The impact of economic globalisation on labour market outcomes in Africa

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Abstract

This study examines the impact of economic globalisation (ECONGLO) on labour market outcomes, using ARDL regressions. Among its key results, the study discovered that ECONGLO has a long-term positive causal impact on total employment, employment in industry, and the number of waged and salaried workers. The study also uncovered that ECONGLO has a long-term negative causal effect on total unemployment and employment in the agricultural sector. Because results are robust with an alternative measure of ECONGLO, African countries can leverage globalisation for job creation and sectoral development over the long run. It is also important to consider the short-term costs of ECONGLO, such as job losses in some sectors and income inequality due in part to the decrease in labour share, and develop strategies to mitigate them. The broader implications of our findings for economic development and social stability in African countries underscore the importance of this paper.

Keywords: economic integration; globalisation; labour market; employment; unemployment; labour share

JEL Classification: F16; F66; E24; C23

1. Introduction

One key defining characteristic of a prosperous economy in recent years is its ability to generate enough jobs for its people. In many developing economies, especially across Africa, youth unemployment and income inequalities have continued to rise. This is due in part to the combined effects of technological advancements, skills mismatch, jobless growth, and globalisation. When people are unable to find decent jobs in their home countries, dissatisfaction and threats of social and political unrest set in (Mdingi & Ho, 2021; Barro, 2000). As a result, youths are moved to search for better alternatives elsewhere (Oliskevych & Lukianenko, 2020), sometimes through perilous channels of illegal migration to other economies where they hope to find better opportunities (Ozcan, 2020), a process made possible by advances in globalisation.

Globalisation is a multidimensional concept that encompasses cultural, economic, political, and social aspects (Dreher, 2006; Gygli et al., 2019). In this study, we shall specifically focus on the economic dimension of globalisation (ECONGLO) because it involves the cross-border movement of goods and services, capital, trade, migration, foreign direct investment, and knowledge that can potentially reshape labour market outcomes (Anyanwu, 2014; Fosah et al., 2023).

Since Africa's abysmal economic performance in the 1980s and 1990s, high unemployment, poverty, and income inequality have continued to prevail. Despite these challenges, the post-1990s waves of economic globalisation (ECONGLO) seemed to offer beacons of hope that generated heated debates regarding its distributional consequences among policymakers, researchers, and the wider public (Van Meeteren & Kleibert, 2022; Van Treeck & Wacker, 2020; Dreher, 2006). A case in point is the growing importance of foreign direct investment in domestic capital accumulation, knowledge transfer, and the inflow of novel production technologies and managerial techniques, which alters factor demands in host economies.

While many studies offer compelling evidence that globalisation might be associated with labour demand as well as the altering of wage share and sectoral demand for labour in advanced economies (Betrán & Pons, 2011), evidence of these benefits are still sparse across developing countries. Several studies focus on the globalisation-inequality nexus (Sánchez-López et al., 2019; Gozgor & Ranjan, 2017) and the role of institutions in mitigating such outcomes (Blossfeld, 2003). In fact, the literature is divided between those that are sceptical about the benefits of globalisation on development

outcomes (Beri et al., 2022; Guerriero, 2019; Fang et al., 2022), and those that see it as a panacea for contemporary economic woes (Fosah et al., 2023; Straubhaar & Wolter, 1997).

Although these studies offer significant insights into the relationship between globalisation and labour market outcomes, a majority estimate short run elasticities (Asongu et al., 2020; Anyanwu, 2014; Ben Salha, 2013). However, the relationship between globalisation and labour market outcomes can be complex. It can be erratic in the short run, but co-move in a predictable way with other variables in the long run (Kripfganz & Schneider, 2022). Therefore, it is important to separate the long run effects of globalisation on labour market outcomes from its overlain short run dynamics. This study seeks to explore the potential labour market implications of economic globalisation in Africa by considering the possibility that it can reconfigure employment and unemployment dynamics, influence the allocation of labour across sectors, including agriculture and manufacturing, as well as impact the distribution of wages and salaried employment in different ways over the short and long-terms.

Disentangling these causal pathways is particularly significant when we consider: i) policies outlined in Goal 8 of the United Nations' Development Goals, which aim to promote sustainable economic growth, productive employment, and decent jobs for all; and ii) policy strategies for job creation at the African Development Bank (Monga, Shimeles, & Woldemichael, 2019). Aside from these, there are growing concerns about the vulnerability of workers in light of expanding globalisation. For example, there are concerns that import dependence and over-reliance on natural resources could lead to the collapse of the manufacturing sector in Africa. Furthermore, illegal migration may increase as people search for better opportunities elsewhere, while offshoring jobs could exacerbate unemployment issues especially among unskilled workers. A thorough analysis of these labour market dynamics can provide policymakers with insights into how to best help Africa improve labour market outcomes while mitigating any negative consequences.

This paper brings several insightful innovations to the existing body of literature. Firstly, while Anyanwu (2013, 2014), Asongu (2020), and Awad (2019) have studied employment and unemployment in African countries, our study extends their analyses by including labour shares, sectoral labour demand, and accounts for both short- and long-term dynamics. This approach fills an important gap in the literature, particularly given the scarcity of studies focusing on the African context.

Additionally, much of the existing literature pertains to case studies conducted within Europe and the USA, whose findings may not be applicable to an African context. Petreski (2021) notes that these aspects of the labour market have been particularly challenging owing to data limitations. Given that agriculture constitutes the primary economic activity in most African economies, understanding its employment trends vis-à-vis labour share and manufacturing can provide valuable insights into the trickle-down effects of economic globalisation in the region.

Secondly, our analysis enables us to either corroborate or dispute existing evidence from correlational studies (Asongu et al., 2020; Ben Salha, 2013; Beri et al., 2022). By employing innovative methodologies and accounting for both short and long-term dynamics, our study offers a more nuanced understanding of the impacts of economic globalisation. Furthermore, our findings will have practical implications for policymakers in African countries. They can inform strategies to leverage economic globalisation for job creation and sectoral development, particularly by reducing unemployment and boosting industrial employment.

Lastly, our study contributes to the global discourse on economic globalisation and labour markets, providing insights that could be relevant beyond the African context. The broader implications of our findings for economic development and social stability in African countries underscore the importance of this paper.

This paper utilises the pooled mean group of the autoregressive distributed lag models for the first set of analysis; and the panel corrected standard errors (PCSE) econometric technique, with robustness checks conducted using fixed effect models incorporating Driscoll and Kraay's (1998) standard errors for the second set. We use the PCSE in the second set of analyses because the model was not converging. The general trend in the literature is that economic globalisation leads to better labour market outcomes (Awad, 2019; Asongu et al., 2020). We present descriptive and econometric evidence that lends credence to these hypotheses over time, but not in the short run. This approach enabled us to conclude that there were significant long run causal relationship between ECONGLO and observed labour market outcomes during the study period. These results contrast those in Beri et al. (2022) and Betrán & Pons (2011), but lend credence to the empirical evidence in Asongu et al. (2020), Folawewo & Adeboje (2017), and Nwaka et al.s (2015).

Our study has three unique methodological features. Firstly, its multi-estimation procedure allows us to carefully address concerns associated with panel data that can affect the validity of the results

from different perspectives. Secondly, we employed several labour market outcomes, some of which are highly correlated to ensure that we arrive at robust results. And thirdly, we used a large panel of data over 30 years compared to any previous study on the impact of ECONGLO in Africa. Estimating the regression with long-term historical data provides robust results regarding the effects of ECONGLO and other control variables in the equations. Finally, employing the ARDL model in this study also helps to uncover a picture of the complicated dynamics in the relationship between economic globalisation and labour market outcomes in the short and long terms.

