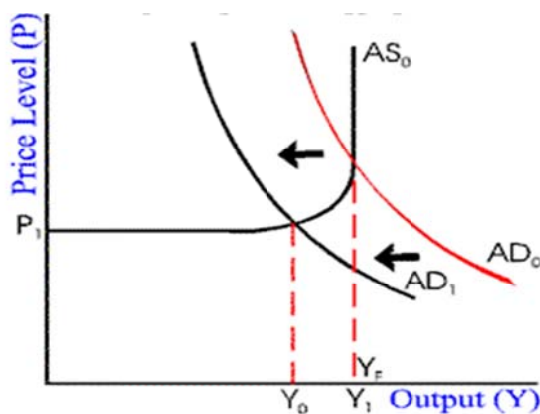
**Figure 3.2** Aggregate Demand with Government Intervention

**Source:** Barrett, 1972: 68.

There are many ways in which the government can affect the level of aggregate demand. The ultimate changes in income and spending exceed the initial change in spending, which is called the Multiplier Effect (Barrett, 1972: 69). The autonomous increase in government expenditure induces spending in other sectors. A change in spending is said to be autonomous if it is initiated by factors other than income variation. Both household and business sector spending are partly a function

of income. Since autonomous spending by the government sector raises income in the private sectors, further spending by households and businesses is induced. Since an initial autonomous expenditure induces further spending, the ultimate change in equilibrium income is greater than the initial expenditure (Barrett, 1972: 71-72).

In the Keynesian view, monetary policy can theoretically be used as a measure to stimulate employment, but fiscal policy is far more reliable. He believed that monetary policy would be effective only if the increase spending in response to the fall in interest rates. Keynes doubted the reliability of such reactions, particularly during a period of recession. He stated that an increase in public spending and tax cuts is a more efficient and reliable way to stimulate demand (Barrett, 1972: 178). Fiscal policy impacts the growth rate of aggregate demand, given constant growth in aggregate supply.



**Figure 3.3** Increases in Taxes or Decreases in Government Spending can Decrease Aggregate Demand

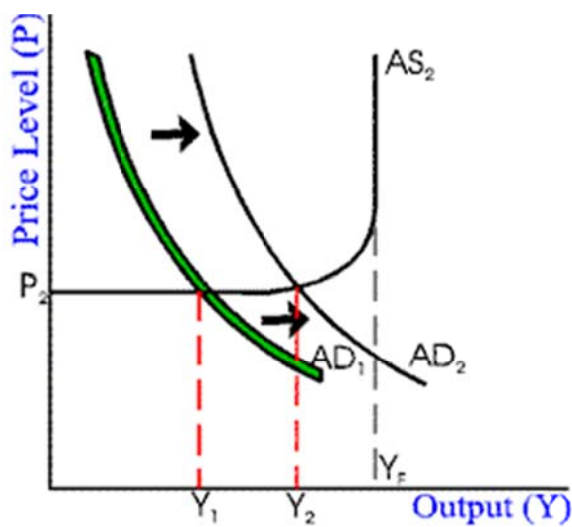
**Source:** Miles and Scott, 2005.

Figure 3.3 shows the impact of a restrictive fiscal policy that reduces the growth rate of aggregate demand in proportion to aggregate supply. Inflationary pressures are dampened, but higher unemployment rates will result.

In contrast to a restrictive fiscal policy that raises taxes and/or slashes government expenditures is an expansionary fiscal policy that is implemented with tax cuts and higher levels of government spending (Barrett: 1972: 69).

As we can see graphically in figure 3.4, at  $AD_1$ , there is a great deal of unused capacity present in the economy. The aggregate demand curve intersects the aggregate supply curve well to the left of the full employment level of output. Undesirable high unemployment rates are the likely consequence

An expansionary fiscal policy will boost aggregate demand in relation to the aggregate supply curve, as shown by the shift out to  $AD_2$ . There is a greater level of output and an increased demand for labor.



**Figure 3.4** Decrease in Taxes or Increases in Government Spending can Increase Aggregate Demand

**Source:** Miles and Scott, 2005.

Keynesian theory highlights the potential of fiscal policy to solve macro problems. The guidelines are simple. Use fiscal stimulus-stepped up government spending, tax cuts, and increased transfers to create employment. Use fiscal restraint-less spending, tax hikes, and reduced transfers to keep inflation under control. From this perspective, the federal budget is a key policy for controlling the economy (Schiller, 2006: 232).

Use of the budget to stabilize the economy implies that government expenditures and receipts will not always be equal. In a recession, for example, the government has sound reasons both to cut taxes and to increase its own spending. By

reducing tax revenues and increasing expenditures simultaneously, however, the government will throw its budget out of balance. This practice is called deficit spending, a situation in which the government borrows funds to pay for spending that exceeds tax revenues. The size of the resulting budget deficits is equal to the difference between expenditures and receipts (Schiller, 2006: 232).

Keynes viewed that budget deficits and surpluses are just a routine byproduct of countercyclical fiscal policy. Deficits can easily arise when the government uses a fiscal stimulus to increase aggregate demand, just as fiscal restraint may cause a budget deficit. As Keynes saw it, the goal of macro policy is not to balance the budget but to balance the economy at full employment (Schiller, 2006: 234).

If a budget deficit or surplus is needed to shift aggregate demand to the desired equilibrium, Keynes states that “then so be it”. In Keynes’ view, a balanced budget would be appropriate only if all other injections and leakages were in balance and the economy was in full employment equilibrium (Schiller, 2006: 234).

Automatic stabilizers is government expenditure or revenue items that automatically respond counter cyclically to changes in national income, such as unemployment benefits and income taxes (Schiller, 2006: 235).

Most of the uncontrollable line items in the government budget have another characteristic that directly affects budget deficits: their value changes with economic conditions. For example, welfare benefits increase automatically in response to changing economic conditions. As more people lose jobs and use up their savings, they turn to welfare for help. They are entitled to welfare benefits according to eligibility rules already written (Schiller, 2006: 235).

Outlays for unemployment compensation and welfare benefits increase when the economy goes into recession. This is exactly the kind of fiscal policy that Keynes advocated. The increase in income transfers helps offset the income losses due to recession.

These increase transfers therefore act as automatic stabilizers-injecting new spending into the circular flow during economic contractions. Conversely, transfer payments decline when the economy is expanding

and fewer people qualify for unemployment or welfare benefits. Hence, no one has to pull the fiscal policy lever to inject more or less entitlement spending into the circular flow; much of it happens automatically (Schiller, 2006: 235).

There are empirical researches that emphasize on the impact of fiscal policies on economic growth and employment. Fatas and Mihov in 1998 found that government Spending results in strong and persistent increase in employment rate through strong relationship from consumption but no so significant increase in investment. The study of fiscal policy in Finland in 1996 by Arola found that the fiscal policy has direct regression effect to private consumption because of the private sector's income expectation. From World Bank Studies Gray, Lane, and Varoudakis (2004) found that the increase in labor taxes slow down employment growth rate. In an entirely standard model of endogenous productivity growth, a policy that addresses inequality via reducing unemployment rate is growth enhancing by fiscal policy (Scarth, 2005: 40-42).

During 2007-2009 of economic downturn, different countries for example United States, United Kingdom, and Japan use fiscal stimulation packages to deal with crisis and unemployment. These included cutting taxes for individuals and businesses, and also increasing the spending (Pawin Siriraphanukul and Nada Wasi, 2009: 21).

#### 3.2.1.2 Monetary Policy

This is the process by which the government, central bank, or monetary authority of a country controls (i) the supply of money, (ii) availability of money, and (iii) cost of money or rate of interest in order to attain a set of objectives oriented towards the growth and stability of the economy (Thomas, 2006: 3; Hall and Taylor, 1991: 102). Monetary theory provides insight into how to craft optimal monetary policy.

Monetary policy is referred to as either being an expansionary policy, or a contractionary policy, where an expansionary policy increases the total supply of money in the economy, and a contractionary policy decreases the total money supply (Reynolds, 2001: 265). Expansionary policy is traditionally used to generate employment

in a recession by lowering interest rates, while contractionary policy involves raising interest rates in order to combat inflation. Monetary policy is contrasted with fiscal policy, which refers to government borrowing, spending, and taxation (Reynolds, 2001: 265).

According to Keynesian theory, money affects income via interest rate. An increase in the money supply lowers the interest rate and in turn increases aggregate demand and income. Further, interest rate affects investment. Consumption expenditures are affected by interest rate changes, and lower interest rate will increase the consumption and investment in aggregate demand. Lower interest rates should decrease the cost of borrowing for government spending. The relationship of interest rate sensitivity of aggregate demand to the interest rate is important in determining the effectiveness of monetary policy in affecting equilibrium income. Money is one of several important influences on aggregate demand (Froyen, 2009: 97-100).

Bratsiotis, Martin, and Panagiotidis (2003) presented that monetary policy can reduce the natural rate of unemployment in UK especially the post 1992 period. From the study in Sweden by Alexius and Holmlund in 2007 showed that contractionary monetary shocks of increasing in real interest rate increase the unemployment.

Kooros (2006) studied the American unemployment using the data of 1950-2003 found that unemployment is inversely related to the discount rate. If Federal Reserve System reduced the discount rate, the unemployment rate decreased.

Generally, fiscal and monetary policy is coordinated so that an increase in public spending is accompanied by some increase in the money supply. If expansionary measures are called for, it is unlikely that the monetary authorities will permit interest rate to rise very much.

The aggressive fiscal and monetary stimulus provided to shore up the economy and also reduce unemployment rate in last two recessions in year 1990-1991 and in year 2001 in USA. (Zandi: 2008). Reynolds (2001) found that mixing between fiscal and monetary policy can fine tune the GDP, unemployment, and stock prices. For stimulus the economic growth, fiscal and monetary policies need to be coordinated.

Berument, Dogan, and Tansel (2008) stated that fiscal policy is a more effective tool in affecting the employment than the monetary policy. Government should concentrate on the fiscal policy in order to increase income rather than rely on the interest rate or the exchange rate policies to increase employment.

### **3.2.2 Supply-side Theories**

Other theories have different points of view toward the factors affecting employment. A common feature of the factors determining output and employment is that all are variables affecting the supply-side of the market for output—the amount firms choose to produce. They do not believe in the role of fiscal or monetary policies in solving unemployment. Those theories include classical, monetarists, and real business cycle theories. The following details concern the criticisms of supply-side theories regarding the role of fiscal and monetary policies affecting employment.

#### **3.2.2.1 Criticism of Role of Fiscal Policy**

##### **1) Classical Theory**

Fiscal policy is the setting of the government's budget and thus comprises decisions on government spending and taxation.

##### **(1) Government spending**

“Consider the effects of an increase in government spending. The question of how the increased spending is financed arises.” (Froyen, 2009: 61). The government has three sources of funds: taxation, selling bonds to the public, or creating new money. At this point, we assume the fix in money supply and taxation, and government finances its spending by issuing bonds. The increase in government spending creates an increased demand for loanable funds as the government sells bonds to the public. The interest rate will increase (Froyen, 2009: 61; Hall and Taylor, 1991: 109).

An increase in interest rate will decrease consumption, which equals the amount of increased saving, and also decreases investment. The increase in government spending financed by selling bonds to the public pushes the interest rate up by enough to “crowd out” an equal amount of private expenditure on consumption and investment. Private expenditures are discouraged because the higher interest rate causes households to substitute future consumption for current

consumption. Investment declines because fewer projects appear profitable, with higher borrowing costs. It is crowding out that keeps aggregate demand from increasing when the government component of demand rises. Because aggregate demand is not changed, increases in government spending financed by bonds do not affect the price level (Froyen, 2009: 61-62; Hall and Taylor, 1991: 109).

If government finances their spending by printing new money, the quantity of money is changed and the price level will change proportionately. In the classical system, the source of the increase in the money supply does not increase the output and employment. As a result, the increase in government spending has no independent effect on aggregate demand (Froyen, 2005: 62).

## (2) Tax Policy

The government may increase the disposable income of households by reducing the tax rate. This will stimulate consumption. If the government sells bonds to the public to replace the revenues lost by a tax cut, the same crowding-out process would follow, as in the case of a bond-financed increase in government spending. Aggregate demand would not be affected (Froyen, 2009: 62).

If revenues lost because of a tax cut were replaced by printing new money, then as with an increase in government spending, the money creation would increase aggregate demand, and the tax cut would cause the price level to rise but have no effect on output or employment (Froyen, 2009: 63).

## 2) Monetarist Theory

The monetarist view on the effectiveness of fiscal policy has been expressed by Milton Friedman as follows: "I come to the main point- in my opinion; the state of the budget by itself has no significant effect on the course of nominal income, on deflation, or on cyclical fluctuation." Friedman wrote: "The monetarists rejected Keynesian's proposition and maintained that fiscal policy by itself is largely ineffective that what matters is what happens to the quantity of money" (Froyen, 2009: 203).

Consider an increase in the government budget, holding constant the quantity of money. Consider an increase in government spending. If tax rates are not changed, which has been usual assumption when considering one policy change at a time, the new spending must be financed by printing money or by selling

bonds. It is similar for a tax cut; if spending is to be unchanged, lost tax revenues must be replaced by the sale of bonds to the public or by printing new money. Such action will have little systematic effect on nominal income over short run periods or perhaps one to three years (Froyen, 2009: 203).

The increase in government spending will increase aggregate demand initially. As income begins to rise, the demand of money for transaction balances increases. With the money supply fixed, this increase puts upward pressure on the interest rate, which rises until money supply and demand are again equal. If money demand is interest-inelastic, a large increase in the interest rate is required to re-equilibrate money demand with the fixed money supply (Froyen, 2009: 204).

In the monetarists' view, investment demand is highly sensitive to changes in interest rate. Therefore, a rise in the interest rate required to keep the money market at equilibrium will cause the private sector aggregate demand to decline substantially, as government spending begins to stimulate income. This reduction in private sector aggregate demand is referred to as "crowding out." In the monetarist model, crowding out occurs almost dollar for dollar with an increase in government spending. On net, aggregate demand and income are increased very little by an increase in government spending. Fiscal policy has little systematic effect on either real or nominal income. Fiscal policy is not an effective stabilization tool (Froyen, 2009: 205).

### 3) Real Business Cycle

Many fiscal policy actions will affect output and employment in a real business cycle model. The effect will not be by means of an effect on nominal aggregate demand, as in the Keynesian model, but via supply-side effects. Changes in tax rates on labor income or the return to capital will affect the choices of optimizing agents. Moreover, these effects will be distortionary. A tax on labor income, for example, will cause an individual to choose too much leisure in relation to employment, with resulting lower consumption. Even a lump sum tax will affect individual behavior by affecting wealth over the planning horizon (Froyen, 2009: 251).

The task of fiscal policy in the real business cycle framework is to minimize these tax distortions subject to providing needed government services.

This is where an alternative role of monetary policy emerges. Monetary policy should keep inflation low through slow, steady money growth.

In the real business cycle model, it follows that the optimal use of monetary and fiscal policy is to combine them so as to minimize total costs from inflation and tax distortion (Froyen, 2009: 251-252).

### 3.2.2.2 Criticism on the Role of Monetary Policy

#### 1) Classical Theory

Classical theory states that money was not important. The quantity of money did not affect the equilibrium values of real variables in the system: output, employment, and interest rate. The factors determined the interest rate were real investment demand, real savings, and the real value of the government deficit—what the classical economists called the forces of “productivity and thrift.” For classical economists, money was a “veil” that determined that nominal values by which we measure such variables as the level of economic activity, but had no effect on real quantities (Froyen, 2009: 66).

#### 2) Monetarists Theory

Friedman viewed money as the asset, like the Keynesians. Money demand was assumed to depend on 1) prices, 2) real income, and 3) rate of return offered on alternative assets, e.g. bonds, equities, and durable goods. Friedman’s view of the quantity of money is outlined below (Froyen, 2009: 199):

(1) The money demand function is stable.

(2) This demand function plays an important role in determining the level of economic activity.

(3) The quantity of money is strongly affected by money supply factors.

The quantity theorists believe that the money demand function is stable and that the quantity of money is an important determinant of the level of economic activity. They also believe that the interest elasticity of money demand is low. The aggregate demand is quite sensitive to the interest rate (Froyen, 2009: 199).

A quantity theorist believe that the money demand function is in fact stable, that changes in money supply come mostly from the supply-side as a

result of central bank policies, and finally, that changes in the quantity of money are important in determining nominal income (Froyen, 2009: 200).

Monetarists believe that if a change in the interest rate is really a change in the yield of bonds, equities, and durable goods, its effects go beyond the effects of a change in borrowing cost to firms that buy investment goods. In addition, a change in the interest rate means a change in the prices of corporate stock, the prospective return on real estate, and holding durable goods as well. Monetarists believe that the interest rate plays a more important role in determining aggregate demand than the Keynesian model allowed. The change in money supply is required to significantly change aggregate demand (Froyen, 2009: 205).

Monetarists believe that changes in the quantity of money are the dominant influence on changes in nominal income, and for the short run on changes in real income as well. It follows that stability in the behavior of the money supply would go a long way toward producing stability in income growth. Friedman traces most past instability in income growth to unstable money growth. Because of the importance of money and because of what Friedman regards as past mistakes in money management, his position on monetary policy is as follows (Froyen, 2009: 205):

My own prescription is still that the monetary authority goes all the way in avoiding such swings by adopting publicly that policy of achieving a specified rate of growth in a specified monetary total. The precise rate of growth, like the precise monetary total, is less important than the adoption of some stated and known rate.

To give an example, the monetary authority might announce and achieve a target rate of growth in M1 (currency plus checkable accounts) of 5 percent per year. Friedman believes that nominal income growth would then be approximately 5 percent per year. If the trend growth in real income were 3 percent per year, the price level would rise by about 2 percent per year. The 5 percent level is not crucial, but whatever level is picked, Friedman wants a constant growth rate in the money shock.

Today some monetarists propose alternatively rules for money growth that are less inflexible than Friedman's constant money growth rate rule. The common element in the monetarist proposals, however, is that monetary policy should be determined by rule and not left to the discretion of policymakers (Froyen, 2009: 205).

The increase in the growth rate of the money supply will stimulate aggregate demand and, as a consequence, nominal income. The short-run consequences of this increase in aggregate demand are described by monetarists as follows.

To begin with, most of the rise in income will take the form of an increase in output and employment rather than prices. People have been expecting prices to be stable, and prices and wages have been set for some time in the future on that basis. It takes time for people to adjust to a new state of demand. Producers will tend to react to the initial expansion in aggregate demand by increasing output, employees by working longer hours, and the unemployed by taking jobs now offered at former nominal wages. This much is pretty standard doctrine (Froyen, 2009: 213).

The standard doctrine referred to here is the Philips curve, which is the negative relationship between inflation and unemployment rate. High rates of growth in aggregate demand stimulate output and hence lower the unemployment rate. Such high rates of growth in demand also increase in the rate at which prices rise. Friedman agrees with this notion of a trade-off between inflation and unemployment in the short run (Froyen, 2009: 213).

Friedman points out that in the short run, product prices increase faster than factor prices, the crucial factor price being the money wage. Thus the real wage falls. Labor demand will increase (Froyen, 2009: 215).

Friedman does not assume that workers know the real wage. In the short run, after a period of stable prices, workers are assumed to evaluate nominal

wage offers at the earlier price level. Prices have risen, but workers have not yet sent this rise, and they will increase labor supply if offered a higher money wage, even if this increase in the money wage is less than the increase in the price level, and even if the real wage is lower. In the short run the labor supply increases because the expected real wage is higher as a result of the higher nominal wage and unchanged views about the behavior of prices. Labor demand increases because of the fall in the actual real wage set by the employer. Consequently, unemployment can be pushed below the natural rate (Froyen, 2009: 215).

This situation is temporary workers will eventually observe the higher price level and demand higher money wages. Labor suppliers will correctly perceive the price level, hence pushes the real wage back up to its equilibrium level, and this rise in the real wage causes employment to return to the natural rate (Froyen, 2009: 215; Palley, 2007: 3-4).

Monetarists believe that expansionary monetary policy can only temporarily move the unemployment rate below the natural rate. There is a trade-off between unemployment and inflation only in the short run. In the long run, the influence of the money supply is primarily on the price level and other nominal variables. Real variables such as output and employment have time to adjust to their natural rates in the long run. Those natural rates of output and employment depend on real variables, such as factor supplies and technology (Froyen, 2009: 217).

Attempts to lower the unemployment rate below the natural level by increasing the growth in aggregate demand will be successful only in the short run. The unemployment rate will gradually return to the natural rate and the lasting effect of the expansionary policy will be a higher inflation rate. Monetarists believe in noninterventionist policies (Froyen, 2009: 217).

Darrat tested the impact of money supply on the unemployment in Korea over the period 1963-1987, and found that excessive money supply in an attempt to reduce short-run unemployment rate only yield inflation. Monetary authorities should follow a price stability program.

Buiter (1999 Quoted in Wadhvani, 1999: 42) stated that nominal interest rates can in the short-term lower the unemployment. However once unemployment rate falls to the natural rate of unemployment, interest rates must rise back to their original level.

Bratsiotis, Martin, and Panagoitidis, (2003) study using quarterly data for 1965-2001 found that inflation targeting that gives priority to stabilizing the price level lower the natural rate of unemployment.

### 3) Real Business Cycle Theory

The defining feature of the real business cycle model is that real not monetary factors are responsible for fluctuations in output and employment. In real business cycle models, the role of money is to determine the price level, much the same as in the original classical model. Changes in the quantity of money result in proportionate changes in the price level, with no change in output or employment (Froyen, 2009: 251).

It follows that monetary policy should focus on controlling the price level. A desirable monetary policy would result in slow, steady growth in the money supply and thus stable prices, or at least a low rate of inflation. When we consider fiscal policy, however, we will see that an alternative view of the optimal conduct of monetary policy emerges from real business cycle theory. Monetary policy cannot affect output or employment, and even if it could, it would be suboptimal to try to eliminate the business cycle (Froyen, 2009: 251).

Supply-side theories state that real factors affect employment rather than macroeconomic policies, so the next part of the study presents the supply-side theories affecting employment.

### 3.3 Theories of Supply-side Policies Affecting Employment

Supply-side theories (Classical, Monetarist, and Real Business Cycle) believe in the supply-side factors in terms of increasing the level of employment. (Schiller, 2006: 319).

The supply-side theory believes that real output is a function of technology, capital formation, and labor (Schiller, 2006: 319).

$$Y = F(K, N, A(t))$$

where

Y	=	real output
K	=	capital formation
N	=	labor
A(t)	=	technology change

The supply-side policies are influenced by classical, monetarist, and real business cycle economists. They believe in the importance of real factors in determining the “wealth of nations” and stress the optimizing tendencies of the free market in the absence of state control. The growth of an economy is the result of the increased stock of the factors of production and advances in techniques of production. Money plays a role only in facilitating transactions as a means of exchange. The role of money is a means of exchange (Schiller, 2006: 318).

These groups of economists mistrusted the government and stressed the harmony of individual and national interest when the market is left unfettered by government regulations, except those necessary to see that the market remains competitive. Free-market mechanisms work to provide markets with any goods that are produced. The government need not be concerned about consumption. Classical, monetarists, and real business cycle economists dominate the theory in supply-side policies. The real or supply-side factors that influence productivity are more important than role playing by fiscal and monetary policies.

From the supply-side of macro markets, the appropriate response to employment is clear-shifting the aggregate supply rightward is the method. Supply-side economists look for clues among the forces that influence the supply-side response to changes in demand. Among those forces, the following policy options have been emphasized (Schiller, 2006: 319)

#### 3.3.1 Human Capital Investment

#### 3.3.2 Deregulation

#### 3.3.3 Infrastructure and Technology Development

#### 3.3.4 Trade and Financial Openness

All these policies have the potential to change supply decisions independently of any changes in aggregate demand. If they are effective, they will result in a rightward shift of the aggregate supply curve and an improved trade-off between unemployment and inflation (Schiller, 2006: 319).

### **3.3.1 Human Capital Investment**

A nation’s ability to supply goods and services depends on its human capital as well as its physical capital. If the size of the labor force increases, more output can

be produced at any given price level. Similarly, if the quality of the workforce increases, more output can be supplied at any given price level. In other words, an increase in human capital-the skill and knowledge of the workforce-adds to the nation's potential output (Schiller, 2006: 324).

A mismatch between the skills of the workforce and the requirements of new jobs is a major cause of the unemployment-inflation trade off. When aggregate demand increases, employers want to hire more workers, but the available workers may not have the skills employers require. This is the essence of structural unemployment. The consequence is that employers cannot increase output as fast as they would like to: prices will increase rather than output (Schiller, 2006: 325).

The larger the skill gap between unemployed workers and the requirements of emerging jobs, the worse will be the unemployment-inflation trade off. To improve this trade-off, the skill gap must be reduced. This is another supply-side imperative. Investment in human capital reduces structural unemployment and shifts the aggregate supply curve rightward (Schiller, 2006: 325).

#### 3.3.1.1 Worker Training

This includes training where there is some form of public support. That support can come in the form of direct provision of training (e.g. through public training institutes), financial support for trainees (e.g. funding training costs and/or subsidizing trainees), or providing "infrastructure" services (e.g. labor market information, licensing, monitoring and credential services). Most countries focus on three types of training programs: 1) retraining aimed at the long term-unemployed (e.g. unemployed for more than 12 months); 2) retraining displaced workers, especially those displaced *en masse* as a result of enterprise/industrial restructuring; and 3) training programs aimed at young people, often with special attention to school drop-outs. While these types of training programs can lead to increases in productivity and employability, they have a number of limitations. First, they are relatively costly. Second, as we will see in the next section, they often have little impact when the economy is not performing well and job opportunities are limited. Finally, training programs can also result in deadweight loss, i.e. participants that benefit most may have more skills to begin with and may find jobs even without training (Betcherman, Dar, Luinstra, and Ogawa, 1999: 5).

