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Trade Openness and Youth Unemployment in Sub-Saharan Africa: The Role of Gender and Institutional Quality

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ABSTRACT

Purpose:
This paper examines the effect of trade openness on youth employment in Sub-Saharan Africa, incorporating the roles of institutional quality and gender.

Design/methodology/approach:
The study employs the random effects estimator using a panel data of 35 Sub-Saharan African countries from 2000 to 2020.

Findings:
The study finds that trade openness has a negative and significant effect on youth unemployment, with a stronger effect on female youth. Labour market institutions, measured by the Fraser Institute's Economic Freedom of the World index, play a key role in reducing youth unemployment, with a more pronounced effect on female youth. However, the interaction of institutions with trade openness reveals that trade openness worsens youth unemployment in countries with stronger labour market institutions.

Research limitations/implications:
The findings highlight the need to enhance the competitiveness and export capacity of trade sectors to create more jobs. This, however, should be implemented in conjunction with policies that encourage youth employment with no or little distortion to the labour market.

Originality/value:
This study contributes to the literature by examining how institutions and gender shape the trade openness–youth unemployment nexus in SSA.

1. Introduction

Youth unemployment (ages 15-24) is one of the most pressing development challenges globally and Sub-Saharan Africa (SSA) is no exception. Youth unemployment is not only higher than the general labour force unemployment rate but has also been increasing. World Bank (2023) statistics show a global average youth unemployment rate of approximately 14 percent between 1991 and 2019, compared to 6 percent for the overall labour force. Youth unemployment rates vary across continents: Europe (19%) and Latin America and the Caribbean (15.2%) have rates above the world average, while Sub-Saharan Africa (11.3%), North America (12.5%), and East Asia and the Pacific (9%) report lower rates (Figure 1). While general unemployment rates have remained relatively stable in SSA countries over the past two decades, youth unemployment has consistently been roughly double the overall labour force rate (Figure 2). Factors contributing to higher youth unemployment include their larger share of the labour force, labour market biases against youth, and the lower cost of dismissing younger workers compared to older ones (Anyanwu, 2014). Given SSA's high youth unemployment rate and its growing youth population, this challenge is likely to persist (Gammarano, 2019). Persistently high youth unemployment threatens political and social stability, potentially undermining progress toward both SDG-8 (promoting inclusive economic growth, full employment, and decent work) and SDG-1 (eradicating poverty). Prior to the early 2000s, gender disparities in youth unemployment rates were minimal. However, since the early 2000s, a gender gap has emerged, with female youth unemployment rising faster than male rates (Figure 2). Between 1991 and 2019, the average female youth unemployment rate (12.6%) exceeded the male rate (11.9%).

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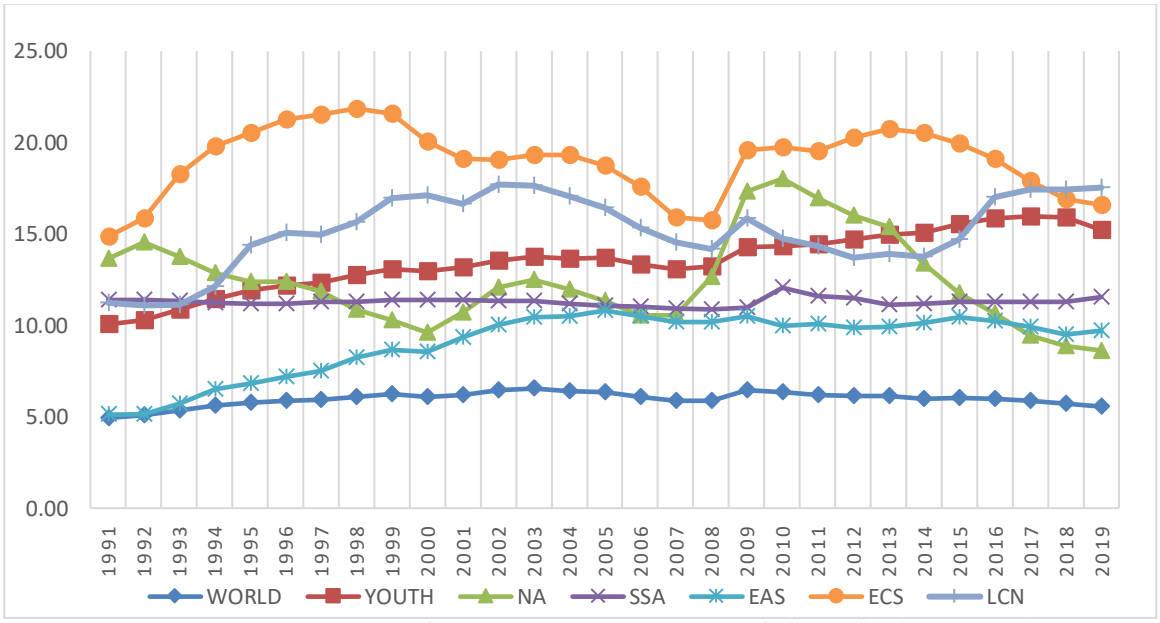