The article is structured into six sections. Section 2 lays out the theoretical basis of the study and also reviews the empirical literature. Section 3 elabourates on some features of African economies in line with the paper's objective. Section 4 details the data and estimation procedures. Section 5 presents results and discussions, while Section 6 makes concluding remarks.

2. Review of the Literature

Several theories explain the relationship between economic globalisation and labour market outcomes, but we employ the approach by Stoper-Samuelson in this study. The Stolper-Samuelson theorem of Hecksher-Ohlin theory assumes that ECONGLO increases growth, creates more jobs, and reduces income inequality between and within countries. Accordingly, it does so by increasing efficiency in the allocation of resources (Petreski, 2021), augmenting rates of return (prices) on the relatively abundant factors of production as a result of increasing demand, and reducing the rates of return on those factors that are relatively scarce in poor countries. Since labour is the primary factor of production in many African economies, ECONGLO is likely to raise wages and increase labour's share of national income. Similarly, ECONGLO is also likely to reduce inequality insofar as the main factor of production for the wealthy is capital. Finally, ECONGLO can lead to shifts in employment from one sector to another through specialisation.

This hypothesis lends credence to the belief that ECONGLO in countries with a large agricultural sector is likely to benefit small-scale farmers through an increase in the relative prices of agricultural products that they produce and a reduction in the prices of non-agricultural products that they import (Reddy, 2006). ECONGLO can also ignite a shift in employment from agriculture, which is the predominant activity in Africa, to industry as new opportunities emerge from cross-border reallocation of production activities. These arguments provide the theoretical basis for most studies on the labour

market outcomes of globalisation (Betrán & Pons, 2011; Fang, Gozgor, & Nolt, 2022). However, the Stolper-Samuelson-Hecksher-Ohlin theorem appears to be too simplistic because of its two countries, two factors, and two goods. The real world is characterised by trade between multiple countries, goods, and factors of production. The theorem does not also account for integration and trade between developing countries. Nonetheless, it provides us with a useful starting point to model the relationship between labour outcomes and globalisation.

Similarly, the empirical literature on the impact of ECONGLO on labour market outcomes appears to be mixed (Autor et al., 2013; Marelli, 2006; Triegaardt, 2008). Many of these studies, largely based on wage distribution across skilled and unskilled labour and firm-level studies from developed countries offer useful insights into labour market outcomes, but are limited in explaining the impact of globalisation on the overall patterns of (un)employment, labour share, and sectoral demand for labour in African economies over the long and short runs.

Some studies find a positive relationship between globalisation and labour market outcomes (Anyanwu, 2014; Asongu et al., 2020), although emerging literature also suggests that the significance of the relationship hinges on some preconditions, the choice of empirical models, and control variables (Beri et al., 2022; Rudra & Tobin, 2017). Anyanwu (2013) showed that globalisation enhanced youth employment in the SSA. Musti (2018) found that ECONGLO enhanced employment in the long run, while Asongu et al. (2020) uncovered a positive association between ECONGLO and female labour force participation. Anyanwu (2014) associated intra-African trade with significant reductions in aggregate youth, male, and female unemployment. Folawewo and Adeboje (2017) showed that FDI had a weak effect on unemployment in West Africa, while Awad (2019) found that ECONGLO induced reductions in youth unemployment. Potrafke (2010) documented evidence that globalisation neither influenced the unemployment replacement rate nor the benefit length. Rather, job security was diminishing. However, Potrafke (2013) did not find any evidence that globalisation-induced deregulations could potentially impose adverse effects on the labour market.

Ben Salha (2013) uncovered for the case of Tunisia, that the effects of globalisation on labour demand (positive) and wages (negative) were stronger in the manufacturing sector compared to agriculture and services. Triegaardt (2008) argued that globalisation had damaging effects on unemployment in South Africa over the short-run and medium term. They also discovered a widening wage gap between less skilled and more skilled workers.

Studies on labour share are predominantly found in developed countries. Betrán and Pons (2011) documented wage share declines in the agricultural sector in Spain using data from 1880 to 1913. They also found that the fall in wheat prices did not benefit industrial workers. Similarly, Van Treeck and Wacker (2020) revealed that FDI increased the labour share in developing countries, while foreign portfolio investment decreased the labour share. Guerriero (2019) reached the same conclusion about the negative effect of globalisation on labour share decline with a panel of 151 countries over a 45-year period. Petreski (2021) disclosed that manufacturing labour shares in low-skilled industries were stagnant in transition economies, while those in high-skilled industries largely remained intact.

3. Globalisation and the labour market in Africa

The end of colonisation in the 1960s implied that African economies could pursue independent economic policies. A majority of the newly independent states saw integration as a form of neocolonialism. Thus, many of them adopted restrictive trade policies until the 1970s, when they were unable to mobilise domestic resources for investments. These countries started their path towards market-oriented economies in the 1970s by relaxing barriers to trade as a precondition to obtaining development finance from the World Bank and the IMF. Over the next decades, trade and FDI increased as the continent experienced rapid growth in GDP.

Over the past three decades, there has been a global restructuring of production systems that entailed a significant flow of capital from developed to low-cost production sites in less developed countries (Kupfer, 2011). The pattern suggests the creation of economic opportunities that can cause positive labour market changes in African countries. Although the observed trend of global capital flow is mostly applicable to certain developing Asian economies such as Singapore and China, the majority of developing nations do not experience significant capital inflow. This exclusion is inferred from Africa's meagre 5.2% share of global FDI inflow in 2021 (UNCTAD, 2022), primarily concentrated within extractive industries. Also, Africa's contribution to global manufacturing was estimated to be less than 2% (ADBG, 2022). Between 2011 and 2013, Africa's exports of manufactured goods accounted for only 18.5% of its total exports, while imports amounted to a staggering 62%. This translates into a deficit of 43.5% and could suggest that the continent is exporting more jobs, production, and wealth than it is creating.

Additionally, Africa's over-reliance on agriculture and raw materials has been quite conspicuous over the years. Compounding this issue is the fact that technological advancements in digitisation may have been facilitating the off-shoring of jobs to other economies (Kupfer, 2011), further exacerbating the unemployment situation on the continent. As a result, many African countries struggle to create enough job opportunities for their growing labour force that is poorly skilled and primarily absorbed by the agricultural sector and has on several occasions been forced to seek employment abroad through perilous channels (ADBG, 2022; Marelli, 2006).

Table I presents summary statistics of some labour market outcomes and ECONGLO over the period under study. It can be observed that 58.8% of the population were employed from 1991–1995, and the percentage decreased to 55.94 from 2016–2020. 55.38% of employees were in agriculture and 12.82% in manufacturing over 1991–1995, while 43.60% were in agriculture and 14.72% in manufacturing over 2016–2020. Employment decreased between 1991 and 2020, and the share of those engaged in agriculture decreased by more than 2% while the percentage of those working in industry increased marginally over the years.

The trajectory of waged and salaried workers (% of total employment) seems to follow the same pattern as employment data, increasing from 29.2% between 1991 and 1995 to 34.3% between 2016 and 2020. The summary data also shows that improvements in ECONGLO from 38.7 to 45.3 over 1990–2020 align with a decrease in overall employment and employment in agriculture, an increase in employment in industry, the number of waged and salaried workers, and a decrease in unemployment. Finally, the labour share deteriorated from 41.6% to approximately 38%.

