



Faculty of Commerce

Economics Department

**“The Trade-Off between Inflation and
Unemployment in Egypt during the period
(1990-2012), An Econometric study”**

" العلاقة بين التضخم والبطالة في مصر خلال الفترة

" (1990-2012)، دراسة قياسية "

PHD Thesis

Submitted for The fulfillment of philosophy in Economics

presented by :

Marwa Ibrahim Nassar

Assistant Lecturer – Economics Department
Faculty of Commerce – Ain Shams University

Under supervision of :

Prof.Dr. Ihab Nadeem

Professor of Economics

Prof.Dr. Dina Rady

Professor of Economics

2014

بسم الله الرحمن الرحيم

□ " سبحانك لا علم لنا إلا ما علمتنا

إنك أنت العظيم "

" صدق الله العظيم "

" سورة البقرة آية 32 "

Acknowledgement

" الْحَمْدُ لِلَّهِ الَّذِي هَدَانَا لِهَذَا وَمَا كُنَّا لِنَهْتَدِيَ لَوْلَا أَنْ هَدَانَا اللَّهُ "

صدق الله العظيم

سورة الأعراف – الآية 43

Thanks to God who guided me to the path of science and taught me what I did not know, and peace be upon our master, our Prophet and our teacher prophet Mohammed.

And thank God for the countless blessings that I had as being honored with teachers whom I owe so much :

Prof. Dr. / Ihab Nadim, I would like to extend my sincere thanks and great appreciation and gratitude for accepting the supervision of my thesis, and for being a mentor who guided me all over the path so my deepest thanks, appreciation and gratitude. I am also honored to extend my sincere thanks to my professors:

Prof. Dr. / Reda El-Edel, Professor of Economics faculty of Commerce and former Dean of faculty of commerce- Ain shams university.

Prof. Dr. / Amr El-Taky ,Professor of Economics , Vice Dean – Sadat Academy.

Prof.Dr./Dina Rady, Professor of Economics faculty of Commerce- Ain shams university

For agreeing to participate in the membership of the judging panel on the thesis which will be enriched by your observations and constructive additions. And also a special thanks to ***Prof. Dr. Abeer Farahat*** who supported me all over the way, and to ***Dr. / Hossam El Din Abdel-Qader*** , whose precious help and constructive observations and knowledge in addition to the time and effort which he granted to help me in the Thesis was beyond any speech . So, Thank you all.

Researcher / ***Marwa Ibrahim Nassar***

Special Dedication

To my Beloved Dad

Every single letter I wrote was because of you

Every single word I read was because of you

To my Beloved Mother

The Loving and caring mother

The main source of support

I dedicate this effort to you

To my beloved Sister and Brother

To my Dear wonderful Husband

Mohamed

To the obedient- loving Daughter

Hajar

May god bless you all

TABLE OF CONTENTS

<u>Introduction</u>	xii
<u>Chapter One: Inflation and Unemployment in Economic School of Thought</u>	1
1) <u>Section One: Inflation , Theoretical Background</u>	3
2) <u>Section Two: Unemployment , Theoretical Background</u>	21
1) <u>Section three: The Relationship between Inflation & Unemployment in economic theory</u>	41
<u>Chapter Two</u>	
<u>Different Case studies of Inflation, Unemployment & Stagflation</u>	67
1) <u>First Section: The USA experience with Inflation-Unemployment Trade-Off.</u>	69
2) <u>Second Section: The European Union Recession Experience with a special reference to the GIIPS countries.</u>	87
3) <u>Third Section: The Inflationary Effect of Oil-Price Shocks.</u>	112
<u>Chapter Three</u>	138
<u>Macroeconomic performance and policies followed in Egypt during the period (1990-2011)</u>	
1) <u>Section one: Macroeconomic performance of Egypt during the nineties.</u>	140
2) <u>Section Two: Macroeconomic Performance in Egypt during the period (2000-2012).</u>	161

<u>Chapter Four</u> <u>Inflation targeting versus employment targeting</u> <u>in Egypt and South Korea</u>	185
1) Section One: Inflation versus Unemployment targeting policies in Egypt	188
2) Section Two: Inflation versus Unemployment targeting policies in South Korea.	212
<u>Chapter Five</u> <u>The Econometric Model</u>	242
1) <u>Section one:</u> the econometric model methodology.	244
2) <u>Section two:</u> the empirical results of the econometric model.	250
<u>Conclusions & Recommendations</u>	270

LIST OF TABLES:

No.	Title	page
(1)	Inflation & Unemployment rates in USA during (1960-1970)(%)	71
(2)	Inflation and unemployment rates in the United States during (1973-1980) (%)	80
(3)	Total direct taxes & Total tax revenue in USA(billion dollars)	84
(4)	Current account balance, Real GDP growth in Greece (2007 - 2010)	102
(5)	Percentage of government deficit in Euro zone in 2010.	103
(6)	Italy's GDP, public debt, percentage total Investment to GDP, current account balance (2007-2010)	104
(7)	The Unemployment Rate in the Euro Zone (2007-2010)	105
(8)	The annual growth rate of GDP for the Euro area during the period (2002-2011)	105
(9)	Financial Assistance Packages for Eurozone Governments and Banks	107
(10)	The World Oil Consumption in 2012 (Thousand barrels daily)	115
(11)	Development of Oil main indicators during the Period from (1985-2004) (million barrel per day)	117
(12)	Oil Production in Thousands Barrel Daily distributed among the World(thousands barrel daily)	118
(13)	OPEC Oil Production (1,000 b/d) in 2012	119
(14)	Nominal Crude Oil Price Index	125
(15)	Food & Fuel share in CPI baskets distributed among regions in 2008 (%)	127
(16)	Contribution of Oil price to Food Price Changes,1997-2004 to 2005-2012 (percentage changes)	128

(17)	Impact of Oil & gas Price Changes on CPI in USA(%)	129
(18)	Lending interest rate in Egypt (1990-2000)	143
(19)	Percentage of annual growth of GDP through the period in Egypt (1990-2000)(%)	148
(20)	Contribution of the Public and the Private sector in the GDP during 1999/2000 (%).	149
(21)	Inflation rate (%) during the period (1990-1999)	152
(22)	Unemployment rate as a percentage of total labor force (1990-2000) (%)	154
(23)	Distribution of New Entrants Unemployed by Gender	156
(24)	Total Wages distributed among private and public sector in millions	157
(25)	External debt stocks and total debt service (% of GNI) (1990-2000)	158
(26)	Lending Rate in Egypt during period (2000-2011)	163
(27)	Money and Quasi Money Annual Growth (%) during (2001-2011)	165
(28)	Public Finances during the period (2003-2013)(percentage of GDP)	167
(29)	Percentage of annual growth of GDP through the period (2000-2012)	171
(30)	GDP Growth by Main Economic Sectors at Factor Cost and Constant Prices (2010/2011)	172
(31)	Inflation Rate during the period (2000-2012) (%)	174
(32)	Unemployment rate as a percentage of total labor force	176
(33)	Unemployment levels (15- 64) for men and women by governorate in 2008	178
(34)	External Debt Stock during the Period (2000-2011) (%of GNI)	181
(35)	Percentage of Net Domestic Debt to GDP during the period (1991-2011)	195
(36)	Elasticity of employment by sector during the period (2000-2009)	204

(37)	M2 growth in Korea - target and actual figures (%)	216
(38)	Reserve requirement ratios in Korea (As of the end of November 2012) (%)	220
(39)	The Government budget balance and net debt in Korea during (2008-2012) (% of GDP)	223
(40)	Tax revenue as a per cent of GDP in Korea 2010 (% of GDP)	224
(41)	Inflation rate in Korea during the period (1990-2012)(%)	227
(42)	The Unemployment rate and the GDP growth rate during (1990-2012) in Korea (%)	231
(43)	Descriptive statistics of the Four Series	254
(44)	Augmented Dickey-Fuller Unit Root Test of four series	257
(45)	Augmented Dickey-Fuller Unit Root Test of four series	257
(46)	Modeling U by OLS-The estimation sample is during 1980 - 2010	260
(47)	Diagnostic tests	261
(48)	Net Domestic Debt of the Egyptian Government during the period (1991-2013) L.E.Mn	268

LIST OF GRAPHS :

No.	Title	Page
(1)	The Market for Loanable Fund	12
(2)	The relationship between inflation & unemployment in the Classical View	45
(3)	The relationship between inflation & unemployment in the Keynesian View	46
(4)	The original Phillips curve	48
(5)	Long-Run Phillips Curve (NAIRU)	51
(6)	Laffer Curve	57
(7)	The Phillips Curve in USA (1961-1969)	72
(8)	Percentage share of Oil Demand by sector in 2009-World	116
(9)	All commodity price index and Crude oil price index trend during the period (January 1992- April 2013), 2005=100	126
(10)	Road sector gasoline and diesel fuel consumption per capita (Kg of oil equivalent)	131
(11)	The Trend of Budget Deficit during the period (2000-2012)	194
(12)	Investment Rate Distributed between economic Sectors as a Percentage of Total Investment in 2010	203
(13)	The Inflation rate within the minimum and maximum range set by the BOK in Korea during the period(1998-2011)	229
(14)	Four Series from 1980 to 2010	253
(15)	Short run relationship between inflation and unemployment	255
(16)	Net domestic debt of government as percent of GDP	269

I. Introduction:

There is no doubt that unemployment and inflation are severe problems facing the economy, in fact economic literature took a while to understand and decide how to deal with them, and most importantly investigated if there was a certain relation between both of them. Some believed that there was a trade-off between the two that policymakers could exploit. In other words, a lower unemployment rate could be reached by tolerating a higher rate of inflation. Others argued that there is no such a trade-off. In either way, inflation and unemployment caught a lot of attention since they are chronic problems that face a lot of countries.