Figure 1: Youth Unemployment rate around the globe (1991-2019)

Notes: World= World unemployment rate, Youth= World youth unemployment rate, NA=North America youth unemployment rate, SSA= Sub-Saharan Africa youth unemployment rate, EAS=East Asia and Pacific youth unemployment rate, ECS=Europe youth unemployment rate, LCN=Latin America and Caribbean youth unemployment rate.

Source: Authors' construction based on data from World Bank's WDI (2023)

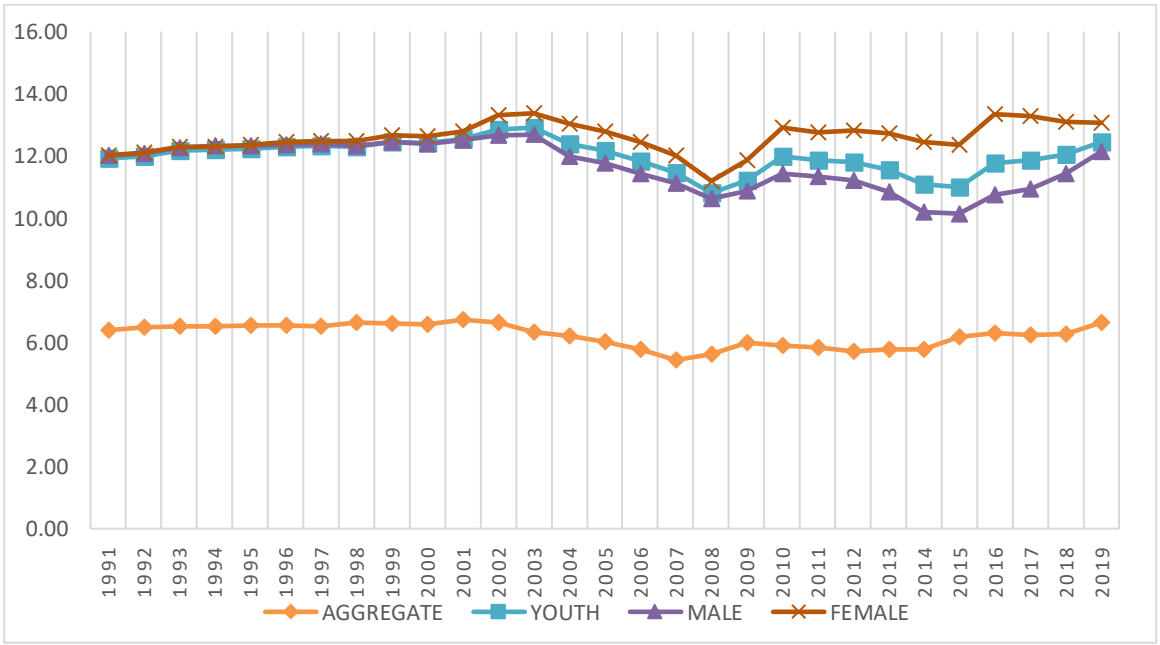

Figure 2: Trend in Unemployment rate in SSA (1991-2019)

Notes: Aggregate= Total employment rate; Youth= youth employment rate; Male=male youth employment rate; Female= female youth employment rate.