Table I: Evolution of labour market outcomes and globalisation

	1990-95	1996-00	2001-05	2006-10	2011- 15	2016-20
Labour market outcomes						
Employment to population ratio, 15+, total (%)	58.88538	58.42503	58.0379	57.77253	56.83805	55.9431
Unemployment, total (% of total labour force)	9.314563	9.333446	9.162325	8.7331	8.831396	8.877533
Employment in industry (% of total employment)	12.82309	12.74997	12.8971	13.40563	13.97435	14.71348
Employment in agriculture (% of total employment)	55.38066	53.9615	52.28973	49.89365	46.52638	43.60764
Wage and salaried workers, (% of total employment)	29.19068	29.9573	30.47032	31.63498	33.1494	34.28459
Share of labour compensation in GDP	41.635	41.012	40.207	37.626	37.449	38.017
Economic globalisation						
KOF ECONGLO	38.718	40.384	43.185	44.593	45.717	45.265
Control Variables						
GDP per capita (current US$)	999.2998	1012.951	1264.831	2292.053	2788.91	2422.901
Government consumption expenditure (% of GDP)	15.01698	14.6323	14.35728	14.0063	15.68262	15.77314
Trade (% of GDP)	58.01089	59.68517	63.67699	69.60291	72.25381	68.05006
Inflation, consumer prices (annual %)	182.6309	41.18993	9.291564	7.076595	5.792148	10.21582
Foreign direct investment, net inflows (% of GDP)	1.503408	3.020303	3.485179	3.907652	4.305721	2.944265

Source: Author's calculations.

Figures I and II present scatter plots of the relationship between labour market outcomes and ECONGLO over the observed period. The descriptive evidence supports the conclusions in the preceding paragraph. In Figure I, ECONGLO is associated with a downward trend in aggregate employment and employment in agriculture, while its relationship with employment in industry and the number of waged and salaried workers have positive slopes.

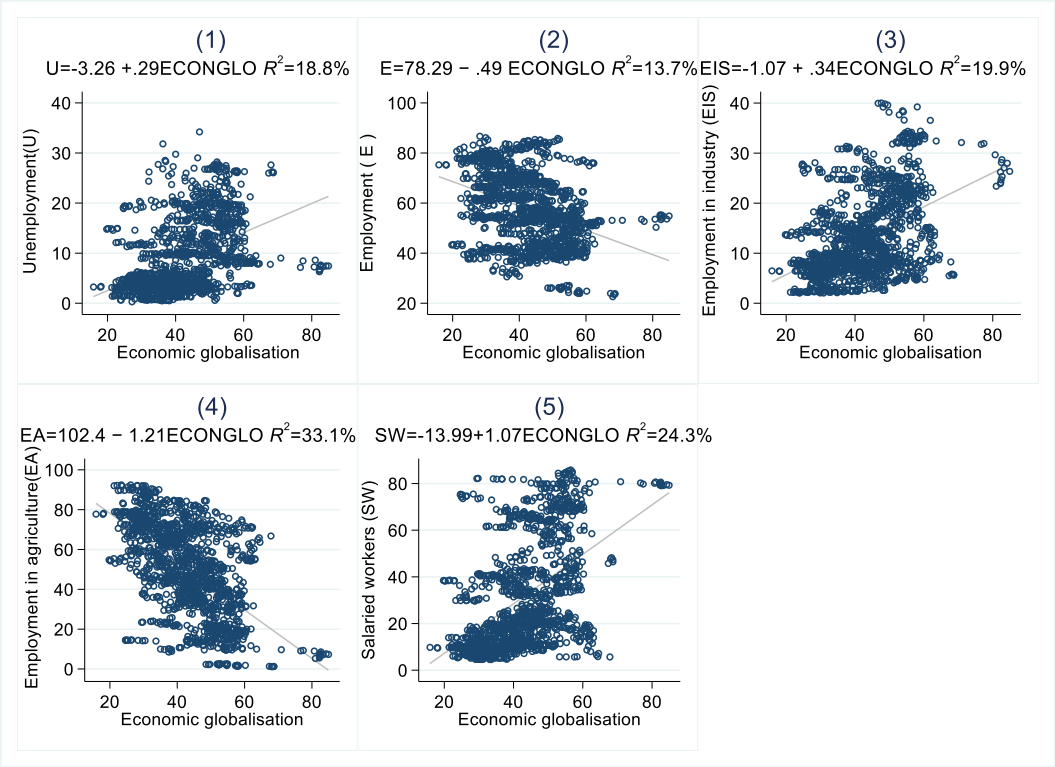

Figure I: Scatter plot of labour market outcomes and economic globalisation

Notes: Figure I (1-5) are scatter plots of the relationship between ECONGLO vs overall employment, unemployment, employment in industry, employment in agriculture, and the number of wages and salaried workers. Each figure has a fitted model of the relationship between the variables. The R^2 in (1) implies that 16.7% of the variance in employment can be attributed to economic globalisation, all else the same.

