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Economic Implications of Aging Population on Labour Market in Kenya

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ABSTRACT

Purpose: The study sought to establish and analyze the effect of aging populations on labour market in Kenya. The study employed life cycle theory to explains fluctuations in aggregate savings and investment rates, which are crucial for understanding economic growth dynamics.
Design/Methodology/Approach: This study employed correlational research design to examine the effect of the relationship between aging population and labour market in Kenya. Secondary data was applied, collected from World Bank for the period 2010 to 2023.
Findings: Autoregressive Distributed Lag (ARDL) model was applied to estimate both the short-run and long-run economic effect of demographic shifts on labour market. The ARDL output revealed that R-squared value indicates that approximately 54.35% of the variation in the employment rate can be explained by aging population in the model.
Implications/Originality/Value: The study recommends that encouraging older individuals to invest in entrepreneurial endeavours decreases the economic burden on the younger population, balancing the ratio of dependents to active workers as well creating more jobs. In conclusion, recognizing and harnessing the positive contributions of an aging population can transform potential challenges into opportunities, fostering a resilient and inclusive labour market in Kenya.

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Introduction

The global population is aging at an unprecedented rate, with significant implications for labour markets worldwide. According to the United Nations (2019), by 2050, the number of people aged over 60 years is expected to more than double, reaching over 2 billion people. This will represent 22% of the world's population. This demographic change poses challenges and opportunities for economies, particularly in terms of labour force participation, productivity, and social security systems. While much of the focus has been on aging populations in developed countries, the phenomenon is increasingly relevant to developing regions, including Africa.

The economic impacts of an aging population on the labour market appear in various forms which can include, a reduced labour force participation rate that result in labour shortages and a decrease in economic output (Bloom, Canning & Sevilla, 2015). Similarly, an increased dependency ratio which is characterized by a smaller working-age population supporting a larger retired population. This can put pressure on public finances and social security systems (Lee & Mason, 2017). The changes in the composition of the labour force may require policy measures to boost workforce productivity and prolong working lives (National Treasury of Kenya, 2022).

Africa, traditionally characterized by a youthful population, is beginning to experience demographic changes that include a growing number of elderly citizens (UN, 2022). The proportion of older adults in Africa is projected to rise from 5% in 2017 to 9% by 2050, driven by improvements in healthcare, reduced fertility rates, and increased life expectancy (UN, 2020). These though not as pronounced as in other regions, are significant enough to warrant attention, especially as they intersect with economic and labour market dynamics. In many African countries, the aging population could exacerbate existing challenges such as unemployment, poverty, and inadequate social protection systems.

In Africa, countries like Tunisia and South Africa have started experiencing challenges of an aging workforce. These challenges include pressure in sustaining pension systems and healthcare services for the aging population (Aboderin, 2017). Despite this changing trend, there are few studies that try to predict how this shift in demography will impact productivity, workforce participation and economic growth especially in African Countries

The effects of an aging population on the labour market in Kenya are becoming clear with recent demographic statistics showing that there is a gradual increase in the proportion of elderly adults. The proportion of people who are above 60 years is expected to rise from 5 per cent in 2022 to around 9 per cent by the year 2050 (KNBS, 2023). This change in population dynamics presents both opportunities and challenges. Opportunities in that the elderly have experience and knowledge accumulated for many years and challenges in that there will be strain in health care infrastructure, labour shortages as the elderly retire from work and strain on pension schemes as they make larger payments for the huge work force retiring. This will have an effect in economic growth because of reduced productivity and increased dependency in the economy

Studying the impact of an aging population in Kenya's labour market is important because there is a demographic transition yet most economic policies have focused on leveraging on the working age population which helps in driving faster economic growth (KNBS, 2023). There is need to know how the increasing number of older workers will affect labour force participation rates. As a larger proportion of the population ages, more of the workforce will retire, leading to potential labour shortages, particularly in sectors that are labour-intensive and heavily reliant on younger workers. Also the aging population may worsen existing challenges in Kenya's social security and healthcare infrastructure. According to World Bank (2021), provision of sustainable pension schemes and healthcare for elderly population are pressing issues that could have significant effects on a country's labour market and the broader economy.

