

## Impact of Political Instability on Economic Growth in Egypt

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### Abstract:

This study aims to identify the impact of political instability on economic growth in Egypt during the period (2000-2022). There is a close connection between economic growth and political stability. On the one hand, the uncertainty associated with an unstable political environment may reduce investment and accelerate economic development. On the other hand, poor economic performance may lead to government collapse and political unrest. In Egypt, the real GDP growth rate increased in the period from 2000 to 2008 from 5.1% to 6.8% and decreased before the revolution of January 25, 2011, to 5%, but it decreased sharply after the revolution to reach 2% in 2015 and then rose again to 6.6. % in 2022. This research studies the mutual influence of government changes and economic growth on each other. The primary finding of this paper is that in countries and time periods with a high probability of government collapse, growth is much lower. This effect is strong for both types of government changes: change in the structure of government but not in its ideology, and "irregular" transfers of power as in cases of revolutions and coups. The study, which used the descriptive approach, is an attempt to find out the harmonious relationship between political instability and economic growth. Using structural equation modeling, the results indicate that political stability is the right direction with economic growth. The results also confirm that political instability increases the strength of the positive relationship between the variables. Considering the evidence, the paper proposes some suggestions and implications for promoting the development of the economy so that economic growth and instability can be achieved at the same time.

**Keywords:** Economic growth, Government policies, political instability, Unemployment, inflation, government debt, exchange rate, Foreign direct investment.

## Introduction

Economists view political instability as a serious problem that harms economic performance. It tends to get in the way of long-term planning which in turn leads to suboptimal macroeconomic policies (Abdelbary & Benhin, 2019). It may also lead to more frequent policy shifting, creating volatility and thus negatively impacting macroeconomic performance. However, political instability seems to be ever-present despite its detrimental effects on economic growth (Abubakar et.al, 2020).

Political instability is strongly linked to economic growth (Alberto et.al, 1992). From this standpoint, we can learn about the different approaches used to test the nature of the relationship between political instability and economic growth. From the literature we can see that political events are qualitative, which raises a major problem for researchers in the field of political economy. The main problem is that these indicators cannot be directly observed or measured. Economic growth is often criticized because of the limitations that economic growth imposes on improving living standards (Altunbaş & Thornton, 2019). It is said that we should measure economic development through measures such as the Human Development Index (HDI) which looks at gross domestic product as well as statistics such as literacy and healthcare standards.

During the period from 2000 to 2022, Egypt witnessed two revolutions – January 25 and June 30. Before January 25, Egypt witnessed significant economic growth that led to a rise in GDP from 643 billion pounds to 1,206 billion pounds. During that period, foreign reserves increased from \$13.78 billion in 2000 to \$34 billion in 2022. While foreign direct investment as a percentage of GDP increased from 1.23% in 2000 to 2.4% in 2022, the unemployment rate also decreased from 9% in 2000 to 7% in 2022, but poverty rates increased between 2000 and 2022 from 19.6%. % to 29.7% of the total population; Education spending deteriorated from 4.9% of GDP in 2000 to 2.9% of GDP in 2022. I

Income inequality increased and transparency also decreased. (According to the Central Agency for Public Mobilization and Statistics, 2022), which confirms that the GDP growth rate is not a sufficient measure of the well-being of the economy in all its factors (Croissant & Pelke, 2022). During the period from 2000 to 2022, Egypt witnessed two revolutions, January 25 and June 30. GDP growth recorded less than 2%, while net international foreign reserves decreased to \$14 billion, which contributed to the widening of the budget deficit and the increase in internal and external debt (Hlasny & Verme, 2013). Unemployment rates decreased from 9% in 2000 to 7% in 2022. The research problem can be clarified through the following questions:

- What is the role of fair distribution of income in economic growth?
- What are the main factors of political instability that affect economic growth?
- What is the impact of political instability on Egypt's economic growth during the period from 2000 to 2022?

The study aims to analyze economic growth in Egypt during the period from 2000-2022. The study also aims to show that in countries and during time periods when there is a high probability of government collapse, growth is significantly lower. This effect is strong for both types of government changes, and political instability is particularly harmful because of its negative effects on economic growth.

The paper is organized into three parts: a literature review next to the introduction part. It addresses the views of previous authors and identifies the relationship between economic growth and political instability. The third part, methodology, refers to the process of obtaining data and data analysis techniques to test hypotheses regarding the relationship between factors. The research findings are supported by previous studies conducted through comparison. The concluding remarks of the study provide an overview of the study with implications and limitations.