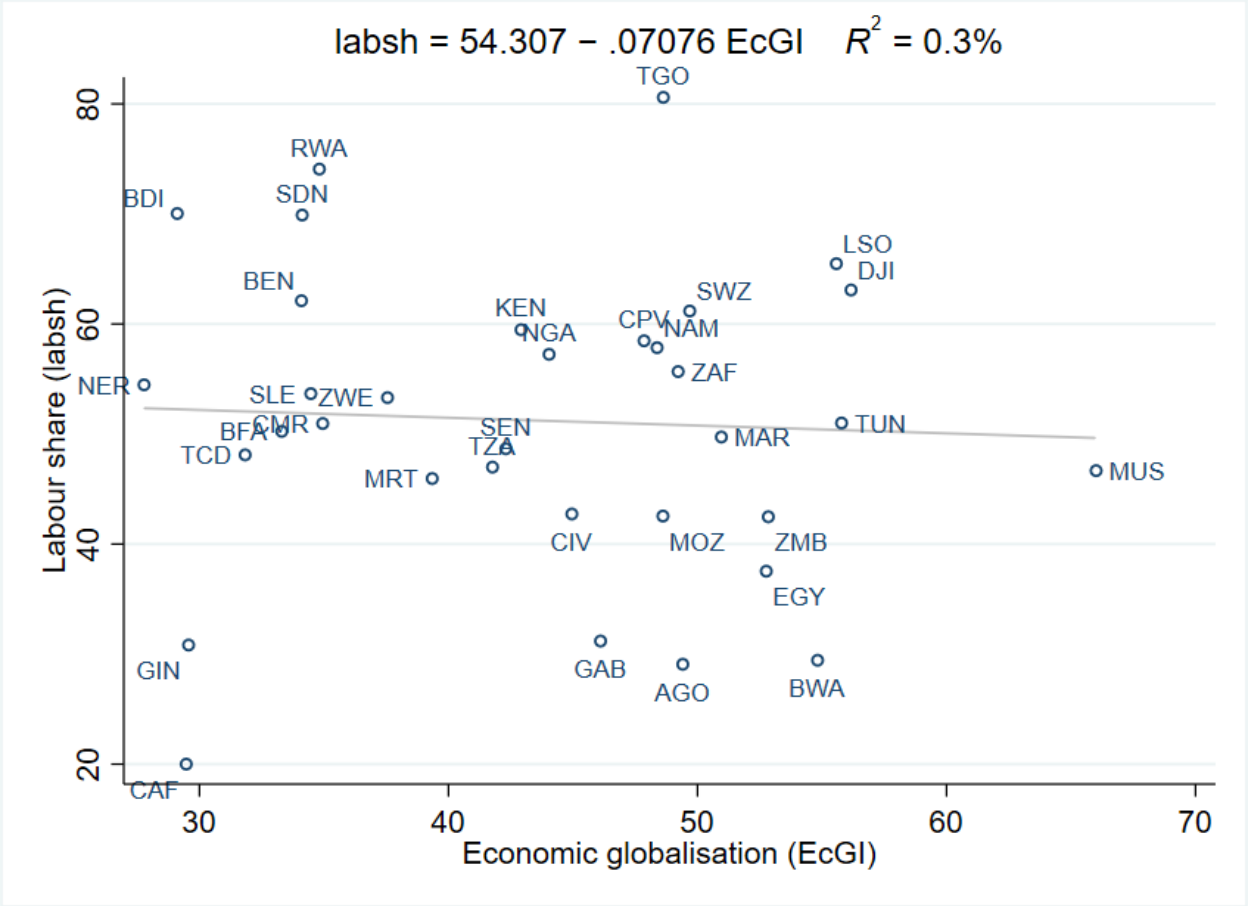

Figure II: Scatter plot of labour share and economic globalisation

4. Data and estimation strategies

4.1 Data and sources

This study covers a sample of forty-seven African economies (See Table AI for the full list of countries retained in the analysis) from 1990 to 2020 with over 1400 observations. This period was chosen because of data availability, and also, because it includes an important period of Globalisation 2.0 (1800–2000) and Globalisation 3.0 (2000–present) in Thomas L. Friedman's classification; encompassing the globalisation of companies and people, respectively. Data was collected from the world development indicators, the Penn World Tables (Feenstra et al., 2015), the Swiss Economic

Institute (Gygli et al., 2019) on December 6, 2023 and merged into a unique dataset[1]. The following variables are selected for further scrutiny:

- *Labour Market outcomes*: Following previous studies like Treeck and Wacker (2020), Guerriero, (2019), and Ben Salha (2013), we employed multiple standard labour market indicators. These include: employment (E), Unemployment(U), Employment in industry (EIS) and agriculture (EA), the share of labour compensation in GDP (LSH), and the number of waged and salaried workers (SW). Data on aggregate employment, waged and salaried workers as well as labour share are gleaned from the PWT (Feenstra et al., 2015), while data on employment in agriculture, the manufacturing sector and unemployment are collected from the WDI.
- *Economic globalisation* (ECONGLO): We measure ECONGLO using the new KOF index from the Swiss Economic Institute. This dimension of globalisation is derived from several constructs such as goods and services (trade) and trade partner diversity, financial flows and stocks of foreign assets and liabilities (FDI, portfolio investments, foreign debts, stock of reserves and international income payments) (Gygli et al., 2019). We expect ECONGLO to induce employment, reduce overall unemployment and employment in agriculture, and augment employment in manufacturing (Treeck & Wacker, 2020; Awad, 2019; Anyanwu, 2014). Finally, we also expect ECONGLO to increase the number of wages and salaried workers and the labour share due to the creation of more wage-paying opportunities across countries (Ben Salha, 2013).
- *Control variables*: Our control variables include the GDP per capita in current USD (lnGDPPC), General government final consumption expenditure as a share of GDP (lnGFCE), Trade as a share of GDP (lnXR) (Nwaka, Uma & Tuna, 2015), We expect a positive relationship between GDP, government expenditure, trade and labour market outcomes (Treeck & Wacker, 2020), but a negative one with unemployment (Anyanwu, 2014). We also include inflation (lnINFL) in our analysis to control for the effect of changes in price levels on labour market outcomes.

The control variables listed above contain some missing and negative observations, especially on trade and GDP per capita. Firstly, we used the method of linear interpolation to generate missing values in our dataset to ensure completeness of the sample for econometric analysis. Imputing the

[1] We have enclosed the raw data set in Excel format.

data also leads to accuracy and robustness of our statistical models. The procedure did not cause any significant quantitative change in the variables under study. This was confirmed via the mean (t) and variance comparisons tests. Since our dataset was highly skewed and heteroskedastic, we employed the hyperbolic sine log transformation[2] to transform the data as in Beri and Nubong (2021). This procedure helps minimise the effect of outliers, stabilise the variances, enhances linearity in the relationships, and also improves model convergence. Table II presents a summary of all descriptive statistics. Worthy of note is that the GDPPC contained many outliers, and in order to mitigate the impact of such extreme values on our statistics, we further winsorized GDP at 1%.

Table II
Summary statistics

	Mean	Std. Dev.	min	max	skewness
U	9.153	7.245	.317	34.232	.892
E	57.485	14.265	22.657	86.724	.003
EIS	13.463	8.245	2.06	40.031	.855
EA	50.454	22.906	1.231	92.482	-.278
SW	31.448	23.343	4.608	85.871	.805
LSH	51.229	14.184	16.431	90.298	-.0793
ECONGLO	42.626	10.890	15.862	84.907	.357
GDPPC	5747.091	6078.399	503.297	43594.598	2.249
GFCE	14.864	7.096	.911	62.133	1.813
XR	65.214	33.319	9.955	347.997	2.396
INFL	45.459	732.760	-31.566	26765.857	33.849
FDIi	3.152	7.143	-17.292	161.824	10.83

Notes: All observations in Table II have 1488 observations, except for LSH (1020) and INFL (1457).

Source: Author's calculations.

4.2 Econometric models and estimation strategies

The objective of this study is to estimate the effects of economic globalisation on labour market outcomes in selected African countries. To this end, we specify a panel econometric model for our empirical analysis in which labour market performance (l_{it}) is a linear function of economic globalisation (ECONGLO) and a host of other control variables (X_{it}) described in the preceding section. Eq. (1) is derived from past studies such as Asongu et al. (2020), Guerriero (2019), and Ben Salha (2013), and βs are the parameters to be estimated.

$$l_{it} = \beta_0 + \beta_1 ECONGLO_{it} + \beta_i X_{it} + \epsilon_{it} \quad (1)$$

[2] $P = \ln [P + \sqrt{(P^2 + 1)}]$

Our econometric analysis was run in three phases. The first phase estimated regressions of unemployment (U), employment (E), employment in industry (EIS), employment in agriculture (EA), and the number of salaried workers (SW) using the autoregressive distributed lag (ARDL) model. In the second phase, we estimated panel corrected standard errors (PCSE) for our model on the share of labour compensation in GDP. The last phase consisted of testing for robustness using FDI as a proxy for ECONGLO, fully modified OLS, and the Granger causality test by Xiao et al. (2023).

A preliminary exploration of our data disclosed concerns related to non-stationarity, autocorrelation, heteroscedasticity, slope heterogeneity, and long-run cointegration (See Tables IV to VI). In order to account for these challenges and derive consistent parameters, we employed the ARDL model. ARDL models are widely used in the literature to study long run economic relationships (Ntanos et al., 2018; Bekun et al., 2019; Oteng-Abayie & Frimpong, 2006).