There is also concern of loss of knowledge and skills as older workers retire. These elderly workers have accumulated knowledge and skills that are vital in any organization continuity. Care should be taken to ensure that there is a smooth intergeneration transfer of these knowledge and skills otherwise there will be negative effects on productivity and innovation. There is potential of age related discrimination in hirng and employment practices which could complicate the labour market dynamics in Kenya. So, there is need for data backed research to help policy makers to address the potential economic consequences of an aging population un Kenya.

Statement of the Problem

There is a shift in Kenya labour market with an increasing proportion of aging workforce on one hand and

a large number of unemployed graduates. This trend while still on it onset, poses significant challenges to the country's labour market. With the aging populations, there are concerns on labour productivity, labour force participation and the overall economic growth. For a long time, Kenya has relied on a youthful workforce to drive its economy. However, this is changing thus this presents a unique scenario that could negatively impact on economic growth. This is because as more workers retire, there is a risk of labour shortages especially in sectors that rely heavily on manual labour or special skill sets. This would lead to declined productivity and a slowdown in economic growth especially if this is not well handled.

There is also concern that the aging population could exert additional pressure on Kenya's already stretched social security and healthcare systems. This pressure could lead to increased public expenditure affecting investment in other important areas like education and infrastructure.

Finally, there is a risk of losing valuable skills and knowledge and elderly workers retire especially in sectors where experience and expertise are critical. There is lack of an effective mechanism for intergeneration transfer of knowledge and skills therefore increasing the labour market challenges.

Despite all these challenges, there is a research gap on how the aging population will impact Kenya's labour market. Most studies on Kenya's labour market have focused on youth unemployment, urbanization and migration with little interest paid to effects of an aging workforce. This lack of research in this area has left policy makers with little empirical information that can help them make policy to address the different concerns.

Given the projected demographic shift, there is an urgent need to understand the specific effects of an aging population On Kenya's labour market. This study sought to fill this gap by finding out how the aging population will affect Labour force participation and productivity in Kenya. Findings from this study will provide policy makers with information that will help them come up with policies to mitigate the negative impacts and policies that can harness the potential benefits. This will ensure that the Kenya labour market is resilient in the face of demographic shift.

A Brief Literature Review

Theoretical Framework- The Life Cycle Hypothesis/Theory

There are many theories that explain the impact of demographic shift on labour markets. One such theory is the Life Cycle Hypothesis (Modigliani & Brumberg, 1954). Modigliani & Brumberg (1954) assert that individuals accumulate savings throughout their working life and dissave in old age. This framework can help explain shift in labour market participation and retirement patterns. This theory suggests that individuals strive to maintain a stable standard of living throughout their lifetime. That is why they save during their working years and dissave in old age.

The Life Cycle Hypothesis (LCH) provides a framework for this study for it helps us understand how individuals allocate resources over their lifetime. This helps policy makers anticipate the retirement savings plan (Deaton, 2005). The model supports the design of pension systems and social security schemes by highlighting the importance of savings accumulation during working years (Browning & Lusardi, 1996).

The LCH theory also explains fluctuations in Aggregate savings and investment rates which are important variables in economic growth (Modigliani, 1986). Individuals plan consumption and savings based on their expected lifetime income. Thus the LCH framework helps explain shftd in the labour market participation and retirement patterns (Ando & Modigliani, 1963).

There are studies that give a contrary opinion on the theory of LCH. One such study is the one by Dynan, Skinner & Zeldes (2004) which found out that many retirees do not dissave as predicted but they maintain or even increase their wealth due to precautionary motives or bequest considerations. Despite such studies,

the Life Cycle theory provides insights on how an aging population may affect savings rates, consumption patterns, and overall economic growth. This theory will help frame the economic implications of an aging population on Kenya's labour market.