The success of programs for the long-term unemployed tends to be heavily dependent on the business cycle: programs have performed better when they were instituted at times when the economy was expanding. A good example of this is Hungary, where training outcomes seem to have improved over time as the economy started to grow (O' Leary, 1995). In general, programs seem to be more effective for women (Puhani, 1998: 16). Longitudinal studies indicate mixed results; while in some cases the positive effects dissipated within a year or two after program completion, in a couple of cases the impacts persisted. For example, in Sweden, labor market training provided to the unemployed raised their earnings in the short-term but the long-term impact (over two years) was somewhat negative (Meager and Evans, 1998 Quoted in Betcherman, Dar, Luinstra, and Ogawa, 1999: 20). Conversely, long-term unemployed provided training as part of the New Jersey Reemployment Demonstration project in the mid 1980s was earning more than the control group 2.5 years after program completion (Anderson, Corson and Decker, 1991 Quoted in Betcherman, Dar, Luinstra, and Ogawa, 1999: 20).

When economic conditions are better, these programs are somewhat more effective. Evaluations also show that tightly targeted on-the-job training programs, usually aimed at women and other disadvantaged groups, often offer the best returns. Rigorous cost benefit analyses are seldom carried, out but the limited evidence that does shows that these programs are not usually cost-effective.

The tax code is another policy tool for increasing human capital investment as well as physical capital investment. In this case tax credits are made available to employers that offer more worker training. Such credits reduce the employer's after-tax cost of training (Schiller, 2006: 325).

Boone and Van Ours (2004) showed that training may do very well in reducing unemployment. Training the unemployed can get better jobs with higher wages and lower job destruction rates.

Skill development is another serious issue that creates employment. According to the findings of the OECD in 2006, the government programs that combine training with counseling and placement are far more effective than programs pushing recipients into work without regard to the quality of wages or skills. Workers at most risk are those that are poorly educated and unskilled. Although skilled

workers, even those that have tertiary education, sometimes claim that they are unemployed, such claims tend to reflect temporary adjustments in an economy and the inflexibility of the workers concerned. The proportions of unemployed unskilled workers are far higher than the average unemployed, while the proportions of unemployed highly skilled workers are much lower than the average unemployed. Policies that improve the human resource base cannot be limited to only the formal education system.

Substantial increases in non-formal education and training programs are needed for workers that are already in the labor force (Sussangkarn, 1991: 16). Training and education are often successful for the generation of long-term employment. These training and education programs should provide more skills and knowledge in line with the changes in technology in agriculture, different industries, and also in the service sector (Sussangkarn, 1991: 16).

Buffie (1992) recommended that government spending on social infrastructure and human capital formation, substantial investment subsidies are needed to overcome the divergence between social and private returns caused by underemployment. A “big push” in productive government expenditures is required.

#### 3.3.1.2 Educational Spending

Another way to increase human capital is to expand and improve the efficacy of the education system. Government spending should be used to increase the education for people. This method is more likely to develop human capital gradually than to spur short-term economic growth (Schiller, 2006: 325).

The challenge is to reform the educational system to achieve a balance between educational output and labor needs. Several strategies are suggested (Nafziger, 1997: 266)

- 1) The education budget should grow more slowly and be more oriented toward primary education and scientific and technical learning. The problem of unemployed secondary school graduates and dropouts is usually greatest where secondary education has expanded rapidly in recent years in less developed countries (LDCs). In addition, many secondary school graduates are trained in the humanities and social sciences but lack the scientific, technical, and vocational skills for work in a modern economy.

2) Subsidies for secondary and higher education should be reduced, since they encourage a surplus of educated people, some of whom become unemployed. In addition, they redistribute income to the rich. In order to improve income distribution, subsidies might be made for scholarships for the poor.

3) Inequality and discrimination in both education and employment should be minimized. To reduce the burden on the educational system and to improve its performance, the government should pursue policies that encourage greater reliance on job-related learning experiences for advancement and reduce discrimination in hiring and promotion.

4) Job rationing by educational certification must be modified. Frequently overstated job specifications make over education necessary for employment. Employers should be encouraged to set realistic job qualifications, even though the task of job rationing may be made somewhat more difficult.

### **3.3.2 Deregulation**

Government intervention affects the shape and position of the aggregate supply curve in other ways. The government intervenes directly in supply decisions by regulating employment and output behavior. In general, such regulations limit the flexibility of producers to respond to changes in demand. Government regulation also tends to raise production costs. The higher costs result not only from required changes in the production process but also from the expense of monitoring government regulations and filling out endless government forms. Thomas Hopkins, a Rochester Institute of Technology economist, estimates that the total costs of regulation exceed \$700 billion a year in United States. These added costs of production shift the aggregate supply curve to the left. Government intervention in factor markets increases the cost of supplying goods and services in many ways (Schiller, 2006: 326). The minimum wage rate and welfare programs will be examined here.

#### **3.3.2.1 Minimum Wages**

Minimum wage laws are among the most familiar forms of factor market regulations. The goal of a minimum wage law is to ensure workers a decent standard of living. But the law has other effects as well. By prohibiting employers from using lower paid workers, it limits the ability of employers to hire additional

workers. Teenagers, for example, may not have enough skills or experience to merit the federal minimum wage. Employers may have to rely on more expensive workers rather than hire unemployed teenagers. In the absence of a minimum wage, employers would hire and train more teenagers and other low skill workers. With minimum wage requirements, the costs of production increase (Schiller, 2006: 326).

Here again the issue is not whether minimum wage laws serve any social purposes but how they affect macro outcomes. By shifting the aggregate supply curve leftward, minimum wage laws make it more difficult to achieve full employment with stable prices (Schiller :2006: 326).

Most economic schools of thought agree that the cause of involuntary unemployment is that wages are above the market clearing rate. However, there are disagreements as to why this would be the case: the economists argue that in a downturn, wages stay high because they are naturally “sticky,” whilst others argue that minimum wages and union activity keep them high (Schiller :2006: 326).

Maki in 1979 showed that the difference in minimum wage rate among areas or provinces was found to be statistically significant determinants of difference in provincial the unemployment rate.

#### Factor Price Distortion Theory

This means deviation of prices from those that would occur in competitive market conditions.

##### 1) High Wages in the Modern Sector

The prevailing wage for unskilled labor in the modern sector is frequently in excess of a market-determined wage because of minimum wage legislation, labor union pressure, and the wage policies of foreign corporations operating in the countries. Often trade unions try to influence wages in the modern sector through political lobbying rather than collective bargaining. A minimum living wage is usually based on the standards of more industrialized countries rather than on market forces in their own country (Nafziger, 1997: 259).

In many LDCs, the income of workers paid the legal minimum wage is several times the country’s per capita GNP. Even when we adjust for the average number of dependents supported by these workers, the per capita incomes of their households are still usually in excess of the average for the country as a whole. This disparity exists because the minimum wage usually applies to only a small

fraction of the labor force. The wage structure for these workers in the formal sector is usually higher than those with comparable jobs in the informal sector. Wage-employment studies indicate that wages higher than equilibrium reduce employment in the formal sector (Nafziger, 1997: 259).

## 2) Low Capital Costs

Capital costs in LDCs may be artificially low. Programs encouraging investment, such as subsidized interest rates, liberal depreciation allowances, and tax rebates are common. But at least as important are policies that keep the price of foreign exchange, which is the price of foreign currency in terms of domestic currency, lower than equilibrium (Nafziger, 1997: 260).

The LDC central bank restrictions on imports and currency conversion, although ostensibly made to conserve foreign exchange, may actually create foreign currency shortages by keeping the foreign exchange price too low. The low foreign exchange price gives importers of capital goods an artificial inducement to buy. However, since most countries assign a high priority to importing capital goods, these importers have a better chance of acquiring licenses for foreign exchange from the central bank than do other importers (Nafziger, 1997: 260).

The low foreign exchange price and the official preference for imported capital goods combine to make the actual price of capital cheaper than its equilibrium price. And when this occurs with wages higher than market rates, LDCs end up using more capital-intensive techniques and employing fewer people than would happen at equilibrium factor prices. Distortions in these prices and fairly inflexible factor requirements for some production processes result in lower employment. The end effect is increased income inequalities between property owners and workers, and between highly paid workers and the unemployed (Nafziger, 1997: 260).

Factor price distortions make wages frequently higher, and capital, especially from abroad, cheaper than its equilibrium prices than marketing clearing rates. Because of these distortions, the private investor may use more capital goods and foreign inputs and less labor (Nafziger, 1997: 260-261).

### 3.3.2.2 Welfare Policy

The welfare state is a repertoire of state-led policies aimed at securing a minimum of social security and welfare for its citizens. This is one type of

government intervention in supply-side theory. The social security system increases the production costs for employers, so they tend to hire fewer employees.

It is widely accepted that the employment rate is affected by the availability and generosity of unemployment benefits. Theory suggests that availability of unemployment benefits can raise the unemployment rate both directly by raising the reservation wage of the unemployed, thereby prolonging the job search and the average duration of a spell of unemployment, and indirectly by reducing the 'cost of job loss', thereby increasing labor's bargaining power, raising wages, and reducing employment (Robert and Christiansen, 1998: 132).

The study of OECD in year 2006 states that employee subsidies programs are not likely to be very effective because of substantial deadweight and substitution effects. Wage and employment outcomes of participants are also generally no better than that for a control group. The programs are unlikely to have positive social returns in the way measured by economists, though they may contribute to some reduction in social exclusion among older workers and single mothers.

Efficiency-wage theory welfare benefits reduce the cost of being unemployed and induce workers to ask for higher wages, so the demand for labor decreases. Since the unemployment rate is a function of the duration of unemployment and its incidence, unemployment therefore increases with both the level and duration of benefits (Nissim, 2007: 75).

Allard and Lindert in 2004 concluded from their study that active labor market policies had negative results on the employment front. Around this negative overall tendency, there were variations. The most consistently positive results relate to adult women. Roed and Zhang (2003) studied the Norwegian unemployment found that reduction in unemployment benefits increases in the escape rate from unemployment, and this effect is much stronger for men than women.

### **3.3.3 Infrastructure and Technology Development**

Another way to reduce the costs of supplying goods and services is to improve the nation's infrastructure, that is, the transportation, communications, judicial, and other systems that bind the pieces of the economy into a coherent whole. The

interstate highway system in United States of America, for example, enlarged the market for producers looking for new sales opportunities. Improved air traffic controls and larger airports have also made international markets and factors of production readily accessible. Without interstate highways and international airports, the process of supplying goods and services would be more localized and much more expensive. These infrastructure improvements increase aggregate supply, improving both short- and long-run economic outcomes (Schiller, 2006: 328).

Leigh and Neill (2009) stated that the increasing in Roads to Recovery spending in Australia leads to the decrease in the unemployment rate. The improving road infrastructure has an indirect impact on boosting economic activity, and reduces the transport costs for local business. The infrastructure investment generates 40,000 jobs in LACs across a mix of subsectors. Job creating, and highly visible expenditures, infrastructure investment help to boost consumer confidence in a government's responsiveness to crisis (Schwartz, Andres, and Dragoiu, 2009: 16)

Technology change can encompass the introduction of new products and production techniques, as well as changes in technology that serve to reduce the cost of capital (Ehrenberg and Smith, 2003: 118). This is investment to increase productivity including research and development. The government should increase spending for scientific research, product development, innovations in production techniques, and the development of management improvements. Technology development can lead to new products and cheaper ways of producing products with a contribution to economic growth.

There are two aspects of technological change that affect the demand for labor. One is product demand. Shifts in product demand curves tend to shift labor demand curves in the same direction. The invention of new products that serve as substitutes for old ones will tend to reduce the labor demand curve in the older sector. If greater product substitution possibilities are also created by these new inventions, the demand of labor of new products will increase (Ehrenberg and Smith, 2003: 118).

A second aspect of technological change is often associated with automation, or the substitution of capital for labor. For purposes of analyzing its effects on labor demand, this second aspect of technological change should be thought of as reducing the cost of capital. In some cases, for example, the mass production of personal

computers, a fall in capital prices is what literally occurs. In other cases of technological change, for example, the miniaturization of computer components, which has made possible new production techniques, an invention makes completely new technologies available. When something is unavailable, it can be thought of as having an infinite price; therefore the availability of a new technique is equivalent to observing a decline in its price to some finite number. In either case, with a decline in its cost, capital tends to be substituted for labor in the production process (Ehrenberg and Smith, 2003: 119).

The sign of the cross-elasticity of demand for a given category of labor with respect to a fall in the price of capital depends on whether capital and the category of labor are gross substitutes or gross complements. If a particular category of labor is a substitute in production for capital, and if the scale effect of the reduced capital price is relatively weak, then capital and the category of labor are gross substitutes and automation reduces demand for workers in this category. For categories of labor that are not close substitutes for the new technology, however, the scale effect may dominate and the two can be gross complements. Thus, the effect of automation on the demand for particular categories of labor can be either positive or negative (Ehrenberg and Smith, 2003: 119).

Clearly, whether capital and type of labor are gross substitutes depends on several factors, all of which are highly specific to particular industries and production processes. Perhaps the most that can be said generally is that unskilled labor and capital are more likely to be substitutes in production than are skilled labor and capital, which some studies have identified as complements in production. Because factors of production that are complementary must be gross complements, technological change is more likely to increase the demand for skilled labor than unskilled labor (Ehrenberg and Smith, 2003: 119).

The use of more appropriate technology can stimulate the employment rate. Increasing the production of more labor-intensive goods within each industry is one method. The following strategies can be used to encourage the use of more appropriate technology (Nafziger, 1997: 263):

- 1) Encouraging the production of more labor-intensive goods within each industry is possible

2) The government can influence employment by directing official purchases toward labor-intensive goods.

3) Peripheral and ancillary activities, such as material receiving, handling, packaging, and storage probably offer more factor substitution than materials processing. It is possible to use people instead of forklifts or conveyer belts.

4) The less developed countries can generate technology locally. The LDCs open to outside techniques can generate some technology through industry research or research organization designed specifically for producing technology appropriate to their needs and resources.

### **3.3.4 Openness Policy**

Openness policy means policies that support international trade and international capital flows across nations. Trade and financial openness will be measured in terms of globalization level.

There are different theories explaining the role of openness to employment. Compensation theory states that openness increases economic insecurity and inequality. A government will increase spending to support the group of people who has disadvantages from openness. According to Keynesian theory, the increase in government spending will increase employment.

Supply-side theory states that trade openness with the trade free arrangement will increase competition and finally increase employment.

#### **3.3.4.1 Compensation Theory**

The compensation hypothesis has arisen as a fundamental benchmark for the analysis of trade policy and the effects of trade openness on domestic policy. International liberalization may have harmful effects on domestic investment and employment, so the government needs strategic compensation in order to counter those harmful effects (Ventura, 2006: 2). Policies of compensation include support for employment, special tax legislation favoring enterprises that are affected by fluctuations in the business cycle, wage control, and public expenditures. The compensation hypothesis has established a link between trade openness and levels of government spending (Ventura, 2006: 3).

The compensation hypothesis, which emphasizes that domestic dislocations generated by globalization provide incentives for government interventions in the economy has arisen as the most relevant explanation for an observed relationship between trade liberalization and the public sector growth (Garret, 2000 Quoted in Ventura, 2006: 2).

The compensation hypothesis implies that, in the short term, globalization has two political effects that would increase citizen support for government spending: increased economic insecurity and increased inequality (Garret, 2000 Quoted in Ventura, 2006: 2). Higher levels of trade integration imply growing risks associated with the international business cycle, which in turn puts pressure on policy-makers to develop publicly-financed compensatory programs in favor of the exposed sectors. On the other hand, higher levels of trade integration are seen as leading to growing inequalities within societies, and this puts pressure on the government regarding redistribution programs of compensation. Katzenstein and Rodrik, (1985 Quoted in 1998 Ventura, 2006: 3), emphasized the former effect: he says that government spending plays a risk-reducing role in economies exposed to a significant amount of external risk. He observes not only that there is a positive and robust partial correlation between openness and the scope of government, but also that the relationship between openness and government size is strongest when terms of trade risk are higher. Internationalization creates “winners” and “losers” within economies (Ventura, 2006: 3).

#### 1) Trade Openness and Inequality

The compensation hypothesis posits a link between trade, inequality, and redistribution demands that is not direct, but rather which implies different “steps”: an increase in trade openness is considered to bring more inequality to society, which is in turn considered to bring about more redistribution demands from the citizenry. An increase in citizens’ redistribution demands is considered to bring more government spending in transfers, and therefore more government growth (Ventura, 2006: 3).

One of the fundamental contributions made by Katzenstein (Quoted in Ventura, 2006: 4) was his remark that, with the existence of compensation, the distributional struggle had been driven from the private marketplace to the public

arena, where labor and capital compete through political negotiation and electoral mobilization. Thus, in studying democracies, we can think that the politics of compensation, namely the political economy of the states that are opening their boundaries, is largely determined by citizen demands.

Countries are differently endowed in types of factors and industries, and internationalization will have different effects on their distribution of income Fernández-Albertos, (2002 Quoted in Ventura, 2006: 5). Domestic endowments are a crucial explanatory factor of the distributive consequences of increased internationalization, and consequently of public compensation (Rogowski, 1989 Quoted in Ventura, 2006: 5); the lower the income inequality generated by internationalization because the low income groups own those factors with which the country is relatively abundant, or because there are no significant sectors negatively affected by openness, the lower the redistribution demands (and consequently lower compensation policies).

Rogowski (1989) stated that “Whenever increased trade harms those groups situated in the lower end of the income distribution, openness will bring increased demands for distribution. If consequences of trade openness ameliorate the distribution of income by benefiting the less affluent groups of the society, demands for redistribution need not necessarily to increase, and could actually be hypothesized to be reduced.” In sum, public-sector compensation is conditional on these distributive effects that trade liberalization is expected to yield domestically.

Ventura (2006) Study on 23 countries stated that trade openness has a positive effect on the redistribution preferences of the people. Countries with a high trade level demand more for redistribution. Redistribution demands are bigger for manufacturing countries at all levels of trade. Better-skilled workers benefit from freer trade in countries well endowed with more skilled labor relative to the rest of the world.

## 2) Trade Openness and Economic Volatility

According to the compensation hypothesis, trade exposure is posited as increasing domestic economic volatility, thereby increasing economic insecurity and propelling demands for compensation via a more generous welfare system (Down, 2007: 1).

Volatility is a function of the size and depth of markets, and small economies should exhibit greater volatility than large economies for reasons that have nothing to do with trade. Cameron (1978 Quoted in Down, 2007: 1) explained the positive correlation between trade exposure and the size of government by suggesting that “small open economies” face incentives to “shelter their economies from the competitive risks of the international economy.” By expanding the role of government in the economy, those states could provide “built-in stabilizers” that would “dampen” economic volatility caused by trade openness. Cameron’s finding, and his explanation of it, have had a remarkably long-lived influence on studies of the “size” of government generally, and of the expansion of the welfare state specifically. Indeed, it has become a usual pattern to include a variable for “trade openness” in studies of the determinants of the welfare state. Rodrik (1998 Quoted in Down, 2007: 9) succinctly states the central proposition: “societies seem to demand (and receive) an expanded government role as the price for accepting larger doses of external risk.”

The risks that arise from exposure to the international economy derive from domestic demand. Import penetration and export reliance both serve to transmit shocks emanating from outside the national economy (Cameron, 1978 Quoted in Down, 2007: 3). As such, externally-induced volatility in aggregate demand becomes an increasingly serious issue for domestic economic stability. Moreover, since price levels in export industries are set in the world market, they may not move in accordance with changes in domestic costs (Down, 2007: 3).

In consequence, a lack of synchronicity between the two may cause low profitability, and thus low investment and low growth, or, high profitability which may engender above productivity wage increases in the export sector, which in turn spread to the non-export sectors causing inflation. More generally, inflationary pressures from the rest of the world will also be transmitted to the domestic economy to the extent that demand for particular commodities is relatively inelastic, e.g. oil (Cameron, 1978 Quoted in Down, 2007: 3). In short, two of the core problems arising from trade openness are greater demand volatility and greater price volatility. In turn, this volatility gives rise to insecurity, decreasing in the employment that spurs demands for compensation.

Rodrik (1997 Quoted in Down, 2007: 3) found a positive relationship between “external risk” and the size of government, measured as the interaction between trade openness and terms of trade volatility, associating high levels of both with higher levels of social welfare spending. The logic of the openness volatility variant of the hypothesis rests on trade openness being associated with greater domestic economic volatility, volatility that in turn gives rise to demands for compensation (Down, 2007: 3).

A high degree of trade exposure has three implications for domestic economic volatility. First, the proportion of total volatility determined externally—that is, by international markets will be larger, and the larger the proportion of the economy accounted for by the tradable sector (i.e. the export-oriented and import-competing sectors). This is the basic point of the openness-volatility variant of the argument. Second, however, the greater the degree of trade exposure the smaller the proportion of domestic economic volatility determined internally. In other words, the smaller the non-tradable sector, the smaller the proportion of total volatility generated by shocks emanating from domestic markets alone. As such, increasing trade exposure entails more than simply an increase in externally-induced volatility; it also entails a shift in the sources of volatility. That is, there is more volatility externally induced, but less internally induced. Such a change in the relative weighting of the sources of volatility does not imply that greater trade openness will necessarily lead to greater domestic economic volatility. Rather, whether domestic economic volatility is higher or lower will depend on the degree of volatility induced by international markets, and, the degree induced by domestic markets (Down, 2007: 4).

Thirdly, and most important of all, it is even conceivable that a lower level of volatility might ensue from a greater degree of trade exposure. Market size—that is, the number of buyers and sellers present in any market—is a fundamental determinant of market volatility. The greater the number of buyers and sellers the greater the likelihood that shocks emanating from any one source will be offset by equally-sized opposite shocks emanating from another source (Down, 2007: 5).

Moreover, the greater the number of market participants the smaller will be the contribution to total volatility of any single participant, *ceteris paribus*. Accordingly, larger, deeper markets will display less volatility than smaller, shallower markets. The greater size and depth of international markets relative to the

markets of any single national economy imply that the international economy is less volatile than any of its constituent national components. Thus, greater trade openness entails a greater degree of domestic production and consumption oriented towards larger, deeper, more stable international markets and away from smaller, shallower, more volatile domestic markets. As a result, as the proportion of total volatility that is externally induced grows and the proportion that is internally induced declines, total volatility may also decline (Down, 2007: 5).

Trade shocks are fundamentally shocks transmitted from other economies, and as such two important points follow. First, for any given level of trade exposure, the contribution to total volatility of shocks emanating from any single trading partner will be smaller the more diversified are a country's trade relations. Thus, if an increase in trade openness is accompanied by a greater proportionate diversification in a country's trade relations, the contribution to total volatility of shocks issuing from any single trading partner will decline, and thus so too will the vulnerability of the domestic economy to external risk (Down, 2007: 6).

Second, a country that has an extensive array of trading partners and relatively low levels of trade concentration is effectively linked to a range of business cycles that are not necessarily, or even likely, to be moving in sync with one another. Thus, a downturn in one export market may occur at the same time that an upturn occurs in the domestic market, or vice versa. Similarly, a downturn in one export market may be paralleled by an upturn in another export market. In either case, losses in one market may be partially or fully offset by gains in another. In contrast, in a closed economy, or an open economy in which the business cycles of the country's trading partners are perfectly synchronous, there is in effect only one business cycle and no possibility of any offsetting effects. Thus, an economy that trades extensively and that has trade relations relatively diffused amongst partners with non-synchronous business cycles may experience greater stability than a closed economy. Put differently, a closed economy lacks the risk diversification that an open economy may possess (Down, 2007: 7).

Down, (2007) found that the small, developed economies were more associated with larger fluctuations in demand than the larger economies, while those that were relatively open were more associated with smaller fluctuations in

demand than those that were relatively closed. Trade exposure presages structural adjustment, as internationally competitive sectors expand and uncompetitive sectors contract, and demand may arise for a generous welfare system to ameliorate the insecurity associated with the process.

The increase in economic inequality and volatility from trade openness leads the government to increase welfare and unemployment benefits to unemployed people. The government also increases budget spending to maintain equality, security, and stability in aggregate demand.

The compensation thesis claims that countries that increase exposure to international markets will experience market and social dislocation, economic insecurity, and unequal income distribution, which in turn create the potential for political and social instability. This instability will compel governments to increase welfare spending for social sectors that fall behind as a result of the economy's increased openness. According to the compensation thesis, therefore, globalization and expanding international markets will result in an expansion of the welfare state (Yoon, 2009: 2).

Yoon (2009) studied the effect of globalization on the welfare state in developing countries in 2009 by taking into account the popularly-based parties. With regard to the relationship between popularly-based governments interacting with trade and the welfare state, as the international integration of markets has deepened, competition in global markets has increased. In this environment, businesses reduce wages and employment security in order to enhance or maintain the competitiveness of their products overseas.

Thus, job insecurity and income inequality increased substantially as developing countries became more engaged in international trade. As a result, popularly-based governments were willing to increase welfare spending in order to alleviate the economic hardship of their core constituencies (the poor, the unemployed, and labor), who fell behind in the process of globalization and were adversely affected by globalization. This was especially so because riding the sweeping wave of democratization in developing countries, popularly-based governments had a better chance of winning elections by increasing welfare spending as redistributive pressures have been strong and as the number of those falling behind in the process of globalization has greatly increased (Yoon, 2009: 21).

#### 3.3.4.2 Supply-side Theory

According to traditional trade theory, economic liberalization is meant to result in increased trade, accelerated technological change, efficiency gains, and growth. It is argued that a more efficient allocation of resources will, in the long run, lead to increased welfare and will have a positive impact on employment as well as on poverty and inequality, even though negative employment effects in specific sectors may occur in the short run. Since the country has a comparative advantage of abundant labor, one of the selling points for trade liberalization is the belief that labor would benefit, as production for export was believed to be more labor-intensive than production for the internal market.

