

# Testing the Socio-Economic Stimulus of Pro-Employment Growth for Inclusion: The Case of Egypt

## اختبار المحفزات الاقتصادية والاجتماعية للنمو الداعم للعمالة من أجل تحقيق النمو الشامل

« دراسة حالة عن جمهورية مصر العربية »

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### Abstract

This study tests the impact of key structural socioeconomic factors on the productive employment channel of inclusive growth in Egypt from 1976 to 2022. This includes initial incomes, public spending on education, foreign direct investment, population growth, and openness. The Unrestricted-Error-Correction-Autoregressive Distributed Lag (UEC-ARDL), proposed by Pesaran and Shin (1999) is utilized to capture the short- and long-run dynamic effects. The PP and ADF unit root, and “ARDL-Bounds” cointegration tests were employed at a preliminary stage. The results revealed that initial incomes have a long-term positive impacts on inclusive growth from productive employment channel. Additionally, FDI inflows and the working- age population exert no effect on fostering pro-employment growth. Moreover, a negative influence was detected from trade openness and the government’s role in managing education expenditures. This study provides useful insights for the Egyptian government in handling the unexpected negative or insignificant influence of some structural socio-macroeconomic variables. To promote inclusive growth, pro-employment policies have to be placed at the center of the policy agenda in coordination with macroeconomic stability policies. Additionally, providing adequate FDI incentives to the right investors, monitoring public spending on education and providing sound subsidies to infant industries to draw benefits from exports are necessary. This study adds to the existing literature; as it is the first attempt to test the influence of major socio-economic variables on the productive employment aspect of inclusive growth in Egypt covering an extended period

**Keywords:** Pro-employment growth, Inclusive Growth, Egypt, UEC-ARDL Model

**JEL Classification:** O11, D63, E24, O47, O53, C22.

### الملخص

تهدف هذه الدراسة إلى تحليل أثر العوامل الاقتصادية والاجتماعية الرئيسية على النمو الشامل في الاقتصاد المصري من خلال قناة العمالة المنتجة خلال الفترة من 1976 وحتى 2022. تتضمن هذه العوامل المستويات

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المبدئية للدخل، الإنفاق العام على التعليم، تدفقات الاستثمار الأجنبي المباشر، النمو السكاني، ومستوى الانفتاح الاقتصادي. ولتحقيق هذا الهدف، تم أولاً إجراء اختبارات جذر الوحدة من خلال اختباري PP و ADF، ثم يتم إجراء اختبار "الحدود" للتكامل المشترك للكشف عما إذا كانت هناك علاقة توازنية بين المتغيرات محل الدراسة، يليه تطبيق نموذج تصحيح الخطأ غير المقيد ضمن إطار نموذج الانحدار الذاتي لفترات الإبطاء الموزعة (UECM-ARDL) المقترح من (Pesaran&Shin,1990). أوضحت النتائج أن الدخول الأولية لها آثار إيجابية طويلة الأجل على تحفيز النمو الشامل من قناة العمالة المنتجة. كما أن للتدفقات الواردة من الاستثمار الأجنبي المباشر و لمعدل النمو في السكان (فوق 15-64) تأثيراً غير معنوي في الأجل الطويل. أيضاً تم الكشف عن تأثير سلبي للانفتاح الاقتصادي ولدور الحكومة في إدارة نفقات التعليم. تقدم هذه الدراسة رؤى مفيدة للحكومة في التعامل مع التأثير السلبي أو غير المعنوي غير المتوقع لبعض المتغيرات الاجتماعية والاقتصادية الهيكلية. ولتعزيز النمو في العمالة المنتجة لتحقيق النمو الشامل، هناك حاجة إلى التنسيق بين سياسات استقرار الاقتصاد الكلي مع سياسات العمل. كما يمكن تعزيز التنمية البشرية من خلال دعم تمكين الأفراد والجماعات المهمشة. ومن الضروري تحسين نوعية رأس المال البشرية، مع توفير حوافز كافية للاستثمارات المحفزة للنمو الشامل. أيضاً يتعين مراقبة الإنفاق العام على التعليم لتجنب الفساد ولضمان الشفافية في ادارته. كما ينبغي تقديم مزيد من الدعم للصناعات الناشئة لتعزيز قدرتها التنافسية على التصدير.

## 1- Introduction

The spread of income inequality has filled gaps related to the focus solely on economic growth and has spurred policymakers to call for inclusive economic growth. Inclusive growth among decision-makers from several economies, nongovernmental organizations, and institutions aims to ensure that the benefits of growth are enjoyed by all.

Globally, the wealthiest 10 percent recorded about 60 percent of income growth, while the poorest 50 percentage recorded only about 10 percent. In Egypt, economic growth has benefited a few population categories. International organizations have stressed some of the results of the unequal distribution of income, including political division and the erosion of social cohesion at the global level (Arezki et al. 2012). Attaining equal opportunities is the core of inclusive growth, and this involves both poverty and inequality reductions. The Organization for Economic Cooperation and Development (OECD) describes inclusive growth as "a state in which the gap between the rich and the poor is less remarked, and the growth dividend is distributed in a reasonable way that enhances the standard of living and quality of life".

For achieving an inclusive growth, it should be pro-employment. As achieving high economic growth rates does not grantee pursuing higher and productive employment growth. The concept of productive employment as a key of inclusive growth was stressed by Bhalla (2007), and the Growth report in 2010 asserted that the inclusive growth concept takes a long term perspective as the attention is paid to productive employment rather than on income distribution. the distribution of employment growth is crucial in pursuing the inclusive economic growth (Elena and Susana, 2010). The importance of productive employment and decent work as a key policy objective is now widely recognized in countries worldwide and at all levels of development.

Ali (2007) clarified that the key elements of inclusive growth are employment, productivity, human capacity development, safety nets, and targeted interventions. Inclusive growth is “broad-based” across all economic sectors, and creates productive employment opportunities for a large proportion of a country’s working-age population. This alleviates poverty through rapid and sustained economic growth. It also promotes social justice and equal sharing of growth outcomes by reducing unequal opportunities. Thus, inclusive growth is both the “pace” and “pattern” of economic growth (Ianchovichina et al., 2012)

Egypt is classified as a potential-human capital rich country on a quantitative basis where more than 50 percent of its population in the working–age category. However, it is still among the low middle-income groups and the economic growth rates have fluctuated due to many economic imbalances and external shocks. Therefore, there is a challenge to enhance populations’, and particularly poor and vulnerable groups’, access to productive opportunities, to find decent jobs, or to maintain and promote small enterprises. Therefore, there should be a change in the economic thoughts toward the inclusive growth through the productive employment channel that would positively impact the other aspects of the inclusion. Therefore, the purpose of this study is to explore the major socio-economic causes of Egypt’s inclusive growth from 1976 to 2020, focusing on the productive employment aspect of inclusion. The “Autoregressive Distributed Lag” (ARDL) bounds test approach of co-integration is utilized to obtain the short- and long-run dynamic effects.