The study adopted this theory since it provides a logical framework for understanding how individuals allocate resources over their lifetime, helping policymakers anticipate retirement savings behaviour (Deaton, 2005). This also explains fluctuations in aggregate savings and investment rates, which are crucial for understanding economic growth dynamics (Modigliani, 1986). Critics reveal that the theory may not capture the diverse economic experiences of different age groups and the impact of external factors on savings and consumption. This was surmounted by focusing on the aging group and the influence in labour market.

Empirical Literature

Demographic shift presents challenges related to work mobility, pension sustainability, healthcare costs and the potential reduction in the active labour force. Existing studies largely focus on the demographical shifts, with limited exploration of how this increasing aging population interacts with factors like regional labour market disparities. Lutz & Samir (2010), conducted a study on dimensions of global population projections focusing on future population trends and structures. Their study presented global population forecasts, using scenario analysis with a focus on aging and its consequences for labour markets. It emphasized the significance of improving education and health to mitigate the negative effects of aging on labour supply and productivity. The findings revealed that by 2050, the world's population would have grown from 7 billion to between 8 and 10 billion. This estimate considers the uncertainties in future fertility and mortality patterns across regions. This study isolated the aging population without investigating its influence on the labour market.

British Council Kenya (2017) carried a study on the problems and prospects for youth employment in Kenya, considering the broader demographic and economic environment. This study applied a mixed-methods approach, integrating quantitative data analysis from national surveys with qualitative insights gained from interviews and focus groups with young workers, policymakers, and employers. The findings revealed that, despite having a largely young population, Kenya has significant youth unemployment and underemployment. This is due to a mismatch between education and labour market needs, restricted access to finance for entrepreneurial operations, and a slow-growing formal sector. While the study focuses on youth employment, it does not extensively address the implications of an aging population on the labour market which is tackled in the current study.

Lee & Mason, (2011) investigated aging population and the generational economy at a global perspective. The study examined the economic effects of population aging on labour markets, savings, and intergenerational transfers. Lee and Mason's analysis is grounded on empirical data in demographic and economic theories. The authors found that global population aging is mostly caused by low birth rates rather than increased longevity, which leads in a higher proportion of old people compared to working age people hence straining the public and private budgets. The authors used demographic and economic data from various countries to analyse how aging populations affect labour market dynamics, whereas the current study only focused on a single region because of its unique characteristics.

Cheng (2014), reviewed aging and labour market policies for older workers in South Korea. The recorded discussions were transcribed and analysed for repeated remarks, behaviours, situations, and combinations thereof. The findings were corroborated by descriptive statistics and correlation analysis. The study Provided insights on how policies might assist in reducing the negative effects of aging in the labour market in South Korea. The findings also revealed the effectiveness of retirement age extensions, retraining programs and other interventions and recommended a further review on the policies. This reveals a geographical gap which will be filled by the current study.

Xiao (2022), conducted a conversational analysis of aging in China from a cross-section of the labour market. This was a corpus-based study. Conversational data were collected from six cities in central and western China during May and July 2021. Older workers were more likely to be victimized, to regard themselves as vulnerable, and to accept hierarchical roles. Older employees expressed fear about younger people taking on important positions, which could jeopardize their status in the workplace. While the study shed light on the conversational patterns and attitudes of aging workers in China's labour market, it did not go into detail about the broader economic implications of an aging workforce. The current study was conducted in Kenya focusing on Kenya labour market.

A case study conducted by Case & Menendez (2007), investigated the effects of pensions on labour market participation among the elderly in rural South Africa. Using longitudinal data from the Agincourt Demographic Surveillance Area (DSA), they explored how pensions influence the working decisions of the elderly. They found out that the elderly receiving pension had more autonomy and influence over household decisions. This indicated more empowerment. This study showed that there was a positive effect of receiving pension. The elderly was not dependent and were empowered to make household decision.