## 1. Literature Review

First, the paper begins with a theoretical summary that includes the main studies that have used objective variables to better understand their impact on the level of economic growth (AlNaser, 2019). Many authors have used indicators of political instability, called targets, to shed light on the nature of the relationship between political instability and economic performance. Barrow (1991) used counting indicators such as revolutions, coups, and political assassinations. Similarly, La Porta (1997) used indicators of political revolutions and assassinations. Likewise, the use of instability indicators is present in the literature on business cycles. We can see that several authors have verified a statistical relationship between macroeconomic volatility and indicators of political instability by introducing the electoral surprise dummy variable (Streimikiene & Akberdina, 2021). They then tested the impact of volatility on the macroeconomic environment. What is striking in this case is that the magnitude of macroeconomic fluctuations after the elections is explained by the magnitude of the electoral surprise.

In this section, we examine the channels through which political instability affects economic growth. Since political instability is associated with greater uncertainty regarding future economic policy, it is likely to negatively affect investment and thus physical capital accumulation.

In fact, several studies have identified a negative relationship between political instability and investment (Alberto, 1992). Instead of estimating the investment equation, we will construct the series on the physical capital stock using the perpetual inventory method and estimate the capital stock growth equations. That is, we will analyze the effects of political and institutional instability on physical capital accumulation. Political instability can also negatively affect productivity.

By increasing uncertainty about the future, this may lead to less efficient allocation of resources. In addition, it may reduce R&D efforts by companies and governments, slowing down technological progress. Violence, civil unrest, and strikes can also interfere with the normal operation of businesses and markets, reduce working hours, and even destroy some installed production capacity. Thus, we assume that higher political instability is associated with lower productivity growth (Sadaf et.al, 2018).

Finally, human capital accumulation may also be negatively affected by political instability because uncertainty about the future may cause people to invest less in education. This occurs because investment in human capital, like investment in physical capital, depends on the expected returns on that investment, which can be affected by political instability. According to (Shittu et.al, 2020) human capital formation in developing countries can be negatively affected by political instability in two ways. First, political instability fosters an uncertain climate in which economic agents may be unable to reap the benefits of investing in human capital. Increased political instability may push those with high levels of human capital to migrate. The second source of low human capital formation is due to government allocation of resources, as many governments have diverted resources away from providing social capital (including human capital) to providing security in countries experiencing political instability (Sylwester, 2000).

### 1.1. The Role of fair income distribution in economic growth

Income distribution lies at the heart of a perennial issue in political economy. It essentially highlights the extent to which the government should step in and redistribute income from those with more income to those with less. In other words, income distribution is how a country's GDP is distributed among its population, thus making it a major concern of economic theory and economic policy. By all

accounts, income inequality in Egypt is low, and began to decline during the decade preceding the 2011 revolution. Since the Egyptian revolution was partly driven by allegations of social injustice and inequality, this seems contradictory to the low level of income inequality (Paraschiv et.al, 2021).

## 1.2. Solutions to Disruptive Income Inequality for Economic Growth

### 1.2.1. Diminishing unions' power because it can be used to obtain unfair advantage.

One way to address this is a balance of power. That is why unions are important. They can and have abused their power as has every other powerful institution in this country. That is an argument for limiting power across the board with checks and balances.

### 1.2.2. Taxing bigness: Much of the existing economic collapse is attributed to the actions of institutions that are "too big to fail". Others have suggested that such institutions are too big to exist. The current approach to limit bigness through antitrust laws is obviously inadequate. A bigness tax (not on net worth but on assets controlled) is likely to be far more effective at limiting bigness.

*H1: Country policies applied to attempt a fair distribution of income actually cause economic growth to continue at low rates.*

### 1.3.1. Economic Growth in Egypt during the period from (2000-2005)

The Egyptian economy had a very difficult year in 2000/2001 with external problems that affected the entire economy being exacerbated by the 11 September attacks. The drop in revenues from tourism, oil and the Suez Canal, as well as the world economic slowdown and the region's security problems, reduced growth to 2.3 %, where it is expected to remain in 2002/2003. Economic growth rate in Egypt decreased during the period 2000 -2005 from 5.1% to 4.5%; and reach to the lowest

value in 2003 (3.1%), Unemployment rate increased from 9% in 2000 to 11.2 % in 2005.

Total Government debt as a percentage of GDP increased from 72.2% in 2000 to 98.26 % in 2005; FDI increased rapidly as a result of economic stability from 1.23% in 2000 to 5.99% of the GDP in 2005; foreign reserves increased from \$13.78 billion in 2000 to \$21.85 billion in 2005, inflation rate increased from 2.5 % in 2000 to 11.7 % in 2005 , the budget deficit decreased from 3.7% in 2000 to 3.25% in 2005 and the Egyptian pound depreciated against the US dollar because of the increase in demand on dollars to purchase necessary goods from 3.47 in 2000 to 6 in 2005.