A major direct impact of trade liberalization is an increase in trade openness. The trade openness indicator has been defined as the ratio of exports and imports to GDP. An important part of world-wide trade flows are intra-industrial, which is defined as export and inflow flows between two countries within the same industry or category of products. This form of two-way trade is often seen in industrialized countries with similar levels of development. It is a sign of a diversified and sophisticated trade and economic structure and is positively related to trade openness and the process of trade integration.

Economists have long recognized that trade would lead to a division of labor advantageous for everybody involved. Indeed, by reshuffling resources in accordance with the principles of comparative advantage, they can be used more appropriately and effectively for production, thus creating the so-called gains from trade. Highly productive producers will be able to expand as they start selling their goods or services abroad. Producers and consumers will be able to take advantage of cheaper imports and of a larger product and quality choice. The latter, however, implies that some domestic production will be replaced by imports (Jansen and Lee, 2007: 1).

In other words, trade liberalization is expected to trigger a restructuring of economic activity that takes the form of company closures and job losses in some parts of the economy and startups of new firms, and investment in increased production and vacancy announcements in other parts of the economy. Trade liberalization is therefore associated with both job destruction and job creation. In the

short run the resulting net employment effects may be positive or negative depending on country-specific factors, such as the functioning of the labor and product markets. In the long run, however, the efficiency gains caused by trade liberalization are expected to lead to positive overall employment effects, in terms of quantity of jobs, wages earned, or a combination of both (Jansen and Lee, 2007: 2).

A lot of employment reshuffling takes place within sectors rather than across sectors, as traditional trade theory would predict. In response, a new generation of trade models was developed that describes mechanisms according to which trade liberalization encourages the expansion of the most productive suppliers in all sectors, i.e. in sectors in which countries are net exporters and in sectors in which they are net importers. As a result, these models predict that in all sectors, jobs are created by those suppliers that are able to compete at the international level and destroyed by those suppliers that are unable to compete (Jansen and Lee, 2007: 5).

Milner and Wright, (1998 Quoted in Jansen and Lee, 2007: 36), investigated labor market responses to trade liberalization in Mauritius. They showed that manufacturing employment increased significantly in the period following the 1983 trade liberalization. Though employment increases in the long run exceeded those that occurred immediately after the trade liberalization, the short-run impacts on employment were significant and positive

Government regulation of international trade also influences the shape and position of aggregate supply. Trade flows affect both factor and product markets (Schiller, 2006: 328).

In factor markets, the domestic producers buy raw materials, equipment parts, and components from foreign suppliers. Tariffs make such inputs more expensive, thereby increasing the cost of domestic production. Regulations or quotas that make foreign inputs less accessible or more expensive similarly constrain the aggregate supply curve. The relief of the trade barriers helps the domestic producers gain access to lower-cost raw materials in order to increase their productivity and supply curve (Schiller, 2006: 328).

The same kind of trade barriers affects product markets directly. With completely unrestricted trade, domestic producers can increase production in the

world market. As a result of increases in the market share, a higher level of employment can be achieved (Schiller, 2006: 328).

Another global supply-side policy lever is immigration policy. Skill shortages in the domestic labor markets can be overcome with education and training. Faster relief is available, however, in the vast pool of foreign workers (Schiller, 2006: 328).

The study from Mexico by Ernst (2005) during year 1995-2000 showed that Mexico has indeed succeeded in changing its specialization from primary (which agricultural and food products) to manufactured goods. Manufacturing exports experienced above-average wage and employment growth for the period under analysis, but also low labor intensity. Its importance for employment creation and wage increase, even though positive, is therefore relatively limited in traditional capital-intensive industries.

### **3.4 Theories of Socioeconomic Factors Affecting Employment**

Employment is also affected by other socioeconomic factors apart from public policies. The following socioeconomic factors will be taken into account as the control variables in this research.

#### **3.4.1 Labor Force Growth Rate**

The increasing growth rate of the labor force cannot be absorbed by industry, resulting in increased unemployment and underemployment. The labor force is growing faster than job opportunities, resulting in growing unemployment. Many developing countries must contend with a much more rapid labor force growth than the developed countries had at a similar stage in their growth. Economic growth is usually accompanied by a decline in the proportion of labor force in agriculture and an increase in the share of labor in the more productive industrial and services sectors. Because of fast labor force growth, today's developing countries absorb only 20-35 percent of the increased labor force, compared to about 50 percent in Europe. Sluggish employment growth in the industrial and services sectors has contributed to high rates of urban unemployment, underemployment, and low rural productivity (Nafziger, 1997: 250).

### 3.4.2 Urbanization

Migration also affects the unemployment rate in particular areas or regions. The migration to urban areas where there is a rapidly-growing demand for workers is getting larger and larger (Chalongphob Sussangkarn, 1990: 14). Modern economic development has invariably been accompanied by pronounced migration from rural to urban sectors of employment (Bencivenga and Smith, 1997: 582). This migration leads to long lags in the adjustments of the employment structure to the production structure. The findings show that increasing wages and the probability of being an employee of a particular location will increase the probability of migration to that region (Mathara Phananiramai and Chalongphob Sussangkarn, 1991: 6). As capital is accumulated in the urban sector, the real wage rate in formal urban manufacturing rises relative to that in agriculture, so labor is induced to migrate to the city. In response, employers are forced to hire less labor than actually migrates, and the urban unemployment rate rises (Bencivenga and Smith, 1997: 585). Population movement out of agriculture and into urban areas is likely to be the key socioeconomic transition, which needs careful management by government policies.

Low returns to agriculture and the prospect of higher wages in industry spur migration from rural to urban areas. A substantial proportion of the growth in the urban labor force is because of such migration, especially in predominantly agricultural countries that are newly industrializing. Harris-Torado, whose model views a worker's decision to migrate on the basis of wages and the probability of unemployment, explains that migrants respond to urban-rural differences in expected rather than actual earnings. Employees expect the higher probability to earn income in urban areas (Nafziger, 1997: 253-255).

According to Harris-Torado's theory on urbanization (Riadh, 1998, 3-4), the rate of rural-urban migration was held to be a function of the difference between the present values of expected urban earnings and expected rural earnings, with the size of the flow of expected urban earnings significantly affected by the probability of obtaining employment in the modern urban (UM) sector. The HT model predict that, in response to the creation of extra urban jobs, additional rural laborers attracted by the increased employment probability will swell the urban labor force until the new ratio of jobs to urban labor force is restored to the earlier ratio. However, for this as

well as for similar paradoxical results to hold, it must be assumed that the urban wage rate is fixed or that it changes only by a negligible amount. But this requires explicit assumptions about the elasticity of migration. Urban wage dispersion plays a significant role in the formation of pre-migration expectations and thus on the migration decision. Cypher and Dietz, (2004) stated that:

The size of the agricultural sector (primary) tends to shrink with economic growth, as rural workers move into the industrial (secondary) and services sectors (tertiary). This transformation entails the internal migration of labor from the rural countryside to urban areas, where former rural workers become urban workers available to run the machinery of industry and to work in all the supporting firms and institutions, including the government that an expanding economy requires.

According to Harris and Todaro, creating urban jobs by expanding industrial output is insufficient for solving the urban unemployment problem. Instead they recommend that the government reduce urban wages, eliminate other factor price distortions, promote rural employment, and generate labor-intensive technologies (Nafziger, 1997: 255).

### **3.4.3 Economic Growth**

Changing jobs is easier when the economy is growing quickly so that workers and employers are more ready to take risks in filling and leaving jobs than when the economy is stagnating or growing slowly. GDP growth rates will receive a boost as the unemployed are absorbed in the labor force and as welfare claims decline, creating a “virtuous” circle of rising employment, rising demand, and rising public revenues (Hall and Taylor, 1991: 69). Employment falls along with production during a recession, and rises again during recoveries. Employment grows along with potential national outputs, as firms hire more workers to produce the growing output. There is a useful shorthand formula that closely approximates the cyclical relationship between unemployment and the real GNP. It is called Okun’s law. Arthur Okun used it to

illustrate the effects of macroeconomic policy when he was on the staff of the Council of Economic Advisers during the early days of the Kennedy administration in the 1960s. Okun's law says that for each percentage point by which unemployment rate is above the natural rate, the real GNP is 3 percent below the potential GNP (Hall and Taylor, 1991: 69).

If the GNP declines, employers need a smaller amount of labor input. They cut the length of the workweek, reduce the intensity of work, and cut the size of the work force. Most of the workers that are laid off become unemployed. In addition, people that are looking for work find it is harder to locate jobs (Hall and Taylor, 1991: 186).

It is also evident from a study of Ravn and Simonelli (2007) that employment is more closely related to output over the business cycle than hours per worker, and that employment lags output by approximately one quarter.

### **3.3.4 Industrialization**

Industrialization is the process of social and economic change that transforms a human group from a pre-industrial society into an industrial one. It is a part of a wider modernization process, where social change and economic development are closely related with technological innovation, particularly with the development of large-scale energy and metallurgy production. It is the extensive organization of an economy for the purpose of manufacturing (Sheffrin, 2003: 368).

Achieving an adequate level of economic growth and development appears to be inextricably intertwined with the level of industrialization of an economy. There is a close relationship between the rate of growth of the industry and the rate of growth of the total national output for different regions. There would seem to be a positive correlation between the rate of growth of total output, which is measured by the GDP, and the pace of manufacturing growth. A speed up in industrial growth, as in China over the 1990-2000 period, goes with more robust GDP growth (Cypher and Dietz, 2004: 248-250).

Countries which predominantly produce and export primary products and import the bulk of their manufactured goods experience instability in their term of trade. There has been long-term deterioration in the purchasing power of these exports relative to the manufactured goods these countries import. Industrialization is

therefore a means to create not only a more productive domestic economic structure, which raises domestic incomes, but it also helps to create the possibility for an import and export pattern more similar to that of the already-developed nations, one that tends to be more stable in terms of export purchasing power (Cypher and Dietz, 2004: 250).

During the successful industrial transformations, agricultural production became more efficient and intensive in its use of capital, both physical and human, and in the use of technology, which increases worker productivity. As an economy proceeds to ever higher paths of development, there is a further structural transformation as even more workers shift from the secondary sector toward the service sector to work in industries, such as commerce, transportation, trade, government, finance, and so on. Over time, then, more modern and more developed economies tend to have the majority of the labor force employed in, and the greatest part of total income generated in, the modern industrial and service sectors, as the importance of agriculture and rural industries shrinks (Cypher and Dietz, 2004: 250).

The data from the UNDP in 1995 from least-developed nations (Cypher and Dietz, 2004: 251) show that a strong inverse relation between the share of the labor force in agriculture and the level of per capita income and the level of human development is quite evident. The larger the share of the total labor force engaged in agriculture, the lower the level of development. At higher levels of development, the share of the labor force engaged in agriculture is relatively small. Likewise, there is an equally strong positive relation between the share of the labor force in industry and in services and the level of development.

Development, then, involves both an industrial revolution and reorganization of the agrarian sector, as well as the addition to human and capital and the attention to endogenous technological change. Development is at least partly about indispensable structural changes in production and in labor usage, with a profound shift from agriculture toward industry and service as higher levels of productivity of labor in all sectors are attained (Cypher and Dietz, 2004: 252).

Large-scale industrialization could contribute to a socially beneficial level of labor training that would have spread effects to other sectors throughout the economy, whereas incremental, market-driven development would not have the same impact, or

at least dependence on the market would result in sub-optimal social quantities of such training (Rosenstein-Rodan Quoted in Cypher and Dietz, 2004: 132).

Arthur Lewis (1954) stated that if there is a surplus in agriculture, that is, if the productivity of labor in agriculture is lower than in industry, as is most likely to be the case in most LDCs, then it is possible for a more productive and higher-wage industrial sector to attract labor from the rural countryside to urban industrial areas by paying wages slightly above rural wages. Shifting workers from lower productivity activities in agriculture to higher productivity industrial jobs will result in an increase in total national output (Cypher and Dietz, 2004: 252).

Lewis observed that the typical less-developed nation was dualistic, not only in the sense of having two key sectors, agriculture and industry, but also in the more fundamental sense that these sectors had little interconnection. There was a traditional low-productivity, low-technology rural agriculture sector where the great bulk of the population lived, worked, and produced most of what they consumed. There also existed, or there could be created, an industrial sector where production was profit-oriented, more capital-using, and technologically-driven, and where worker productivity was higher than in the traditional sector. Those working in the modern sector bought food and perhaps some other input from the traditional sector. The most important link, however, was between the traditional and modern sector via the provision of labor from the primary sector to industry via labor migration from the countryside to the cities, where industry was located (Cypher and Dietz, 2004: 252).

It was in this labor supply link between the two sectors that Lewis found the transformation dynamic that could contribute to greater growth and development via expanded industrialization. Lewis argued that continuing reinvestment of the profits of the modern sector could facilitate the transfer of surplus labor from agriculture to industry. The labor migration process is cumulative once begun, as the higher wages of industry attract rural workers until equilibrium is reached when the productivity of workers is more or less equalized between sectors (Cypher and Dietz, 2004: 253).

Concern about the employment effects of industrialization in developing and underdeveloped countries has been expressed in the professional literature and in planning documents ever since the early postwar years. Although it was recognized that some degree of industrialization was necessary to attain growth rates, which

would raise the per capita income in a fairly short period of time in such countries as India or the major Latin American countries, it was also thought in most professional circles that new industries should as much as possible absorb the surplus labor which was streaming into urban centers. (Baer and Herve 1966: 42) stated that:-

The strategies suggested were to develop industries which were by their very nature labor-intensive or to choose the most labor-intensive techniques possible in each industry promoted. This seemed a logical thing to do, not only from the point of view of coping with the surplus labor problem, but also from the point of view of minimizing cost by using the relatively most abundant and cheapest factor of production

In developing countries employment in manufacturing has not been increasing as rapidly as industrial output, thus creating the possibility of urban unemployment. Among possible causes, the following are considered: 1) recommendations of international advisers to adopt capital-intensive techniques, 2) lower output per unit of capital by labor-intensive techniques, 3) a shortage of managers and skilled workers required for labor-intensive techniques, and 4) a lower profit rate on labor-intensive techniques. Many underdeveloped countries do, however, have policy instruments to exert some influence over this situation, for they can affect both the cost of labor and the cost of capital goods for entrepreneurs and thus influence relative factor prices and choice of techniques (Cohen and Leff, 1967: 162).

The difficulties encountered in effectively absorbing labor in newer industries in many industrializing countries were at first explained principally by the existence of a rigid factor proportion problem, in which the choices of techniques were few and of a relatively capital-intensive variety. However, the mounting evidence accumulated in the 1950s and early 1960s suggest that even where a choice was possible, many developing countries were not adopting the most labor-intensive techniques possible or promoting only those industries which absorbed the highest amount of labor (Baer and Herve, 1966: 93).

It is clear that the institutional push is in the direction of adopting modern techniques of a labor-saving type, both in new industries and in the modernization of

older industries. Does this trend fly in the face of a rational use of the most abundant factor of production? The dilemma that most developing countries seem to face is an abundant unskilled labor supply, on the one hand and, on the other hand, the fact that older, more labor-intensive techniques of production are of an inefficient nature, i.e. producing a low return on the capital invested in them. This conflict of interest has been noted by a number of writers. Already in the mid-fifties, Galenson and Leibenstein (Quoted in Baer and Herve, 1966: 93) remarked that:-

One can easily visualize situations in which the maximum labor absorption criterion would not maximize the addition to total output.

Commenting on the Indian experience, Lewis (1962 Quoted in Baer and Herve, 1966: 93).says that:-

Any society, if it could rid itself of enough technique and capital, could keep every one of its ambulatory members fully employed grubbing for roots and berries. But that is not what is wanted -in India or elsewhere. The desire is for rising employment with rising per capita real income

In the same vein, Galenson and Leibenstein (Quoted in Baer and Herve, 1966: 93) suggested that should:-

It be granted that the object of development is to attain a level of economic capacity which maximizes output per capita at a determined future time, then the correct criterion for allocating investment must be to choose for each unit of investment that alternative that will give each worker greater productive power than any other alternative.

Reviewing the experience of a number of countries, a group of experts from the International Labor Organization (ILO) also came to the conclusion that as techniques are made less capital-intensive, more labor can, of course, be employed

with any given volume of investment. It, however, does not appear to be the case that techniques that employ more labor per unit of capital always yield a larger output per unit of capital. Indeed in a number of cases, it has been observed that some techniques that use much labor also use much capital per unit of output (Baer and Herve, 1966: 96-97).

Myint (1964 Quoted in Baer and Herve, 1966: 99).analyzed that it was an error to examine the problem of choice of technique in a two-factor world, labor and capital. He states that in the real world the choice depends not only on two selected factors but on a variety of other things, notably the third main factor-skilled labor. Many underdeveloped countries suffer from a greater shortage of skills than of material capital, so that they sometimes prefer more expensive machinery, which reduces repairs and maintenance, to cheaper or second-hand machinery which, although it might reduce the ratio of capital to unskilled labor, requires a larger amount of the scarcest factor, skilled labor.

Employment can also be affected by structural changes which include the expansion of modern industries, and services have led to the demand of skilled manpower, especially in the area of science and technology (Chalongphob Sussangkarn, 1990: 1).The demand and supply of skills should also be matched through labor skills development programs (Pun Thongchumnum, Sunari Suwanro and Chamin Choonpradub, 2008: 27).

### **3.5 Conceptual Framework**

The review of the literature shows that there are three main theories identifying the policies and factors impacting employment differently. Demand side theory believes that fiscal and monetary policies can increase aggregate demand and employment. Supply-side theories assert that the real factors improving the production side can increase employment. The last one is economic development theories, which state that socioeconomic factors affect employment.

From the literature review, the relationships among variables have been developed and conceptualized in the conceptual framework with hypotheses. There are three main groups of independent variables in the present study: macroeconomic

policies, supply-side policies, and socioeconomic factors affecting employment, which is the dependent variable.

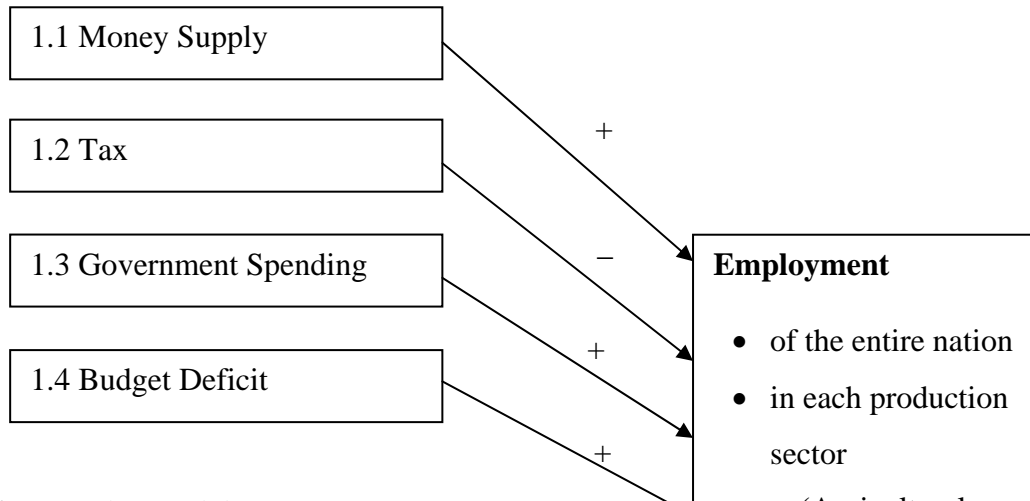
Regarding macroeconomic policies, in reality, the Keynesian theory of economic policies has been applied most of the time. We can see that the government of most countries increases its spending, reduces the tax rate, and reduces the interest rate to stimulate the economy. The Keynesian point of view was therefore used in setting the conceptual framework for economic policies.

The conceptual framework of this research paper is presented below. It depicts the impacts of fiscal and monetary on employment in Thailand from 1983 to 2008.

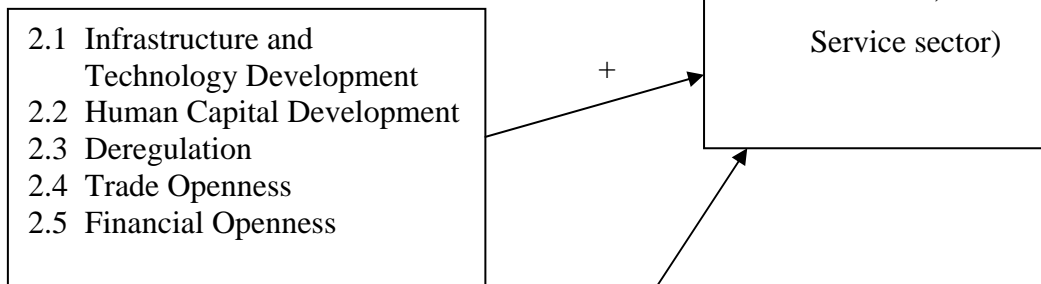
**Independent Variables**

**Dependent Variable**

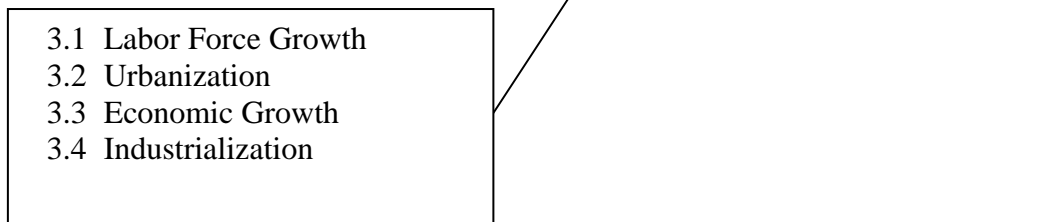
**I. Fiscal and Monetary Policies (Demand-side Policies)**



**II. Supply-side Policies**



**III. Socio-Economic Factors**



**Employment**

- of the entire nation
- in each production sector

(Agricultural, Industrial, and Service sector)

**Figure 3.5** Conceptual Framework

## **3.6 Hypothesis Development**

The following hypotheses were developed from the review of the literature and from the conceptual framework.

### **3.6.1 Fiscal and Monetary Policies**

H1: Money supply affects employment positively.

H2: Tax affects employment rate negatively.

H3: Government spending affects employment positively.

H4: The budget deficit affects employment positively.

### **3.6.2 Supply-side Policies**

H5: Human capital development affects employment positively.

H6: Deregulation affects employment positively.

H7: Infrastructure and technology development affect employment positively.

H8: Trade openness affects employment rate positively.

H9: Financial openness affects employment rate positively.

### **3.6.3 Socioeconomic Factors**

H10: Labor force growth affects employment rate negatively.

H11: Urbanization affects employment rate negatively.

H12: Economic growth affects employment rate positively.

H13: Industrialization affects employment rate positively.

## **CHAPTER 4**

### **RESEARCH METHODOLOGY**

#### **4.1 Research Approach**

Monetary and fiscal policies are used to achieve economic stability and also to create employment. From the review of the literature, it was seen that there are also other factors affecting employment, which are supply-side policies and socioeconomic factors. The research investigates the impacts of macroeconomic policies on employment when they are considered alone, and also together with other policies and factors. Employment in the entire Thailand and also in each production sector is studied. This study is based on the quantitative method using the secondary data of different variables. Data on the independent and dependent variables from 1983-2008, were used in the analysis. Multiple regression analysis was applied to study the effect of the independent variables on the dependent variable.

The independent variables were classified into three groups. The first group is comprised of macroeconomic policies, including monetary and fiscal policies. The second group is supply-side policies, which include infrastructure and technology development, human capital development, deregulation, and trade openness and financial openness. The third group is socioeconomic factors, including labor force, urbanization, economic growth, and industrialization. The dependent variable is the employment rate of the entire nation and also in each production sector, which are the agricultural sector, the service sector, and the industrial sector. The objective was to see if each production sector employment was affected by the same independent variables.

The research also aims to study the underemployment situation in Thailand. The underemployment of the entire nation and in each production sector was also used as the dependent variable in the regression analysis.

The model analysis was divided into three models with the objective of studying the factors that really impact employment. The first model includes the monetary and fiscal policies as the independent variables. The second model includes monetary and fiscal policies, and the supply-side policies. The third model includes all independent variables: monetary and fiscal policies, supply-side policies, and socioeconomic factors. The research would like to identify if supply-side policies and socioeconomic factors are taken into the model whether the impacts of monetary and fiscal policies on employment and underemployment still exist.

## **4.2 Data Collection**

The secondary data on the independent and dependent variables were collected from different sources and used in the multiple regression analysis.

### **4.2.1 Dependent Variable**

In this study, the dependent variable was employment rate. In order to measure employment, employment rate was used. Employment rate is the number of employed persons divided by the labor force. The employment rate was collected and released by National Statistical Office of Thailand (NSO), which defines employed persons as persons 15 years of age and over during the survey week that:

4.2.1.1 Worked for at least one hour for wages/salary, profits, dividends or any other kind of payment, in kind; or

4.2.1.2 Did not work at all or worked less than one hour but

1) Received wage/salary, profits from business enterprise or farm during the period of absence; or

2) Did not receive wage/salary, profits from business enterprise or farm during the period of absence but had regular jobs or a business that they would return to work.

4.2.1.3 Worked for at least one hour without pay in a business enterprise or on a farm owned or operated by household heads or members.

The research also aims to study the impact of monetary and fiscal policies on underemployment. The underemployment rate of the entire nation and of

each production sector was also used as the dependent variable. Underemployed persons mean employees that are working less than 30 hours a week and are available to work more. Underemployment rate is the number of employed persons in relation to total employment. The underemployment rate was also collected by the National Statistical Office of Thailand (NSO, 1983-2008)

#### **4.2.2 Independent Variables**

The independent variables were classified into three groups. First group is macroeconomic policies, including monetary and fiscal policies. The second group is supply-side policies, which include infrastructure and technology development, human capital development, deregulation, and trade openness and financial openness. The third group is socioeconomic factors, including labor force, urbanization, economic growth, and industrialization.