International Monetary Fund (IMF) (2019), conducted a study on macroeconomics of aging and its policy implications. The objective of the study was to analyse the macroeconomic effects of aging populations and discuss potential policy responses to mitigate adverse outcomes. The study employed economic modelling to assess the impact of aging on variables such as national savings, investment, and fiscal expenditures. Their findings revealed that aging populations could strain public finances due to increased healthcare and pension costs. This indicates a need for policy reforms in social security systems and labour markets. However, the study provided a general overview without delving into the specific context of Kenya's labour market and demographic trends.

A study conducted by Bloom, Canning & Fink, (2010) on implications of an aging population on economic growth, focused on labour force participation, productivity, and savings rates across different countries. The authors employed cross-sectional data to analyse how aging affects economic outcomes. They found out that the effects vary depending on the country. The current study applies time series data focusing on labour force participation. In Europe and Japan, Bloom et al. (2015) discovered that aging populations have resulted in lower labour force participation and productivity slowdowns. Similarly, Börsch-Supan, Brandt, Hunkler, Kneip, Korbmacher, Malter, & Zuber (2013), found that economies with aging populations will experience severe economic stagnation unless policy reforms such as raising the retirement age and rewarding worker participation are implemented. In emerging economies, the effects are more complicated. Lee and Mason (2017) examine how some Asian economies have used technology and human capital investment to mitigate the negative consequences of aging.

According to Chikanda & Crush (2018), aging in Africa creates distinct labour market issues due to weak pension systems and limited social safety nets. Cameron & Fourie (2019) discovered that older workers in South Africa suffer severe impediments to re-employment, worsening income inequality and poverty. Furthermore, Mbogori & Omolo (2020) emphasize that Kenya's informal sector, which employs a substantial section of the aging population, lacks organized retirement benefits, resulting in financial instability among elderly workers. Cylus, & Al-Tayara (2021), propose that delayed retirement and labour market changes can allow Latin America's economy to expand despite an aging workforce.

Amin (2017) studied the impact of population aging on the labour market, evidence from Middle-Income Countries. The study focused on the labour market impacts of aging in middle-income countries and applied panel data to analyse how aging affects labour force participation, employment rates, and wage structures. Using national transfer accounts and demographic data to assess economic activity across different age groups. Children and the elderly usually consume more than they create, relying on the working-age population to cover their expenses. The labour force implication was that an aging population

may result in a smaller labour force, thereby reducing economic growth.

Methodology

The study employed correlational research design to examine the effect of the relationship between aging population and the labour market in Kenya. The study employed secondary data collected from World Bank and World Development Indicators (WDI). The study used annual time series data covering a period of thirteen years spanning from 2010 to 2023 for the variables of interest, (labour markets (LM) and aging population) (AP).

Econometric Model Specification

The study employed the Autoregressive Distributed Lag (ARDL) model to estimate both the short-run and long-run economic effect of demographic shifts on labour market. The ARDL model was preferred because it can be used whether variables exhibit mixed integration order I (0) or I (1). The specific proxy of the variables was labour force participation (LFP) which was used to indicate aging population (AP) and employment rate (EMP.R) as a measure of labour market (LM).

The following econometric model was adopted.

$$EMP.R = \beta_0 + \beta_1 LFP_t + \mu$$

Where: EMP.R=Employment rate; LFP= Labour force participation; μ= Error term; t= time

Findings and Discussion

Unit Root Test

Time series data is prone to unit root problems due to its non-stationary behaviour. This signifies that the variable is not integrated with order 0, therefore inference is not applicable, and it may also result in a misleading regression. Therefore, stationarity must be attained for the model to predict future events.

Augumented Dicky Fuller (ADF) Test for Stationarity

Variables	ADF Test statistic @ level	Critical Value @ 5%	**Prob. At levels**	**Conclusion**
EMP.R	-6.857955	-3.504330	0.0258	No unit root
LFP	-2.905778	-3.504330	0.2879	Unit root

Source; Author, (2025)

This study adopted the Augmented Dickey-Fuller (ADF) test in testing for the stationarity of the variables of interest. The findings for stationarity test in table 1 below revealed that EMP.R had unit root problem unlike LFP at levels.