**Table (1) Economic growth in Egypt From (2000 - 2005)**

Description	2000	2001	2002	2003	2004	2005
GDP Growth %	5.1	4.9	3.2	3.1	4.1	4.5
Unemployment %	9.0	9.4	10.2	10.4	10.7	11.2
Government debt to GDP%	72.2	81.1	85.78	97.1	96.51	98.26
Foreign direct investment to GDP%	1.23	0.52	0.73	0.28	1.58	5.99
Cash reserve (Billion \$)	13.78	13.59	14.07	14.6	15.33	21.85
Inflation %	2.5	2.3	2.7	4.5	11.1	11.7
budget deficit%	-3.7	-3.9	-5.8	-2.38	-2.33	-3.25
Exchange rate (per \$)	3.47	4.0	4.43	6.03	6.19	6.00

Source: [www.Worldbank.com/periodicals/egypt/macroecindicators/23/4/2015](http://www.Worldbank.com/periodicals/egypt/macroecindicators/23/4/2015)

<http://data.worldbank.org/indicator/>

<http://www.amf.org.ae/ar/>

### 1.3.2. Economic Growth in Egypt during the period from (2005-2010)

The Ministry of Finance and Investment pointed out that between 2005 and 2010; Egypt witnessed significant economic growth that drove the gross domestic product (GDP) from EGP 643 billion to EGP 1206 billion. During that period, foreign reserves increased from \$23billion to \$35.2 billion, while foreign direct investment (FDI) reached \$13.2billion in 2007, a year which also witnessed a low unemployment rate of 8.4%; however, the social policies that should have accompanied the economic prosperity that Egypt witnessed during that period were lacking. "Poverty rates increased between 2005 and 2010 from 19.6% to 25.2% of the total number of residents," the report read.

It added that the percentage of expenditure on the health sector was approximately 2% of GDP, which was referred to by the report as "a low percentage". Meanwhile, expenditure on education deteriorated from 4.9% of GDP in 2005 to 3.6% of GDP in 2010.

**Table (2) Egypt GDP Growth Rate before 25Th January (From 2005 to 2010)**

Egypt GDP	Last	Previous	Highest	Lowest	Unit
GDP	271.97	262.83	271.97	4.00	USD Billion
GDP Annual Growth Rate	4.30	6.80	7.30	-4.30	%
GDP Constant Prices	426904.40	400619.60	426904.40	316764.40	EGP Million
GDP per capita	1566.44	1559.61	1566.44	323.94	USD
Gross Fixed Capital Formation	47.00	76.00	74259.00	-132567.00	EGP Billion
GDP per capita PPP	10731.79	10685.05	10731.79	5976.69	USD

Source : <http://www.tradingeconomics.com/egypt/gdp-growth>



Fitch Ratings confirmed that the Egyptian economy has proven its ability to cope with the global financial crisis, thanks to the reforms that have helped to encourage investment and the multiplicity of sources of economic growth, noting that strong external indicators of the Egyptian economy is another factor supporting the credit rating given to Egypt.

Standard International & Poor also affirmed that the sovereign credit rating of Egypt reflects the strong commitment of the Egyptian governments to economic and financial reform, and the tenacity of the Egyptian who was able to cope with the recent financial crisis. This was also reflected in the monetary policy of Egypt, which allowed more flexibility.

The World Bank report said that the Egyptian economy is the third-largest Arab economy after Saudi Arabia and the United Arab Emirates in terms of the size of GDP achieved in 2009, and the development of Egypt's economy ranks 42 in the world in a period of global crisis; the growth rate may have declined by 2.5%, but it was still positive at a time when the economies of most countries in the world staggered in recession.

The wholesale and retail trade sector had achieved a growth rate of 6.1%, communications and information sector recorded a growth rate of 12% and the services sector marked a high of 64% growth rate. The total volume of investments rose to EGP98.5 billion. Also, the exports sector recovered from the crisis; non-oil manufactured exports grew by 53%, and the tourism sector grew by 12%.

**Table (3) Economic growth in Egypt From (2005- 2010)**

Description	2005	2006	2007	2008	2009	2010
GDP Growth %	4.5	6.8	4.5	6.8	4.7	5.15

<sup>1</sup> - Fitch Ratings Inc. is one of the three nationally recognized statistical rating organizations (NRSRO) designated by the U.S. Securities and Exchange Commission in 1975, together with Moody's and Standard & Poor's, and the three are commonly known as the "Big Three credit rating agencies"

Unemployment %	11.2	10.6	8.9	8.7	9.4	9.40
Government debt to GDP%	98.26	85.92	87.1	74.3	73.3	73.70
Foreign direct investment net inflows (% of GDP)	5.99	9.34	8.87	5.85	3.6	2.9
Total reserve(Billion \$)	21.85	26.0	32.21	34.33	34.89	37.02
Inflation %	11.7	7.3	8.5	11.7	11.8	11.76
budget deficit%	-3.25	-1.63	-7.5	-7.8	-6.9	-8
Exchange rate ( per \$)	6.00	5.74	5.64	5.44	5.52	5.50