##### 4.2.2.1 Macroeconomic Policies (Monetary and Fiscal Policies)

###### 1) Monetary Policy

Monetary policy is the process by which the government, central bank, or monetary authority of a country controls (i) the supply of money, (ii) availability of money, and (iii) cost of money or rate of interest in order to attain a set of objectives oriented towards the growth and stability of the economy. The money supply level is used to measure monetary policy.

Money supply measurement of the M2 level was used in this study to measure monetary policy. The M2 level of money supply measurement includes currency outside Commercial Banks and Central Government, demand deposits at the Bank of Thailand and commercial banks, other deposits at Commercial Banks, and promissory notes issued by finance companies.

Money supply as a percentage of Gross Domestic Product (GDP) was used to represent the monetary policy. The increase in money supply as a percentage of the GDP represents expansionary monetary policy, and its decrease represents restrictive monetary policy.

###### 2) Fiscal Policy

Fiscal policy is carried out by the executive and legislative branches of the government that creates policy regarding government spending

programs and taxation. An increase in taxation and a decrease in spending represent contractionary fiscal policy and a decrease in taxation and an increase in spending represents expansionary fiscal policy.

The data on government spending and tax revenue were collected from the Bureau of the Budget, Ministry of Finance. This research uses tax revenue and government spending as a percentage of Gross Domestic Product to represent fiscal policy. Detail on tax revenue and government spending are as follows:

(1) Taxes (Net)

The amount of Net taxes consists of direct and indirect taxes.

(1.1) Direct Taxes Include

- A. Personal Income Tax
- B. Corporate Income Tax
- C. Petroleum Income Tax

(1.2) Indirect Taxes Include

- A. General Sales Tax
  - Value Added Tax
  - Specific Business Tax
  - Stamp Duties
- B. Specific Sales Tax
  - Petroleum and Petroleum Products
  - Excise Tax on Imports
  - Consumption Tax
  - Mining Royalties
  - Petroleum Royalties
  - Natural Resource Royalties
- C. Export - Import Duties
- D. Licensing Fees

(2) Government Expenditure

Thailand's government budget expenditures are classified into different categories as follows:

(2.1) The Functional and Economic Classification of Expenditures

(2.1.1) Functional Classification

Budget expenditures classified by functions are expenditures based on the government purposes in providing public services. These functions are based on the United Nations' classifications, which classify government activities into 14 major groups under 4 categories.

A. General Governmental Services

- General Public Services
- Defense Affairs and Services
- Public Order and Safety Affairs

B. Community and Social Services

- Education Affairs and Services
- Health Affairs and Services
- Social Security and Welfare Affairs and Services
- Housing and Community Amenity Affairs and Services
- Religious, Cultural, and Recreational Affairs and Services

C. Economic Services

- Fuel and Energy Affairs and Services
- Agriculture, Forestry, and Fishery Affairs and Services
- Mining and Mineral Resource Affairs and Services, Manufacturing Affairs and Services, and Construction Affairs and Services

- Transportation and Communication Affairs and Services
- Other Economic Affairs and Services

#### D. Miscellaneous and Unclassified Items

- Miscellaneous and Unclassified Items

#### (2.1.2) Economic Classification

Budget expenditures under economic classification are those that will reflect economic activities affected by government spending. They can be classified as capital and current expenditures. Capital expenditures involve economic stimulants and expenses on fixed assets, such as land and buildings which contribute to capital formation. Current expenditures are general administrative expenses, for example: salaries, wages, personnel expenses, and other procurements which are not related to capital formation.

#### (2.2) Expenditures classified by Ministry and Organization

The total expenditures are allocated to ministries for implementing projects under their responsibility and according to each ministry's operating plan.

##### 4.2.2.2 Supply-side Policies

###### 1) Infrastructure and Technology Development

The government capital expenditures on economic services classification is used as the measurement of infrastructure and technology development. The amount of government capital expenditures on economic services as a percentage of GDP was used in the present study. The data were collected from the Bureau of the Budget, Ministry of Finance, and from the Office of National Economic and Social Development Board.

###### 2) Human Capital Development

The United Nations defines Human Capital Development as people's innate abilities and talents plus their knowledge, skills, and experience that

make them economically productive. Three dimensions in the Human Development Index (HDI) under the definition of the United Nations are stated as follows: 1) Life expectancy at birth, as an index of population health and longevity 2) Knowledge and education, as measured by the adult literacy rate (with two-thirds weighting) and the combined primary, secondary, and tertiary gross enrollment ratio (with one-third weighting) 3) Standard of living

In this research the budget allocation to the community and social services as a percentage of the GDP was used as the measurement for human capital development. The data were collected from the Bureau of the Budget, Ministry of Finance, and from the Office of National Economic and Social Development Board.

### 3) Deregulation

The literature review showed that the deregulation of government policies regarding the labor market can be considered from the minimum wage rate and private contribution on social security system. If the government still sets the minimum wage rate and/or increases the social security contribution by the private sector, this demonstrates the intervention of the government. The data were collected from the Ministry of Labor, and the Office of National Economic and Social Development Board.

### 4) Openness Policy

Policies support international trade and international capital flows across nations. International trade includes the volume of exports and imports. International capital flows include gross capital flows from foreign direct investment and portfolio investment.

(1) Trade Openness is measured by volume of exports and imports as a percentage of the GDP.

(2) Financial Openness is measured by capital outflow and inflow as a percentage of the GDP.

The data were collected from the Bank of Thailand and the Office of National Economic and Social Development Board.

#### 4.2.2.3 Socio-economic Factors

##### 1) Labor Force Growth

Labor force includes all persons 15 years of age and over that, during the survey week, were either employed or unemployed. The labor force of

each year and its growth rate were collected from the National Statistical Office of Thailand.

#### 2) Urbanization

Urbanization is defined by the United Nations as the movement of people from rural to urban areas with population growth equating to urban migration. Urbanization is measured by the ratio of number of population in urban areas to total population, which was collected from the National Statistical Office of Thailand.

#### 3) Economic Growth

Gross Domestic Product (GDP) was used to measure economic growth. The GDP means the value of all final goods and services produced in a country in one year. It can be measured by adding up all of an economy's activities on consumption, investment, government purchases, and net exports (exports minus imports). The researcher collected the data from the Bank of Thailand.

#### 4) Industrialization

This is the phase of a country's economic development in which industry grows faster than agriculture and gradually comes to play the leading role in the economy. The employment rate in the industrial sector was used to measure the degree of industrialization. The researcher collected data from The National Statistical Office of Thailand.

### **4.3 Unit of Analysis**

The study used country level and industry level.

### **4.4 Data Analysis**

The secondary data were obtained from above-mentioned sources. The research used yearly data from 1983 to 2008.

Multiple regression analysis and time series analysis were applied to analyzing the impact of the independent variables on the dependent variable in the research hypotheses. According to the review of the literature, different schools of economics

have different ideas concerning the policies affecting employment. Employment is also impacted by socioeconomic factors following economic development theories. The conceptual framework in chapter 3 was developed according to the review of the literature.

The model analysis was divided into three models, with the objective of studying the policies/factors that have a significant impact on employment. The first model includes the monetary and fiscal policies as the independent variables. The second model includes monetary and fiscal policies, and the supply-side policies. The third model includes all independent variables, which are monetary and fiscal policies, supply-side policies, and socioeconomic factors. The relationship of each independent variable to the dependent variable following the review of the literature is presented here.

Model 1:

$$\text{EMPLOY}_t = a + b_1\text{MSGDP}_{t-(t-1)} - b_2\text{TAXGDP}_{t-(t-1)} + b_3\text{EXPGDP}_{t-(t-1)} + b_4\text{BUDGDP}_{t-(t-1)}$$

Model 2:

$$\begin{aligned} \text{EMPLOY}_t = a + b_1\text{MSGDP}_{t-(t-1)} - b_2\text{TAXGDP}_{t-(t-1)} + b_3\text{EXPGDP}_{t-(t-1)} + b_4\text{BUDGDP}_{t-(t-1)} \\ + b_5\text{HDGDP}_{t-(t-1)} + b_6\text{INFRAGDP}_{t-(t-1)} - b_7\% \Delta\text{MINWAGE} - b_8\% \Delta\text{SOCIAL} \\ + b_9\text{TRADE}_{t-(t-1)} + b_{10}\text{FIN}_{t-(t-1)} \end{aligned}$$

Model 3:

$$\begin{aligned} \text{EMPLOY}_t = a + b_1\text{MSGDP}_{t-(t-1)} - b_2\text{TAXGDP}_{t-(t-1)} + b_3\text{EXPGDP}_{t-(t-1)} + b_4\text{BUDGDP}_{t-(t-1)} \\ + b_5\text{HDGDP}_{t-(t-1)} + b_6\text{INFRAGDP}_{t-(t-1)} - b_7\% \Delta\text{MINWAGE} - b_8\% \Delta\text{SOCIAL} \\ + b_9\text{TRADE}_{t-(t-1)} + b_{10}\text{FIN}_{t-(t-1)} - b_{11}\% \Delta\text{LABOR} - b_{12}\text{URBAN}_{t-(t-1)} + b_{13}\text{GDP} \\ + b_{14}\text{IND}_{t-(t-1)} \end{aligned}$$

Where:

EMPLOY is employment rate at time.

MSGDP is money supply as a percentage of Gross Domestic Product.

TAXGDP is tax revenue as a percentage of Gross Domestic Product.

EXPGDP is government expenditures as a percentage of Gross Domestic Product.

BUDGDP is budget deficit as a percentage of Gross Domestic Product.

HDGDP is government expenditures on human capital development as a percentage of Gross Domestic Product.

INFRAGDP is government capital expenditures on infrastructure and technology as a percentage of Gross Domestic Product.

%  $\Delta$ MINWAGE is a percentage change in minimum wage rate.

%  $\Delta$ SOCIAL is percentage change in the amount of social security contributed by the private sector.

TRADE is trade openness.

FIN is financial openness.

%  $\Delta$ LABOR is percentage change in labor force.

URBAN is urbanization.

GDP is Gross Domestic Product.

IND is industrialization.

t is time period.

The researcher used a 95 percent level of confidence in the study. The standardized coefficient was used to interpret the relationship between the independent variables and the dependent variable in this study. The adjusted R square measures the determinant degree of each model.

The Durbin-Watson value was used to identify if there was an autocorrelation among the independent variables. The Durbin-Watson value of the first model with 4 independent variables should be 1.767 to 2.233. The second model of the 10 independent variables had to have a value of 1.440 to 2.560 (Durbin-Watsons), and the third model with a total of 14 independent variables had to have Durbin-Watson value of 0.881 to 3.119 for non-autocorrelation.

#### **4.5 Operational Definition and Measurement**

The concept of measuring in any research consists of assigning numbers of symbols to empirical incidents in accordance with a set of rules. The primary goal is to provide the highest quality with the lowest number of errors for testing the research hypotheses. The measurement should be valid, reliable, and practical. That is, the tool must accurately measure what is intended, be easy to use, and be efficient.

**Table 4.1** Operational Definition and Measurement

Variable	Definition	Measurement
Dependent Variable		
1. Employment	<p>Employed persons 15 years of age and over who during the survey week,</p> <p>1) Worked at least one hour for wages/salary, profits, dividends or any other kind of payment, in kind; or</p> <p>2. Did not work at all or worked less than one hour but</p> <p style="padding-left: 20px;">(1) Received wage/salary, profits from enterprise or farm during the period of absence; or</p> <p style="padding-left: 20px;">(2) Did not receive wage/salary, profits from enterprise or farm during the period of absence but had a regular job or business that they would return to.</p> <p>3) Worked for at least one hour without pay in enterprise or on farm owned or operated by household.</p>	<p>-Ratio Scale</p> <p>Using employment rate: the percentage of those in the labor force that are employed</p> <p>Employment rate for entire nation, and in each production sector was also used.</p>
1.1 Underemployment	<p>Employed persons working less than 30 hours a week and available to work more</p>	<p>- Ratio Scale</p> <p>Using underemployment rate: the percentage of underemployed persons to total employment</p> <p>Underemployment rate for entire nation, and in each production sector was also used.</p>

**Table 4.1** (Continued)

Variable	Definition	Measurement
<b>Independent Variables (Continued)</b>		
1. Macroeconomic Policies	Macroeconomic policies affect employment.	- Ratio Scale
1.1 Fiscal Policy	Fiscal policy is carried out by the executive and legislative branches of government that make policy regarding government spending programs and taxation.	- Ratio Scale Using tax revenue and government spending as the percentage of GDP
1.1.1 Expansionary Fiscal Policy	Fiscal Policy would be used to speed up the rate of GDP growth or during a recession when GDP growth is negative. A tax cut and/or an increase in government spending would be implemented to stimulate economic growth.	-Ratio Scale Reducing tax revenue as the percentage of GDP, and increasing government spending as the percentage of GDP
1.1.2 Restrictive Fiscal Policy	Fiscal policy that is used to slow down economic growth. This involves raising taxes or cutting government spending in an attempt to dampen GDP.	-Ratio Scale Increasing tax revenue as the percentage of GDP, and decreasing government spending as the percentage of GDP
1.2. Monetary Policy	Monetary policy is the process by which the government, central bank, or monetary authority of a country controls (i) the supply of money,	- Ratio Scale Using money supply measurement (M2)

**Table 4.1** (Continued)

Variable	Definition	Measurement
<b>Independent Variables (Continued)</b>		
	(ii) availability of money, and (iii) cost of money or rate of interest in order to attain a set of objectives oriented towards the growth and stability of the economy.	
1.2.1 Expansionary Monetary Policy	A stimulus for economic situations	- Ratio Scale  Increasing in the money supply as a percentage of GDP
1.2.2 Restrictive Monetary Policy	Restricting economic situations	- Ratio Scale  Decreasing the money supply as a percentage of GDP
2. Supply-side Policies	The factors that change production function	-Ratio Scale
2.1 Infrastructure and Technology Development	The basic system, structure, technology that a country needs in order to development economic activities	- Ratio Scale  The government capital expenditures on economic services as a percentage of GDP was used.
2.2 Human Capital Development	People's innate abilities and talents plus their knowledge, skills, and experience that make them economically productive	- Ratio Scale  Use of government spending for community and social services as a percentage of GDP

**Table 4.1** (Continued)

<b>Variable</b>	<b>Definition</b>	<b>Measurement</b>
<b>Independent Variables (Continued)</b>		
2.3 Deregulation	The government intervenes directly in supply decisions by regulating employment and output behavior.	- Ratio Scale  The minimum wage rate was used.  The social security contribution by employees and employers
2.4 Openness Policy	Policies that support international trade and international capital flows across nations	-Ratio Scale  Trade Openness was measured by volume of export and import as a percentage of GDP.  Financial openness was measured by volume of capital inflows and outflows as a percentage of GDP.
3. Socioeconomic Factors	Other socioeconomic factors that affect unemployment.	-Ratio Scale
3.1 Labor Force Growth	The growth rate of the labor force. Labor force refers to all those over 15 years of age either employed or unemployed.	- Ratio scale  Labor force growth rate was used.

**Table 4.1** (Continued)

<b>Variable</b>	<b>Definition</b>	<b>Measurement</b>
<b>Independent Variables (Continued)</b>		
3.2 Urbanization	Urbanization is the movement of people from rural to urban areas.	- Ratio Scale  Percentage of population in urban to total population was used.
3.3 Economic Growth	The final goods and services produced in a country in one year, which adds up to all of the economy's activities in consumption, investment, government purchases, and net exports	- Ratio Scale  Gross Domestic Product (GDP) was used to measure economic growth rate.
3.4 Industrialization	The phase of a country's economic development in which industry grows faster than agriculture and gradually comes to play the leading role in the economy	-Ratio Scale  Employment rate in the industrial sector was used to measure industrialization.

## CHAPTER 5

### RESULTS OF THE STUDY

The results of the study begin with the descriptive analysis of each variable. Then, the results of study are presented in two parts. First is the study of the impacts of monetary and fiscal policies, supply-side policies, and socioeconomic factors on the entire nation's employment and each sector employment. The second part is the result of the independent variables' impact on underemployment.

#### 5.1 Descriptive Analysis

**Table 5.1** Descriptive Analysis

	N	Minimum	Maximum	Mean	Standard Deviation
Money Supply	25	5.9000	12.4000	9.2132	2.0245
Tax Policy	25	12.8700	16.5200	14.6952	1.2187
Spending Policy	25	15.1500	19.5900	16.9844	1.2856
Budget Deficit	25	0.0000	4.5200	1.0632	1.4324
Infrastructure and Technology Spending	25	1.6300	4.6600	2.8400	0.7336
Human Capital Development Spending	25	4.2300	7.9200	6.4048	1.1899
Trade Openness	25	0.4180	1.3020	.8324	.2899
Financial Openness	25	0.1870	9.5440	2.4522	2.6291
Minimum Wage	25	56.0000	144.00	107.2400	32.4298
Social Security Contribution	25	0.2490	51.5240	17.5576	16.5774
Labor Growth Rate	25	-1.6600	4.8800	1.6620	1.6226
Urbanization	25	0.1760	30.8000	21.6360	5.3474

**Table 5.1** (Continued)

	N	Minimum	Maximum	Mean	Standard Deviation
Economic Growth	25	-10.5100	13.2900	5.8620	4.7053
Employment Rate	25	90.9500	98.1900	95.1172	2.1717
Industrial Sector Employment	25	12.5900	24.0800	19.0724	3.9136
Service Sector Employment	25	21.9600	39.0300	30.7196	6.1903
Agricultural Sector Employment	25	38.6200	65.2500	50.0684	9.5530

The researcher uses the 26-year data from 1983 to 2008 in the analysis. The average of money supply level as a percentage of the GDP was 9.2 percent. The lower money supply represents tight monetary policy while increasing money supply represents expansionary monetary policy. Tax revenue as a percentage of the GDP was 14.7 percent on average, and government spending was 17 percent of the GDP on the average. Thailand had an average level of budget deficit at 1.06 percent of the GDP.

The Thai government has spent on infrastructure and technology development in the average of 2.84 percent of the GDP, and 6.40 percent of the GDP on human capital development. The average level of trade openness was 0.83, which means that the total value of exports and imports was 83 percent of the total value of the GDP. Financial openness had an average level of 2.45, showing that the gross capital flows in Thailand were 2.45 times more than total GDP.

Minimum wage rate was at the average of 107.24 baht per day the 26 years mentioned above. Social security contribution by employees and employers was on average 17.56 billion baht a year.

The number of people in the labor force in relation to total population increased at an average of 1.66 percent a year. The rate of people living in the urban areas in relation to the total population was at 21.63 percent on average. The average GDP growth rate was 5.68 percent.

Employment rate in Thailand was at 95 percent on average, classified as the employment rate in the agricultural sector which is 50 percent, 19 percent in the industrial sector, and 31 percent in the service sector. One interesting statistical fact was found in agricultural employment. The minimum rate of 25 years was 38.62 percent, and the maximum agricultural employment rate was 65 percent. The agricultural employment rate had changed dramatically during those 26 years.

This research used multiple regression analysis to test the relationship between more than one independent variable and the dependent variable. Table 5.2 shows the correlation between the variables. Following the literature review on the policies and factors affecting employment, there were 3 groups of independent variables. The first group was macroeconomic policies, which included monetary and fiscal policies. The second group was supply-side policies, including infrastructure and technology development, human capital development, trade and financial openness, minimum wage, and social security contribution by the private sector. The third group was socioeconomic factors, which included labor force growth rate, urbanization, economic growth rate, and industrialization.

Each pair of independent variables had a correlation value of not more than 0.75, which meant that there is no multicollinearity between the independent variables so the multiple regression analysis could be applied in this study.

The Durbin-Watson value was used to identify whether the model had an autocorrelation problem. The adjusted R square states the degree of the determinant of a model. The researcher used the standardized beta to measure the relationship of the independent variable to the dependent variable.

**Table 5.2** Correlation Matrix

	EMPLOY	MSGDP	TAX GDP	EXP GDP		INFRA GDP	HDGDP	TRADE	FIN	WAGE	SOCIAL	LABOR	URBAN	GDP	IND
EMPLOY	1.000	.429	.664	-.346	.133	.492	.296	.759	.315	.726	.749	-.130	.687	-.010	.689
MSGDP		1.000	.356	-.305	.211	.009	-.010	.271	.004	.217	.299	.062	.194	.036	.185
TAXGDP			1.000	-.566	.150	.517	-.240	.249	.338	.312	.326	-.387	.123	.188	.486
EXP GDP				1.000	.350	.081	.423	-.144	.092	-.038	-.031	.128	-.014	-.502	-.115
BUDGDP					1.000	.244	.124	.035	.093	.193	.239	-.158	.104	-.410	.184
INFRAGDP						1.000	.404	.324	.841	.655	.406	-.518	.112	-.394	.811
HDGDP							1.000	.703	.407	.774	.660	-.249	.616	-.695	.628
TRADE								1.000	.162	.884	.894	-.285	.874	-.329	.733
FIN									1.000	.527	.191	-.412	-.022	-.386	.691
% ΔMINWAGE										1.000	.851	-.498	.675	-.496	.942
% ΔSOCIAL											1.000	-.290	.792	-.357	.727
% ΔLABOR												1.000	-.071	.344	-.616
URBAN													1.000	-.195	.488
GDP														1.000	-.420
IND															1.000

## 5.2 Impacts of Monetary and Fiscal Policies on Employment

From the literature review, it was seen that different schools of economists have contradictory concepts toward the policies or factors that can increase employment. The Keynesian school of thought believes that monetary and fiscal policies can increase the level of employment. Especially fiscal policy can increase employment level effectively. If the government increases expenditures and/or reduces tax, the aggregate demand will be increased and this will increase the level of employment.

The other schools of economics, which are classical, monetarists, and the real business cycle, believe that monetary and fiscal policies cannot increase employment. Monetarists state that monetary policy will increase the inflation rate in the long run rather than increase employment level. These three theories believe that the real factors or supply-side factors can increase employment level effectively. Supply-side factors include the infrastructure and technology development, human capital development, trade openness, financial openness, and deregulation in terms of minimum wage, social security, and trade and financial openness.

Based on the economic development theories, employment is also affected by such socioeconomic factors as labor force growth rate, economic cycle, urbanization, and the industrialization.

Since there are other factors apart from monetary and fiscal policies, the researcher also included the supply-side factors and socioeconomic factors as independent variables.

The researcher organized the study using 3 models with the objective of studying which of the independent variables increased employment. The first model included the monetary and fiscal policies that affect employment. Money supply as a percentage of Gross Domestic Product was used to measure monetary policy. The positive change in money supply to GDP represents the ease monetary policy, and its negative change represents tight monetary policy. Fiscal policy is the planning of government revenue and expenditure. Tax revenue as a percentage of the GDP, and government expenditure as a percentage of the GDP, were used to represent fiscal policy. The positive change in tax as a percentage of the GDP, and a decrease in expenditure as a percentage of GDP, indicated contractionary fiscal policy. On the

other hand, the negative change in tax as a percentage of the GDP and an increase in the percentage of expenditure to GDP indicated an expansionary fiscal policy.

The second model included the macroeconomic and supply-side factors following the classical, monetarist, and real business cycle theories. The objective of the second model was to answer the following: if supply-side policies were included in the model together with macroeconomic policies, which policies would increase employment? The supply-side policies were infrastructure and technology development, human capital development, deregulation, trade openness, and financial openness. The development in infrastructure and technology was measured by government capital expenditure in the economic service function as a percentage of the GDP. Human capital development was measured by the expenditure on human development as a percentage of the GDP. In this research the government budget allocation to the community and social services was used as the measurement for human development. Deregulation was represented by percentage change in minimum wage, the percentage change in social security distributed by the private sector. Trade openness was measured by the total value of exports and imports to GDP. Financial openness was measured by gross capital flows to the value of the GDP.

The third model included the socioeconomic factors with the supply-side and macroeconomic factors. Again, researcher has the objective of seeing if monetary and fiscal policies affect employment when other policies and factors are taken into account. The socioeconomic factors included labor force growth rate, GDP rate, the growth rate of urbanization, and the level of employees in the industrial sector.

The dependent variable was the employment rate of the entire Thailand nation, and also of every sector. Standardized coefficients were used to interpret the relationship of the independent variables to the dependent variable in this study.

**Table 5.3** Output Impacts of Fiscal and Monetary Policies on Employment

<b>Independent Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Constant	90.569	89.003	89.005
Money Supply as a Percentage of GDP	-0.491 (-2.819) ***	0.067 (0.380)	-0.063 (-0.371)
Tax Revenue as a Percentage of GDP	0.194 (1.108)	0.121 (0.945)	0.034 (0.291)
Expenditure as a Percentage of GDP	0.295 (1.185)	0.023 (0.132)	0.037 (0.252)
Budget Deficit as a Percentage to GDP	-0.048 (-0.244)	-0.098 (-0.716)	-0.209 (-1.829)
Infrastructure and Technology Development		0.208 (1.403)	0.041 (0.318)
Human Capital Development		0.284 (1.683)	0.360 (2.477) ***
Trade Openness		0.890 (6.109) ***	1.082 (4.464) ***
Financial Openness		0.016 (0.114)	0.284 (1.232)
Minimum Wage		0.276 (2.026) ***	0.342 (2.934) ***
Social Security		-0.194 (-1.852)	-0.105 (-1.109)
Labor Force Growth			0.161 (1.242)
Urbanization			-0.299 (-3.436) ***
Economic Growth			0.033 (0.167)
Industrialization			-0.203 (-0.576)
Adjusted R <sup>2</sup>	0.573	0.792	0.891
F-Sig	0.001	0.000	0.000
Durbin Watson	1.770	1.502	2.337

**Note:** \*\*\* Significance at 95 Percent Confidence Interval Level

Number in Parenthesis is t-value.