The findings reveal that both GDP per capita growth moderately contributes to inclusive long-term growth through enhancing productive employment channel. However, a negative impact was observed from trade openness and government subsidies in the education sector. Unsurprisingly, both the potential stock of human capital that us embedded in the population (ages+15-64) and foreign direct investment inflows (FDI) have no noticeable impact in the long run.

This study adds twofold to the existing literature. First, it provides empirical evidence from one of Africa’s largest economies, based on an econometric analysis beyond qualitative statements. Second, it is the first attempt to test the influence of major socio-economic variables on the productive employment route of inclusive growth in Egypt covering an extended period.

The rest of paper is organized as follows: section two demonstrates the basic definitions and concepts of inclusive growth and exhibits Egyptian’s socio-economic records during the study period. Section three contains a review of the previous studies. Section four includes the empirical model and analyzes the results. The final section provides concluding remarks, recommendations, and proposals for future research.

## **2- Theoretical Background**

### ***2.1 Inclusive Growth: Definitions, Concepts and Dimensions***

For many periods, countries have focused only on fostering economic growth rates. subsequently, attention was directed toward pro-poor growth (PPG). Kakwani (2000) defined

PPG as “the increase in the income share of the poor,” where their incomes grow faster than rich people. Therefore, income poverty can be alleviated by reducing income inequality, which in turn stimulates growth rates (Vellala, 2014:230; Han and Throat, 2013).

Reducing income inequality requires inclusive growth. This allows people to add to their economic growth. Inclusiveness is a multidimensional concept. According to the Commission on Growth and Development’s report in 2008, inclusive growth encompasses “equity, equality of opportunity, and protection in market and employment transitions.”

Inclusive growth has been conceived as a strategy that aims to raise people’s living standards to reduce global poverty and economic disparity (OECD, 2015; Sun et al., 2018, Aand et al., 2019:108). The concept of inclusiveness resulted from the public debate and policy issues in 2004 during India’s national election (Han and Thorat, 2013). The term ‘Inclusive Growth’ was first used as a strategy to combat rising inequality and poverty. Following that, the Asian Development Bank embraced the concept and integrated it into the economic development literature (Rauniyar and Kanbur, 2010, Aand et al, 2019:108).

Other aspects of inclusiveness, such as well-being, regional development, political voice, and involvement in social life, go beyond poverty and equitable income distribution. Additionally, inclusion is affected by balanced growth across sectors and between tradable and non-tradable activities (Osmani, 2008). For instance, greater reliance on domestic resources will probably result in job possibilities in non-tradable goods sectors in nations where external sector expansion is the primary driver of growth (Luiz and Dutz, 2012:11-12).

Therefore, a prompt pace of growth is essential for long-term sustainability as well as a significant reduction in poverty. Growth should be “broad-based” across industries and include most of the labor force in the economy. According to this concept, there is a clear connection between macro and micro factors that influence growth. According to the 2008 Growth Report of the Commission on Growth and Development, both pace and pattern of growth are crucial for any effective expansion strategy.

Additionally, the inclusive growth strategy requires more time because it emphasizes productive employment rather than direct income redistribution to raise the income of excluded groups. Undoubtedly, the analysis of inclusive growth does not only refer to macroeconomics and governance but also to the values and prosperity of a given society. To increase the incomes for excluded groups, the approach of inclusive growth is concerned with the productive employment as a long-run aim rather than income redistribution as a short run target. Ravallion and Chen (2003) argued that inclusive growth is an absolute definition of PPG. This ensures that all individuals can contribute to the growth process and

equitably share the benefits of growth (Vellala, 2014:231). According to Klasen (2010), the concept of inclusive growth can relate to either inclusion in the process of growth (the creation of new wealth depends on the contribution of labor input) or inclusion in the outcome (more people benefit from economic growth) (Hansen and Sperling, 2020:2).

Along with the UNDP's International Policy Center for Inclusive Growth (IPC-IG), development concentrates on inclusive growth. Thereby inclusive growth is about ensuring that the benefits of development reach the entire population including its most vulnerable members (UNDP, 2015). Hosono (2020) found that countries like Asia had successful experiences regarding inclusive job creation through the development of regional hubs and development corridors., where the main objective of GMS was: "to implement poverty reduction and economic growth by creating a belt that would link impoverished inland areas with port cities, which have access to world markets" (JICA/JBIC, 2008, 55).

## ***2.2 The Socio-Economic Conditions in Egypt: A Historical Background***

In 1974, the Egyptian government adopted "the Open Door Policy" to stimulate economic growth, eliminate poverty, efficiently distribute income, and reduce unemployment. In addition, it encourages FDI inflows by providing various incentives, such as: tax exemptions, the ability to transfer unlimited profits, and protection against the nationalization of ownership. Consequently, the economic growth rate reached a high level, as it recorded an average of 7.8% during (1976-1980). In addition, GDP per capita was enhanced and documented at around 7% on average according to the 'World Development Indicators' report. However, a large proportion of that success was due to heavy dependence on the outside world in achieving these high rates, which led to an increase in external debt and its service burdens.

During the 1980s, the economy suffered from two types of imbalances. One was financial and the other was structural. Therefore, the Egyptian economy did not achieve GDP growth rates like those in other countries whose economic conditions were close to those of Egypt, where the economic growth rate decreased to 1.8% in the late 80s and foreign direct investment sharply decreased in 1980s. moreover, population growth rate increased slightly.

Despite these economic distortions, some socio-economic variables were enhanced between year 1977 and 1985; such as the enrollment rate in secondary and primary education (gender parity index) increased from 63.8% in 1977 to 74.36% in 1985 the literacy rate (GPI) enhanced by 15%, the workforce rate increased by 5%, and government spending on education increased by 0.5% throughout that period (Table I).