Source: [www.Worldbank.com/periodicals/egypt/macroecindicators/23/4/2015](http://www.Worldbank.com/periodicals/egypt/macroecindicators/23/4/2015)

<http://data.worldbank.org/indicator/>

Economic growth rate in Egypt increased during the period 2005 -2010 from 4.5% to 5.15%, Unemployment rate decreased from 11.2% in 2005 to 9.4 % in 2010, Total Government debt as a percentage of GDP decreased from 98.26% in 2005 to 73.7 % in 2010; FDI increased rapidly as a result of economic stability from 5.99% in 2005 to 8.87% of the GDP in 2007and decreased rably to 2.9% in 2010 because of Asian Crises, foreign reserves increased from \$21.85 billion in 2005to \$37.2 billion in 2010, inflation rate increased from 11.7 % in 2005 to 11.76 % in 2010, the budget deficit increased from 3.25% in 2005 to 8 % in 2010 .

### 1.3.3. Economic Growth in Egypt during the period from (2010-2015)

Under the 30-year rule of Former President Hosni Mubarak, steps were taken for some economic reform measures to foster private sector-driven economic growth. These steps included allowing for the privatization of public entities. Egypt's GDP growth registered 5.3% in FY 2009/2010 up from 4.7% in FY 2008/2009.

The inflation rate marked 12.8% in 2010. Prior to the onset of Egypt's political crisis, the rapid influx of new investments over the past few years made the country the

largest recipient of foreign direct investments (FDI) in the Middle East and third in the Arab world, after Saudi Arabia and the United Arab Emirates.

The dynamic growth of the Egyptian economy (about 7% before 2011), its strategic geographical position, low labor cost and skilled workforce, unique tourist potential, substantial energy reserves, large domestic market and success of reforms undertaken by the authorities (including many privatizations) were all factors that may explain such sharp rise of foreign direct investment.

The regional context should also be considered, as Egypt benefited from abundant liquidity coming from the Gulf countries as a direct result of the increase in revenues generated by oil exports. Foreign direct investment in Egypt averaged \$2,234.19 million from 2002 until 2014, reaching an all-time high of \$5,572.50 million in the fourth quarter of 2007 and a record low of \$40.70 million in the second quarter of 2002.

**Table (4) Egypt GDP Growth Rate after 25Th January until 2015 from (2010- 2015)**

Egypt GDP	Last	Previous	Highest	Lowest	Unit
GDP	286.54	271.97	286.54	4.00	USD Billion
GDP Annual Growth Rate	4.50	3.00	7.30	-4.30	%
GDP Constant Prices	455916.6	435154.9	459477.3	316764.4	EGP Million
GDP per capita	1575.93	1567.01	1575.93	323.94	USD
Gross Fixed Capital Formation	64.00	47.00	76.00	40.00	EGP Billion
GDP per capita PPP	10791.86	10730.75	10791.86	5973.93	USD

Source : <http://www.tradingeconomics.com/egypt/gdp-growth>

The Gross Domestic Product (GDP) in Egypt expanded 4.50% in the second quarter of 2015 compared to the same quarter of the previous year. GDP growth rate in Egypt averaged 3.81% from 2010 until 2015, reaching an all-time high of 7.30 % in the first quarter of 2008 and a record low of -4.30 % in the first quarter of 2011; GDP growth rate declined during the period 2012-2013 from 5.2% to 1.04% and increased from January 2014 from 1.44% to 6.8%, and at the beginning of 2015 growth rate is estimated to decrease by 4.3% and then increase to 4.5% in July 2015.

**Table (5) Economic growth in Egypt from 2010 to2015**

Description	2010	2011	2012	2013	2014	2015
GDP Growth %	5.15	1.50	1.76	2.23	2.10	4.7
Unemployment %	9.40	9.00	12.00	12.70	12.70	12.8
Government debt to GDP%	73.70	76.20	80.30	87.10	90.5	85.0
Foreign direct investment net inflows (% of GDP)	2.9	-0.2	1.0	1.5	1.6	2.1
Total reserve (Billion \$)	37.02	18.63	15.67	16.53	14.92	15.85
Inflation %	11.76	11.27	10.05	7.12	9.48	11.5
budget deficit%	-8	-10	-11	-14	-9	-9.4
Exchange rate (per \$)	5.50	5.98	6.09	6.53	7.15	7.62

Source: [www.Worldbank.com/periodicals/egypt/macroecindicators/23/4/2015](http://www.Worldbank.com/periodicals/egypt/macroecindicators/23/4/2015)