Three types of ARDL models include the mean group (MG), the pooled mean group (PMG), and the dynamic fixed effect (DFE) model. To choose a suitable model, we employed the Hausman's Test. Results from the Hausman's test in Table V show that we can reject the MG in favour of the PMG. The PMG is flexible and particularly effective in estimating models that are integrated at orders I (0) and I (1) (Pesaran, Shin, & Smith, 1999). ARDL models are also effective even with small sample sizes, making them robust for various datasets. Since the Pedroni test indicates a long-run relationship, the ARDL model is appropriate because it can capture both short-term dynamics and long-term equilibrium relationships between such variables (Pesaran, Shin, & Smith, 1999; Kripfganz & Schneider, 2022). The basic structure of the model underlying PMG estimation is the following ARDL (p,q,q,…,q) model in Eq. (2):

$$l_{it} = \sum_{j=1}^{p} \lambda_{ij} l_{it-j} + \sum_{j=0}^{q} \delta_{ij}' x_{it-j} + \mu_i + \varepsilon_{it} \qquad (2)$$

$$i = 1, 2, \dots, N;\ T = 1,2, \dots, T$$

N=no. cross section units; T=no. years, l_{it} is a measure of labour market outcome, x_{it} is kx1 vector of regressors (core explanatory and control variables) for cross-section unit i over time t; μ_i represents country specific fixed effects; λ_{ij}, j=1,…,p and δ_{ij}' , j=1,2,…,q are scalars. The time dimension, T, must be large enough for meaningful estimation of the parameters of each cross-section unit's time series. The model can be reparametrized in the error-correction (EC) form to disentangle the overlaid long run relationship from its short run dynamics as shown in Eq. (3).

$$\Delta l_{it} = \Phi_i(l_{it-1} - \theta_i' x_{it}) + \sum_{j=1}^{p-1} \lambda_{ij}^* \Delta l_{it-j} + \sum_{j=0}^{q-1} \delta_{ij}^{*\prime} \Delta x_{it-j} + \mu_i + \varepsilon_{it} \quad (3)$$

where:

Δ is the difference operator, $\Phi_i = -(1 - \sum_{j=1}^{p} \lambda_{ij})$ is the speed of adjustment from short run disequilibrium to long run equilibrium (expected to be significantly negative); $\beta_i = \sum_{j=0}^{q} \delta_{ij}$; $\lambda_{ij}^* = -\sum_{m=j+1}^{p} \lambda_{im}$ j=1,2,…,p-1; and δ_{ij}^* =- $\sum_{m=j+1}^{q} \delta_{im}$ j=1,2,…,q-1; and θ_i' defines the long-run coefficients.

Eq. (2) and (3) do not include the share of labour compensation in GDP because of insufficient data. To this end, we estimate equations for labour share in Eq. (4) along the lines of Asongu et al. (2020), Ben Salha (2013), Guerriero (2019), and van Treeck and Wacker (2020).

$$labsh_{it} = \rho_1 + \rho_2 ECONGLO_{it} + \rho_i x_{it} + \mu_i + \eta_t + \varepsilon_{i,t} \quad (4)$$

where δ and ρ are parameters to be estimated. In a fixed-effect model, μ_i and η_t are assumed to be fixed parameters, while $\varepsilon_{i,t}$ is independent of all explanatory variables in $x_{i,t}$ such that $\varepsilon_{i,t} \sim IID(0, \sigma_\varepsilon^2)$. The error term in this study could be problematic. This may be due to high interaction between integrating countries, causing contemporaneous correlation across panels. To correct such correlations, we applied the panel-corrected standard errors in line with Asongu et al. (2020). PCSE allowed for the inclusion of country-specific effects that helped us to extract the exogenous component of the effects of economic globalisation on labour share. This model also has the ability to correct serial correlation by deriving OLS estimates that account for first-order autocorrelation. To estimate Eq. (4), we ran the regression with panel-corrected standard errors (PCSE). To control for potential heterogeneity, we estimated the models with country dummies that helped to capture the differences between countries in terms of labour share and period dummies as well as account for policy shocks that affect labour share in different countries at the same time.

4.3 Robustness

To test the robustness of the results, we re-estimated the ARDL and the PCSE models with FDI as a proxy for economic globalisation. FDI entails a long-term relationship between host and home countries that is often associated with transferring production technologies, financial resources, and management that increases economic integration and global interdependence. FDI is a crucial

indicator of such economic integration because it directly reflects cross-border investments and the establishment of lasting economic links between countries. This makes FDI a robust measure of economic globalisation. Empirical and theoretical literature supports the use of FDI as a measure of globalisation. For instance, Gygli, Haelg, Potrafke, & Sturm (2019) highlight the role of FDI in capturing economic integration. Similarly, Grossman and Helpman, (1993), Barro and Sala-i-Martin (1997), and Krugman (1993) provide theoretical foundations for the importance of FDI in understanding global economic dynamics. While FDI may not capture all aspects of globalisation, its strong empirical grounding as well as direct reflection of economic interdependence makes it an appropriate measure for robustness testing.

Although there is a whole debate over whether to use FDI stocks or FDI inflow in the analysis (Beri & Nubong, 2023), we considered net inflow as a percentage of GDP because it provides a more accurate picture of the state of foreign activities in African countries. Additionally, we used the fixed effect (FE) model with Driscoll and Kraay's (1998) robust standard errors because it has the advantage of addressing autocorrelation, heteroscedasticity, and cross-sectional and temporal dependence (CD) to test for the robustness of our regression results on the share of labour compensation in GDP.

We also report regression results based on the fully modified OLS(FMOLS) in the Appendix, Table 2A. The coefficients of ECONGLO are consistent with those under ARDL. According to Pedroni (2004), the FMOLS model include individual intercepts and corrects for contemporaneous correlation of error processes across panels. Finally, we test for Granger causality using the syntax. xtgranger, by Xiao et al. (2023).

5. Results and discussion

5.1 Diagnostics

In order to choose the most suitable estimation technique, we performed a series of diagnostic tests to determine the underlying characteristics of the data. First, results from the matrix of correlations between independent variables in Table III show that there is little risk of multicollinearity in our models as the pairwise relationships between the core explanatory and control variables are not very high (less than 70%).

Table III Matrix of correlations between independent variables

Variables	(1)	(2)	(3)	(4)	(5)
(1) ECONGLO	1.000				
(2) GDPPC	0.507	1.000			
(3) GFCE	0.298	0.253	1.000		
(4) XR	0.622	0.385	0.367	1.000	
(5) INFL	-0.048	-0.026	-0.056	-0.024	1.000

Source: Author's calculations

Next, we followed Im, Pesaran and Shin (2003) and Pesaran (2007) procedure in testing for stationarity by assuming heterogeneity across panels. Results in Table IV show that our variables are either stationary at the first difference [I (1)], or levels [I (0)]. The presence of non-stationary variables in the data necessitate the adoption of an estimation approach that can control for spurious relationships. It also behoves us to further assess cointegration.

Table IV: Unit root test

Variable	**Statistic**	Level	Decision (H_0)
U	-7.373***	I(1)	Reject
E	-1.903**	I(1)	Reject
EIS	-4.126***	I(1)	Reject
EA	-4.707***	I(1)	Reject
LSH	-2.0536***	I(0)	Reject
SW	-5.629***	I(1)	Reject
ECONGLO	-3.758***	I(0)	Reject
GDPPC*	10.9878 ***	I(1)	Reject
GFCE	-2.916***	I(0)	Reject
XR	-15.295***	I(0)	Reject
INFL*	10.328***	I(0)	Reject
FDIi	-4.718***	I(0)	Reject

*** p<0.01, ** p<0.05, * p<0.1[3]

Note: Null hypothesis (H_0): All panels contain a unit root. GDPPC* and INFL* are tested with the Fisher type test due to insufficient number of time periods.
Source: Author's calculations.