**Table I: The Evolution of Some Socioeconomic Variables (selected years)**

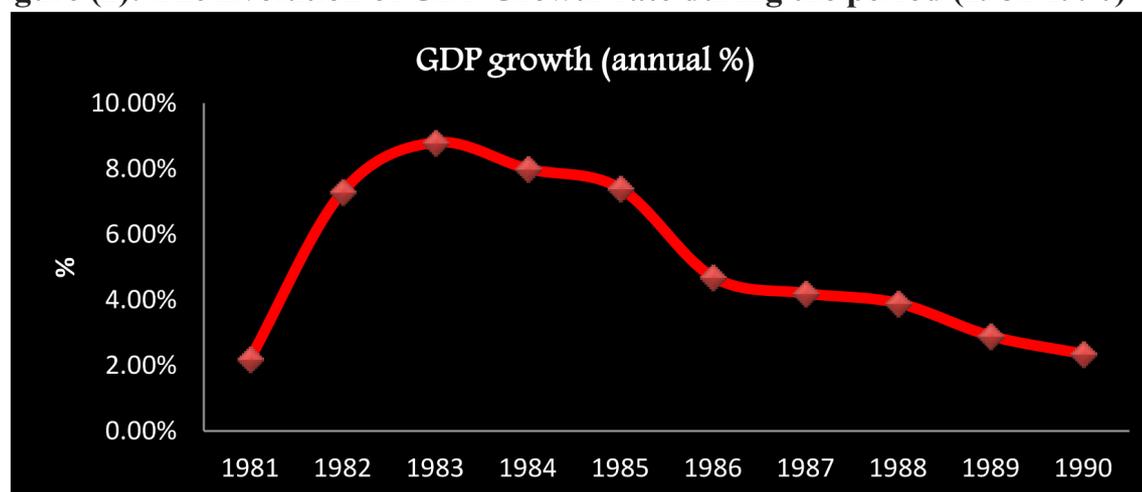
Some socioeconomic variables	1977	1985	1990	1995	2000	2005	2010	2015	2020
*Poverty rate	NA	NA	32.4	33	24.5	29.9	23.5	20	23.2
Gini Index	NA	NA	32	30.1	32.8	31.5	30.2	31.8	32
of employment to the % total workforce	42.9	47.24	50.3	47.9	29.6	49.5	49.3	46.9	41.6
Population growth rate	2.4	2.8	2.6	2.2	2.1	2	2	2.2	1.7
** (literacy rate (GPI	60.4	75	80	84	85.7	87.4	93	100	98.7
the enrollment rate in secondary and primary education (GPI	63.8	74.36	81.6	88.5	93.2	96	97.1	99.6	100
*** (FDI% GDP	4.9	0.7	2.8	15.5	5.1	10.3	53.6	5.5	8.9
Government spending on education % GDP	4.5	5	4.6	4.6	4.5	4.8	3.5	3.9	2.4

Data Source: World Development Indicators WDI

\* poverty rate refers to the poverty gap at \$6.85 a day (2017 PPP) %

\*\* literacy rate (GPI): the ratio of females to males ages 15-24 who can both read and write.

\*\*\*The ratio of females to males that are enrolled in secondary and primary education.

**Figure (1): The Evolution of GDP Growth rate during the period (1981-1990)**

Data source: WDI database

As a result of the deteriorating economic conditions in the late 1980s, the government signed two agreements in April and May 1991 with “the World Bank” and the “International Monetary Fund,” called the Economic Reform and Structural Adjustment Program. This program aimed to reduce the government’s role and increase that of the private sector

in economic activities. Additionally, FDI inflows were encouraged by creating an adequate environment.

Due to the contractionary fiscal policy adopted, the Government spending on education as a percent of GDP was relatively constant during 1990s except in year 1992. Moreover, the workforce rate deteriorated in 1990s and reached its lowest rate in 2000 owing to the privatization policy. However, some socio-economic variables continued to rise during the 1990s, such as the enrollment rate in secondary and primary education (gender parity index) the literacy rate (GPI), the workforce rate, and the share of FDI out of GDP particularly in 1995 (Table I). In addition, the fiscal and monetary imbalances were addressed in the early years of the program's implementation.

Thus, the relative stability of the Egyptian economy, the accomplishment of balanced growth rates, the growth in the value of foreign exchange reserves, and the stability of the value of the pound against other currencies were hallmarks of the 1990s. Despite some improvement in economic growth rates, which averaged 4%, and the real per capita income growth rate (2.5% on average), it did not reach the level that achieved the recovery of the economy for a long time, because the sources of this growth were temporary.

**Figure (2): The Evolution of GDP growth rate during the period (1991-2000)**

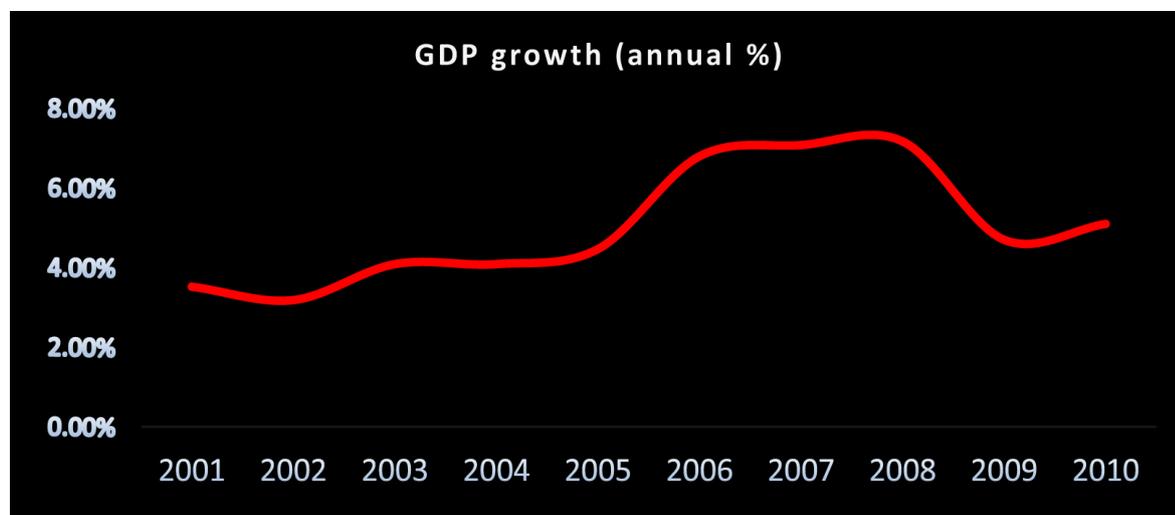


Data source: WDI database

In the late nineties, imbalances began to appear again and signs of stagnation worsened. This was represented by low rates of GDP growth, low domestic investment rates (23.3% on average), margin FDI of about 5.1% out of GDP, and high unemployment rates. This phase was marked by the terrorist attack on Luxor in 1997, the Asian financial crisis from 1997 to 1999, and a domestic financial crisis from 1998 to 1999 that had a chilling effect on the growth of credit to the private sector. All these incidents had serious repercussions

and caused the economy to enter a phase of slowdown.