<http://data.worldbank.org/indicator/>

Economic growth rate in Egypt decreased rapidly during the period 2010 -2015 from 5.15% to 4.7 %, Unemployment rate increased from 9.4% in 2010 to 12.8 % in 2015, Total Government debt as a percentage of GDP increased from 73.7% in 2010 to 85 % in 2015; FDI decreased rapidly as a result of economic instability from 2.9% in 2010 to -0.2% of the GDP in 2011 and increased again to 2.1% in 2015, foreign reserves decreased from \$37.2 billion in 2010 to \$15.85 billion in 2015, inflation rate

decreased from 11.76 % in 2010 to 7.12 % in 2013 and increased again to 11.5% in 2015, the budget deficit increased from 8% in 2010 to 9.4 % in 2015.

The Egyptian pound depreciated against the US dollar because of the increase in demand on dollars to purchase necessary goods during the revolution from 5.50 in 2010 to 7.62 in 2015. Hence, we hypothesize that:

*H2: Political instability had negative effects on economic growth in Egypt*

#### 1.3.4. Economic Growth in Egypt during the period from (2016-2022)

Economic growth rate in Egypt increased rapidly during the period 2016 -2022 from 4.35% to 6.6%, Unemployment rate decreased from 12.4% in 2016 to 7 % in 2022, Total Government debt as a percentage of GDP decreased from 94.5% in 2016 to 87.2 % in 2022; FDI increased rapidly as a result of economic stability from 2.4% in 2016 to 3% of the GDP in 2019 and decreased again to 2.4% in 2022, foreign reserves increased from \$17.5 billion in 2016 to \$44 billion in 2019 and decreased again to \$34 billion in 2022, inflation rate increased from 14.5 % in 2016 to 29.52 % in 2017 and decreased again to 7% in 2022, the budget deficit decreased from 12.6% in 2016 to 6.6 % in 2022 . The Egyptian pound depreciated against the US dollar because of the increase in demand on dollars to purchase necessary goods.

**Table (6) Economic growth in Egypt from 2016 to 2022**

Description	2016	2017	2018	2019	2020	2021	2022
GDP Growth %	4.35	4.18	5.33	5.55	3.55	3.3	6.6
Unemployment %	12.4	11.8	9.9	7.9	7.9	7.4	7
Government debt to GDP%	94.5	82.2	71.9	100	92	85.0	87.2
Foreign direct investment net inflows (% of GDP)	2.4	3.1	3.3	3	1.6	1.2	2.4
Total reserve(Billion \$)	17.5	31.3	44.3	44.5	40	40.9	34
Inflation %	14.5	29.52	21.17	13.62	6.18	8.5	7
budget deficit%	-12.6	-10.9	-8.3	-8.2	-7.9	-6.1	-6.6

Exchange rate ( per \$)	17.6	17.86	15.85	15.99	15.66	15.76	19.26
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Source: [www.Worldbank.com/periodicals/egypt/macroecindicators/30/12/2022](http://www.Worldbank.com/periodicals/egypt/macroecindicators/30/12/2022)

<http://data.worldbank.org/indicator/>

#### 1.4. The Effects of Political Instability on Economic Growth in Egypt from (2000-2022)

Political instability is defined as the propensity of a change in the executive branch of the government, either by “constitutional” or “unconstitutional” means. In this paper, we study whether a high propensity of an executive collapse leads to a reduction of growth. The demographics, technology, foreign policy, legitimacy of the state, torture, corruption and other factors all played a part in bringing discontented Egyptians out on the streets.

The primary factor, the prevailing reason for the revolution in Egypt is resentment towards the regime and the Egyptian people’s thirst for democracy and legitimate elections. No one in Egypt (or outside of Egypt for that matter) was fooled by the “elections” that have taken place during Mubarak’s regime. The second factor leading to the Egyptian revolution was the economic policies of the Mubarak regime which lead to an increased cost of living, and a growing wealth disparity amongst Egyptian classes. Egypt is a country of 80 million people, at least a quarter of which live greater Cairo. With this kind of population, poverty and wealth disparities are inevitable (25.2% of poor according to the national poor measurement in 2010).

But since 2003, the disparities in wealth in Egypt have become increasingly more noticeable. The rising cost of living coupled with sizable population increase has led to a housing shortage which in turn has led to young Egyptians being unable to marry and purchase a home of their own. Cost of staple food products (meat, sugar, tomatoes) had raised 20-30%. Before the revolution in 2011, Egypt had an overall rate

of unemployment of 10 % and a rate of youth unemployment of 25 %. Hence we hypothesize that:

*H3: fair income distribution had positive effects on both economic growth and the factors that cause political turmoil*

## 2- Methodology

This research depends on the descriptive methodology according to definitions of economic growth, observations, and measurements of political instability on economic growth. In Statistical model which embodies a set of assumptions concerning the generation of some sample data, with using multiple linear regression and Best Subsets Regression models.