Because panel unit root tests are a precursor to panel cointegration (Pedroni, 1999), it is shown in Table V that there is a long-run relationship between variables in models (1) to (5). In fact, the null hypothesis of no cointegration is rejected by all tests included in Pedroni's approach. Therefore, estimating short run elasticities typical of existing studies can obscure important policy insights from

[3] *** ρ<0.01, significant at 1% level, ** ρ<0.05 significant at 5% level, * ρ<0.10 significant at 10% level

the relationships. We are unable to test for cointegration with the variable on labour share because of data limitations.

Table V Cointegration and Hausmans model selection tests

	Pedroni test			Hausman test	
Models	Modified Phillips-Perron	Phillips-Perron	Augmented Dickey-Fuller	chi2(5)	p-value
(1) U	5.414***	4.1520***	4.491***	1.76	0.8807
(2) E	5.332***	3.532***	4.007***	5.33	0.3771
(3) EIS	6.499***	4.5452***	5.764***	2.44	0.7858
(4) EA	5.951***	2.838***	3.596***	1.45	0.9183
(5) SW	5.069***	2.1623**	1.838**	1.57	0.9052

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: Cointegration in Table IV is tested by specifying equations with U(1), E(2), EIS(3), EA(4), SW(5) as the dependent variables. Values in the Tables are t-statistics of the respective tests.
Source: Author's calculations.

Additionally, we performed the slope homogeneity test along the lines of Bersvendsen and Ditzen (2021) and Pesaran and Yamagata (2008). The results in Table VI show that we can reject the null of slope homogeneity in models (1) to (4), but not for (5). Therefore, estimators that account for heterogeneous slopes like the mean group estimators are suitable for this study.

Finally, results in Table VI (column 2)—based on the feasible generalised least squares approach and the log-likelihood ratio test—indicate the presence of heteroscedasticity across all models. Additionally, all models in Table VI (ACF) indicate that there is first-order autocorrelation. Following Pesaran (2015), error terms are cross-sectionally dependent in all equations, except for the model of the demand for labour in the manufacturing sector (3). Therefore, we addressed these econometric challenges to arrive at plausible results on how ECONGLO impact labour market outcomes. The next sext section presents results from our empirical analysis.

Table VI Heterogeneity, autocorrelation, and cross section dependence

Model	Heterogeneity	LR chi2(104)	ACF	CD
	Delta	GLS	Woodridge	CD-test
(1)	6.239***	2477.24***	376.62***	12.15***
(2)	8.268***	592.56***	164.45***	21.76***
(3)	7.201***	985.11***	83.95***	9.06***
(4)	4.526***	1646.49***	227.99***	0.696
(5)	6.684***	648.61***	93.33***	3.862***
(6)	1.368	1632.38***	6.37***	2.075**

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Autocorrelation Function (ACF); Cross-sectional dependence (CD); Fixed effect/Random effect (FE/RE); Log likelihood ratio test for heteroscedasticity (LR); generalised least squares (GLS); Augmented Dickey Fully Test (ADF).
Source: Author's calculations.

5.2 Results

We now turn to the econometric results. Table VII presents the short- and long-run coefficients of ECONGLO on labour market outcomes. The first coefficients (ECT) in Table VII are the negative speeds-of-adjustments from short-run disequilibrium to long-run equilibrium coefficients, and they are all negative and statistically highly significant. Kripfganz and Schneider (2022) caution that an estimate not bounded within the reasonable region [0, 1] should be seen as a sign of potential model misspecification. Based on this argument, we can conclude that our models are well-specified as the process reverts (converges) back to its long-run relationship when equilibrium is disturbed. In equations (1) to (5), the speeds of adjustments to long-run equilibria range from a minimum of -0.150 to a maximum of 0.239, respectively. Therefore, it takes a little over four years for all short-run disequilibria to be corrected, which are in line with our expectations.

Next, the SR section contains the short-run coefficients of our core explanatory and control variables, together with the intercept. While the short-run coefficients are largely insignificant, the long-run coefficients of ECONGLO are all highly statistically significant, except for model (5), where ECONGLO only attains statistical significance at an error margin of 10%. The results showed that a 10% increase in ECONGLO will lead to a 0.07% decrease in unemployment, a 0.01% increase in employment, a 0.12% increase in employment in industry, a 0.05% decrease in employment in agriculture, and a 0.02% increase in the number of waged and salaried workers over the long run. These results are largely in line with economic theory and the observed co-movements of the variables in Figure 1. Therefore, we concluded that there are long-term benefits from ECONGLO in African labour markets. The effect of ECONGLO on labour market outcomes may vary between our samples, but such a detailed analysis is beyond the scope of this paper. The control variables are also largely significant in the long run, although with varying directions. For instance, an increase in government final consumption expenditure (GFCE) is associated with a long run decrease in unemployment and increase in employment.

Table VII Econometric results

VARIABLES	(1) UNEM	(2) EMP	(3) EMP_IND	(4) EMP_AGR	(5) WORKERS
SR coefficients					
ECT	-0.198***	-0.150***	-0.178***	-0.239***	-0.214***
	(0.029)	(0.040)	(0.030)	(0.037)	(0.035)
Δ ECONGLO	0.002	-0.001	-0.003*	-0.001	-0.001
	(0.003)	(0.001)	(0.002)	(0.002)	(0.002)
Δ GDPPC	-0.005	0.008	-0.037***	-0.019	-0.030*
	(0.035)	(0.008)	(0.014)	(0.024)	(0.018)
Δ GFCE	0.096*	-0.041**	-0.033	-0.028	-0.008
	(0.058)	(0.020)	(0.034)	(0.057)	(0.044)
Δ XR	-0.000	0.012	-0.030**	0.034	0.046
	(0.035)	(0.011)	(0.015)	(0.051)	(0.039)
Δ INFL	0.016	0.003	-0.002	0.003	-0.006
	(0.010)	(0.002)	(0.004)	(0.007)	(0.005)
LR coefficients					
ECONGLO	-0.007***	0.001***	0.012***	-0.005***	0.002*
	(0.001)	(0.000)	(0.001)	(0.002)	(0.001)
GDPPC	-0.002	0.001	0.114***	-0.166***	0.056***
	(0.010)	(0.001)	(0.013)	(0.012)	(0.009)
GFCE	-0.111***	0.007***	-0.024***	0.123***	-0.087***
	(0.023)	(0.002)	(0.008)	(0.025)	(0.016)
XR	-0.088**	0.066***	0.056***	-0.078***	-0.049***
	(0.041)	(0.011)	(0.014)	(0.025)	(0.009)
INFL	0.007	-0.003***	0.004	0.026***	0.012***
	(0.008)	(0.001)	(0.005)	(0.003)	(0.003)
Constant	0.771***	0.649***	0.287***	1.385***	0.842***
	(0.116)	(0.174)	(0.051)	(0.213)	(0.141)
ID	47	47	47	47	47
Observations	1,410	1,410	1,410	1,410	1,410

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: This table reports ARDL results from the Pooled Mean Group estimates on the effects of economic globalisation on various labour market outcomes. Columns (1) to (5) report the results for unemployment, employment, employment in industry, employment in agriculture, and the number of wages and salaried workers, respectively. Results for the short run parameters are in first differences (d.X, where X= ind. variables). Syntax: xtpmg.

Source: Author's calculations.

Finally, Table VIII presents results of the responsiveness of labour compensation as a share of GDP on economic globalisation. (1) shows results from the panel corrected standard error model and (2) attempts to replicate the results with the D-K robust standard errors. In either case, ECONGLO is associated with a decrease in the share of labour compensation in GDP, and the coefficients are

statistically significant at 5% and 1% levels, respectively. Therefore, we can conclude that ECONGLO is associated with a decrease in labour compensation in GDP over the period under consideration.