From the first model's results, it can be seen that monetary policy has a significant relationship to employment, and fiscal policy has no impact on employment. The model has a coefficient of determinant of 0.573, which is quite weak. The Durbin-Watson value was 1.770, which is within the range of 1.767-2.233 of no autocorrelation among independent variables.

Money supply has a negative relationship with the employment. If money supply as a percentage of GDP increases by 1 unit, the employment rate will be reduced by 0.491 percent. Fiscal policy has no significant relationship with employment rate. The negative relationship between monetary policy and employment rate confirms the study from monetarist theory. The level of money supply cannot increase employment; rather, the increase in money supply level tends to increase price level expectation. Employees will perceive that the real wage becomes lower from the inflation rate, and the money supply level can increase the aggregate demand only for a short run. An increase in the growth of rate of money supply will stimulate aggregate demand and nominal income. People have been expecting prices to be stable, and prices and wages have been set for some time in the future on that basis. Producers will tend to produce more output and increase employment. The price of products increases faster than the price of production factors. Employees start to realize that their real wage decreases from lower purchasing power, so they demand a higher nominal wage. If the employers that cannot increase the nominal wage to cover with the inflation rate, they may decrease the employees' level. The policy maker cannot peg the unemployment rate at some arbitrarily-determined target rate. The lasting effect of the expansionary policy will be a higher inflation rate. Monetary policy will increase the aggregate demand only for a short-run effect.

The other explanation of the negative effect of monetary policy is the liquidity trap. A liquidity trap results when demand for money becomes infinitely elastic so that further injections of money into the economy will not serve to further lower interest rates. Under the Keynesian theory in which this arises, it is specified that monetary policy affects the economy only through its effect on interest rates. Thus, if an economy enters a liquidity trap, further increases in the money stock will

fail to further lower interest rates and, therefore, fail to stimulate the economy in terms of increasing aggregate demand.

The Bank of Thailand usually uses expansionary monetary policy during an economic downturn to reduce the interest rate level and to increase the level of money supply. Commercial banks are persuaded to grant more loans to households and especially to the business sector. During an economic downturn the performance of most corporations is affected and this may cause the non performing loans to the commercial bank. Commercial banks become reluctant lenders to grant more loans during uncertain circumstances.

Fiscal policy has no significant independent affect on employment rate. This result tends to conform to classical, monetarist, and real business cycle theories. Considering the effects of an increase in government spending, the question of how an increase in spending is financed arises. The government has three sources of funds: taxation, selling bonds to the public, or creating new money. The Thai government usually finances their spending by issuing bonds or by borrowing. The increase in government spending creates an increased demand for loanable funds, as the government sells bonds to the public. The interest rate will increase. This increase in interest rate will decrease consumption, which equals the amount of increased saving, and also will decrease investment. The increase in government spending financed by selling bonds to the public pushes the interest rate up enough to “crowd out” an equal amount of private expenditure on consumption and investment. Private expenditures are discouraged because the higher interest rate causes households to substitute future consumption for current consumption. Investment declines because fewer projects appear profitable with higher borrowing costs. It is crowding out that keeps aggregate demand from increasing when the government component of demand rises. Because aggregate demand is not changed, increases in government spending financed by bonds do not affect the price level.

If the government finances its spending by printing new money, the quantity of money is changed and the price level will change proportionately. In the classical system, the source of the increase in the money supply does not increase output or employment. So the increase in government spending has no independent effect on aggregate demand.

For tax policy, the government may increase the disposable income of households by reducing the tax rate. This will stimulate consumption. The government sells bonds to the public to replace the revenues lost by the tax cut, and the same crowding-out process would follow as in the case of a bond-financed increase in government spending. Aggregate demand would not be affected and the employment rate is not increased.

If revenues lost because of the tax cut were replaced by printing new money, then as with an increase in government spending, the money creation would increase aggregate demand, and the tax cut would cause the price level to rise but have no effect on output or employment.

The other explanation of the insignificance of fiscal policy to employment creation is the inelasticity of income to government spending. The government injects more spending to different projects with the objective of increasing the aggregate demand, especially regarding consumption and investment in the system. If the consumption and investment tend to change very little from the increase in government spending, employment also cannot be increased significantly.

The second model includes the effects of macroeconomics in combination with the supply-side policies in the study. Supply-side policies include 4 perspectives that increase productivity. The first one is the development in infrastructure and technology, which is measured by government capital expenditure in its economic service function as a percentage of the GDP. The second one is expenditure on human development as a percentage of the GDP. The third one is the deregulation perspective, which includes the study of percentage change in the minimum wage rate, and the percentage change in social security contributed by employees and employers. The fourth one is economic openness in terms of international trade and international capital flows.

The model showed a significant relationship to employment rate. The coefficient of the determinant was 0.792, which is a high degree of prediction. The Durbin-Watson value was 1.502, which is within the range of 1.440 – 2.560 of no autocorrelation among the independent variables.

When macroeconomic policies and supply-side policies are added into the model, the monetary and fiscal policies play no role in increasing employment. The supply-side policies, which are trade openness and minimum wage, have significant

effects on the increase in the employment rate. The infrastructure and technology development, human development, and social security have no independent effects on employment.

The result shows that trade openness and percentage change in minimum wage have a positive and significant relationship with employment rate. One percentage growth rate in the minimum wage increases the employment rate by 0.276 percent. If the trade openness index is increased by 1 unit, employment rate will increase by 0.890 percent. Monetary and fiscal policies have no significant relationship with employment when we consider their effects together with supply-side policies.

The third model includes the entire effects of macroeconomic policies, supply-side policies, and socioeconomic factors on employment rate. The model has a significant impact on employment, with the 0.891 degree of determinant with the Durbin-Watson value of 2.337 of no autocorrelation problem. The socioeconomic factors that are studied here consist of labor force growth rate, economic growth, the change in level of urbanization, and the level of industrialization. The model shows that supply-side policy and socioeconomic factors affect employment rather than monetary or fiscal policies.

Human capital development, trade openness, and minimum wage rate have a significant positive relationship with employment. If the government's spending on human capital development as a percentage of the GDP is increased by 1 percent point, this can increase the employment rate by 0.360 percent. Trade openness affects employment rate positively to the highest degree. The increase in the value of exports and imports by 1 time more than the value of the GDP increases the employment rate significantly by 1.082 percent. The one percentage change in minimum wage rate increases the employment rate by 0.342 percent.

An increase in urbanization level has a significant negative relationship to employment. An increase in urbanization level decreases the employment rate. If the ratio of people in the urban area to total population increases by one percent, the employment rate will decrease by 0.299 percent.

The results from the second and third models confirm the studies of classical, monetarist, and real business cycle schools of thought-that the real factors affecting production level can increase the level of employment. Monetary and fiscal policies cannot increase the employment. This result contradicts with the Keynesian school of

thought. Output and employment depend primarily on the real or supply-side factors. Those supply-side factors include human capital development, trade openness, and the increase in minimum wage rate. Urbanization from the socioeconomic factor also affects employment.

First, the increase in the ability and living standard of people should be emphasized by the government. The skills and knowledge of the workforce will increase a nation's potential output. Often when the demand for products in the market increases, employers want to hire more workers, but the available laborers may not have the required skills and this will result in structural unemployment. The consequence is that employers cannot increase output as fast as they often expect.

Worker training and improvement in the efficacy of the education system can improve the human capital. The government should increase its spending to improve the quality of education at every level, especially for the semi-skilled to the skilled level, to prepare educated persons to match labor force requirements. Healthcare and community services also need to be considered. When people have a better life and better standard of living, they can work more efficiently.

Second, trade openness also influences the shape and position of aggregate supply and employment. A higher level of trade openness causes a higher level of employment absorption. From the results of the present study, it was seen that trade openness had the highest degree of positive relationship level to increased employment. With fewer trade regulations, producers can access to lower cost raw material or advanced technology production equipment to increase their efficiency. Also producers can expand their market to other countries in order to increase the level of production, so they can hire more employees.

Third, the minimum wage rate which can increase employment level, which does not rely on the nonintervention concept from classical, monetarist, or real business cycle theories. An increasing in the minimum wage rate can increase the purchasing power of employees, and in this way the consumption rate in the country is stimulated. A higher level of aggregate demand can increase the employment level.

The last factor is urbanization. From the present study, it was seen that more people moving to urban areas reduces employment level. The labor market in urban areas, however, cannot absorb all of the people that move there. Employees move to

urban areas with the expectation of getting better jobs with higher wages, but this causes an excess supply of labor in urban areas and a higher unemployment rate.

**Table 5.4** Output Impacts of Fiscal and Monetary Policies on Employment of One Year Time Lag

Independent Variables	Model 1	Model 2	Model 3
Constant	95.925	89.003	85.842
Money Supply as a Percentage of GDP	-0.311 (-2.483) ***	-0.411 (-1.759)	0.324 (1.234)
Tax Revenue as a Percentage of GDP	0.013 (0.067)	0.010 (0.945)	-0.184 (-1.462)
Expenditure as a Percentage of GDP	-0.031 (-0.159)	-0.247 (-0.973)	0.106 (0.577)
Budget Deficit as a Percentage of GDP	0.265 (1.207)	0.142 (0.755)	-0.095 (-0.644)
Infrastructure and Technology Development		0.032 (0.153)	-0.217 (-1.405)
Human Capital Development		0.089 (0.369)	-0.102 (-0.586)
Trade Openness		0.601 (3.101) ***	1.209 (5.988)***
Financial Openness		0.168 (0.894)	0.109 (0.635)
Minimum Wage		0.241 (1.295)	-0.011 (-0.074)
Social Security		0.104 (0.729)	-0.378 (-1.942)
Labor Force Growth			-0.082 (-0.578)
Urbanization			-0.370 (-3.086)***
Economic Growth			0.583 (2.393)***
Industrialization			0.715 (2.500)***
Adjusted R <sup>2</sup>	0.460	0.626	0.853
F-Sig	0.007	0.005	0.001
Durbin Watson	2.210	2.308	2.412

**Note:** \*\*\* Significance at 95 Percent Confidence Interval Level

Number in Parentheses is t-value.

Now, the persistent effect of the independent variables on employment is studied. The dependent variable now is the 1 year lag time of employment rate. The same method used previously in the study is applied here. The first model includes the study of macroeconomic policies on employment. The second model combines the supply-side policy group in the macroeconomic policies. The third model includes socioeconomic factors in the supply-side and macroeconomic policies. The study of one-year time lag here has the main objective of finding out if any policies that affect employment can persist their impact on employment. The other objective is to find out if there is any policy that affects employment after a one-year period.

The first model's result confirms that monetary policy has a significant negative relationship to employment. The coefficient of determinant was 0.460. The Durbin-Watson value was 2.210, which is within the range of 1.767-2.233 of no autocorrelation among the independent variables.

If money supply as a percentage of the GDP is increased by 1 percent point, the employment rate will be reduced by a 0.311 percent point. The higher level of money supply in the system reduces employment to a greater degree when the one-year period passes. The expansionary monetary policy has even a worse impact on employment when the one-year period passes. The result again confirms the monetarist theory-that increasing the money supply-level finally increases the inflation rate and cannot reduce unemployment. Fiscal policy still has no significant relationship to employment rate after a one-year period, confirming the classical, monetarist, and real business cycle theories.

The result from the second model, combining macroeconomic policy and supply-side policies has a significant independent impact on employment, with a coefficient determinant of 0.626. The Durbin-Watson value was 2.308, which was within the range of 1.440 -2.560 of no autocorrelation among independent variables.

The result shows that macroeconomic policies have no significant relationship with employment when we consider their effects together with supply-side policies. The result from the supply-side policies, which still persist after the one-year period, is trade openness. This trade openness has a stronger positive effect on the increase in employment after the one-year period compared to the effect within the same year.

The employment increases by 0.661 percent from the increase in the value of international trade one time more than the GDP. The effect of growth in the minimum wage rate does not persist after the one-year period. The minimum wage growth has an insignificant relationship to employment rate when the one-year lag time employment rate is studied. When employees perceive that the increase in the nominal minimum wage rate cannot cover the higher inflation rate or cannot increase the real wage, the supply of labor will not increase anymore.

The combination effects from macroeconomic policy, supply-side policy, and socioeconomic factors on employment rate are presented in model 3. The model has a coefficient of determinant of 0.853, which is the highest among the three models. The Durbin-Watson value was 2.412, which is within the range of 0.881-3.119 of no autocorrelation among independent variables.

With the one-year time lag, trade openness still affects employment positively. The urbanization effect persists in reducing employment. The additional effects from the independent variables on employment that occur after the one-year lag time are economic growth and industrialization. If the GDP growth rate increases by one percent point, the employment rate of the one-year lag time will increase by 0.583 percent. Industrialization level affects the employment situation positively. Industrialization is measured by the ratio of the total number of employees that work in the industrial sector in relation to total employed people. A one percent increase in the level of industrialization increases the employment rate by 0.715 percent.

During the past 25 years, Thailand has exhibited a higher degree of industrialization. Data from the National Economic and Social Development Board indicate that the value of industrial products relation to the GDP increased from 30 percent in 1983 to 44 percent of the GDP in 2008. With higher level of trade openness, producers can improve their technology to increase their competitive advantage, and also can expand the market to different countries. Thailand is exporting more industrial products today than in the past and this causes a higher demand for employees to support the higher degree of production and export. Two effects that disappeared after the one-year period were human development and minimum wage. This shows that the government expenditures that are allocated for education, public health, and community services can increase employment only

within a year. Minimum wage also can affect positively the employment situation within one year only.

According to the result of the one-year time lag employment studies above, the model shows no relationship between monetary and fiscal policies in terms of increasing employment when the supply-side policies or/and socioeconomic factors are included in the study. This result tends to confirm the perspectives from classical, monetarist, and real business cycle theories, and rejects the viewpoint of the Keynesian school of economy. Employment and output are influenced mainly by supply-side factors.

The researcher would like to investigate further if each independent affects employment of each production sector. In the next section, the study results regarding employment of each sector are presented. The production sectors are classified as the agricultural sector, the service sector, and the industrial sector. The results begin with agricultural sector employment.

### 5.2.1 Impacts of Monetary and Fiscal Policies on Agricultural Sector Employment

**Table 5.5** Output Impacts of Fiscal and Monetary Policies on Agricultural Sector  
Employment

<b>Independent Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Constant	47.017	73.467	86.708
Money Supply as a Percentage of GDP	0.250 (2.945)***	0.148 (1.672)	0.107 (1.695)
Tax Revenue as a Percentage of GDP	0.070 (1.199)	0.139 (1.960)	0.001 (0.023)
Expenditure as a Percentage of GDP	0.058 (1.047)	0.096 (1.106)	0.050 (0.906)
Budget Deficit as a Percentage of GDP	-0.043 (-0.662)	-0.065 (-0.931)	0.005 (0.127)
Infrastructure and Technology Development		0.035 (0.463)	-0.023 (0.469)
Human Capital Development		-0.063 (-0.739)	-0.033 (-0.604)
Trade Openness		-0.759 (-10.312)***	-0.324 (-3.582)***
Financial Openness		-0.366 (-5.257)***	0.056 (0.651)
Minimum Wage		0.039 (0.564)	0.114 (2.619) ***
Social Security		-0.061 (-1.143)	-0.009 (-0.263)
Labor Force Growth			-0.043 (-0.897)
Urbanization			0.065 (1.988)
Economic Growth			0.150 (2.015)
Industrialization			-0.663 (-5.048)***
Adjusted R <sup>2</sup>	0.950	0.947	0.985
F-Sig	0.000	0.000	0.000
Durbin Watson	2.235	1.630	2.360

**Note:** \*\*\* Significance at 95 Percent Confidence Interval Level

Number in Parentheses is t-value.

The same pattern of testing as previous study was examined. The independent variables, which are monetary and fiscal policies, were tested in the first model. The supply-side policies were included in the macroeconomic policies in the second model. The third model includes the macroeconomic policies, supply-side policies, and the last group of independent variables, which were socioeconomic factors.

The first model was the study of macroeconomic policies, which included monetary and fiscal policies. The model showed a significant impact of independent variables on agricultural sector employment, with a 0.950 degree of determinant. The Durbin-Watson value was 2.235, which was under the range of 1.767-2.233 of no autocorrelation among independent variables.

The model shows that monetary policy affects agricultural employment positively. If money supply as a percentage of the GDP is increased by 1 percent, agricultural employment will increase by 0.250 percent. The coefficient of the determinant of this model was 0.950. The government usually stimulates the economy by encouraging commercial banks to grant more loans to the private sector, including the farmers. It especially uses its Specialized Financial Institutions (SFIs) to grant loans with lower interest rates to the private sector and farmers. The farmers and employers in the agricultural sector depend on borrowing very much for their continuous operation. The government usually lowers its interest rate or gives an interest rate advantage to the agricultural sector, and this can help the sector significantly maintain its production and create employment.

In the next model, the supply-side policies were combined with macroeconomic policies for study. The model had a coefficient of determinant of 0.947 and the Durbin-Watson value was 1.630, which is within the range of 1.440- 2.560 of no autocorrelation among independent variables. The result shows that when supply-side policies were included into the study, the monetary and fiscal policies had no significant independent impact on agricultural employment. The supply-side policies, which are trade and financial openness, showed a significant negative impact on agricultural employment. The infrastructure and technology development, human resources development, minimum wage growth, and social security growth had no significant relationship with agricultural employment.

Trade openness had a strong significant negative relationship with agricultural employment. If the level of trade openness index is increased by 1 level, agricultural employment will decrease by 0.759 percent. Financial openness also reduces the agricultural employment rate. If the value of gross capital flow is increased one time more than the GDP, agricultural employment will decrease by 0.366 percent.

The last model combines all independent variables in the study. The model showed has a significant relationship of independent variables with agricultural employment, with a coefficient of determinant of 0.985, which is high. The Durbin-Watson value was 2.360, which is within the range of 0.881-3.119 of no autocorrelation among independent variables. The result confirms the same result as in the second model-that monetary and fiscal policies have no relationship with agricultural employment when supply-side policies and socioeconomic factors are taken into account. Two variables from supply-side policies had a significant relationship with agricultural employment. Trade openness had a significant negative relationship with agricultural employment. A one-level increase in trade openness reduces the agricultural employment by 0.324 percent; and a percentage change in the minimum wage rate has a significant positive relationship with agricultural employment. If the minimum wage rate is increased by one percentage, the agricultural employment will increase by 0.114 percent. The rest of the variables in the supply-side factors played no role in affecting agricultural employment. An increase in the minimum wage rate causes people to consume more, especially agricultural or food products. The higher demand for agricultural products increases prices, and this can motivate labor to work in this sector more.

One variable from the socioeconomic factor that affects agricultural employment rate was industrialization. An increase in the level of industrialization reduces agricultural employment significantly. A one-degree increase in industrialization reduces agricultural employment by 0.663 percent.

The result again confirms the classical, monetarist, and real business cycle theory regarding no impact of monetary or fiscal policies in solving agricultural unemployment. The Keynesian school of thought regarding the effectiveness of macroeconomic policy in stimulating employment was rejected here. Supply-side

factors affect agricultural employment but from a different perspective with the study of the entire nation's employment.

One important result from this study was that trade openness cannot solve agricultural employment but rather reduces agricultural employment. Thailand had a higher degree of trade openness during the past two decades, with an increase in the export volume of the industrial and service sector but a decrease in agricultural product exports. This shows that expansion in international trade does not benefit the increase in agricultural products but rather favors a greater degree of industrialization. Employees move from agricultural sector to work in the industrial sectors.

Since trade openness shows a significant negative impact on agricultural employment, the researcher would like to study this factor further and so decided to include agricultural product export value in relation to total value of exports to be one of the variables in the study. The objective was to study the impact of the export of agricultural products on agricultural sector employment.

Multicollinearity was tested by considering the correlation between each pair of independent variables.

**Table 5.6** Correlation Matrix

	AGI	MS	TAX	EXP	BUD	INFRA	HD			%Δ						AGRI	
	EMPLOY	GDP	GDP	GDP	GDP	GDP	GDP	TRADE	FIN	WAGE	% Δ	%Δ	LABOR	URBAN	GDP	IND	EXP
AGRI EMPLOY	1.000	.427	-.337	-.153	.014	.248	.340	.091	.791	.386	-.178	-.041	.241	-.895	-.520	.942	
MSGDP		1.000	-.689	-.362	.431	-.201	.158	.448	.185	.034	-.378	-.306	-.636	-.594	-.015	.491	
TAXGDP			1.000	.245	-.331	.400	-.118	.014	-.154	-.002	.036	.080	.563	.297	.308	-.267	
EXP GDP				1.000	.248	.330	.573	-.030	-.030	.220	.395	-.047	.290	.203	.135	-.082	
BUDGDP					1.000	-.123	.286	.115	.053	.003	-.090	-.446	-.367	-.079	.047	.061	
INFRAGDP						1.000	.198	.323	.269	.285	.214	-.189	.585	-.264	.053	.288	
HDGDP							1.000	.288	.283	.218	-.060	-.007	.219	-.422	.110	.444	
TRADE								1.000	-.462	-.683	-.323	.356	.169	-.129	.161	-.934	
FIN									1.000	-.007	-.240	-.262	-.082	-.201	.672	.260	
% ΔMINWAGE										1.000	.430	-.079	-.225	.434	-.288	.811	
% ΔSOCIAL											1.000	.271	-.438	.479	-.337	.416	
% ΔLABOR												1.000	.095	.223	-.163	-.215	
URBAN													1.000	.035	-.021	-.150	
GDP														1.000	-.113	.225	
IND															1.000	-.272	
AGRI EXP																1.000	

From the correlation table above, it can be seen that trade openness and the value of agricultural exports in relation to total exports has a high correlation, which is -0.934. Minimum wage growth rate and the value of agricultural exports in relation to total exports also has a high correlation of 0.811. These two pairs of variables have a correlation more than 0.75, which violates the rule of multiple regression analysis.

From the previous study of agricultural sector employment, it was seen that trade openness and minimum wage had a significant relationship to agricultural sector employment. Consequently, the researcher decided to exclude these two variables from the model. The export value of agricultural products in relation to total value of exports was used as a part of the independent variable, instead of trade and financial openness to study its impact on agricultural sector employment.

The same three models are applied here but now the value of agricultural exports in relation to total exports is used as part of the supply-side factors.

**Table 5.7** Output Impact of Fiscal and Monetary Policies on Agricultural Sector Employment (Using Agricultural Product Export in Relation to Total Exports as One of the Independent Variables)

<b>Independent Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Constant	47.017	25.420	49.286
Money Supply as a Percentage of GDP	0.250 (2.945) ***	0.139 (1.426)	0.426 (1.948)
Tax Revenue as a Percentage of GDP	0.070 (1.199)	0.022 (0.218)	-0.133 (-1.460)
Expenditure as a Percentage of GDP	0.058 (1.047)	-0.071 (0.643)	0.364 (1.848)
Budget Deficit as a Percentage of GDP	-0.043 (-0.662)	-0.077 (-1.058)	-0.062 (-0.739)
Infrastructure and Technology Development		-0.001 (-0.013)	-0.191 (-1.310)
Human Capital Development		-0.045 (-0.422)	-0.320 (-2.031)
Agricultural Product to Total Exports		1.061 (4.285)***	0.706 (6.602)***
Social Security		-0.013 (-0.192)	-0.303 (-2.082)
Labor Force Growth			-0.077 (-1.093)
Urbanization			0.006 (0.066)
GDP			0.716 (2.405)
Industrialization			-0.214 (-3.473)***
R <sup>2</sup>	0.950	0.953	0.965
F-Sig	0.000	0.000	0.002
Durbin-Watson	2.235	2.362	1.960

**Note:** \*\*\* Significance at 95 Percent Level of Confidence

Number in Parentheses is t-value.

The first model shows the same result as in the previous study—that monetary and fiscal policies have no significant impact on agricultural employment. The second model is the study of macroeconomic policies and supply-side factors. The researcher included agricultural product exports in relation to total exports as one of the supply-side factors. The model showed a significant impact of independent variables on agricultural employment, with a coefficient of determinant of 0.953 and with a Durbin-Watson value of 2.362, which is within the range of 1.440-2.560 of no autocorrelation among independent variables. Monetary and fiscal policies had no impact on agricultural employment. The relation of agricultural product exports to total exports had a significant positive relationship to agricultural employment. If the value of agricultural product exports in relation to total exports is increased by one percent, agricultural employment will increase by 1.061 percent. The other variables had no significant impact on agricultural-sector employment.

The third model showed a significant effect on agricultural employment, with a coefficient of determinant 0.965. The Durbin-Watson value was 1.960, which is within the range of 0.881-3.119 of no autocorrelation among independent variables. This result confirms that there is no relationship of macroeconomic policies to agricultural employment. The value of agricultural product exports in relation to total export had a significantly positively impact on agricultural employment. Further, the effect from socioeconomic factors showed that industrialization had a significant negative relationship to agricultural employment.

An increase in the value of agricultural products exports in relation to total exports can increase agricultural employment. The problem is that agricultural product exports in relation to total exports have been decreasing over the last 20 years. The data from the Bank of Thailand and also from the Department of Exports show that it has declined from about 20 percent to only 10 percent, while the value of industrial product exports in relation to total exports was about 80 percent. The level of trade openness has been increasing but the benefit does not go to agricultural exports but rather to exports of industrial and service products. Corporations and producers tend to move to the industrial and service sectors in order to gain an advantage from the higher degree of international trade.

Most of the government's support programs also benefit the industrial and service sectors rather than going to the grassroots agricultural sector. The agricultural

sector is becomes smaller and smaller and also can absorb less employment. Employees move to the industrial and service sectors more for the better job opportunities and wages in those sectors. The agricultural sector receives a worse effect from trade openness, even if Thailand has lot of natural resources for agricultural production. Thailand cannot gain its highest usefulness from trade openness for the benefit of the agricultural sector but rather only for the industrial and service sectors.