Different countries all over the world have been passing through these cases, as the United States have been through the trade-off relationship between inflation and unemployment, adding to that its stagflation crisis in the 1970s. Europe went through stagnation and high unemployment rates; finally inflation was so profound by the fluctuations in oil prices. All of these experiences will be exhibited thoroughly in addition to the South Korean experience with inflation targeting versus employment targeting and finally an econometric study will be used to analyze the type of relationship between inflation and unemployment.

II. Statement of the problem :

To follow the economic development of Egypt since the nineteenth, three economic variables are definitely needed, the first is the unemployment rate, the second is the inflation rate, and finally the percentage of growth of GDP.

1) unemployment rate:

The unemployed is without work, currently available for work and seeking work, the unemployment rate through the period (1990-2008) has increased from 8.6% in 1990 to 11.3% in 1995, after which it began to decline in 2000 to reach 9%, then fluctuating from 11.2% in 2005 and 8.7% in 2008.

To identify the unemployment directions in Egypt and disagreements between the urban and countryside, we will find that unemployment levels grew for each men and women from 1984 to 1995. For women, it grew until it reached 24 %, then it swung between decrease and rise in the following years until it reached to its maximum 25 % and went back once again to reach 19.5% approximately in 2008. As for the male, the highest level of unemployment reached 8 % in 2003 and ranged between (5 - 8%) during the period (1997- 2008). Generally, the unemployment level is high continuously for women than men and this apply on the urban and countryside during the period (1984- 2008).

2) Inflation rate:

Egypt witnessed high levels of inflation in the early 1990s, reaching its peak in 1991 to 19.7%, but sooner with the application of the Economic reform and structural adjustment program “ ERSAP” , it began to decline from 15.7% in 1995 to 2.7% in 2000, after which it started to increase again with the successive devaluations of the Egyptian pound. A further increase in inflation was witnessed following the depreciation of the pound

accompanying its announced floatation in January 2003, resulting in a depreciation of its value exceeding 30 percent. These inflationary pressures were driven by the increase in import prices as well as the negative expectations regarding the stability of the pound. However, maintenance of explicit and implicit subsidies on several items mitigated the pass-through effect of the exchange rate.

Inflation was again brought under control due to significant reforms in the foreign exchange market which restored stability to this market and stopped speculative transactions in foreign currency. The Egyptian pound started appreciating. The inflationary pressures due to the pass-through effect of earlier depreciations of the currency were relieved.

Inflationary pressures started to build up again reaching 18.3% in 2008 due to external factors associated with raising world prices of imports, the negative impact of the avian flu outbreak on domestic food prices and the probable "heating" up of the economy due to increasing GDP growth rates.

In 2009, Inflation was moderated as a result of the decrease in the share of the group of food and beverages. This group, which represents 43.9 percent of the general index, accounted for 5.7 percentage points of the headline inflation, against 12.1 points a year earlier.

3) Gross domestic product:

The annual growth rate of GDP has increased from 5.7% in 1990 to 5% in 1996, maintaining the same average till 2000, yet

after that it declined to reach 3.2% in 2003 to reach finally its peak in 2008 at a percentage of 7.2%.

During the first half of the 1990s, the Central Bank of Egypt (CBE) adopted a tight monetary policy coupled with sterilization measures to neutralize the expansionary impact of capital inflows. This resulted in rapid accumulation of foreign exchange reserves early in the stabilization program and reduced inflation expectations. While the program was successful in reducing both internal and external imbalances, its impact on economic growth in the early 1990s has been disappointing, as it could not raise the average growth rate back to the pre- ERSAP levels. After the sharp decline of the growth rate in 1990/91, following the stabilization effort, the reform program managed to reduce macroeconomic imbalances and to establish conditions for sustainable growth.

Starting 1997/98, the Egyptian economy suffered from the combined effect of three external shocks: the emerging economies' crises, the Luxor incident and the sharp decline in oil prices in 1998. These external factors put negative pressure on the current account in the balance of payments, further aggravated by external capital outflows. The situation was worsened by the global economic fallout from the September 11 attacks in 2001, and further by the war on Iraq, the consequent uncertain political conditions in the region and the sluggish global environment, reflected on the growth rate of GDP which started to decline in 1998/99, and continued its downward trend until 2001/02 and further in 2002/03. Economic activity was constrained by a