Variables	**ADF Test statistic**	**Critical Value @ 5%**	**Prob. At levels. At first difference**	**Conclusion**
LFP	-4.905778	-3.504330	0.0299	Stationary

Source; Author, (2025)

After noting the non-stationarity issue with LFP, it was resolved after first differencing making, both variables were significant with pv<0.05. The t-statistic revealed by ADF test was higher than critical values at 5% significance level.

Auto-regressive Distributed Lag (ARDL) model

In this analysis, the dependent variable is labour market which was indicated by employment rate (EMP-R), and the explanatory variables were demographic shifts and migration rate, measured by labour force participation (LFP), and net migration rate (NRM). The Autoregressive Distributed Lag (ARDL) model is used to understand the relationship between these variables. During this study, a mixed order integration was revealed amongst the variables which made ARDL more favourable.

Dependent Variable: EMP-R **Method: ARDL**			
Variables	**Coefficient**	**t-statistic**	**Prod**
LFP	0.3289	2.4664	0.0086
R-Squared	0.54356		
Adj. R-squared	0.21754		
Prob.	0.00516	**Durbin Watson**	2.3871

Source; Author, (2025)

From the findings, positive coefficient of 0.3289 indicated that an increase in labour force participation was associated with an increase in the employment rate. The t-statistic suggested this relationship is statistically significant at the 5% level. Policies aimed at increasing labour force participation could positively impact the employment rate. This might include training programs, incentives for higher workforce participation, and measures to reduce barriers to employment.

This is simply confirmed by the fact that as aging population increases by 1% the employment rate in the labour market increases by 32.89%. Similarly, the R-squared value indicates that approximately 54.35% of the variation in the employment rate can be explained by aging population in the model. This implies that aging population variable is taking into consideration retirement investments which creates more jobs as well as keeping them in active work position. The favourable impact of an aging population on Kenya's labour market could be attributable to a variety of causes, including higher investment by older people. In Kenya, the National Social Security Fund (NSSF) manages retirement assets that are invested in a variety of sectors. This reduces dependency rate and death rates maintaining the flow of money in the economy (NSSF-Kenya 2024). The Durbin-Watson statistic was ranging between 1.5 -2.5 which suggested that there was no significant autocorrelation in the residual. The ARDL model findings provide a nuanced understanding of how aging population affects employment rates in Kenya, guiding policymakers on where to focus their efforts for improving employment outcomes.

Autocorrelation Test

The Breusch-Godfrey Serial Correlation LM Test is used to detect the presence of autocorrelation in the residuals of a regression model (Greene, Schwarz, & Witten, 2012). From the results, the F-statistic of 2.12026 had a p-value of 0.1774. Since this p-value was greater than the conventional significance level of 0.05, we failed to reject the null hypothesis of no serial correlation. This suggested that there was no strong evidence of serial correlation in the residuals based on the F-statistic. The economic implication here is that historical labour conditions have a significant impact on present labour results, highlighting a continuous trend in the labour market.

Breusch-Godfrey serial Correlation

F-statistic	2.12026	Prob. F(5,7)		0.1774
Observ. R-squared	7.8299	Prob. (5)	Chi-square	0.1659
Scaled expained ss	2.2729	Prob. (5)	Chi-square	0.8102

Source; (Author 2025)

According to Gujarati & Porter (2009) the absence of serial correlation suggests that the model's residuals are independently distributed, which is a desirable property. This implies that the model is likely correctly specified in terms of capturing the dynamics of the data. Models without serial correlation in the residuals tend to provide more reliable forecasts because the errors do not exhibit patterns that can distort future predictions.

Normality Test

According to a study done by Koizumi, Okamoto, and Seo (2009), the null hypothesis is that residuals are normally distributed. This implies that the probability value should be higher than 0.0500 while the alternative hypothesis has a p-value less than 0.05. The figure below (1) displays the results from Jarque-Bera test for normality.