To achieve the general objectives of the study, this study relied on combining the inductive methodology, where the inductive approach was used to set the foundation for the subject through reference books, periodicals and scientific communications and electronic articles published online, whether these sources are in Arabic or English, to obtain the theoretical framework.

Econometric models, which estimate the impact of political instability on economic growth from (2000-2022), are mainly multiple linear regression models. These types of models take the general form of;  $Y = \beta X + E$

Where (y) dependent variable is economic growth rate to GDP ratio in Egypt, (X) Independent variables is a vector of economic variables that explain the economic growth development, (Unemployment, Government debt to GDP, Foreign direct investment net inflows, Total reserve, Inflation, budget deficit, Exchange rate, Employment to population ratio and Gross capital formation), ( $\beta$ ) Vector of coefficient to be estimated in order to determine the relationship between economic growth and political instability.

Also, ( E ) is the error term of the estimated model, the proper estimated model for the political instability effect on economic growth will depend on the type of data that will be used in this model.

Mainly, there are three types of data that can be used here: cross-section data, panel data, and time-series data. However, every type of these data raises some econometric issues. For example, cross-section data do not provide a full treatment of the estimation bias resulting from parameter heterogeneity, omitted variables as the following;

### Variables table

Independent variables (X)		Dependent variables (Y)	
X1	Unemployment %	y	Economic growth to GDP %
X2	Government debt to GDP %		
X3	Foreign direct investment net inflows (% of GDP)		
X4	Total reserve (Billion \$)		
X5	Inflation %		
X6	budget deficit %		
X7	Exchange rate ( per \$)		
X8	Employment to population ratio%		
X9	Gross capital formation (annual growth %)		

Multiple linear Regression model;  $Y = \beta X + E$

(Y) Dependent variable (β) Regression coefficient (X) Independent variables (E) Error term

### Correlation matrix

	y	x1	x2	x3	x4	x5	x6	x7	x8
x1		-0.437							
x2			0.091						
x3				-0.232					
x4					0.510				
x5									
x6									
x7									
x8									



	0.388	0.044																	
x3	0.649	-0.199	0.072																
	0.007	0.461	0.790																
x4	0.544	-0.490	-0.413	0.656															
	0.029	0.054	0.112	0.006															
x5	0.022	0.149	-0.043	0.277	0.528														
	0.937	0.581	0.875	0.299	0.036														
x6	0.522	-0.364	0.328	0.237	-0.062	-0.340													
	0.038	0.166	0.214	0.376	0.819	0.197													
x7	-0.330	0.714	0.437	0.058	-0.014	0.654	-0.429												
	0.212	0.002	0.090	0.832	0.958	0.006	0.097												
x8	0.210	-0.136	-0.465	0.371	0.788	0.783	-0.494	0.329											
	0.436	0.615	0.069	0.157	0.000	0.000	0.052	0.214											
x9	0.481	-0.166	0.091	0.748	0.437	0.287	0.130	0.093	0.292										
	0.059	0.539	0.738	0.001	0.090	0.281	0.630	0.733	0.273										

Cell Contents: Pearson correlation

P-Value

## 2.1. Regression Analysis: y versus x1; x2; x3; x4; x5; x6; x7; x8; x9

The regression equation is;

$$y = - 11.0 + 0.450 x1 - 0.0984 x2 + 0.101 x3 + 0.048 x4 - 0.149 x5 + 0.399 x6 + 0.093 x7 + 0.483 x8 + 0.0396 x9$$

Predictor	Coef	SECoef	T	P
Constant	-11.03	35.54	-0.31	0.767
x1	0.4504	0.4400	1.02	0.346

x2	-0.09836	0.06565	-1.50	0.185
x3	0.1012	0.2212	0.46	0.663
x4	0.0478	0.1015	0.47	0.654
x5	-0.1495	0.2050	-0.73	0.493
x6	0.3988	0.1499	2.66	0.037
x7	0.0926	0.7399	0.13	0.905
x8	0.4833	0.8504	0.57	0.590
x9	0.03959	0.05284	0.75	0.482

S = 1.11090 R-Sq = 81.4% R-Sq(adj) = 53.6%

### Analysis of Variance

Source	DF	SS	MS	F	P
Regression	9	32.487	3.610	2.92	0.102
Residual Error	6	7.405	1.234		
Total	15	39.892			