Source: Authors' construction based on data from World Bank's WDI (2023)

Trade openness plays a critical role in reducing poverty and inequality, particularly through job creation (Anyanwu, 2013). Theory and empirical evidence suggest that trade openness increases employment in sectors with a comparative advantage (Dollar & Kraay, 2004; Hull, 2009; Le Goff & Singh, 2013), which for developing countries are typically labour-intensive. However, in many developing countries, international trade has resulted in job destruction or the creation of lower-quality jobs, particularly for the youth (Helpman & Itskhoki, 2010). In the short run, the net employment effects of trade liberalization can be positive or negative depending on country-specific factors such as the efficiency of the labour and product markets (Anyanwu, 2014). Felbermayr *et al.* (2011) assert that trade openness reduces unemployment if it improves aggregate productivity. This happens through the crowding out

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of the least productive sectors and the reallocation of labour into more productive sectors. In the long run, however, trade openness is expected to generate positive employment effects through job creation, higher wages, or both (Anyanwu, 2013).

Sub-Saharan African countries have made some significant progress in boosting trade globally over the past few decades. Despite this, World Bank (2023) data show that SSA's trade remains lower than that of other regions. From 1991 to 2019, SSA's trade intensity index averaged 53.59%, compared with 69.63% in Europe and 75.29% in East Asia and the Pacific. Equally alarming is the low level of intra-SSA trade. Factors contributing to low intra-SSA trade include poor infrastructure (e.g., inadequate road and rail networks), ineffective institutions (e.g., bureaucratic delays and corruption), weak financial systems, poor policy support, non-tariff barriers (such as lengthy customs procedures), limited private sector involvement, and ineffective regional economic communities (Anyanwu, 2014).

The trade openness-employment relationship has been extensively studied. No consensus exists on trade openness's effect on unemployment. While some studies (e.g., Felbermayr *et al.*, 2011; Kpognon *et al.*, 2020) find that trade openness boosts employment, others (e.g., Helpman & Itskhoki, 2010; Janiak, 2006) argue that it increases unemployment. A key question is whether trade openness's effect on unemployment depends on other factors, such as institutional quality. Although studies on trade openness and aggregate unemployment exist (primarily in developed countries or single-country analyses), few examine how labour market institutions moderate the trade openness-youth unemployment nexus in SSA. Institutions likely shape the trade openness-youth unemployment relationship, affecting youth labour market outcomes more than other age groups (Kpognon *et al.*, 2020). For example, as new labour market entrants, youth are more vulnerable to employment protection laws. Similarly, youth are overrepresented among low-paid workers, making them more susceptible to minimum wage laws (O'Higgins & Moscariello, 2017).

Although studies like Adamu *et al.* (2017) and Abdul-Mumuni *et al.* (2023) examine the effect of trade openness on aggregate unemployment in SSA, they do not isolate its impact on youth unemployment, which is significantly higher. Moreover, these studies overlook institutions' role in moderating trade openness's effect on unemployment. Others (e.g., Matthew & Adegboye, 2014; Akinlo & Okunlola, 2021) analyzed institutions' role in the openness-unemployment link but did not explore youth unemployment. This study contributes by examining how institutions shape the trade openness–youth unemployment nexus in SSA. The aim of this paper is to examine the effect of trade openness on youth unemployment (both aggregate and gender-specific) in SSA. Specifically, it addresses the following: (1) What is the effect of trade openness on youth unemployment in SSA? (2) How do institutions moderate this effect? Gender disparities in labour markets and societal norms may lead to differing effects on male and female youth (Anyanwu, 2014). Thus, we analyze both aggregate and gender-disaggregated effects of trade openness on youth unemployment. We employ data on 35 SSA countries from 2000 to 2020. Section 2 reviews the literature on trade openness and unemployment. Section 3 outlines the methodology, including the estimation technique, variable descriptions, and data sources. Section 4 presents and discusses the results and Section 5 concludes with policy recommendations.