The prices and products of agricultural products are affected by many factors, such as changes in climate or natural disasters. The price of agricultural products is also quite fluctuating. Many governments have tried to solve the problem but it seems as if no “right” method has been applied yet. Farmers have less knowledge about how to expand the market outside the countries, so they tend to plant the same agricultural products that have high prices. The products usually come to the market at the same time with excess supply, so the prices go down. The government usually uses the method of purchasing all of the products from farmers, but again the products are still in over supply.

The farmers face unpredictable situations of price, climate, and market. Their income is also unpredictable, causing them to have a high dept level. This is a situation that continues to happen in the nation, so employees in this sector move to other sectors where they can have a higher and more stable income. The result is very obvious from the socioeconomic factor whereby industrialization has a negative effect on agricultural employment. As Thailand experiences a higher degree of industrialization, the number of employed persons in the industrial sector becomes higher and higher.

### 5.2.2 Impacts of Monetary and Fiscal Policies on Service Sector Employment

**Table 5.8** Output Impacts of Fiscal and Monetary Policies on Service Sector Employment

<b>Independent Variable</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Constant	32.842	16.362	12.292
Money Supply as a Percentage of GDP	-0.147 (-3.150) ***	-0.113 (-1.151)	-0.177 (-1.634)
Tax Revenue as a Percentage of GDP	-0.036 (-0.628)	-0.111 (-1.550)	0.013 (0.172)
Expenditure as a Percentage of GDP	-0.070 (-1.144)	-0.057 (-0.592)	-0.078 (-0.832)
Budget Deficit as a Percentage of GDP	0.077 (1.577)	0.086 (1.118)	0.013 (0.178)
Infrastructure and Technology Development		-0.020 (-0.234)	0.057 (0.682)
Human Capital Development		-0.004 (-0.041)	0.044 (0.478)
Trade Openness		0.804 (9.829) ***	0.440 (2.844) ***
Financial Openness		0.186 (2.396) ***	-0.133 (-0.900)
Minimum Wage		-0.143 (-1.872)	-0.173 (-2.325) ***
Social Security		0.037 (0.620)	0.019 (0.314)
Labor Force Growth			0.087 (1.052)
Urbanization			-0.087 (-1.565)
Economic Growth			-0.275 (-1.968)
Industrialization			0.420 (2.097) ***
Adjusted R <sup>2</sup>	0.955	0.934	0.956
F-Sig	0.000	0.000	0.000
Durbin Watson	1.768	1.980	2.433

**Note:** \*\*\* Significance at 95 Percent Confidence Interval Level

Number in Parentheses is t-value

The effects of monetary and fiscal policies to service sector employment are examined here. There are three groups of independent variables, which are macroeconomic policies, supply-side policies, and socioeconomic factors. Independent variables were entered into the model for testing their significant impact on the dependent variable, which is employment rate in the service sector of Thailand.

Service sector includes the following types of business: wholesale and retail trade; repair of motor vehicles motorcycles and personal and household Goods, hotels and restaurants, transport, storage and communications, financial intermediation, real estate, renting and business activities, public administration and defense; compulsory social security, education, health and social work, other community social and personal service activities, and private households with employed persons.

Model 1 shows the significant effect of macroeconomic policies on the service sector employment rate. The model has a coefficient of determinant of 95.5 percent, with a Durbin-Watson value of 1.768, which is within the range of 1.767-2.233 of no autocorrelation among independent variables.

This result is similar to the study of the entire nation's employment; changes in monetary policy exhibited a significant negative relationship to service sector employment. If the level of money supply to GDP is increased by one percent point, the service sector employment rate will reduced by 0.147 percent. Fiscal policy has no significant relationship to employment rate.

The negative relationship between monetary policy and service sector employment rate confirms monetarists theory. Expansionary monetary policy reduces service sector employment. The impact of expansionary monetary policy may reduce unemployment only for the short term. The long run effect of the increasing the money supply level tends to increase price-level expectations. Employees will perceive that real wages become lower from the inflation rate, and employees realize that their real wage decreases from the lower purchasing power, so they demand a higher nominal wage. If employers do not have the capacity to increase the nominal wages of every employee, employers may decrease the employees' level. Policy makers cannot peg the unemployment rate at some arbitrarily-determined target rate. The long lasting effect of expansionary policy will be a higher inflation rate.

The negative relationship of money supply to service sector employment may be caused by the liquidity trap. A liquidity trap results when demand for money becomes infinitely elastic so that further injections of money into the economy will not serve to further lower interest rates. Under the Keynesian theory in which this arises, it is specified that monetary policy affects the economy only through its effect on interest rates. Thus, if an economy enters a liquidity trap, further increases in the money stock will fail to further lower interest rates and, therefore, fail to stimulate the economy in terms of increasing aggregate demand. If the interest rate cannot be lowered, the corporations in service sector will face difficulty in raising funds to finance their business during an economic downturn, and some will have to exit the business or scale down in size, and this causes higher unemployment.

The other reason for this negative relationship is the problem of reluctant lenders at commercial banks and financial institutions. During an economic recession, financial institutions face the existence of higher non-performing loans (NPLs), so they increase restrictions on granting more loans to the public, even if the Bank of Thailand encourages them to grant loans to support the business sector.

From the first model, the Keynesian theory of fiscal policy was rejected. Fiscal policy had no significant independent effect on service sector employment. This result tends again to confirm classical and monetarist theories. Consider the effects of an increase in government spending. The Thai government usually finances its spending by issuing bonds or by borrowing. The increase in government spending creates an increased demand for loanable funds, as the government sells bonds to the public. The interest rate will increase and then consumption and investment will decrease. This increase in government spending financed by selling bonds to the public pushes the interest rate up enough to “crowd out” an equal amount of private expenditure on consumption and investment. Private expenditures are discouraged because the higher interest rate causes households to substitute future consumption for current consumption. Investment declines because fewer projects appear profitable with the higher borrowing costs. It is crowding out that keeps aggregate demand from increasing when the government component of demand rises. Because aggregate demand is not changed, increases in government spending financed by bonds do not affect the price level.

If government finances its spending by printing new money, the quantity of money is changed and the price level will change proportionately. In the classical system, the source of the increase in money supply does not increase output or employment. So an increase in government spending has no independent effect on aggregate demand.

In terms of tax policy, the government may increase the disposable income of households by reducing the tax rate. This will stimulate consumption. If the government sold bonds to the public to replace the revenues lost by a tax cut, the same crowding-out process would follow, as in the case of a bond-financed increase in government spending. Aggregate demand would not be affected and employment rate would not increase.

If revenues lost because of the tax cut were replaced by printing new money, then, as with an increase in government spending, the money creation would increase aggregate demand, and the tax cut would cause the price level to rise but have no effect on output or employment.

The economic stimulus by increasing government spending may be able to increase employment only in the short run, so the result of the one-year data here does not show a significant relationship.

The second model includes the effect of macroeconomic policies combined with supply-side policies. Supply-side policies include four perspectives that increase productivity: infrastructure and technology development, human capital development, deregulation (minimum wage rate, and social security contribution by the private sector), and the trade and financial openness. The model had a significant impact on service sector employment with a coefficient of determinant of 0.934, which is a very high explanation level. The Durbin-Watson value was 1.980, which is within the range of 1.440-2.560 of no autocorrelation among independent variables.

The result of this model shows that monetary and fiscal policies play no role in increasing service sector employment. The supply-side policies, which are trade openness and financial openness, have significant effects on the increase of the service sector employment rate. Infrastructure and technology development, human capital development, minimum wage rate, and social security have no independent effects on service sector employment.

Trade openness has a strong positive effect on employment in the service sector. If the value of exports and imports increase by 1 time more than the GDP, the service employment rate will increase by 0.804 percent. Financial openness also affects positively service sector employment. If gross capital flow as a percentage of the GDP increases by one level, employment rate in the service sector will increase by 0.186 percent.

The third model is the study of macroeconomics, supply-side policies, and socioeconomic factors together. The socioeconomic factors that are studied here consist of labor force growth rate, economic growth, the change in level of urbanization and the level of industrialization. The model showed a significant impact of independent variables on the dependent variable, with a coefficient of determinant of 0.956 which is a very high explanation level. The Durbin-Watson value was 2.433, which is within the range of 0.881-3.119 of no autocorrelation among independent variables.

The model again showed the effect of supply-side policy and socioeconomic factors on service sector employment rather than monetary and fiscal policies. Trade openness and industrialization have a significant positive relationship with employment, and the minimum wage rate has a negative effect on service sector employment. Trade openness affects employment rate positively to the highest degree. A one degree increase in trade openness increases the service sector employment rate by 0.440 percent.

If the government enforces the increasing minimum wage rate, this will negatively affect service sector employment. A one percentage change in minimum wage rate decreases the service sector employment rate by 0.173 percent. Data from the National Statistical Office of Thailand show that 70 percent of service sector employed persons work in the formal sector, so government law will apply to them. The increasing minimum wage rate places a greater burden on employers and this may cause them to reduce the number of employees, causing a lower employment rate. This result confirms the nonintervention by the government concept of classical and monetarist theories.

The higher degree of the industrialization has a significant positive effect on service sector employment. A one percent increase in industrialization level increases

the service sector employment rate by 0.420 percent. Thailand has a higher degree of industrialization as well as a higher value of the GDP deriving from the service sector. These two sectors tend to support each other.

The results from the second and third models confirm the studies of classical, monetarist, and real business cycle schools of thought-that supply-side factors affect employment and reject the belief in the effectiveness of fiscal policy and monetary policy in reducing unemployment from the Keynesian school of economics.

International trade influences the shape and position of aggregate supply and employment. A higher level of trade openness causes a higher level of employment absorption in the service sector. From the results it can be seen that trade openness had the highest positive relationship level to an increase in service sector employment. Greater openness of international trade leads to a larger service sector in Thailand, especially in the tourism subsector. The researcher would like to include the value of tourism in the studying its impact on service sector employment.

Researcher used number of tourists as the measurement of the size of the tourism subsector, and included it as a part of the independent variables in the supply-side factors. The correlations between each pair of independent variables are showed in the table 5.9.

**Table 5.9** Correlation

	SERVICE	MS	TAX	EXP	BUD	INFRA	HD			%Δ						NO.
	EMPLOY	GDP	GDP	GDP	GDP	GDP	GDP	TRADE	FIN	MIN	% Δ	%Δ	URBAN	GDP	IND	TOURISTS
SERVICE EMPLOY	1.000	-.426	-.157	.230	.195	-.297	-.102	.941	.158	-.654	-.267	-.175	.159	-.540	.742	.926
MSGDP		1.000	-.505	-.354	.393	-.109	.167	-.555	.312	.307	.098	-.165	-.318	-.439	-.129	-.552
TAXGDP			1.000	.126	-.378	.420	-.179	-.018	-.194	.090	.108	.232	-.002	.658	-.306	-.048
EXPGDP				1.000	.299	.301	.575	.277	.067	-.047	-.013	.182	-.014	.119	.236	.406
BUDGDP					1.000	-.055	.390	.114	.221	.123	.028	-.200	-.344	-.455	.319	.159
INFRAGDP						1.000	.212	-.277	.212	.378	.136	.206	-.203	.520	-.089	-.229
HDGDP							1.000	-.200	.331	.300	.181	-.204	.032	.013	.282	-.062
TRADE								1.000	-.090	-.579	-.255	.019	.231	-.392	.544	.955
FIN									1.000	-.154	-.222	-.293	.008	-.403	.646	-.017
% ΔMINWAGE										1.000	.341	.086	-.215	.395	-.327	-.525
% ΔSOCIAL											1.000	-.434	-.147	.195	-.178	-.240
% ΔLABOR												1.000	.007	.350	-.459	-.013
URBAN													1.000	-.065	.144	.140
GDP														1.000	-.554	-.394
IND															1.000	.583
NO. TOURISTS																1.000

**Table 5.10** Output Impacts of Fiscal and Monetary Policies on Service Sector Employment (Using Number of Tourists as One of the Independent Variables)

<b>Independent Variable</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Constant	32.842	36.796	8.488
Money Supply as a Percentage of GDP	-0.147 (-3.150) ***	-0.546 (-2.773)***	0.103 (0.506)
Tax revenue as a Percentage of GDP	-0.036 (-0.628)	-0.043 (-0.230)	0.087 (1.088)
Expenditure as a Percentage of GDP	-0.070 (-1.144)	-0.235 (-0.866)	-0.121 (-1.005)
Budget Deficit as a Percentage of GDP	0.077 (1.577)	-0.260 (-1.801)	0.059 (0.740)
Infrastructure and Technology Development		-0.113 (-0.580)	0.107 (1.052)
Human Capital Development		0.010 (0.039)	0.005 (0.041)
Number of Tourists		0.521 (2.676) ***	0.428 (2.355)***
Financial Openness		0.117 (0.659)	-0.333 (-1.937)
Minimum Wage		-0.519 (-2.582)***	-0.320 (-3.746)***
Social Security		-0.029 (-0.203)	0.027 (0.369)
Labor Force Growth			0.110 (1.135)
Urbanization			0.007 (0.102)
Economic Growth			-0.124 (-0.524)
Industrialization			0.645 (4.236)***
R <sup>2</sup>	0.955	0.686	0.953
F-Sig	0.000	0.007	0.000
Durbin-Watson	1.768	1.768	1.696

**Note:** \*\*\* Significance at 95 Percent Confidence Interval Level

Number in Parentheses is t-value.

Trade openness and number of tourists had a high correlation coefficient of 0.955, which is more than the limited value of 0.75 for multiple regression analysis. The researcher used number of tourists in the study instead of trade openness in the study.

The independent variables in the first model were not changed so the results from the previous study can be used here. The level of money supply has a significant negative relationship with service sector employment, and fiscal policies exhibited no significant impact on service sector employment.

The second model had a significant relationship to service employment, with a coefficient of determinant of 0.686. The Durbin-Watson value was 1.768, which was within the range of 1.440-2.560 of no autocorrelation among independent variables..

The results again show that monetary policy has a negative impact on service sector employment, and fiscal policies have no impact on service employment. The variable that can increase service employment is number of tourists. An increase in the minimum wage rate reduces the service employment rate significantly.

The combination of all variables in the third model shows a significant relationship to service employment, with a 95 percent level of confidence. The coefficient of determinant was 0.953, with a Durbin-Watson value of 1.696, which is within the range of 0.881-3.119 of no autocorrelation among independent variables.

The number of tourists is significantly and positively related to service employment. Minimum wage rate had a negative effect on the service sector employment, and industrialization level increased the service employment rate significantly.

Thailand has had a higher export value of the service sector in relation to the total value of exports during past twenty years, especially in the hotel and tourism sub-sector. The exports from the service sector have been increased in line with trade openness. This trade openness benefits the service sector in terms of expanding its market shares in the market of new countries. The number of tourists traveling to Thailand has increased from only 3.5 million people in 1987 to 14.5 million people in 2008. A higher degree of trade openness increases the number of tourists travelling in the country and also generates higher income for the nation, while the tourism sector

becomes an important source of income generation which can also absorb a higher employment level.

If we consider the value of production from each sector in relation to GDP, the data from the National Economic and Social Development Board show that the service sector generates almost 50 percent of the total value the GDP. It has become the most important sector in Thailand and absorbs higher number of labor . Also according to GDP value, the value of the industrial sector and service sector had grown a lot during 1983-2008. The total value from these two sectors was about 85-90 percent of the GDP. Thailand has a higher degree of trade openness, and the value of exports and imports as a percentage of the GDP has increased from 0.42 in 1983 to 1.03 in 2008. This shows that now the value of exports and imports is more than value of the GDP of the country. The growth in international trade openness has been generated from the service and industrial sectors. Thailand also has experienced a higher degree of industrialization during the past two decades. This shows that the higher degree of industrialization and service sector employment is linked positively to service sector employment.

### 5.2.3 Impacts of Monetary and Fiscal Policies on Industrial Sector Employment

**Table 5.11** Output Impact of Fiscal and Monetary Policies on Industrial Sector Employment

Independent Variables	Model 1	Model 2	Model 3
Constant	20.029	9.916	10.726
Money Supply as a Percentage of GDP	-0.111 (-1.453)	-0.137 (-1.957)	-0.158 (-1.147)
Tax Revenue as a Percentage of GDP	-0.141 (-1.831)	-0.103 (-2.146)***	-0.164 (-1.898)
Expenditure as a Percentage of GDP	0.069 (1.069)	0.077 (1.089)	-0.017 (-0.135)
Budget Deficit as a Percentage of GDP	0.048 (0.583)	0.018 (0.369)	-0.010 (-0.101)
Infrastructure and Technology Development		-0.117 (-1.964)	-0.075 (-0.690)
Human Capital Development		-0.047 (-0.683)	0.074 (0.607)
Trade Openness		0.221 (2.689)***	0.580 (5.160)***
Financial Openness		0.348 (5.099)***	0.560 (5.422)***
Minimum Wage		0.013 (0.237)	0.169 (1.824)
Social Security		0.080 (2.124)	-0.001 (-0.015)
Labor Force Growth			-0.186 (-1.941)
Urbanization			-0.041 (-.555)
Economic Growth			0.060 (0.356)
Industrialization			
Adjusted R <sup>2</sup>	0.906	0.973	0.920
F-Sig	0.060	0.000	0.000
Durbin Watson	1.764	1.833	1.597

**Note:** \*\*\* Significance at 95 Percent Confidence Interval Level

Number in Parentheses is t-value.

Now employment in the industrial sector is studied. The independent variables are macroeconomic policies, supply-side policies, and socioeconomic factors. Each group of independent variables was entered into the model to test the significance of the influence to the dependent variable, which is employment rate in the industrial sector of Thailand. The industrial sector includes the following four types of businesses: mining and quarrying, manufacturing, construction, and electricity, gas, and water supply.

The results of study on monetary and fiscal policies in model 1 show no significant impact on industrial sector employment. The Durbin-Watson value was 1.767, which is within the range of 1.767-2.233 of no autocorrelation among independent variables.

Monetary and fiscal policies do not have a significant relationship to industrial sector employment. This result confirms classical, monetarist, and real business cycle theories. From this model, the Keynesian theory of monetary and fiscal policies was rejected.

The second model includes the effect of macroeconomic combined with the supply-side policies. Supply-side policies include four perspectives that increase productivity. This model showed a significant impact of independent variables on industrial sector employment with a degree of determinant of 97.3 percent. The Durbin-Watson value was 1.833, which is within the range of 1.440-2.560 of no autocorrelation among independent variables.

The results of industrial sector employment are different from the other sectors' studies. The monetary policy had no impact in terms of reducing unemployment in model 2 here, but tax policy under fiscal policies played a role in changing industrial sector employment. When we combine macroeconomic and supply-side policies in the model, tax policy becomes the variable that has a significant negative relationship to industrial employment. The supply-side policies, which are trade openness and financial openness, have significant effects on increasing the industrial sector employment rate. Infrastructure and technology development, human capital development, minimum wage rate, and social security had no independent effects on employment. The model had a coefficient of determinant of 0.973, which is a very high explanation level.

If tax revenue as a percentage of the GDP is reduced from last year by a 1 percent point (e.g. the tax revenue as a percentage of the GDP reduced from 15 percent to 14 percent), the employment in industrial the sector will increase by 0.103 percent. This means that expansionary fiscal policy by using tax policy can stimulate employment in the industrial sector but not in the agricultural or service sectors. As shown in the information in chapter 2, Thailand has grown with a higher value in industrial and service sectors. The industrial sector has become the most powerful sector in the country in terms of income generation. The government also tends to provide more support to this sector. Tax advantage programs are given to this sector in order to generate a higher investment level in the country, for example, tax advantages given to corporations which comply with the requirements of the Board of Investment. During the economic downturn, tax reduction or tax advantage programs were released by most governments, with the expectation that the industrial sector would not go bankrupt or lay off more employees. We can see then the significant impact of fiscal policy in terms of tax policy in increasing the employment rate. This shows that tax advantages provided to the industrial sector are more effective than using government spending in terms of employment generation. The reduction in the tax rate will benefit business owners in the industrial sector directly-they will have less expense burden and can maintain their operation until the economic recovers.

An increase in government spending cannot increase employment in the industrial sector. Government spending is devoted to a great extent to the capital expenditure portion to stimulate the economy, which spent mainly on infrastructure projects. The expenditures were applied to the advancement of technology rather than to hiring more employees.

Trade openness also has a very strong positive effect on the employment in the industrial sector. If the value of exports and imports is increased by 1 times more than the GDP, the industrial employment rate will increase by 0.221 percent. Financial openness also affects positively industrial sector employment. If gross capital flow as a percentage of the GDP increases by one time, the employment rate in the service sector will increase by 0.348 percent.

The entire impact from macroeconomics, supply-side policies, and socioeconomic factors are studied in model 3. The socioeconomic factors that are

studied here consist of the labor force growth rate, economic growth, the change in the level of urbanization, and the level of industrialization. The model shows that macroeconomic policies and socioeconomic factors have no impact on industrial sector employment. The model has a degree of determinant of 0.920, and a Durbin-Watson value of 1.597, which is within the range of 0.881-3.119 of no autocorrelation among independent variables.

Two main variables from supply-side policies, trade and financial openness, had a significant positive relationship with industrial sector employment. The other policies in supply-side policies had no independent effect on employment rate in this model study.

The industrial sector requires high capital investment. From the freer capital inflows and outflows in Thailand, the corporate sector has a better channel with which to access sources of funds. Domestic corporations can raise funds from the capital market in terms of equity and also long-term debt more than in past years. The capital market has become larger from freer capital flows between countries. Thailand also has a higher level of mergers and acquisitions, and also foreign direct investment (FDI). These are the benefits from financial openness that help freer industrial sector in Thailand to continue its growth and produce more products.

International trade influences the shape and position of aggregate supply and employment. The higher level of trade openness causes a higher level of employment absorption in the industrial sector. From the results it can be seen that trade openness had the highest positive relationship level in terms of increasing industrial sector employment. Thailand has had a higher value of the industrial sector in relation to the total value of exports during 1983-2008. Trade openness helps domestic producers to buy cheaper raw materials from other countries, and at the same time they also can expand their market by exporting to these countries. Thailand has a high value of industrial product exports in relation to total export value of about 80 percent, so there is a high degree of employment absorption. The value of the industrial sector to total GDP increased from 30 percent in 1983 to nearly 45 percent in 2008. This evidence also shows that the industrial sector can absorb more labor. A higher level of international trade openness and international flows causes Thailand to have a higher degree of industrialization.

From the study of agricultural employment, the results show that the agricultural sector experiences the least benefit from trade openness because of the lower value of agricultural product exports in relation to total exports. On the other hand, the service sector and industrial sector have earned an advantage from trade openness. The value of service and industrial product exports has increased during the 1983-2008.

According to the study of employment, if macroeconomic policies are considered alone, the results show the significant impacts of monetary and/or fiscal policies on the employment in each sector. When the variables of supply-side policies and socioeconomic policies are included in the consideration, the impacts of macroeconomic policies are not shown as a significant effect on employment creation. This suggests that supply-side policies and socioeconomic factors are important factors affecting employment in Thailand. Monetary and fiscal policies are used to solve the employment situation in a short run period.

### **5.3 Impacts of Fiscal and Monetary Policies on Underemployment**

Underemployed person means employed person that are working less than 30 hours a week and are available to work more. In each production sector, there are underemployed persons. Now the objective of the research is to study the impact of monetary and fiscal policies on underemployment.

The independent variables are classified into three groups following the literature review. The first group is macroeconomic policies, including monetary and fiscal policies. The second group is supply-side policies, and the third one is the socioeconomic factors. Supply-side policies include infrastructure and technology development, human capital development, deregulation in terms of minimum wage rate, social security contribution by the private sector, and trade and financial openness. The socioeconomic factors are labor force, economic growth, urbanization, and industrialization.

The dependent variable is underemployment. The study of underemployment applies the same concept of testing as the study of employment. The 3 models of study were tested to see if any public policies had an impact on underemployment.

The first model was the study of monetary and fiscal policies; the second model includes supply-side policies and macroeconomic policies in the study, and the third model includes macroeconomic policies, supply-side policies, socioeconomic factors in the model. The objective of the study was to find out the policies or factors that can reduce the underemployment rate. The time period of 1983-2008 was examined in the study.

Underemployed person means employees that are working 30 hours or less and are available to work more. They are not working to their full capacity. The underemployment rate is the number of underemployed people in relation to the total number of employed people. The researcher again studied the total underemployment situation of the entire nation of Thailand, and also underemployment in three different sectors. First, the agricultural sector includes agriculture, hunting and forestry, and fishing. The second is the service sector, which includes the following types of businesses: wholesale and retail trade, repair of motor vehicles motorcycles and personal and household Goods, hotels and restaurants, transport, storage and communications, financial intermediation, real estate, renting and business activities, public administration and defense, compulsory social security, education, health and social work, other community social and personal service activities, and private households with employed persons. Third is the industrial sector, which includes mining and quarrying, manufacturing, construction, and electricity, gas, and water supply.

Multiple regression analysis was applied. The same method of analysis as in the study of employment was also applied. The study uses the same independent variables as in the study of employment. There was no multicollinearity since each pair of independent variables had a correlation of less than 0.75.

The Durbin-Watson value was used to identify the autocorrelation between the variables. The first model has four independent variables, so the Durbin-Watson value had to be between 1.767 and 2.233, with a 95 percent level of confidence. Model 2 consists of 10 independent variables, which should have a Durbin-Watson value between 1.440 and 2.560. Model 3, with 14 independent variables, needed to have a Durbin-Watson value between 0.881-3.119 in order to avoid autocorrelation problems.

Standardized beta was used to identify the degree of relationship of the independent variable and dependent variable. The adjusted R square value was used to specify the degree of determinant in each model.