Source DFSeq SS

x1	1	7.613
x2	1	0.004
x3	1	13.816
x4	1	0.174
x5	1	0.546
x6	1	9.211
x7	1	0.018
x8	1	0.413

x9 1 0.693

From the previous results we can find that R-Sq = 81.4 but the model is not significant because of p.value= 0.102 and we cannot depend on this model in the current photo where it using PLS Regression we can observe that R-Sq increased when added variables from beginning x1 to x5 and when added x6, x7, x8, x9 it not effective increasing, Therefore we use Best Subsets Regression;

## 2.2. Best Subsets Regression: (y) versus ( x1; x2; x3; x4; x5; x6; x7; x8; x9 )

Response is y

Vars	Mallows			x xxxxxxxx									
	R-Sq	R-Sq(adj)	C-p	S	1	2	3	4	5	6	7	8	9
1	42.1	38.0	6.7	1.2841	X								
1	29.6	24.5	10.8	1.4167	X								
2	60.6	54.6	2.7	1.0993	X	X							
2	56.5	49.8	4.1	1.1552	X	X							
3	74.5	68.1	0.3	0.92150	X	XX							
3	64.8	56.0	3.4	1.0815	X	XX							
4	76.8	68.3	1.5	0.91787	X	XXX							
4	75.5	66.6	1.9	0.94282	X	XXX							
5	78.3	67.4	3.0	0.93060	X	XXXX							
5	78.1	67.1	3.1	0.93529	X	XXXX							
6	79.7	66.2	4.6	0.94878	X	XXXXX							
6	79.5	65.8	4.6	0.95343	X	XXXXX							
7	80.7	63.9	6.2	0.97997	X	XXXXXX							

7	80.7	63.8	6.2	0.98119	X	XXXXXXXX
8	81.4	60.1	8.0	1.0298	X	XXXXXXXX
8	80.8	58.8	8.2	1.0463	X	XXXXXXXX
9	81.4	53.6	10.0	1.1109	X	XXXXXXXX

We find that the best model is number (4) which contain the independent variables (x1, x2, x3, x6) where R-Sq=76.8

R-Sq (adj) =68.3    C- p =1.5

Now we can prepare the regression model which contains the independent variables (x1, x2, x3, and x6) and the results as the following:

### 2.3. Regression Analysis (y) versus ( x1; x2; x3; x6 )

The regression equation is;     $y = 12.1 + 0.266 x1 - 0.115 x2 + 0.316 x3 + 0.307 x6$

Predictor	Coef	SECoef	T	P
Constant	12.099	2.655	4.56	0.001
x1	0.2658	0.2540	1.05	0.318
x2	-0.11527	0.04152	-2.78	0.018
x3	0.31574	0.08251	3.83	0.003
x6	0.30682	0.09289	3.30	0.007

S = 0.917867    R-Sq = 76.8%    R-Sq(adj) = 68.3%

### Analysis of Variance

Source	DF	SS	MS	F	P
Regression	4	30.6245	7.6561	9.09	0.002
Residual Error	11	9.2673	0.8425		
Total	15	39.8918			

From the previous results we can find that  $R-Sq = 76.8$ . The model is significant because of  $p.value = 0.002$ . We can depend on this model in the current photo where the independent variables ( $x_1, x_2, x_3, x_6$ ) it effect on the dependent variable (Y) and the relationship is positive between the independent variables ( $x_1, x_3, x_6$ ) from side and dependent variable (Y) from another side and the relationship is negative between  $x_2$  as the Independent variable and Dependent variable (Y) and we can observe that the independent variables ( $x_1, x_2, x_3, x_6$ ) it significant effect on the dependent variable (Y) where  $p.value < 0.05$

Finally we can conclude from the applied part that political instability which expressed in ( $x_1, x_2, x_3, x_6$ ) effect on the economic growth (GDP) which expressed in dependent variable Y and this agree with the positive economy, Because omitted variables are important from economic side therefore the principal component to carry the correlation effect.

#### 2.4. Principal Component Analysis: $x_1; x_2; x_3; x_4; x_5; x_6; x_7; x_8; x_9$

##### Eigen analysis of the Covariance Matrix

Eigen value	127.63	88.64	29.11	16.55	4.96
Proportion	0.473	0.329	0.108	0.061	0.018
Cumulative	0.473	0.802	0.910	0.971	0.990
Variable	PC1	PC2	PC3	PC4	PC5
$x_1$	-0.063	0.046	-0.033	-0.213	-0.070
$x_2$	-0.365	0.765	-0.485	-0.004	-0.150
$x_3$	0.192	0.150	-0.054	0.151	-0.209
$x_4$	0.700	-0.106	-0.599	0.193	-0.195
$x_5$	0.158	0.034	-0.298	-0.527	0.719
$x_6$	-0.026	0.140	-0.000	0.741	0.607

x7	-0.005	0.040	-0.079	-0.190	0.042
x8	0.081	-0.031	-0.071	-0.132	0.042
x9	0.551	0.596	0.550	-0.121	0.031

The previous fifth principal components interpreted 99% from the total covariance for nine variables and therefore the multiple regression models are.