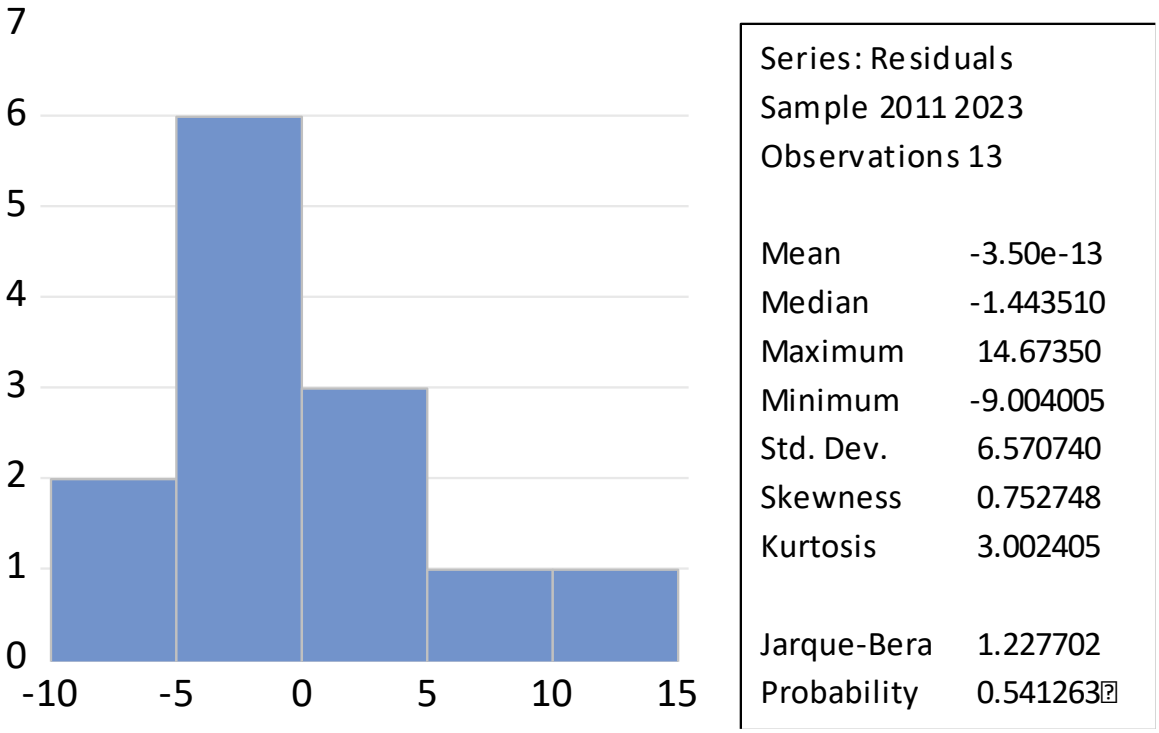
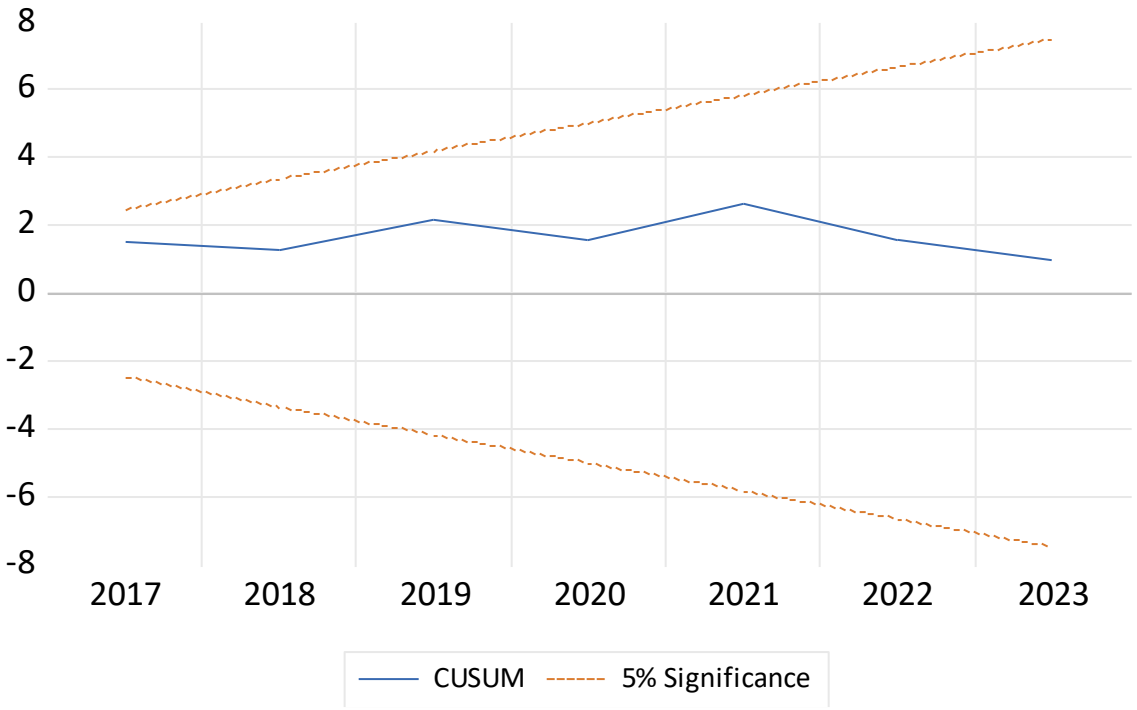