**Figure (3): The Evolution of GDP growth rate during the period (2001-2010)**



**Data source:** WDI database

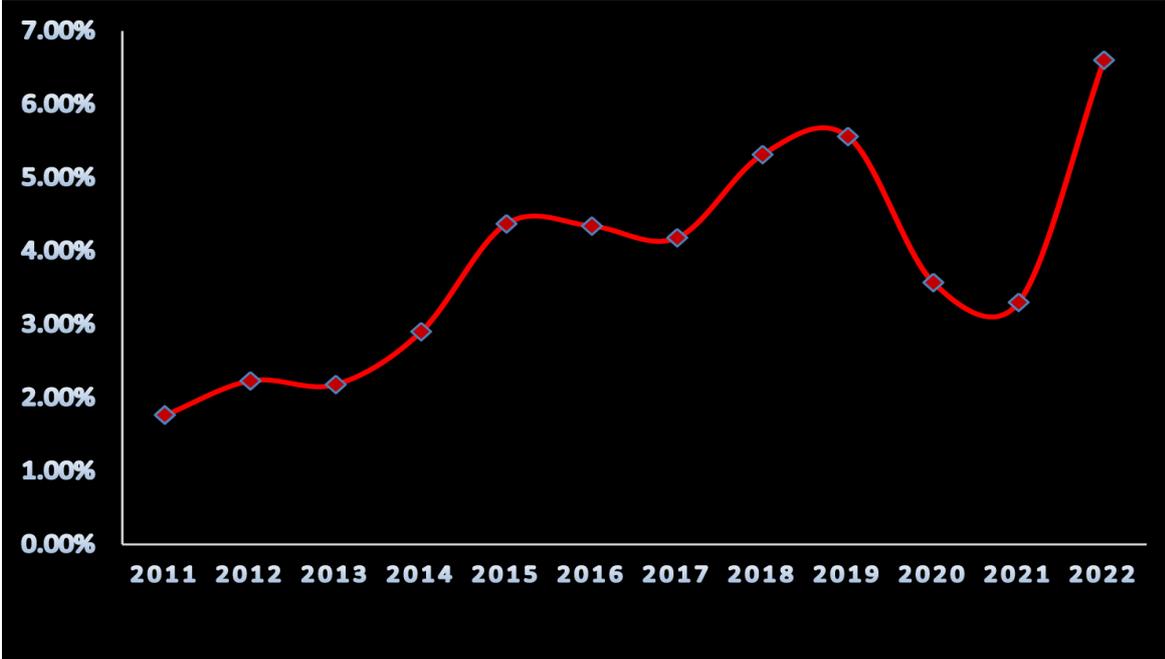
Negative shocks continued for the next few years, as witnessed by the September 11 attack (2001) and subsequent invasion of Iraq (2003). The Egyptian government reacted to the initial shocks through expansionary fiscal policies (clearing of arrears as a stimulus to the private sector, including an increase in public investment), which resulted in a worsening fiscal stance. Budget deficits increased from 0.9% of GDP in 1997 to an average of 3.9% in 1999-2000, and further to an average of 6.1% in 2002-2003 and per capita income was about 1.2% throughout the 2000s.

Due to political instability after 2011, the economic growth rate decreased to about 1.8%, and the average per capita income reached a negative value estimated at (-0.2%). The unemployment rate rose to 13.2%, the overall deficit as a percentage of GDP worsened to reach 13.7%, and the poverty rate according to the overall poverty measure increased to about 26.3%. Investment rates continued to decline (15.5% on average) with a significant decrease in saving rates (8.5% on average). In addition, FDI declined sharply after 2011 as it recorded 5.5% out of GDP in 2015 (WDI database).

During 2017 and 2018, the Egyptian economy witnessed progress in several indicators after applying economic reforms in mid-2016. The most significant successes were declining inflation and unemployment rates (9.9%), and increasing foreign reserves. Foreign reserves jumped from \$36.7 billion to \$44.5 billion for the first time which enhanced the central bank's capabilities to import commodities, and thus provide an appropriate environment to attract more foreign investments to Egypt. Real GDP growth reached 5.6% in 2019 and 5.3% in 2018. This was driven by net exports, as goods and services exports increased tandem with the contraction of oil imports. Private investments were also

selected. Unemployment decreased to 7.5%, although accompanied by shrinking labor force participation where the share of employed individuals remained modest at 39% of the working age population, indicating relatively weak private sector job creation (World Bank Report, 2019).

**Figure (4): The Evolution of GDP Growth Rate During the Period (2011-2022)**



Data source: WDI database

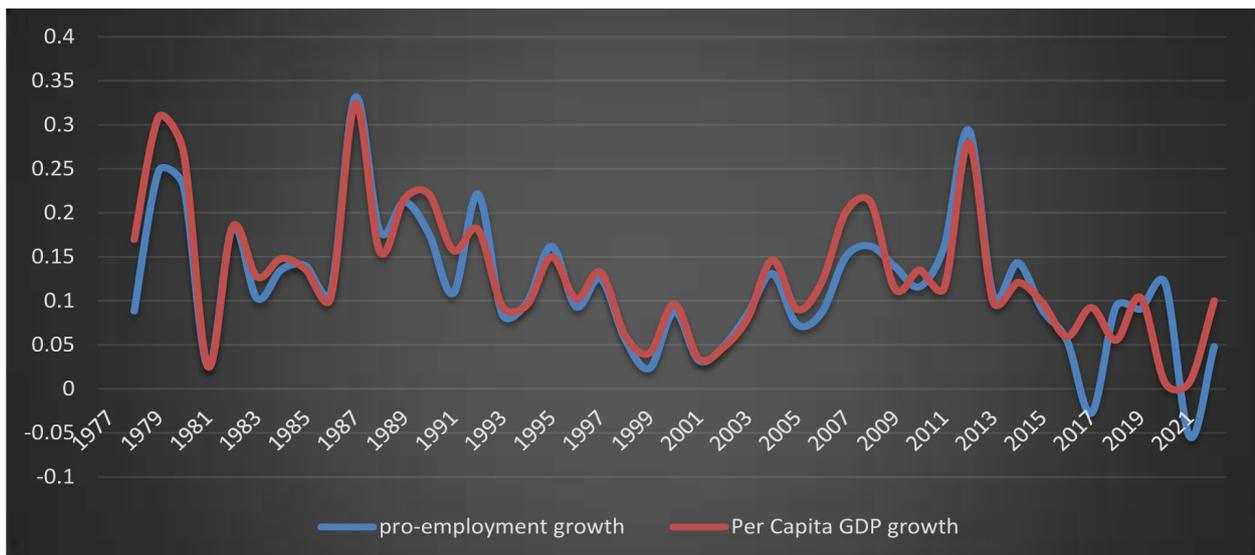
Egypt’s poverty rate increased to 23.2% in FY2019/2020, up from 20% five years earlier, and this was accompanied by a continuous rise of inequality in income distribution, according to the poverty, consumption, and income research conducted by the Central Agency for Public Mobilization Statistics.

Real GDP growth declined to 3.6% in 2020 and 3.3% in 2021 owing to the ongoing impact of COVID-19. Egypt’s export-oriented sectors that contracted from the beginning of the crisis started rebounding during April—June 2021 pushing growth to 6.6% in 2022. The adverse consequences of the pandemic have, however, undermined this recent progress and shed light on longstanding challenges including the inactive activity of the private sector, underperforming non-oil exports and FDI, and the higher government debt-to-GDP ratio.