Table VIII Econometric results on labour share

	(1)	(2)		(3)	(4)
	Results			Robustness	
VARIABLES	PCSE	D-K SE	Variables	PCSE	D-K SE
ECONGLO	-0.001**	-0.002***	FDI	0.001	-0.001
	(0.001)	(0.000)		(0.002)	(0.003)
GDPPC	-0.007**	0.004	GDPPC	-0.006*	0.007
	(0.003)	(0.008)		(0.003)	(0.007)
GFCE	-0.002	-0.005	GFCE	-0.002	-0.006
	(0.008)	(0.012)		(0.008)	(0.012)
XR	-0.005	-0.004	XR	-0.010	-0.011
	(0.007)	(0.007)		(0.007)	(0.009)
INFL	0.002	0.000	INFL	0.002	0.000
	(0.001)	(0.002)		(0.001)	(0.002)
Constant	3.545***	4.007***	Constant	3.512***	3.962***
	(0.071)	(0.068)		(0.070)	(0.056)
N	1,020	1,020	N	1,020	1,020
R-squared	0.996		R-squared	0.996	
N	34	34	n	34	34

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: This table reports results on the effects of economic globalisation and foreign direct investment on the share of labour compensation in GDP. Columns (1) to (2) report the results from the panel corrected standard errors and the regression with Driscoll-Kraay standard errors, respectively. Equations (3) and (4) present the same results, but with FDI as the main independent variable. Syntax: xtpcse and xtscc.

Source: Author's calculations.

5.3 Robustness check

Table IX presents result on the test for robustness of our results by using an alternative measure of economic globalisation such as foreign direct investment. FDI remains an important part of economic globalisation together with trade and foreign portfolio investments. Although FDI is not a perfect proxy for economic globalisation, it occupies an important part in its estimation. Results revealed the complicated dynamics of FDI on labour market outcomes over time. Except for aggregate unemployment and the number of waged and salaried workers, FDI is associated with significant improvements in aggregate employment, employment in manufacturing, and a reduction in employment in agriculture over the long run. The results were in tandem with our expectations, as FDI is often accompanied by the inflow of capital, companies, and management that can cause

systematic shifts in the allocation of factors of production in host countries. Similar to the preceding results, the short-run coefficients were largely insignificant.

Table IX Test for robustness

VARIABLES	(1) UNEM	(2) EMP	(3) EMP_IND	(4) EMP_AGR	(5) WORKER
SR coefficients					
ECT	-0.229***	-0.177***	-0.154***	-0.244***	-0.216***
	(0.056)	(0.042)	(0.027)	(0.047)	(0.038)
Δ FDI	-0.006	-0.002	-0.009	0.001	0.002
	(0.008)	(0.002)	(0.006)	(0.005)	(0.008)
Δ GDPPC	-0.008	0.008	-0.033***	-0.007	-0.018
	(0.029)	(0.007)	(0.011)	(0.018)	(0.015)
Δ GFCE	0.086*	-0.040**	-0.044	0.001	-0.015
	(0.044)	(0.020)	(0.035)	(0.052)	(0.044)
Δ XR	-0.015	0.010	-0.037**	-0.004	0.007
	(0.029)	(0.008)	(0.015)	(0.048)	(0.031)
Δ INFL	0.013	0.003	0.000	0.004	-0.009*
	(0.009)	(0.002)	(0.005)	(0.007)	(0.005)
Long run coefficients					
FDI	-0.005	0.011***	0.072***	-0.024***	-0.004
	(0.004)	(0.002)	(0.010)	(0.006)	(0.003)
GDPPC	-0.029***	-0.001	0.191***	-0.160***	0.054***
	(0.010)	(0.001)	(0.016)	(0.009)	(0.008)
GFCE	-0.123***	0.008***	-0.001	-0.002	0.014
	(0.023)	(0.002)	(0.009)	(0.014)	(0.009)
XR	-0.045**	0.047***	0.110***	-0.021	0.030*
	(0.021)	(0.003)	(0.020)	(0.017)	(0.016)
INFL	0.004	-0.007***	-0.017***	0.007	0.014***
	(0.003)	(0.001)	(0.002)	(0.006)	(0.004)
Constant	0.874***	0.770***	0.178***	1.390***	0.697***
	(0.243)	(0.181)	(0.033)	(0.269)	(0.125)
ID	47	47	47	47	47
Observations	1,410	1,410	1,410	1,410	1,410

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes: This table reports ARDL results from the Pooled Mean Group estimates on the effects of foreign direct investment on various labour market outcomes. Columns (1) to (5) report the results for unemployment, employment, employment in industry, employment in agriculture, and the number of wages and salaried workers, respectively. Syntax: xtgrangert.
Source: Author's calculations.

Finally, results of the share of labour compensation in GDP show that using the D-K robust standard error to check for robustness will lead us to similar findings, which indicate that ECONGLO

reduces the share of labour compensation in GDP. However, using FDI did offer conclusive evidence of the robustness of the results. In this regard, there is a need for more studies on the share of labour compensation in GDP.

5.4 Discussion of results

This study aimed to-examine the relationship between economic globalisation and labour market outcomes in Africa. Making policy decisions on such a relationship requires knowledge about the direction and source of causality between variables under consideration as well as their magnitude. Estimating the long-run co-integrating equations enabled us to have a clear and concise picture of this relationship. It was found that ECONGLO has long-term benefits for labour market outcomes in Africa, but only a trivial effect in the short run. Evidently, These conclusions invariably had strong implications for designing policies.

To begin, this paper found that ECONGLO did not significantly reduce unemployment in the short run, although its effect was significantly negative over the long run. These outcomes had several implications. Firstly, ECONGLO can lead to increased competition from foreign firms, which can put pressure on domestic firms to reduce costs and increase efficiency. This can lead to job losses in the short run as firms adjust to the new competitive environment. Secondly, ECONGLO can also lead to shifts in employment from one sector to another. For instance, if a country specialises in producing goods that can be produced more efficiently in other countries, workers in that sector may lose their jobs. However, workers in other sectors that are more competitive may gain jobs. Therefore, policymakers should consider the long-term benefits of ECONGLO in reducing unemployment in African countries. It may also be important to consider the potential short-term costs of economic globalisation such as job losses in certain sectors, and to develop policies to mitigate these costs. In fact, our results show that ECONGLO is associated with positive labour market outcomes in industry while at the same time reducing employment in the agricultural sector, an indication of sectoral/structural readjustments. Finally, policymakers may need to consider measures to help workers who lose their jobs due to globalisation, such as retraining programmes or unemployment benefits.

Our analyses also found that ECONGLO is associated with a decrease in the share of labour compensation in GDP. These results did not agree with the theoretical expectations, but were nonetheless consistent with most findings in the literature (Betrán & Pons, 2011; Guerriero, 2019; van

Treeck & Wacker, 2020; Petreski, 2021). The deterioration of labour share implies that there is a great likelihood of higher income inequality, which also poses a considerable challenge for African economies. Therefore, it is important that governments implement policies that redistribute wealth to the poor such as minimum wage laws or progressive taxation and …. Governments can negotiate trade agreements that foster equity in sharing economic gains. Finally, labour protection laws, investment in education, training, and infrastructural development are all important ways to mitigate these challenges.