Since the independent variables were as same as in the study of employment, the descriptive analysis of those variables was not repeated here. The data on the underemployment rate of the period from 1983-2008 are collected and presented here for descriptive analysis.

**Table 5.12** Descriptive Analysis for Underemployment

	N	Minimum	Maximum	Mean	Standard Deviation
Total Underemployment	25	1.0356	3.7113	1.9353	0.6411
Agricultural Sector Underemployment	25	0.9842	5.7145	2.7012	1.1338
Industrial Sector Underemployment	25	0.4869	2.0040	0.9849	0.3574
Service Sector Underemployment	25	0.4674	2.0338	1.1110	0.4458
Number of Period	25				

The underemployment rate for the entire nation from every sector was at 1.93 percent of total employed people. The sectors in the labor market were classified into 3 main sectors: agricultural, industrial, and service sectors. The agricultural sector exhibited underemployment at an average of 2.70 percent, which was the highest rate compared to the industrial and service sectors. The standard deviation of the underemployment rate in the agricultural sector also was higher than in the other sectors, which shows that this sector experienced fluctuation in its employment situation. This is because agricultural sector production depends a great deal on seasons, and also the fluctuation in product prices. Apart from that their production is also affected by natural disaster. There are periods when agricultural employees cannot work to full capacity or full time, when they experience bad effects from these situations for example in dry season. The agricultural sector had the lowest

employment rate but the highest underemployment rate, indicating the labor surplus problem in this sector.

The service sector had less underemployment at 1.11 percent on average, followed by the industrial sector underemployment rate at 0.98 percent only.

Next, the results of the study on the entire nation's underemployment, and each sector's underemployment, are presented.

### 5.3.1 Output Impacts of Fiscal and Monetary Policies on Underemployment

**Table 5.13** Output Impact of Fiscal and Monetary Policies on Underemployment of the Entire Nation

Independent Variables	Model 1	Model 2	Model 3
Constant	0.973	0.452	-0.511
Money Supply as a Percentage of GDP	0.047 (0.173)	0.413 (0.830)	0.968 (2.025)
Tax Revenue as a Percentage of GDP	-0.133 (-0.551)	0.006 (0.018)	0.148 (0.453)
Expenditure as a Percentage of GDP	-0.197 (-0.893)	0.006 (0.012)	-0.053 (-0.129)
Budget Deficit as a Percentage of GDP	-0.246 (-1.001)	-0.437 (-1.358)	-0.336 (-1.043)
Infrastructure and Technology		-0.159 (-0.470)	0.241 (0.657)
Human Capital Development		0.003 (0.007)	-0.189 (-0.461)
Trade Openness		0.375 (1.146)	-0.522 (-0.764)
Financial Openness		-0.218 (-0.704)	-1.105 (-1.697)
Minimum Wage		0.049 (0.156)	-0.304 (-0.923)
Social Security		-0.019 (-0.079)	0.046 (-0.172)
Labor Force Growth			0.067 (0.183)
Urbanization			0.443 (1.809)
Economic Growth			-0.276 (-0.492)
Industrialization			1.319 (1.332)
Adjusted R <sup>2</sup>	0.224	0.025	0.137
F-Sig	0.085	0.462	0.357
Durbin Watson	1.813	1.570	2.047

**Note:** \*\*\* Significance at 95 Percent Confidence Interval Level

Number in the Parentheses is t-value.

The study of the impact of monetary and fiscal policies shows that there was no significant relationship with the underemployment rate. The Durbin-Watson value was 1.813, which is within the range of 1.767-2.233 of no autocorrelation among independent variables. Neither expansionary nor contractionary macroeconomic policy had an impact on underemployment rate.

The second model comprises macroeconomic and supply-side policies in order to determine if any of the independent variables could reduce the underemployment rate. The model shows no significant independent relationship to underemployment. The Durbin-Watson value was 1.570, which is within the range of 1.440-2.560 of no autocorrelation among the independent variables. Even when the supply-side policies were added to the study, the impact on the dependent variable still did not exist.

The last model includes socioeconomic factors in addition to macroeconomic and supply-side policies. Labor force growth, economic growth, urbanization growth, and industrialization level were included in this variable group. The model again shows no significant impact on underemployment. The Durbin-Watson value was 2.047, which is within the range of 0.881-3.119 of no autocorrelation among independent variables. Three groups of independent variables exhibited no impact on underemployment.

The three models show that macroeconomic policies, supply-side policies, and also socioeconomic factors have no significant effect on the underemployment of the entire nation. This is because the underemployment rate in Thailand as a whole is quite low-only at 1.93 percent of total employed people. In the next section, the researcher studies the impacts of the independent variables on the underemployment rate in three different sectors: the agricultural, industrial, and service sectors. The underemployment rate in these three sectors was different in terms of the average and also in terms of volatility.

### 5.3.2 Output Impacts of Fiscal and Monetary Policies on Agricultural Sector Underemployment

**Table 5.14** Output Impacts of Fiscal and Monetary Policies on the Agricultural Sector Underemployment

Independent Variables	Model 1	Model 2	Model 3
Constant	1.034	-0.548	-3.168
Money Supply as a Percentage of GDP	-0.098 (-0.444)	0.532 (1.271)	0.969 (2.120)
Tax Revenue as a Percentage of GDP	-0.107 (-0.450)	0.002 (0.006)	0.148 (0.472)
Expenditure as a Percentage of GDP	-0.240 (-1.111)	0.009 (0.021)	-0.069 (-0.173)
Budget Deficit as a Percentage of GDP	-0.089 (-0.374)	-0.397 (-1.390)	-0.317 (-1.029)
Infrastructure and Technology development		-0.150 (-0.496)	0.180 (0.515)
Human Capital Development		-0.010 (-0.025)	-0.154 (-0.394)
Trade Openness		0.701 (2.336) ***	-0.018 (-0.028)
Financial Openness		-0.151 (-0.515)	-0.951 (-1.531)
Minimum Wage		0.054 (0.196)	-0.251 (-0.800)
Social Security		-0.038 (-0.178)	-0.092 (-0.358)
Labor Force Growth			0.039 (0.112)
Urbanization			0.334 (1.427)
Economic Growth			-0.188 (-0.035)
Industrialization			1.255 (1.327)
Adjusted R <sup>2</sup>	0.247	0.210	0.213
F-Sig	0.068	0.229	0.276
Durbin Watson	2.151	1.543	1.906

**Note:** \*\*\* Significance at 95 Percent Confidence Interval Level  
Number in the Parentheses is t-value.

Agricultural sector underemployment is now discussed. The same pattern of testing is employed. The three groups of independent variables were entered to find the significance of their impacts in the reduction of agricultural underemployment.

From the first model, it can be seen that monetary policy and fiscal policy had no independent effects on reducing agricultural underemployment. The Durbin-Watson value was 2.151, which is within the range of 1.767-2.233 of no autocorrelation among independent variables. Macroeconomic policies cannot help agricultural employees to work to their full capacity.

Next, the supply-side policies were combined with macroeconomic policies in the study. The model shows that these policies had no significant impact on agricultural underemployment. The Durbin-Watson value was 1.543, which is within the range of 1.440-2.560 of no autocorrelation among independent variables. If we look at the impact of the individual variables, however, on agricultural underemployment, it shows that trade openness has a significant positive relationship with agricultural underemployment. An increase in the value of exports and imports of one time more than the GDP will increase underemployment in the agricultural sector by 0.701 percent. The result from agricultural employment shows that trade openness has a negative impact on it. This higher degree of trade openness reduces the employment rate in the agricultural sector.

The study here confirms the bad effects from trade openness, as it does not reduce only employment rate but also increases the underemployment in the agricultural sector. Labors tend to move and work in the industrial sector, and also the laborers that are working in the sector cannot work to their full capacity. There is a labor surplus problem that exists in the agricultural sector. The other variables in the second model had no significant impact on agricultural underemployment.

The last model combines macroeconomic policies, supply-side policies, and socioeconomic factors in the model. The model shows that there is no significant impact on agricultural underemployment from all three groups of independent variables. The Durbin-Watson value was 1.906, which is within the range of 0.881-3.119 of no autocorrelation among independent variables.

Since there is no significant impact from any model in reducing the underemployment rate in the agricultural sector, the researcher was interested in using agricultural employment as part of the independent variable to see if a significant impact exists.

**Table 5.15** Output Impacts of Fiscal and Monetary Policies on Agricultural Sector Underemployment (Using Agricultural Employment as a Part of the Independent Variables)

<b>Independent Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Constant	1.034	9.896	10.318
Money Supply as a Percentage of GDP	-0.098 (-0.444)	0.894 (2.471)***	1.205 (3.176)***
Tax Revenue as a Percentage of GDP	-0.107 (-0.450)	0.155 (0.664)	0.069 (0.312)
Expenditure as a Percentage of GDP	-0.240 (-1.111)	0.166 (0.484)	0.050 (0.160)
Budget Deficit as a Percentage of GDP	-0.089 (-0.374)	-0.524 (-2.151)	-0.359 (-1.492)
Infrastructure and Technology Development		-0.060 (-0.268)	0.067 (0.255)
Human Capital Development		-0.110 (-0.338)	-0.223 (-0.726)
Agricultural Sector Employment		-1.187 (-3.140)***	-1.283 (-3.435)***
Financial Openness		-0.621 (-2.241)***	-0.630 (-2.273)***
Social Security		-0.093 (-0.522)	-0.109 (-0.572)
Labor Force Growth			-0.092 (-0.372)
Urbanization			0.004 (2.108)
Economic growth			-0.183 (0.420)
Adjusted R <sup>2</sup>	0.247	0.451	0.477
F-Sig	0.068	0.038	0.042
Durbin Watson	2.151	1.553	1.602

**Note:** \*\*\* Significance at 95 Percent Confidence Interval Level

Number in the Parentheses is t-value.

In this study, trade openness and minimum wage growth rate were excluded from the supply-side policies, and industrialization was excluded from the socioeconomic factors, as they affect agricultural employment rate significantly, referring to the previous results. Agricultural employment rate was included as one of the independent variables.

The first model again shows that there was no impact of monetary and fiscal policies on agricultural underemployment. The Durbin-Watson value was 2.151, which is within the range of 1.767-2.233 of no autocorrelation problem.

The second model of macroeconomic and supply-side policies also shows a significant impact on agricultural sector underemployment. The model has a degree of determinants of 0.451, and a Durbin-Watson value of 1.553, which indicates no autocorrelation problem. A one percent increase in the level of money supply as a percentage of the GDP increases agricultural sector underemployment by 0.894 percent. Financial openness had a significant negative impact on agricultural sector underemployment, where a one degree increase in financial openness reduced underemployment by 0.621 percent. An increase in employment in this sector of one percent can reduce underemployment by 1.187 percent.

The complete model is the study of all macroeconomic policies, supply-side policies, and socioeconomic factors. This model shows significant impacts of independent variables on the agricultural underemployment. The degree of determinant was 73.9 percent, which is quite high, with no autocorrelation problem since the Durbin-Watson value was 1.602, within the range of 0.881-3.119.

In this model, there were three variable effects on the agricultural underemployment rate significantly the same as in the second model. First, the increase in money supply increases agricultural underemployment. If the money supply level of the GDP is increased by one percent point, agricultural underemployment will increase by 1.205 percent. The government usually stimulates the economy by encouraging commercial banks and financial institutions to grant more loans to the private sector, including farmers. It especially uses Specialized Financial Institutions to grant loans with the lower interest rates to the private sector and to farmers.

Most Thai farmers borrow money to finance their planting when the government encourages financial institutions to grant loans at lower interest rates. The

problem of farmers is a lack of management skills-they borrow more money and hire more employees with the expectation of increasing productivity but in fact they cannot use those funds to increase the efficiency of production. Agricultural employers cannot obtain full capacity from the employees. Second, financial openness has a negative relationship to agricultural underemployment rate. The higher financial openness reduces agricultural underemployment, but the relationship is not strong. If the gross capital flow value is increased one time more than the GDP, underemployment in the agricultural sector will be reduced by only 0.630 percent. From the study of employment above, it was seen that financial openness had a positive impact on industrial and service employment. The free capital inflows and outflows benefit the increases in the industrial and service sectors rather than agricultural sector employment. Most of the foreign direct investment and portfolio investment funds emphasize the industrial and service sectors, and employees in the agricultural sector may begin to work in the industrial and service sectors instead of staying in the agricultural sector; for this reason underemployment is reduced.

Third, the agricultural employment had a negative relationship with agricultural underemployment. If the nation has a higher level of employment in the agricultural sector, employees will work at full capacity. On the other hand, if the agricultural employment rate is reduced, the underemployment rate will increase. This shows that even if the employment rate is reduced this does not mean that existing employed persons can work to their full capacity; rather higher employed persons still work fewer than 30 hours a week and are available to work more.

Agricultural sector employment is reduced from trade openness and industrialization. Trade openness reduces production and employment in agricultural sector but benefits the industrial and service sectors. Employees shift their work to the industrial and service sectors. The agricultural sector employment is reduced and also the existing employed persons in the sector cannot work at full capacity and full time from a smaller production level.

Regarding the study of the impact of monetary and fiscal policies on the increase in agricultural employment, the results show that trade openness reduces the agricultural employment, minimum wage rate increases the agricultural employment, and the higher level of industrialization reduces agricultural employment. The model

that includes these three variables in the study of agricultural underemployment shows no significant impact of any variables on agricultural underemployment, thus implying that these factors affect underemployment rate indirectly through agricultural employment.

The way to reduce underemployment in the agricultural sector is to increase agricultural employment. The government needs to support the agricultural sector in order to obtain benefits from trade openness rather than getting bad results from it that benefit mostly the industrial and service sectors. The government should find a new international market for farmers so that export values and value of the GDP of agricultural products can be increased and generate more income and employment in this sector.

Minimum wage rate also affects agricultural employment. An increasing in the minimum wage rate helps laborers to consume more, especially regarding agricultural products. The higher demand for goods in this sector encourages laborers to work more in the agricultural sector and also helps them to work to their full capacity.

### 5.3.3 Output Impacts of Fiscal and Monetary Policies on Service Sector Underemployment

**Table 5.16** Output Impact of Fiscal and Monetary Policies on Service Sector Underemployment

Independent Variables	Model 1	Model 2	Model 3
Constant	0.219	0.983	0.466
Money Supply as a Percentage of GDP	0.853 (3.263)***	0.137 (0.357)	0.703 (2.379)***
Tax Revenue as a Percentage of GDP	0.043 (0.255)	-0.030 (-0.132)	0.028 (0.138)
Expenditure as a Percentage of GDP	0.093 (0.555)	0.146 (0.447)	-0.038 (-0.150)
Budget Deficit as a Percentage to GDP	-0.299 (-1.377)	-0.343 (-1.340)	-0.158 (-0.769)

**Table 5.16** (Continued)

<b>Independent Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Infrastructure and Technology		0.073 (0.282)	0.308 (1.357)
Development			
Human Capital Development		-0.032 (-0.100)	-0.178 (-0.701)
Trade Openness		-0.168 (-0.582)	-1.024 (-2.425)***
Financial Openness		-0.251 (-1.096)	-0.822 (-2.043)
Minimum Wage		-0.243 (-1.008)	-0.591 (-2.909)***
Social Security		-0.013 (-0.074)	0.100 (0.601)
Labor Force Growth			0.301 (1.331)
Urbanization			0.496 (3.275)***
Economic Growth			-0.031 (-0.091)
Industrialization			1.023 (1.670)
Adjusted R <sup>2</sup>	0.545	0.446	0.670
F-Sig	0.001	0.052	0.011
Durbin Watson	1.768	1.450	2.540

**Note:** \*\*\* Significance at 95 Percent Confidence Interval Level

Number in the Parentheses is t-value.

Service underemployment is studied here. The first model of macroeconomic policies has a significant independent relationship to service sector underemployment, with a coefficient of determinant of 0.545. The Durbin-Watson value was 1.768, which is within the range of 1.767-2.233 of no autocorrelation among independent variables.

Money supply can be seen to have a positive relationship with service sector underemployment rate. If the level of money supply to GDP increases by one percent point, the service underemployment rate will increase by 0.853 percent. Expansionary monetary policy increases the underemployment rate. The study of service employment in model 1 shows that monetary policy has a negative relationship with service employment. Expansionary monetary policy reduces service employment, and also increases underemployment among the existing employed persons. The result

from this underemployment rate tends to confirm the study of classical, monetarist, and real business theory-that monetary policy cannot generate higher employment.

An increase in money supply level tends to increase price level expectations. Employees will perceive that real wages become lower from the inflation rate, and they realize that their real wage decreases from lower purchasing power, so they demand a higher nominal wage. If employers can not increase their nominal wage to cover the inflation rate, they will decrease their level of employment. Employers on the other hand will also reduce the hiring rate of employees that work and earn a daily wage. The liquidity trap and reluctant lender problems also lead to the negative impact of expansionary monetary policy on service employment. If the service firm business owner cannot raise funds to maintain the operation level, he or she may need to lay off or reduce the working time of the full-time employees and also may hire fewer part-time employees. This causes a higher underemployment rate in the service sector.

The second model, considering the impacts from macroeconomic and supply-side policies, exhibited no significant impact on service sector underemployment at the 95% confidence. The Durbin-Watson value was 1.450, which is within the range of 1.440-2.560 of no autocorrelation among independent variables.

Model 3 had significant impact on service underemployment at the 95 percent confidence level, with a 0.670 coefficient of determinant. This model had the highest determinant level compared to the first model. The Durbin-Watson value was 2.540, which is within the range of 0.881-3.119 of no autocorrelation among independent variables.

The macroeconomic policy that impacts service sector underemployment was monetary policy. Two policies from the supply-side affect service-sector underemployment. Trade openness has a negative relationship to service sector underemployment; and minimum wage rate has a negative relationship with service underemployment. Urbanization from the socioeconomic factor has a positive relationship with service sector underemployment.

Expansionary monetary policy increases service sector underemployment. The monetary policy cannot reduce the service unemployment but causes an increase in service sector underemployment. Monetary policy may increase service employment

and reduce underemployment only for a short time period. An increase in money supply level tends to increase price level expectations. Employees will perceive that real wages become lower from the inflation rate, and they realize that their real wages decrease from lower purchasing power, so they demand a higher nominal wage. If employers cannot increase their nominal wage to cover the inflation rate, employers will decrease the level of employment. Employers will also reduce the hiring rate of employees that work and earn a daily wage. The liquidity trap and reluctant lender problems also lead to this negative relationship, as explanation in the model 1.

Trade openness shows a significant negative impact on service sector underemployment. A one-level increase in trade openness reduces underemployment by 1.024 percent. Trade openness can increase service employment and also can reduce the underemployment rate. The data from the National Economic and Social Development Board show that the value of export in service sector increased continuously in past 25 years, especially in the tourism and hospitality subsectors. The value of the service sector generating income to the GDP also consisted of more than 50 percent of the total GDP value. Thailand's service sector received a high benefit from the freedom in international trade. Minimum wage had a negative relationship to service sector underemployment. A one-percentage increase in the minimum wage rate reduced service sector underemployment by 0.591 percent. Referring to the study of service employment, the minimum wage rate had a negative relationship with the service employment rate. Employers reduce the level of employment from the higher minimum wage rate, and they will use the existing employees with a full schedule in order to make use of their full working hours.

Urbanization has a positive relationship with service sector underemployment. A one-percent rise in the urbanization rate will increase service sector underemployment by 0.496 percent. The service sector is larger in the urban areas, so people move to these areas with expectation of getting a better job and a higher wage as well, and employers have more hiring alternatives—companies can hire employees on a monthly or daily basis. Daily employees have less chance to be hired for more hours of work.

### 5.3.4 Output Impact of Fiscal and Monetary Policies on Industrial Sector Underemployment

**Table 5.17** Output Impacts of Fiscal and Monetary Policies on Industrial Sector Underemployment

Independent Variables	Model 1	Model 2	Model 3
Constant	0.540	1.525	2.314
Money Supply as a Percentage of GDP	-0.026 (-0.097)	-0.065 (-0.195)	-0.270 (-0.700)
Tax revenue as a Percentage of GDP	-0.081 (-0.352)	-0.098 (-0.403)	0.090 (0.371)
Expenditure as a Percentage of GDP	-0.212 (-0.888)	0.306 (0.931)	0.090 (0.254)
Budget Deficit as a Percentage to GDP	-0.230 (-0.870)	-0.184 (-1.589)	-0.122 (-0.442)
Infrastructure and Technology Development		-0.340 (-1.197)	0.034 (0.110)
Human Capital Development		-0.434 (-1.349)	-0.269 (-0.782)
Trade Openness		-0.448 (-1.610)	-0.788 (-2.498)***
Financial Openness		-0.106 (-0.402)	-0.435 (-1.500)
Minimum Wage		-0.159 (-0.613)	-0.118 (-0.479)
Social Security		0.247 (1.232)	0.160 (0.699)
Labor Force Growth			-0.132 (-0.489)
Urbanization			0.283 (1.370)
Economic Growth			-0.689 (-1.447)
Adjusted R <sup>2</sup>	0.105	0.239	0.371
F-Sig	0.228	0.164	0.114
Durbin Watson	2.166	2.293	2.923

**Note:** \*\*\* Significance at 95 Percent Confidence Interval Level

Number in the Parenthesis is t-value.

Now underemployment in the industrial sector is studied. The independent variables again were classified into 3 groups: macroeconomic policies, supply-side policies, and socioeconomic factors. Each group of independent variable was entered into the model to test of the significance of the influence on? the dependent variable. The industrial sector includes the following four types of businesses: Mining and Quarrying manufacturing, construction, and electricity, gas, and water supply.

The result of the study of monetary and fiscal policies in model 1 shows that there was no significant impact from monetary of fiscal policies on industrial underemployment. The Durbin-Watson value was 2.166, which is within the range of 1.767-2.233 of no autocorrelation among independent variables.

The second model includes the effect from macroeconomic combined with the supply-side policies. The supply-side policies include four perspectives that increase productivity, which are infrastructure and technology development, human capital development, deregulation, and trade and financial openness. The result shows no independent relationship of macroeconomic and supply-side policies to the industrial underemployment rate. The Durbin-Watson value was 2.293, which is within the range of 1.440-2.560 of no autocorrelation among independent variables.

The entire impact from macroeconomics, supply-side policies, and socioeconomic factors were included in model 3. The socioeconomic factors that were studied here consist of labor force growth rate, economic growth, and the change in level of urbanization. The entire model again shows no relationship to the industrial underemployment rate. The Durbin-Watson value was 2.923, which is within the range of 0.881-3.119 of no autocorrelation among independent variables. If we look at the impact from the individual variable, it can be seen that trade openness has a negative relationship with underemployment rate in the industrial sector. If the total value of exports and imports increases one time more than the GDP, the underemployment rate in the industrial sector will be reduced by 0.788 percent.

Regarding the study of industrial sector employment, trade openness exhibited the strongest impact on the increase in the industrial employment rate. The results are consistent here-trade openness can increase industrial employment and at the same time also helps employees in the work force to work at their full capacity.

The industrial sector received the most benefit from the free economy in relation to international trade. The value of industrial product exports increased

significantly as well as the value of industrial products in relation to the GDP. This sector can absorb more labor and also increase the full capacity of workers.

In the next study, the researcher includes industrial employment rate as a part of the independent variable with the objective of studying its impact on industrial sector underemployment. From the study of industrial employment, it can be seen that trade openness and financial openness have a positive relationship to industrial employment. These two variables were excluded from model.

**Table 5.18** Output Impacts of Fiscal and Monetary Policies on Industrial Sector Underemployment (Using Industrial Employment as One of Independent Variables)

<b>Independent Variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
Constant	0.540	1.690	2.777
Money Supply as a Percentage of GDP	-0.026 (-0.097)	0.058 (0.233)	-0.127 (-0.385)
Tax Revenue as a Percentage of GDP	-0.081 (-0.352)	-0.140(-0.553)	-0.067 (-0.270)
Expenditure as a Percentage of GDP	-0.212 (-0.888)	0.217 (0.660)	0.107 (0.291)
Budget Deficit as a Percentage to GDP	-0.230 (-0.870)	-0.234 (-0.910)	-0.177 (-0.630)
Infrastructure and Technology Development		-0.280 (-1.113)	-0.035 (-0.123)
Human Capital Development		-0.300 (-0.974)	-0.219 (-0.615)
Minimum Wage		-0.123 (-0.513)	-0.017 (-0.069)
Social Security		0.257 (1.328)	0.140 (0.617)
Industrial Sector Employment		-0.398 (-2.456)***	-0.865 (-2.389)***
Labor Force Growth			-0.309 (-1.050)
Urbanization			0.260 (1.209)
Economic Growth			-0.422 (-0.922)
Adjusted R <sup>2</sup>	0.105	0.238	0.317
F-Sig	0.228	0.144	0.135
Durbin Watson	2.166	2.081	2.487

**Note:** \*\*\* Significance at 95 Percent Confidence Interval Level

Number in the Parentheses is t-value.

The results are the same as the previous ones. The first model of macroeconomic policies shows no significant independent relationship to industrial underemployment. The Durbin-Watson value was 2.116, which is within the range of 1.767-2.233 of no autocorrelation among independent variables.

The second model includes macroeconomic and supply-side policies. The Durbin-Watson value was 2.081, which is within the range of 1.440-2.560 of no autocorrelation among independent variables. Supply-side policies here include infrastructure and technology development, human capital development, minimum wage growth rate, and social security contribution by the private sector. Again, trade openness and financial openness were excluded as they had a positive relationship with industrial employment, which was included in this study. The model shows no significant impact from either macroeconomic or supply-side policies on the industrial underemployment rate. According to the impact of the individual variables of the industrial sector employment had a significant negative relationship with the sector's underemployment.