Regarding the evolution of the pro-employment growth, it is noticed from figure (5) that the improvement in pro-employment growth was relatively lower than that of per capita GDP in the most of the years. This indicates that growth was unable to sustain with the labor force growth, and high levels of informality and poor working conditions persisted particularly in public institution that captures more than 53% of the employment

in Egypt. The most common type of job involves low labor productivity and a lack of structural transformation, i.e. low diversification and high commodity dependence. This indicates that domestic manufacturing is feeble, and the trade balance is reliant on commodity exports.

**Figure (5). The Evolution of the Pro-Employment Growth VS. Per Capita GDP Growth From 1977 to 2022**



**Data source(s):** WDI database.

As a matter of fact, economic growth alone does not necessarily translate into more and better jobs, especially for the poor, vulnerable and those at risk of being marginalized. Economic growth is a prerequisite for increasing productive employment; and the impact of economic growth on productive employment creation depends not only on the rate of growth, but also on the efficiency by which growth translates into productive jobs. The latter depends on a range of factors, such as the sector composition of growth and the capital/labor intensity of growth within the individual sectors (Osmani,2002). Thereby, targeting a macroeconomic stability- in terms of low inflation, low debt, moderate tax levels, and liberalized markets- alone without any coordination with labor policies to ensure decent, sustainable and inclusive employment <sup>(2)</sup> is counterproductive (McKinley ,2010; Egulu, 2012;Isaac,2020).

### 3. Review of Empirical Literature

Productive employment and decent work are the main paths of poverty reduction and

(2) A decent employment growth ensures human capital development and labor conditions that meet the ILO's Decent Work



for achieving pro-poor growth, an inclusive growth and the Millennium Development Goals( Jacquet and Elkjaer,2009) <sup>(3)</sup> . The development strategy with inclusive growth should have two mutually strengthening strategic anchors: high and sustainable growth to create productive employment opportunities, and social inclusion to ensure equal access to opportunities (Ali and Zhaung ,2007).

Pro-employment economic growth has become a considerable issue with major interest in both developed and developing countries since the 2008 global economic breakdown. According to Vellala et al. (2014), inclusive growth must be employed, and productive employment can enhance labor productivity, which can reduce poverty and income inequality, thereby achieving inclusive economic growth. Various empirical studies have stressed on key factors that affect the pro employment growth.

One factor is the population growth that could contribute to productive employment and the whole economy, however the ultimate impact of the working-age population to influence aggregate employment and average productivity depends on its structure and decomposition according to Boulhol (2009). He found that differences in education attainment explain approximately 85% of the population's effect in (EU15). As a result, the young, higher-educated cohorts' contribution to the secular increase in labor quality indicates improved productivity and employment performance over time. Tella and Alimi (2016) revealed that population growth has a diminishing effect on inclusiveness in Africa for the period from 1995 to 2012.

Choudhary (2022), shows how poverty worsens in India as the population grows. Savings decline as consumption increases, which lowers the pace of capital accumulation. Therefore, an increased population has a detrimental impact on pro- employment, and in turn, on inclusion. Gallup (2021) argued that when the population grows faster than the world has, the ability to absorb the additional demands for food, clothing, shelter, and employment, overpopulation may be perceived as reducing the number of jobs available, thereby negatively affecting inclusive growth. Ibukun and Aremo (2019) found that the growth in the size of population growth in Nigeria indicates a positive effect on inclusive growth (measured by the growth of productive employment) in the short-run but turned out negative in the long-run. Thus, the negative impact of the population growth, particularly the working-age category, calls for enhancing the quality of the population through the proper investments in human capital by the governments.

Thereby, another vital factor that affect the pro-employment (productive employment) growth and thereby the inclusive growth is the role of the government in human capital

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(3) An inclusive employment growth occurs when targeting sectors that benefit marginalized groups.

investments (Balakrishman et al., 2013; Adedeji et al., 2013; Andad et al., 2013). Black et al. (2014)<sup>4</sup> assert on the importance role of the South Africa's government in fostering growth rates, as the economy needs to become more "employment-intensive" to achieve that progress. Instead, the government role was ineffective to pursue the pro-employment growth as was biased towards heavy, capital-intensive industry in manufacturing

Harasty et al. (2015) asserted that the failure of economic growth to effectively reduce poverty is due to insufficient productive job creation, and for growth to be inclusive and sustainable, large investments in education and human resource development are required. Adequate financing of human capital through health is a vital promoter of pro-poor growth in Africa from 1995 to 2012 according to Tella and Alimi (2016). Oluseye and Gabriel (2017) used the pro-employment growth variable as a proxy for inclusive growth and arrived to a negative long-run impact of government spending on education from 1981 to 2014 in Nigeria. However, Ibukun and Aremo (2019) found an insignificant impact of human capital investment on employment growth in Nigeria which in turn distracts the inclusive growth. Moreover, Economic growth is a condition for enhancing productive employment creation and its effect depends on the rate of growth and the efficiency by which growth transforms into productive jobs (Isaac, 2020). Oskar et al. (2020) stated that the countries' ability to achieve inclusive growth relies on their specific features: as an economy with an initial low share of employment in the agricultural sector and a high-income level experiences more inclusive growth than an economy with a large agricultural sector and a low-income level.

Also, FDI and trade openness are presumed to improve employment growth. On other cases, FDI could have negative impact on productive employment channel of inclusive growth due to factor endowment and market size among firms. Dee et al. (2011) examined the employment implications of liberalizing FDI in OECD countries, the study reveals negative impacts of FDI on employment due. Specifically, domestic sectors and firms' indirect competition with FDI firms suffer, as sometimes labour is withdrawn from such sectors

Andad et al. (2013) emphasized the vital role of FDI, and trade openness in achieving all pillars of inclusive growth, including employment channels, for emerging markets over three decades. In Nigeria, Oluseye and Gabriel (2017) found that FDI had a negative impact in the short run, there was a significant positive effect on inclusive growth in the long run. By the same vein, Hosono (2020) underlined the importance of FDI in developing productive jobs and economic opportunities in home countries and ensuring equal access to economic opportunities by expanding human capital, thereby achieving pro-employment growth. However, Beaton et al. (2021) find a limited adverse impact of

international trade on growth and inequalities reduction through employment channel, where import competition has a marginal effect on strengthening employment, wages, and investment. Additionally, country characteristics such as educational attainment, can also improve pro-employment growth prospects in response to trade shocks.

A survey of the literature reveals that there is a degree of consensus about the key macroeconomic drivers of inclusive growth through affecting the productive employment growth. These factors include the initial GDP level, poverty eradication, the role of the government in developing human capital, FDI, trade openness, population, and structural changes. Despite the importance of the pro-employment growth as a channel to achieve inclusive growth, almost no study has been discussed that topic in any of MENA countries. This study fills this gap in the literature by focusing on one vital pillar of inclusive growth; the productive employment channel of inclusion in Egypt, one of the largest countries in the Middle East and North Africa, covering a long period of time.