The relationship between ECONGLO and labour market outcomes depends on a variety of factors such as the level of economic development, the structure of the economy, and policies implemented by individual governments. In fact, our results demonstrated the potency of government spending and economic development on labour market outcomes in some models. Therefore, it is important that African governments accelerate ECONGLO while also recognising the need to consolidate domestic economies through sound macroeconomic policies.

These results further highlight the need to also consider conducting more studies on the share of labour market compensation in GDP. Although we found that ECONGLO is associated with declines in wage shares, the results were not robust when accounting for foreign direct investment. Treeck & Wacker (2020) conducted similar studies which revealed that FDI and foreign portfolio investment had opposing effects on labour share in selected developing and emerging markets. Overall, any policy on ECONGLO should be enacted with a clear understanding of its dynamic effects over the short run and the long run.

6. Concluding remarks

We examined the long and short-term effects of ECONGLO on labour market outcomes in 47 African countries from 1990 to 2020. Consequently, this paper provides empirical evidence ~~on~~ regarding the effects of globalisation on various indicators of labour market performance such as; unemployment, overall and sectoral employment, labour share, and the number of waged and salaried workers. The study employed the ARDL, PCSE and the FE models alongside Driscoll and Kraay robust standard errors at different levels correct autocorrelation, non-stationarity, heteroscedasticity, heterogeneity and cross-sectional dependence. Results showed that ECONGLO played a significant role on labour market gradients over the long run. However, ECONGLO was not beneficial on the same outcomes in the short run. In this light, our results contribute to the debate on the implications

of ECONGLO on labour market outcomes (Anyanwu, 2014; Asongu et al., 2020; Ben Salha, 2013; Betrán & Pons, 2011; Van Treeck & Wacker, 2020), particularly from an African perspective.

Without doubt, the results presented in this current study have important implications for the design and implementation of policies that aim at enhancing the labour market outcomes of African countries in the context of economic globalisation. Firstly, ECONGLO is a necessary condition for improving labour market outcomes in African countries. Therefore, Africa's development strategy should prioritise accelerating economic globalisation while also keeping an eye on its short-term demerits and identifying potential mitigating factors. Secondly, African countries should invest in human capital development especially in education and skills training to increase the productivity and employability of their labour force. This, we believe can also help some of these countries to cope with the changing demands of the global economy and the technological advancements that accompany globalisation. Finally, African countries need to consolidate their domestic economies by prioritising economic development, low inflation targets as well as productive public spending.

The empirical evidence in this paper is based on data that has the following weaknesses: i) reliable data on (un)employment in Africa is quite scarce. For instance, a substantial level of the labour force in many African economies is absorbed in the informal sector, ii) there is no unified method of computing unemployment statistics across countries which can potentially prejudice results, iii) it is difficult to generalise the results across different countries as there may be variations in the effects of ECONGLO depending on the context and characteristics of each country. For instance, North African countries because of their proximity to Europe and giant Asian economies are likely to respond differently to changes in globalisation as compared to West African countries, iv) It might be challenging to establish the causal relationship between… because there are other unaccounted variables that affect ECONGLO and labour market outcomes v) while unemployment remains a challenge in Africa, underemployment appears to be of greater concern, and might need to be accorded greater consideration. Finally, ECONGLO has several transmission channels and some cannot be measured quantitatively. Therefore, policymakers must analyse the specific context of their countries before taking decisions on how to address the globalisation-labour market nexus.

In order to address some of these concerns, future studies and policymakers could: (i) analyse the impact of globalisation on public sector employment or on underemployment, (ii) employ micro-level data to complement these macroeconomic analyses while accounting for different industries and skills,

(iii) explore factors that explain the poor labour market performance in Africa, and (iv) examine the relationship between ECONGLO and income inequality.

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Appendix

Table A1: List of countries use in the study

Algeria	Egypt, Arab Rep.	Mauritania	Uganda
Angola	Equatorial Guinea	Mauritius	Zambia
Benin	Eritrea	Morocco	Zimbabwe
Botswana	Eswatini	Mozambique	
Burkina Faso	Ethiopia	Namibia	
Burundi	Gabon	Niger	

Cabo Verde	Gambia,	Nigeria
Cameroon	Ghana	Rwanda
Central African Republic	Guinea	Senegal
Chad	Guinea-Bissau	Sierra Leone
Comoros	Kenya	South Africa
Congo, Dem. Rep.	Lesotho	Sudan
Congo, Rep.	Libya	Tanzania
Cote d'Ivoire	Madagascar	Togo
Djibouti	Mali	Tunisia

Table 2A Results from fully modified OLS

	(1)	(2)	(3)	(4)	(5)
VARIABLES	U	E	EIS	EA	SW
ECONGLO	-0.004	0.001***	0.007***	-0.002***	-0.001***
	(0.004)	(0.0001)	(0.002)	(0.001)	(0.000)
D.GDPPC	0.175***	-0.003	0.116***	-0.026***	0.051***
	(0.037)	(0.002)	(0.024)	(0.005)	(0.004)
GFCE	-0.012	-0.001	0.050***	0.006**	0.028***
	(0.024)	(0.001)	(0.011)	(0.003)	(0.002)
XR	0.087	-0.005***	-0.088***	0.013***	-0.009***
	(0.061)	(0.001)	(0.017)	(0.004)	(0.003)
INFL	0.031***	-0.002***	-0.005	0.000	-0.002**
	(0.007)	(0.000)	(0.004)	(0.001)	(0.001)
Observations	1,410	1,410	1,410	1,410	1,410

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: Table 2A shows regression estimates from the fully modified OLS. It can be seen that the coefficients of ECONGLO are consistent with those obtained from ARDL, suggesting that economic globalisation has beneficial effects on labour market outcomes.

Table 3A Granger causality test

	(1)	(2)	(3)	(4)	(5)
VARIABLES	U	E	EIS	EA	SW
L.ECONGLO	-0.004***	0.000	-0.000	-0.006***	0.001
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
L2. ECONGLO			0.002		-0.002
			(0.002)		(0.002)
L.GDPPC	-0.029***	0.004**	0.002	-0.030***	-0.007
	(0.006)	(0.002)	(0.005)	(0.008)	(0.005)
L2. GDPPC			0.019***		-0.010***
			(0.004)		(0.003)
L.GFCE	-0.031**	0.007	0.048***	0.008	-0.003
	(0.016)	(0.005)	(0.014)	(0.010)	(0.017)

L2. GFCE			-0.000		-0.014
			(0.014)		(0.012)
L.XR	-0.000	-0.012	0.020	0.004	0.021
	(0.023)	(0.008)	(0.022)	(0.028)	(0.013)
L2. XR			-0.017		0.025*
			(0.021)		(0.015)
L.INFL	-0.008**	-0.002**	-0.006*	0.000	0.009***
	(0.004)	(0.001)	(0.003)	(0.004)	(0.003)
L2. INFL			0.006*		0.006
			(0.004)		(0.005)
Observations	47	47	47	47	47

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: Results for the Half-Panel Jackknife estimator: Cross-sectional heteroskedasticity-robust variance estimation. Hypotheses: H0: ECONGLO does not Granger-cause labour market outcomes. H1: ECONGLO does Granger-cause labour market outcomes for at least one panelvar. We reject Ho in columns (1) and (4). Coefficients of ECONGLO are in line with the expectations in columns (2), (3) and (5). Syntax: xtgrangert.

Data availability statement

The paper uses public, non-confidential data from the World development indicators of the World Bank, the Penn World Tables and the Swiss Economic Institute. We downloaded the data on December 6, 2023. All codes used in the analysis and the data are available on request.

Conflict of interest

The authors have no relevant financial or non-financial interests to disclose