The third model adds the socioeconomic factors, which are labor force growth rate, economic growth rate, and urbanization. The research includes industrial employment rate as a part of the independent variables. The results show that the three groups of independent variables had no effect on industrial underemployment. The model had a Durbin-Watson value of 2.923, which is within the range of 0.881 – 3.119 of no autocorrelation among independent variables. Considering the effect from the individual variables, industrial employment had a significant negative relationship to the underemployment rate. A one-percent increase in industrial employment will reduce the industrial underemployment rate by 0.865 percent. The way to reduce the underemployment rate is to increase employment in the industrial sector. The increasing degree of trade openness and financial openness in Thailand is a positive factor in the industrial sector.

The three models show no significant impact on industrial underemployment. This is because the underemployment rate in this sector is quite low, at an average of 0.985 percent a year, and also with the least volatility. The underemployment in the industrial sector was not a big problem compared to the agricultural sector. The industrial employment rate had an increasing trend during the 1983-2008 years, so this can reduce underemployment in the sector as well.

## **CHAPTER 6**

### **CONCLUSIONS AND RECOMMENDATIONS**

This chapter concludes the study objectives, methodology, results and also contribution to theory. In addition, this chapter also identifies policies implication, what the research limitations were, and in making recommendations for future research study regarding impacts of monetary and fiscal policies on employment in Thailand.

#### **6.1 Conclusion**

##### **6.1.1 Research Objectives**

The objectives of this study are 1) to study the impact of monetary and fiscal policies on the employment, and also study the other policies/factors affecting the employment situation in the whole nation and also in each sector, and 2) to study the impact of monetary and fiscal policies, and also the other policies/factors affecting the underemployment situation in the whole nation and also in each sector, 3) To recommend the effective policies for employment sustainability in each production sector. The study has fulfilled the three specified objectives based on the literature of economic policies and other factors influencing the employment.

##### **6.1.2 Research Methodology**

According to the review of the literature, different schools of economics have different ideas concerning the policies affecting employment. Employment is also impacted by socioeconomic factors following economic development theories. The conceptual framework was developed according to the review of the literature.

The model analysis was divided into three models with the objective of studying the factors that really impact employment. The first model includes the

monetary and fiscal policies as the independent variables. The second model includes monetary and fiscal policies, and the supply-side policies. The third model includes all independent variables: monetary and fiscal policies, supply-side policies, and socioeconomic factors. The research would like to identify the factors or policies that really impacted employment and underemployment.

Supply side factors include the infrastructure and technology development, human capital development, trade openness, financial openness, minimum wage rate, and social security contribution by employees and employers. Socioeconomic factors include labor force growth, level of urbanization, economic growth, and level of industrialization. Different factors are integrated into the models, which are analyzed by using multivariate statistics. The results of the study of employment and underemployment of the whole nation and in each production sector are summarized here.

The researcher used a 95 percent level of confidence in the study. The standardized coefficient was used to interpret the relationship between the independent variables and the dependent variable in this study. The adjusted R square measures the determinant degree of each model. The Durbin-Watson value was used to identify if there was an autocorrelation among the independent variables.

### **6.1.3 Results of the Study**

The study's results of the impact of fiscal and monetary policies on the entire nation employment and also on each production sector employment are concluded here as well as the results regarding to underemployment.

#### **6.1.3.1 Study of the Overall Employment**

The model of macroeconomic policies shows that monetary policy has a negative relationship with the employment of the entire nation; fiscal policy, however, has no significant relationship with the employment of the nation. Monetary and fiscal policies may affect employment only for a short-term period so the significant results do not show here. The negative relationship of monetary policy to employment may be caused by the liquidity trap or reluctant lenders problem. Government spending and tax policy cannot stimulate the employment.

The second model of macroeconomic policies together with the supply-side policies study shows a positive relationship of trade openness and minimum wage to employment. Monetary and fiscal policies have no significant impact on employment.

The study that includes macroeconomic policies, supply-side factors, and socioeconomic factors shows that human capital development, minimum wage rate, trade openness impact employment positively. Urbanization impacts employment negatively. There was no significant impact of monetary and fiscal policies on employment. The results of the second and third model confirm the theory of classical, monetarist, and real business theory that there is no impact of monetary or fiscal policies on employment creation. Supply-side factors can increase employment.

The study of a one-year time lag shows that minimum wage rate and human capital development do not affect employment any longer. Trade openness continuously increases employment. Economic growth and industrialization had a positive impact on employment after the one-year time lag. The higher economic growth rate and higher degree of industrialization increase employment.

#### 6.1.3.2 Study of Sector Employment

Aside from the study of the impacts of monetary and fiscal policies, and other policies and factors, on the employment of the entire nation, the researcher also studied the impacts of those policies and factors on each production sector, including the agricultural, industrial, and service sectors.

##### 1) Agricultural Sector Employment

According to the first model of the macroeconomic policy study, monetary policy has a positive relationship to agricultural sector employment. The agricultural sector obtains benefits from a greater chance of accessing sources of funds, especially from Special Financial Institutions, to continue their operation during the dry season or during the low-price period. Fiscal policy has no significant relationship to agricultural sector employment.

When the supply-side policies were included with macroeconomic policies in the model, again monetary and fiscal policies had no significant impact on agricultural sector employment. Agricultural sector employment receives bad effects from both trade and financial openness.

From the combination of all of the variables in the model, the results show a negative impact of trade openness and industrialization on agricultural sector employment. Minimum wage rate has a positive impact on agricultural sector employment.

Thailand has had a higher degree of openness during the past two decades, with the higher value of industrial and service sector production and lower value of agricultural sector production. The agricultural sector had had bad effects from the freer international trade, and employees have moved to work more in the industrial and service sectors. The increase in the minimum wage rate increases the purchasing power of laborers, which can increase consumption level. The demand for agricultural products increases, so this can persuade laborers to work more in this sector.

## 2) Service Sector Employment

Service sector employment has been influenced negatively by expansionary monetary policy, and has had no impact from fiscal policy when considering only the impacts of macroeconomic policies. The increase in money supply level affects the service sector employment negatively, which confirms the monetarist theory—that an increase in money supply level stimulates employment in the short run. Employees require higher wages after they recognize a higher level of inflation rate. The other reasons are the liquidity trap and reluctant lenders, especially during the recession period.

The second model shows that macroeconomic policies have no significant relationship to this sector. The impacts of supply-side policies on service sector employment are totally opposite those on agricultural sector employment. Trade and financial openness expand the job opportunities in this sector.

From the study of all of the independent variables, macroeconomic policies were seen to have no role in increasing service sector employment. Trade openness and industrialization affect positively, and minimum wage rate affects negatively, service sector employment. Trade openness benefits the increase in the production and revenue of the industrial and service sectors. The tourism sub-sector in Thailand has expanded from the higher degree of trade openness. This also has generated a higher level of employment absorption in the service sector. Most

employed persons in the service sector are working in the formal sector. The increase in the minimum wage rate has also brought about a lower level of employment. Employers may not be able to support a greater burden from increases in the minimum wage rate.

### 3) Industrial Sector Employment

Monetary and fiscal policies do not have a significant impact on industrial sector employment when only macroeconomic policies are taken into consideration. The study of macroeconomic policies and supply-side policies shows that tax policy can help this sector's employment. If the government reduces taxes or provides tax advantages to the industrial sector, this will reduce the burden for corporations and help them to maintain or expand their production level, which of course can also generate a higher level of employment.

Openness of international trade and international capital flow benefits industrial sector employment the most. The industrial sector can expand its market to other countries and also can access sources of funds easily. There have been increases in mergers and acquisitions, as well as foreign direct investment in Thailand in the industrial sector. This can create a higher level of employment. Socioeconomic factors had no significant impact on this sector's employment when they were included in the study.

From the study, it was seen that if macroeconomic policies are considered alone, the results show the significant impacts of monetary and fiscal policies on each sector's employment differently. Expansionary monetary policy can generate employment in the agricultural sector, but has a negative impact on service sector employment.

When supply-side policies and socioeconomic policies are considered, the impacts of macroeconomic policies are not shown as a significant effect on employment creation, except for the study of the industrial sector, which shows that tax policy can generate employment when macroeconomic and supply-side policies are taken into account.

Trade and financial openness increases employment absorption in the service and industrial sectors. They can expand their market to other nations and also have more opportunities to access new sources of funds from international

capital flows. This has caused Thailand to have a higher level of industrialization and urbanization. Employees move to work in these two sectors more, resulting in a lower level of agricultural sector employment. Thailand has been an export-oriented country, with the international trade of the industrial and service sectors generating high income for the nation.

The increase in the minimum wage rate has benefited agricultural sector employment, but has had a negative impact on service sector employment. More than fifty percent of service sector employees are working in the formal sector. Employers may not be able to bear the higher burden of a higher minimum wage, so they need to reduce the level of employment. Formal employees that get a higher minimum wage have higher purchasing power to consume more, especially food. This results in a higher demand for agricultural products and then more employees move to work in the agricultural sector.

Supply-side policies and socioeconomic factors are important in terms of their effect on employment in Thailand. Monetary and fiscal policies are used to solve the employment situation in the short-run period.

#### 6.1.3.3 Study of the Overall Underemployment

An underemployed person is an employed person that is working fewer than 30 hours a week and is available to work more. According to the data of the National Statistical Office, the overall underemployment in Thailand is 1.93 percent of total employment on average. Considering the different sectors, agricultural sector underemployment was the highest, followed by the service sector and then the industrial sector.

The study of monetary and fiscal policies and of the other factors affecting the entire nation's underemployment shows no significant relationship. This is because the overall underemployment rate was quite low. It also indicates that the current macroeconomic policies and supply-side policies cannot solve the underemployment problem in Thailand. The results of underemployment in different sectors were also studied.

#### 6.1.3.4 Study of Sector Underemployment

Underemployment in different sectors was studied. Following are the conclusions for agricultural, service, and industrial sector employment.

### 1) Agricultural Sector Underemployment

The results show no significant impact of macroeconomic, supply-side policies, or socioeconomic factors on agricultural sector underemployment. From the impact of the individual variables, it was seen that trade openness increases underemployment in this sector. This confirms that the agricultural sector has less absorption power and less capacity utilization as a result of a higher level of international trade.

The researcher decided to use agricultural sector employment as a part of the independent variables, and excluded trade openness and minimum wage rate, which affected agricultural employment in the models.

Model 3 shows that expansionary money supply level will increase the level of underemployment in the agricultural sector. Even if the agricultural employers can raise funds more easily from expansionary monetary policy, they lack of the management skills to use those funds to improve production efficiency, including labor utilization. They may hire more laborers but still do not get them to work at full capacity.

The study shows that an increase in the level of the agricultural employment will reduce underemployment in the sector. The factors that can increase agricultural employment will reduce underemployment indirectly. The lowest employment rate, together with the highest level of underemployment, in the agricultural sector, identify the labor surplus problem in this sector.

### 2) Service Sector Underemployment

From the study of the impacts of macroeconomic policies on service sector underemployment, it was seen that expansionary monetary policy increases the level of underemployment in this sector. This result is related to the study of service sector employment, which shows that expansionary policy reduces employment. The liquidity trap and reluctant lender problems cause expansionary monetary policy to reduce the level of employment and also increase the underemployment level among existing employees. If corporations cannot raise funds as needed, they may reduce the working hours of workers to decrease their burden in terms of wages.

The results of model 2 show that trade openness has a negative relationship with service sector underemployment. Trade openness can increase service employment and also can reduce the underemployment rate. International trade creates higher employment and also labor utilization in the service sector.

The combination of all of the independent variables in the study shows the negative relationship of trade openness and minimum wage to service sector underemployment. Employers reduce the level of employment from the higher minimum wage rate, and they use the existing employees at full working hours.

The socioeconomic factor, which is urbanization, has a positive relationship with service sector underemployment. The service sector is the biggest in the urban areas, so people move these areas with the expectation of getting a better job with higher wages as well, and employers have more alternatives. Companies can hire employees on a monthly or daily basis. Daily employees have less chance to be hired for more working hours, and this causes a surplus of labor in the urban areas.

### 3) Industrial Sector Underemployment

In the study of the industrial sector, the three models showed there were no impacts of the independent variables on underemployment. This is because the underemployment rate in the industrial sector is the lowest compared to the service and agricultural sectors. The increase in industrial sector employment reduces the underemployment rate. The industrial employment rate has had an increasing trend during the 1998-2008, so this can reduce the underemployment in the sector as well.

The result of no significant impacts of the independent variables on the underemployment of the entire nation, the agricultural sector, or the industrial sector in different models indicated that current policies cannot reduce the underemployment problem effectively, especially in the agricultural sector, which has the highest underemployment rate and also the lowest level of employment. The way to reduce underemployment in the agricultural sector is to increase the level of employment. According to the data, agricultural sector employment has reduced during 1983-2008 as a result of higher international trade for industrial and service products, so underemployment also exists.

Service and industrial sector underemployment might be lower because of the higher degree of trade openness. International trade benefits the employment of these two sectors and also increases the utilization of the capacity of laborers.

## **6.2 Contribution to Theory**

The schools of economics have different points of view on the impacts of policies and factors on employment. The Keynesian school believes that employment can be stimulated by increasing aggregate demand. The government should use monetary and fiscal policies to stimulate aggregate demand. Classical, monetarist, and real business cycle theories state that monetary and fiscal policies cannot increase employment level but it is rather influenced by supply-side factors, including infrastructure and technology development, labor development, deregulation, and openness.

From the results of the study, it was seen that if monetary and fiscal policies are considered alone, they significantly affect employment in each production sector differently. Expansionary monetary policy can increase agricultural sector employment, but reduces service sector employment. Keynesian theory's support of the role of monetary policy can be applied to agricultural sector employment. The increase in money supply in terms of credit availability can help the agricultural sector to continue production activities and increase the level of employment.

Expansionary monetary policies were seen to reduce service sector employment, which tended to confirm monetarist theory. The higher level of money supply increases employment only for a short-term period but increases inflation rate in the long term and also reduces employment when laborers realize a lower level of real wages and require a higher nominal wage. If employers cannot assume this burden, the unemployment rate will be higher.

The combination of macroeconomic policies and supply-side policies in the model showed significant impacts of supply-side policies on agricultural and service sector employment rather than macroeconomic policies. The results on industrial sector employment showed that reducing taxes could increase employment level. This

confirmed the Keynesian theory, that government fiscal policy can stimulate employment level. The corporations had a lower tax burden which helped them to invest more and to hire more laborers.

The study model that included macroeconomic policies together with supply-side policies and socioeconomic factors showed no impact of monetary and fiscal policies on employment. This indicates that employment in Thailand is more influenced by supply-side policies and socioeconomic factors. Monetary and fiscal policies may be able to increase employment in a short period. The situation in Thailand tends to confirm the classical, monetarist, and real business cycle theories concerning the impact of supply-side policies on employment. The degree and direction of the relationship, however, are different among the sectors.

Trade openness had a strong negative impact on the agricultural sector employment, and a positive impact on service and industrial sector employment. The results on agricultural sector employment rejected the classical, monetarists and real business cycle theories in the sense of non-governmental intervention or in the sense that the free market can increase employment. Trade and financial openness in Thailand have benefited the service and industrial sectors. Their production value has been increasing, and labor has moved to these sectors more, as we can see from the higher level of industrialization. The agricultural sector received a disadvantage from trade and financial openness and lost its labor absorption ability. Trade openness also caused Thailand to have a higher degree of underemployment in the agricultural sector.

The minimum wage rate could increase employment in the agricultural sector but decrease service sector employment. This also indicated that non-governmental intervention could not be applied to the agricultural sector. The increase in the minimum wage rate was applied to formal employees that were mostly in the service and industrial sectors. Laborers in the agricultural sector were informal-sector employees. Employers in the service sector could not assume the higher burden from increases in the minimum wage rate so they laid off of their employees. Laborers that had higher purchasing power could consume more products, especially agricultural products. The results indicated that non-governmental intervention in terms of minimum wage rate was applicable to formal sector employment in Thailand.

The socioeconomic factors of industrialization and urbanization also affected employment. The higher degree of industrialization in Thailand comes with trade and financial openness. The result confirmed the Harris-Todaro theory—that industrialization causes the movement of labor from the agricultural sector to the industrial and service sectors.

Urbanization causes a labor surplus in particular areas. The industrial and service sectors were mainly located in urban areas, which caused the labor move from the provinces to big cities for better job opportunities and a higher wage rate. Urbanization reduced employment absorption ability and also increased the underemployment level, as could be seen from the results concerning service sector underemployment.

The results from this dissertation contribute to theory in terms of the factors impacting employment. Each employment sector has different policies to deal with. In the next section policies recommendations are proposed.

### **6.3 Recommendations**

From the research results, it was seen that macroeconomic policies, supply-side policies, and socioeconomic factors affect the entire nation's employment and underemployment, and each sector's employment and underemployment to a different degree and also with different impacts. In this regard, political support is a critical mechanism in creating employment, reducing underemployment, and developing the labor market in Thailand. The following recommendations are proposed for each production sector, and also for overall employment development.

#### **6.3.1 Agricultural Sector Employment**

Agricultural sector employment has decreased during the past two decades. Employees have begun work in the other sectors because of the higher degree of industrialization. Thailand still has resources for agricultural production, and a high percentage of rural employees are still working in the agricultural sector, and the government should support the production in this sector in order to increase employment absorption.

The results show positive impacts of expansionary monetary policies on the agricultural sector. This sector usually receives benefits in terms of low interest rate loans, especially from specialized financial institutions. The government should continuously support those institutions in granting loans to the agricultural sector, especially to the farmers that may not have financial documents or assets to back up their creditability. The financial institutions should also follow up to be sure that the farmers are using those funds for the right purpose, that is, to improve their productivity.

Training and skill development should also be provided to the agricultural sector. Farmers need to develop their skills and knowledge in order to increase their productivity, for example, planting in the dry season, applying new technology for planting, and utilizing resources. An increase in skills and knowledge can help farmers adjust their production to changes in demand and in the environment, manage their funds efficiently, and also employ the full utilization of employees to reduce underemployment.

Apart from providing a channel for raising funds, the government should also improve other important things in order to attain a higher degree of production. The improvement of water sources and land development, for example, is important for long-term sustainability of production. Water conservation can help farmers plant during the dry season.

The price of agricultural products is quite volatile in the market, depending on the level of demand and supply, and also on the likelihood of the season. The past situations show the oversupply in the market. Apsit government implements income guarantee programs to farmers in order to ensure their minimum income, and this may help them to continue to work in the sector rather than moving to other sectors.

The agricultural sector has received a bad effect from the higher degree of openness in the economy since the employees have moved to work in other sectors. Thailand has free trade agreements with other countries, and the government should try to take profit from this increase in international openness expand the market for the agricultural sector. Investment privileges should be given to agricultural product export firms in order to increase the competitive advantage in foreign markets and finally to create employment. Knowledge in terms of international foods requirements also needs to be provided to the agricultural sector so that the needed products can be

prepared to serve the world market. The increasing in the employment in agricultural sector can reduce the underemployment and the labor surplus problems in this sector.

### **6.3.2 Service Sector Employment**

Monetary policy has negative impacts on the service sector, which may be caused by liquidity traps or reluctant lenders, especially during an economic downturn. It may be more difficult for the service sector to raise funds during an economic downturn, as lenders lack confidence and do not want to face non-performing loan (NPLs) problems. The government needs to encourage commercial banks and financial institutions to grant loans more to the business sectors, especially to small- and medium-size enterprises that are labor intensive or have production based on provincial areas. The government may use its specialized financial institutions to grant loans at lower interest rates or with longer terms of maturity for the service sector. Government through Bank of Thailand may need to guarantee loans for the service firms that may not have collateral assets with enough value for borrowing. The government can consider firms that have shown past potential growth and good credit performance. The advantage of providing loans to the service firms in the region is that it will reduce the number of laborers moving to urban areas and also reduce unemployment and underemployment problems in urban areas.

The service sector receives benefits from trade openness. Tourism and hospitality are main subsections generating income, and the government can expand the tourism and hospitality subsector more by promoting attractive places to other countries, and also by finding new markets for the tourism and hospitality sector. The government should improve the quality and standard of travelling to places in every region, and it should also enforce rules and regulations to preserve the natural environment for sustainability in the tourism and hospitality sector. The increase in international trade is also of benefit to the logistics and transportation subsectors of the service sector, and the government should also improve the basic infrastructure in different regions to serve the increase in international trade.

### **6.3.3 Industrial Sector Employment**

The study of industrial sector employment shows that tax policy affects employment. The reduction in tax rates increases industrial sector employment. The

government should provide a tax advantage to firms in the industrial sector, especially to: 1) labor-intensive production firms, 2) agricultural industrial firms, 3) export-oriented industrial firms, and 4) industrial firms in the province areas.

Providing a tax advantage to labor-intensive firms will encourage them to hire more laborers instead of applying only advanced labor-substituting technology. The support of agricultural-production firms will increase agricultural sector employment indirectly. Thailand has higher degree of openness than in the past and needs to increase its competitive advantage over its competitors. The tax advantage to export-oriented firms will reduce their burden, help them to achieve price competitiveness, and also expand their market shares in abroad to increase employment creation. A tax reduction for industrial firms in different provinces will generate jobs in local areas and help reduce urbanization problems.

The industrial sector also gains advantages from a higher degree of trade and financial openness. This sector also needs sustainability in its revenue. There is expanding in Free Trade Agreement of Thailand and the other different countries. The government should study each agreement in detail and be sure that Thai businesses can utilize those agreement preferences. The new opening market will increase opportunities for the industrial sector to increase its market share and to hire more laborers. The government should provide knowledge and help manufacturers to comply with international product and health requirements. This will help producers understand the rules and regulations of each market to so that they can maintain and increase their market shares.

Financial openness benefits industrial firms in terms of a higher degree of foreign direct investment, and also more alternatives in raising funds. The government should help foreign firms that would like to invest in Thailand, for example, providing tax advantages. The development of financial markets, for example money and capital markets, should be emphasized in order to increase the confidence of foreign investors in investing and also to increase fund raising alternatives for industrial firms.

### **6.3.4 Other Policies to Stabilize Employment**

#### **6.3.4.1 Training and Education Development**

The problem that the Thai labor market is facing now is a mismatch between labor demand and labor supply. The laborers' lack needed skills to serve the

supply, for example, technical skills. Further, the education system in Thailand has changed during the past 10 years; there are fewer vocational schools to develop the skills of students to serve the demand in the market, and increasing numbers of students at the university level. In the labor market, there is a higher demand for semi-skilled laborers during economic expansion, especially in the industrial and service sectors, but there are not enough vocational graduate students to serve the demand.

Considering the position of students with a bachelor's degree, Thailand's higher education providers have failed to produce graduates with qualifications to meet labor market demands. A survey published by the Ministry of Labor in 2009 revealed that many highly-skilled industries are unable to find candidates with the required qualifications to fill important positions.

This indicates the problems in the education system in Thailand in terms of serving the labor market. The following strategies are recommended to solve this mismatch of demand and supply in the labor market, and also to create employment stability:

- 1) Develop a Data-Based System

The government should conduct a survey of the labor skills demanded of each production section in order to plan for education and training systems. This survey should be carried out in every region of Thailand and should develop a good database system, keeping track of the socio-economic changes in the environment. A survey in each region would help in terms of the development of labor to serve the market in each region and solve the problem of urbanization. These databases can be used for short-term and long-term plans for labor development to serve changes in demand, and also changes in the environment.

- 2) Provide Training and Skill-Development Programs

The government should provide on-the-job training and skill-development programs for laborers so that they can develop a specialization. The government can use the information from surveys to analyze the skills that are needed by employers, and develop the training to serve those needs. This will also increase employment utilization and solve problems of underemployment.

The government should also provide training programs to informal sector employees to improve their skills and to encourage them to enter the

formal sector. Informally-employed persons have an education level lower than or at the elementary school level, and they do not have much choice in terms of finding better work or negotiating for better benefits. They need career training and development programs that will help them to improve their specialization skills.

### 3) Support the Vocational Schools

Thailand now has a higher percentage of students in the formal education system than in the vocational school system, and many vocational schools have changed their status and curriculum to become a university. People perceive that they can have better opportunities in the workforce with bachelor degree qualifications. This makes for a lack of semi-skilled labor in the market. The government should promote the image of vocational schools, and develop the curricula to match the skills demanded in the market. Scholarships for poor students or low interest rate education loans should be provided to increase the to study in vocational schools. The government needs to ensure jobs for vocational school graduates so that there will be increasing interest in studying in these schools. The most important thing is the development of programs and curricula to make students ready for the labor market.

### 4) Improve the Education System

Each university needs to improve its curriculum continuously to match the changes in labor market demand. The government should facilitate the process of the improvement of these curricula, for example, providing information on the labor market to universities and shortening the process of curriculum approval.

The government, business sector, and educational institutions should cooperate in the development of curricula and plans to increase the capacity of graduating students, and the government should facilitate formal plans with the cooperation of the business sector and educational institutions.

#### 6.3.4.1 Minimum Wage Rate

The government should adjust its minimum wage rate so that it is appropriate for the inflation rate in the market in order to maintain the purchasing power of employees. An increase in the minimum wage rate can encourage employees that are working in the informal sector to work in the formal sector, especially agricultural employees. The minimum wage rate would also increase the

purchasing power of people and increase their consumption, especially of foods and necessary goods.

#### **6.4 Further Research**

This study provides interesting results on the policies and factors affecting overall employment and underemployment in Thailand, and also in each production sector. This dissertation focused on the macroeconomic policies, supply-side policies, and also on the socioeconomic factors that impact employment and underemployment in Thailand. The study was carried out using time series data on each independent, control, and dependent variable from 1983-2008 in the analysis. The employment and underemployment data were collected by the National Statistical Office of Thailand since 1963, which covers the time period of this study.

Thailand has the large informal sector, which causes it to have a low open unemployment rate. The informal sector employment data were collected since 2005, which is too short of a period for testing the significant impact of different policies and factors. Further research is needed for the study of informal sector employment when time-series data on informal sector employment covering a longer period become available.

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