## 4. The Empirical Analysis

### 4.1 Methodology

To analyze the main contributing factors of productive employment for inclusive growth, data are first tested for stationarity using the augmented Dickey- Fuller and Phillips-Perron tests. Then, to establish a long-run relationship between the variables, the Bounds Testing Approach to Co-integration by Pesaran et al. (2001) is utilized, followed by UEC-ARDL. The ARDL model is applicable for small sample sizes and allows tests for the existence of relationships between variables in levels irrespective of whether the time series being considered are integrated of order one, I (1), and/or order zero, I (0), or co-integrated. In addition, diagnostic checks were conducted to test the stochastic properties of the model.

### 4.2 Model specification

The inclusive growth function which combines output growth performance along with distribution of economic growth is:

$$Y_t^* = \alpha + \beta_1 Y_0 + \beta_2 X_t + \varepsilon_t$$

$Y_t^*$  indicates inclusive growth from the productive employment channel proxied by the GDP per individual employed;  $Y_0$  is the initial level of income;  $X_t$  is the vector of control variables, while  $\varepsilon_t$  is the error term. Based on the Keynesian theory of labor, and the model applied by Oluseye and Gabriel (2017), and the theoretical base of Vellala et al. (2014), the utilized function is:

$$IG_t = F(GDPP_t, EDUEX_t, FDI_t, POP_t, TRADE_t)$$

Where  $IG_t$ ,  $GDPP_t$ ,  $EDUEX_t$ ,  $FDI_t$ ,  $POP_t$ , and  $TRADE_t$  are inclusive growth, the initial

level of GDP per capita at the start of the year reflecting conditional convergence, public expenditure on education, FDI as a percentage of GDP, population (ages+15- 64) growth, and trade openness, respectively. Therefore, the empirical model of the study is as follows:

$$IG_t = \alpha_0 + \alpha_1 GDP_t + \alpha_2 EDUEX_t + \alpha_3 FDI_t + \alpha_4 POP_t + \alpha_5 TRADE_t + \varepsilon_t \quad \dots(1)$$

By taking the natural logarithm for the variables, the outliers' effect is minimized, and elasticity coefficients of variables are obtained. Thus, the structural form of the main estimated model is:

$$LIG_t = \alpha_0 + \alpha_1 LGDPP_t + \alpha_2 LEDUEX_t + \alpha_3 LFDI_t + \alpha_4 LPOP_t + \alpha_5 LTRADE_t + \varepsilon_t \quad \dots(2)$$

Where  $LIG_t$  (dependent variable) is the natural logarithm of productive employment in the Egyptian economy as one dimension of achieving inclusive growth. The independent variables include the natural logarithm of GDP per capita, public expenditure on education ( $LEDUEX_t$ ), FDI as a percentage of GDP ( $LFDI_t$ ), the working –age population (ages+15 – 64) growth ( $LPOP_t$ ) that represents the potential stock of human capital, and trade openness ( $Ltradet$ ).  $\varepsilon_t$  is the serially uncorrelated disturbance with a zero mean and constant variance.

To establish a long-run relationship between the variables, bounds testing approach is employed, followed by Pesaran and Shin (1999) ARDL bounds test approach of cointegration. The structural form of the UECM-ARDL model is:

$$\begin{aligned} \Delta LIG_t = & \alpha_0 + \alpha_1 LIG_{t-1} + \alpha_2 LGDPP_{t-1} + \alpha_3 LEDUEX_{t-1} + \alpha_4 LFDI_{t-1} + \alpha_5 LPOP_{t-1} + \alpha_6 LTRADE_{t-1} \\ & + \beta_1 \Delta LGDPP_t + \beta_2 \Delta LEDUEX_t + \beta_3 \Delta LFDI_t + \beta_4 \Delta LPOP_t + \beta_5 \Delta LTRADE_t + \beta_6 \Delta LIG_{t-1} \\ & + \beta_7 \Delta LGDPP_{t-1} + \beta_8 \Delta LEDUEX_{t-1} + \beta_9 \Delta LFDI_{t-1} + \beta_{10} \Delta LPOP_{t-1} + \beta_{11} \Delta LTRADE_{t-1} + \delta T + \varepsilon_t \quad \dots(3) \end{aligned}$$

The ARDL procedure for cointegration involves two steps: the first calls for testing the significance of the lagged levels of the variables by comparing the “F-statistic” of “Wald bound test” with the Pesaran critical value at  $\alpha = 5\%$  and  $k =$  the number of independent variables in the ARDL model. If the results assert the existence of a long-run relationship between the variables, the second step involves estimating the long- and short-run relationships between the variables will be applied. The long-run coefficients of the ARDL model in the difference form for any explanatory variable are calculated by dividing the coefficient of lagged values of the explanatory variable (multiplied by a negative sign) by the coefficient of the lagged value of the dependent variable, whereas the short-run coefficient is expressed as the coefficient of the first difference of the variables.

### 4.3 Data Sources

Data on gross domestic product, size of labor, government expenditures on education, and the working-age population size were gathered from the Egyptian Central Agency for

Public Mobilization and Statistics. Trade openness and FDI data series were retrieved from the World Development Indicators database. The data are expressed at constant prices to exclude the effect of inflation.

## 5. Results and Discussion

### 5-1 Descriptive statistics

The descriptive statistics in Table II for variables under consideration revealed that the average growth rate of gross domestic product per person employed and initial income per capital are 9.05% and 7.66 % respectively. However, the average growth of government spending on education, foreign direct investment (as a percent of GDP), population and trade openness (as a ratio of GDP) are 0.64, 1.39, 4.22 and 3.8 respectively. The statistics of skewness (a measure of asymmetry of the series distribution around its mean) indicated that all the variables are negatively skewed, implying that these distributions have long-left tails. In addition, when Skewness is 0 and kurtosis is around 3 (LFDI and LEDUXt ) this indicates a normally distributed series. Furthermore, because of the significant kurtosis statistics of 3.04 and 5.06 and 5.5, LFDIt and LEDUXt are leptokurtic (peaked relative to normal), suggesting that the distribution is fat-tailed. While the remaining variables are platykurtic implying that the distribution is flat relative to the normal. Finally, the result of Jarque-Bera test -which measures whether the series is normally distributed or not - are consistent with the results of both kurtosis and skewness statistics; because the test result is significant at the 1% level, both LFDIt and LEDUXt are not normally distributed.