### 2.5. Regression Analysis: y versus pc1; pc2; pc3; pc4; pc5

The regression equation is;  $y = 9.73 + 0.0868 \text{ pc1} + 0.0188 \text{ pc2} + 0.0236 \text{ pc3} + 0.217 \text{ pc4} + 0.113 \text{ pc5}$

Predictor	Coef	SECoef	T	P
Constant	9.728	4.151	2.34	0.041
pc1	0.08683	0.02516	3.45	0.006
pc2	0.01883	0.03019	0.62	0.547
pc3	0.02362	0.05266	0.45	0.663
pc4	0.21709	0.06985	3.11	0.011
pc5	0.1125	0.1277	0.88	0.399

S = 1.10064 R-Sq = 69.6% R-Sq (adj) = 54.4%

### Analysis of Variance

Source	DF	SS	MS	F	P
Regression	5	27.778	5.556	4.59	0.020
Residual Error	10	12.114	1.211		
Total	15	39.892			

From the previous results we can find that  $R-Sq= 69.6$ , the model is significant because of  $p.value= 0.02$ , we can depend on this model in the current photo where the independent variables (principle components  $pc1, pc2, pc3, pc4, pc5$ ) it effects on the dependent variable (Y) and the relationship is positive between the fifth principle components from side and dependent variable (Y) from another side and we can observe that the independent variables ( $x1, x2, x3, x6$ ) it significant effect on the dependent variable (Y) where  $p.value < 0.05$

Finally, we can conclude from the applied part that political instability which expressed in ( $x1, x2, x3, x4, x5, x6, x7, x8, x9$ ) effect on the economic growth (GDP) which expressed in dependent variable (Y) and this agree with the positive economy.

### 3- Research results and discussion

In the previous analysis we find positive relationship between (unemployment, Foreign direct investment net inflows and budget deficit) as the independent variables ( $x1, x3, x6$ ) from side and Economic growth as the dependent variable (Y) from another side and negative relationship between Government debt ( $x2$ ) as the independent variable and dependent variable (Y) as the following.

3.1. The rate of unemployment has positive effect on the economic growth, where increasing of unemployment in 1% lead to increasing the economic growth to GDP as percentage to 26.6%, the reason is that decreasing of employment lead to decreasing expenses for wages and salary and reduce the budget deficit and increase economic growth.

3.2. Foreign direct investment net inflows has positive on the economic growth, where the increasing of Foreign direct investment net inflows as a percentage of GDP in 1% lead to increasing the economic growth to 31.6%, the reason is that Foreign direct investment achieve Expansion or Recovery to the economy and increasing the economic growth.

3.3. Budget deficit has positive effect on the economic growth, where the increasing of budget deficit in 1% lead to increasing the economic growth in 30.7%, the reason is that the increasing of expenses rather than the revenue to financing economic growth.

3.4. Government debt has negative effect on the economic growth, where decreasing of Government debt in 1% lead to increasing the economic growth to 11.5%, the reason is that decreasing internal and external finance (bonds) lead to reduce the budget deficit and increasing economic growth.

#### 4. Conclusion:

This study has attempted to investigate the effect of political instability on economic growth in Egypt from 2000-2022. Economic growth is the process of cumulative and continuous real income increase over a period.

There are many factors affecting economic growth such as factors of productions, capital acceleration rate and advances in technology and the potential economic capacity, monetary and fiscal policy, price levels, political instability and weather or unexpected events such as earthquakes.

Political instability significantly reduces economic growth and macro economy activities; it is considered by economists as a serious source of harm to economic performance as it limits the policymaker views leading to suboptimal short term macroeconomic policies.

We find positive relationship between (unemployment, foreign direct investment net inflows and budget deficit) from side and Economic growth from another side and negative relationship between Government debt and economic growth.

#### 5. Future directions

The present study still has faced some limitations. Assume that the current study only examines limited economic factors. In this research, attention has been paid to economic determinants such as unemployment, government debt to GDP, net



foreign direct investment inflows, inflation, exchange rate, etc., which are of great importance in implementing economic growth. It is recommended that future authors focus on these economic determinants in addition to proper analysis of economic growth. In this study, unemployment and net inflows were used Foreign direct investment, budget deficit, and economic growth.

It is recommended that scholars also take some mediator to check the relationship between economic growth and political instability in the economy such as interest rate, education, health, Population growth rate, bank credit. The hypotheses of the current study on the relationship between economic growth and political stability were tested using data from Egypt alone. Egypt is a developing country with specific economic conditions and therefore may not be equally suitable for all countries.

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