Figure 1
Source; Author, (2025)

Model Stability Test-CUSUM Test

Phong, Phan, Prakash, Singh, Shirzadi, Chapi, & Pham, (2021) noted that a sensitive feature that can be used to identify harm in a control chart scheme is the sequence of CUSUM test statistics. If the sequence crosses the upper or lower critical line (0.05) after a few cycles of recursive regression, there is a problem with the model. A stable model should fall within the significance threshold of 0.05 and its upper and lower bounds. The Cumulative Sum Test was used to assess the stability of the resulting model (CUSUM). The CUSUM test yields additional information about a model and allows for more reliable estimations (Talas, Kaplan & Celik, 2013). As can be seen in the Figure below, every variable falls between the lower and upper bounds of the 5% significance threshold. This demonstrates the reality that the analysis's ARDL model was stable and appropriate for the research and prediction of future economic occurrences.



Source; Author, (2024)

Recommendations

Since the regression results indicate a positive influence of an aging population on Kenya's labour market, this implies that older workers contribute beneficially to economic activities. To capitalize on this demographic trend, this study provides several policy recommendations that can be considered. The Kenyan government should implement part-time positions, telecommuting options, and adaptable work hours to accommodate the preferences and needs of older employees. The government should invest in continuous education and training programs to help older workers update their entrepreneurial skills, ensuring they remain competitive and can transition into new roles as needed. Older workers often possess valuable institutional knowledge and expertise hence organizations should consider pairing seasoned employees with younger staff to facilitate knowledge transfer, enhance skills development, and foster intergenerational collaboration. Engage retirees or senior professionals in advisory capacities, allowing them to contribute their insights without the demands of full-time positions.

Government should adjust retirement regulations to reflect increased life expectancy and the desire of many older individuals to remain economically active. Likewise, allow phased retirement plans where employees can gradually reduce working hours while drawing partial pension benefits. Combating stereotypes about older workers ensures they are valued and integrated into the labour market. Encouraging older individuals to invest in entrepreneurial market can decreases the economic burden on the younger population, balancing the ratio of dependents to active workers as well creating more jobs. In conclusion, recognizing and harnessing the positive contributions of an aging population can transform potential challenges into opportunities, fostering a resilient and inclusive labour market in Kenya.

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