**Table II. Summary statistics**

	Mean	Median	Max	Min	Std. Dev
LIG <sub>t</sub>	9.65	9.7	11.8	6.8	1.5
LGDP <sub>t</sub>	8.26	8.3	10.58	5.2	1.59
LFDI <sub>t</sub>	5.1	5.2	5.39	-1.25	1.05
LEDUX <sub>t</sub>	1.39	1.4	1.7	0.7	0.19
LPOP <sub>t</sub>	3.6	3.6	4.1	3.09	0.33
LTRADE <sub>t</sub>	3.8	3.8	4.3	3.4	0.23

Source(s): Author's preparation using e-views software.

### 5.2 Unit root test

The stationary test results presented in Table (III) reveal that some of the variables under study (LFDI and LnPOP) are stationary at level, d (0). While the remaining variables are stationary at the first difference d (1), at least at 5% level.

**Table III: Result of The (ADF) and PP unit root tests for the variables**

Variables	PP (t- statistic)		ADF (t- statistic)		Degree of co-integration
	I(1)	I(0)	I(1)	I(0)	
LIG <sub>t</sub>	-1.7**	-2.3	-4.9***	-0.84	I(1)
LGDP <sub>t</sub>	-4.7***	-1.65	-3.26***	-2.4	I(1)
LFDI <sub>t</sub>	-15.6***	-4.8***	-9.4***	-4.8**	I(0)
LEDUX <sub>t</sub>	-11.77***	-1.17	-10.8***	-0.55	I(1)
LPOP <sub>t</sub>	-6.2***	-4.02***	-6.07***	-3.4**	I(0)
LTRADE <sub>t</sub>	-5.07***	-1.9	-5.22***	-1.97	I(1)

\*MacKinnon (1996) one-sided p-values

\* The optimal lag order for ADF test is determined by SIC.

\* Significance at 10%, \*\*significance at 5%, \*\*\*significant at 1%.

### 5.2 The Optimal Lag Length

According to the results of both the Hannan-Quinn information and Akaike Criteria, a lag order of 2 was selected.

**Table IV: lag length criteria**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	70.199	NA	2.03e-09	-2.986006	-2.740257	-2.895381
1	374.4417	509.4294	*7.90e-15	-15.46240	*-13.74216	-14.82803
2	433.4292	*82.30818	2.99e-15	*-16.53159	-13.33686	*-15.35347
3	463.3314	33.37915	5.24e-15	-16.24797	-11.57874	-14.52610

Source(s): Author's preparation using e-views software.

### 5.3 Co-integration: ARDL Bounds Test

After determining the optimal lag interval, the ARDL co-integration bounds test was conducted to check the long-run equilibrium relationship between the variables (Table V) with a maximum order of 3, to minimize the loss of degrees of freedom.

The results indicate the existence of a co-integrating relation as the computed F-statistic of a Wald bound test of value (6.9) is greater than the upper bound test Pesaran critical value (3.38), at  $\alpha=5\%$  and  $k=5$ . Therefore, the UEC-ARDL model is ready to be run.

**Table V: Wald bound test**

Test Statistic	Value	k	Test Statistic
F-statistic	8.14	(5)	<0.001

Source(s): Author's preparation using e-views software.

#### **5.4 The ARDL Model Results**

A number of macroeconomic fundamentals and structural factors drive inclusive growth, as shown in Table (VI).

Going with (Barro and Lee,2000; Dollar and Kraay,2003; and Ramey and Ramey,1995), initial income (conditional convergence) has a helped the country contributes, to some extent, to inclusive growth through the productive employment channel. Where the magnitude of this effect is a 0.9%. Unsurprisingly, a negative impact was observed from the government's role in managing education expenditures, where a 1% increase in government spending on education led to a deterioration in inclusive growth by approximately 0.01%. This minor negative long-run impact, consistent with Qutb (2015, 2016), is owing to the ineffective role of the Egyptian government in subsidizing the education sector with respect to the adequacy, equity and efficiency criteria of the spending. The public spending on education throughout the study period is on average 4.1% out of GDP which is relatively lower than the accepted global rate (12%) that, in turn, is adversely reflected on the quality of education provided by the public educational institutions compared to that provided by the private institutions. Also, most of the public educational institutions suffer from the lack of qualified staff, equipment, and appropriate infrastructure needed in the educational process. Additionally, large percent of this spending (around 86%) is directed toward current spending which reflects the inefficiency of spending (Qutb, 2016). All these reasons hinder pursuing the pro-employment growth. Consistently, the growth in the population in the working age category ( which represents the potential stock of human capital) variable appears to have an insignificant impact on the productive employment growth, in the long run and a negative impact in the short run (3up to lag2) due to many reasons include: the dominance of semi-skilled labor in the labor market (45%), where this education sort of workers faces the difficulty of getting use of current know-how and imitating the advanced technology which requires high level of training with giving more attention to scientific research. Also, labor with tertiary education and above, represent around 30% of the labor markets which contribute slightly to productive employment growth owing to "the wrong-educational mix" problem, as the jobs requirement don't match the qualifications of the graduates. Additionally, part of this population is unemployed and the unemployment rate is at its maximum among the university graduates (22%) which indicates a loss in human capital utilization and lead Egypt to lose constantly its skilled labor through immigration.

As a matter of fact, Egypt is ranked among the highest human capital flight countries with an index of 9.2 in 2023. All of these reasons assert the urgent need to rebuild the potential stock of human capital in the Egyptian economy through sound investments and incentives to ensure productive pro-growth employment.

Furthermore, trade openness appears to have a marginal negative impact in the long run, with magnitudes of 0.1%; as imports is increasing more rapidly than exports, the net effect of trade will be to reduce pro-employment growth due to the forgone productivity through losing jobs.

**Table VI: Autoregressive Distributed Lag Estimates**

(UEC- ARDL<sub>(1,1,2,2,2,2)</sub> Model:  $\text{Ln IG}_t = f(\text{LnGDPP}_t, \text{LnEDUX}_t, \text{Ln POP}_t, \text{LnTrade}_t, \text{LnFDI}_t, C)$

Variables	coefficient	T statistics
<b>Long run results</b>		
Constant	2.04	5.1***
LnGDPP(-1)	0.97	18.9***
Ln EDUX(-1)	-0.114	-4.1***
Ln POP(-1)	1.16	0.83
Ln TRADE(-1)	- 0.1	-4.1***
Ln FDI(-1)	7.38E-05	0.02
<b>Short run results</b>		
$\Delta \text{LN GDPP}_{t-1}$	-0.24	-1.5
$\Delta \text{Ln EDUX}_{T-1}$	-0.015	-0.47
$\Delta \text{Ln EDUX}_{T-2}$	-0.09	-2.6***
$\Delta \text{LN POP}_{T-1}$	3.7	1.3
$\Delta \text{LN POP}_{T-2}$	-5.1	-3.02***
$\Delta \text{Ln TRADE}_{T-1}$	0.08	2.3**
$\Delta \text{Ln TRADE}_{t-2}$	-0.05	-2.5**
$\Delta \text{Ln FDIG}_{t-1}$	-0.002	-0.55
$\Delta \text{Ln FDIG}_{t-2}$	-0.004	1.7*
$\text{EC}_{t-1}$	-0.566	-5.1**
<b>r<sup>2</sup>=0.9, dw=2.2</b>		

\* Significance at 10%, \*\*significance at 5%, \*\*\*significant at 1%.

Source(s): Author's calculations using e-views 12 software.

Contrary to Munir and Fatima (2020); and Kang and Martinez-Vazquez (2021), there have an insignificant long-run impact from FDI inflows. This could be due to the knowledge

gap with foreign firms, which is required for FDI to lead to more linkages and spillovers, and ultimately, job creation for the poor. This puts doubt on the development strategies that rely on FDI as a sufficient policy for inclusive growth. While subsidizing the education sector, both openness and FDI inflows exerted a temporary positive impact on fostering inclusive economic growth. Finally, the model's goodness of fit ( $R^2$ ) is high indicating the higher the explanatory power of that model.

### 5.5 Diagnostic Tests

Table (VII) and Figure (6) indicate that the model adequately passes several econometric tests for residual serial correlation, heteroscedasticity, normality, functional form, and stability.

#### (a) Checking Serial Correlation and Heteroscedasticity

The LM test is used to check for serial correlations. The results in Table VII) show that there is no evidence of serial correlation in the residuals term, and the null hypothesis of no serial correlation is not rejected at the level of 0.05. besides as indicated in table(VII), Durbin Watson =2.2 also indicates the absence of serial autocorrelation. Furthermore, Table (VII) shows that the null hypothesis of no heteroscedasticity is not rejected at the 0.05 level, indicating that the variance is constant.

#### (b) Checking Normality and The Functional form

The Jarque-Bera (JB) test was used to check for normality in the residuals and the results in Table (VII) suggest that the residuals are normally distributed as the probability (p-value) is greater than 5%. The Ramsey-RESET test was used to confirm that the functional form of the conditional mean was correctly specified.

**Table VII: Diagnostic Tests of the ARDL Model**

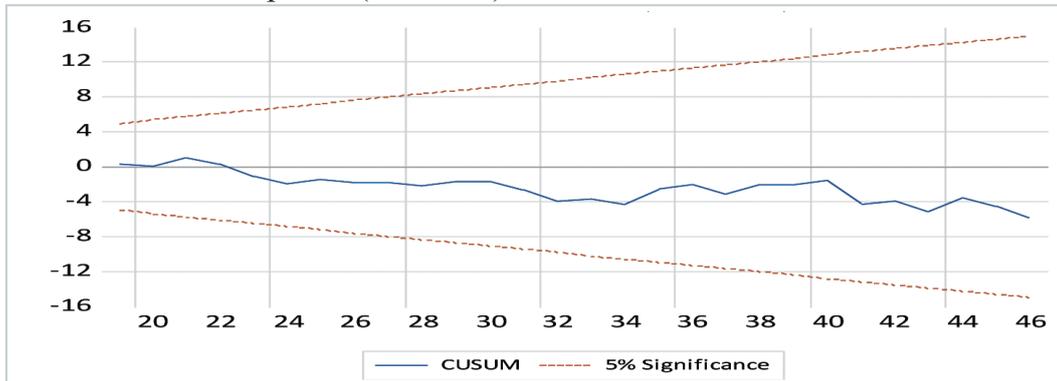
Breush-Godfrey serial correlation Lagrange Multiplier test	(f-statistics (0.75) prob(0.39) (Chi-square prob (0.27
Heteroscedasticity test : Breush- pagan-Godfrey	(Chi-square prob (0.53 (f-stat. prob (0.85
Ramsey (RESET) test	(f-statistics prob (0.29
Histogram: normality test Jarque-Bera	(Prob (0.307

Source: Source(s): Author's preparation using e-views software.

#### (iii) Checking Stability

Finally, the stability of the ARDL model was assessed by plotting the cumulative sum of

the recursive residuals of squares (CUSUM).



**Figure 6: The plot of (CUSUM)**

Source: Eviews-Packages.

Given that the CUSUM of the squares plot is within the 5% critical lines, it indicates that the estimated parameters for the short-run dynamics and long-run equilibrium of the model are relatively stable. The results of the various tests, including the LM test for serial correlation and heteroscedasticity, the JB test for normality, and the Ramsey-RESET test for functional form, all suggest that the model is well-specified and robust for policy analysis.

## 6. Conclusion

Over the past few decades, there has been a shift in thinking from the need for growth to a need for inclusive growth. The production and employment structures that a growth process generates must offer opportunities to all sectors of the economy to benefit. Therefore, the prevalent expansion of opportunities is called for inclusive growth (Osmani, 2008, 381:382).

This study investigates the key socio-economic stimulus of the productive employment perspective of inclusive growth in Egypt from 1976 to 2022. To do so, the UEC-ARDL model was employed, followed by appropriate diagnostic checks to test the stochastic properties of the model. The results reveal that initial income exerts a positive impact on achieving inclusive growth through the labor productivity channel. A marginal long-run negative impact was detected by government spending on education. In addition, trade openness has a negative impact due to increasing imports over exports. Additionally, the growth in the potential stock of human capital represented by the population (ages 15-64) has an insignificant impact. Moreover, FDI inflows are not effective instruments for promoting inclusive growth through the pro-employment growth channel, due to the lack of absorptive capacity, and the absence of a well-developed infrastructure base in the Egyptian economy.

To achieve an inclusive growth through the productive employment channel, a pro-employment macroeconomic framework- that coordinates the macroeconomic stability policies with labor policies- is needed. In this regard, the Egyptian government should take series steps. This includes:

- Pursuing a “balanced employment growth” through resolving macroeconomic imbalances brought by the excessive imports.
- Attaining an inclusive employment growth via targeting sectors that benefit marginalized and vulnerable groups –such as self-employed, and rural workers- by Improving employment opportunities for the poor through access to skills training on enterprise development and by empowering these groups to start or improve their businesses through the new skills acquired. By supporting the empowerment of marginalized individuals and groups, human development is enhanced.
- Integrating employment and decent work into economic growth and poverty reduction policies to maximize the benefits for people and to ensure that growth is both sustainable and inclusive.
- Enhancing the quality of the potential stock of human capital through better education, healthcare, and sound training.
- Improving the public financial management to protect public funds from misuse, fraud, and corruption.
- Targeting adequate and beneficial FDI inflows with appropriate incentives.
- Adopting appropriate policies that enable domestic industries to compete in a globalized world market. For instance, export subsidies help infant industries increase their productivity, and compete internationally. Consequently, poor people, and other disadvantaged groups can benefit from exports.

Future research avenues may consider quantifying the impact of monetary and fiscal policies on promoting the four dimensions of inclusive growth. Moreover, the potential impacts of social and human capital on the inclusive growth should be considered. References

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