2. Review of Literature

The theoretical link between trade and employment is explained by the Heckscher-Ohlin- Samuelson (HOS) theorem of trade (Heckscher, 1929; Ohlin, 1933; Samuelson, 1938). The HOS theorem explains how trade openness affects relative demand for production factors (labour and capital). The HOS model posits that countries export goods intensive in their abundant factors and import goods intensive in their scarce factors (Morrow, 2010). The HOS theorem implies that a price increase for a comparative advantage good disproportionately raises returns to its intensive factor while reducing returns to other factors. The HOS model assumes inter-country differences in factor endowments (capital and labour). While some countries are relatively labour endowed, others are relatively capital endowed. Since a country would produce and export the commodity that uses intensively its abundant resource, developed countries (relatively capital abundant) are more likely to export capital intensive goods while developing countries (relatively labour abundant) would export labour intensive goods (Chipman, 1966). This model provides clear predictions about trade's effect on unemployment. *Ceteris paribus*, trade expansion should shrink import-competing sectors while growing export sectors. The aggregate effect on employment then depends on whether the number of jobs created by the expanding export sector outweighs the number of jobs lost by the contracting import-competing sector.

Numerous empirical studies have investigated how trade liberalization affects unemployment. Felbermayr *et al.* (2011) analyzed trade openness's impact on unemployment across 20 OECD countries (1990-2006). Using the system General Method of Moments (GMM) estimator, they found that in the long-run, higher trade openness is causally associated with a lower structural rate of unemployment. Specifically, the findings suggest that a 10 percent increase in total trade openness reduces unemployment by about one percentage point. Additionally, the results indicated that trade openness affected unemployment mainly through its effect on total factor productivity and that labour market institutions do not appear to condition the effect of openness. In contrast, Janiak (2006) found that greater trade exposure reduces employment, indicating net job destruction. Janiak's study investigated the effect of trade liberalization on unemployment in the United States (US) covering the period 1973-1988. The study also revealed that trade openness leads to an increase in intra-industry firm turnover. Thus, as trade is liberalized, there is reallocation of labour from large firms to small firms. Corroborating Janiak (2006), Helpman & Itskhoki (2010), revealed that better labour market institutions do not ensure lower unemployment.

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Anyanwu (2014) demonstrated that intra-regional trade (measured as the value of merchandise exports and imports disaggregated according to a country's primary trading partners) reduced youth unemployment across genders in Africa between 1980 and 2010. Similarly, Awad (2019) investigated the impact of economic globalization on youth unemployment, and found that rigidity of labour market regulations seemed to reduce the youth unemployment rate in a sample of 50 African countries. The study established that greater global market integration correlated with lower youth unemployment. Confirming Felbermayr *et al.* (2011) and Anyanwu (2014), Wahab (2018) showed that trade liberalization reduced both aggregate and youth unemployment in Sub-Saharan Africa. The study also showed that the magnitude of the effect of trade openness on youth unemployment was higher than that of aggregate unemployment. Kpognon *et al.* (2020) analyzed the effect of trade openness and labour market institutions (using the Fraser Institute Economic Freedom Index as proxy for labour market institutions) on youth unemployment, finding both significantly improved youth employment in Sub-Saharan Africa. However, their interaction analysis revealed trade openness reduced youth employment in more rigid labour markets.

In summary, existing research presents mixed findings on trade openness's unemployment effects: Felbermayr *et al.* (2011) show reduced unemployment in OECD countries; Awad (2019) and Kpognon *et al.* (2020) find similar effects in Africa and SSA; Janiak (2006) reports increased unemployment in the US case. The mixed findings may result from variations in estimation methods, study periods, and regional contexts. Although labour market institutions moderate the trade openness-youth unemployment relationship, few studies have examined their role in Sub-Saharan Africa or analyzed gender-specific effects. Gender-disaggregated analysis is essential because trade openness may affect male and female youth differently, given existing labour market inequalities. Labour market institutions are also likely to influence the link between trade openness and youth unemployment. The existence of labour market legislations such as the minimum wage, unemployment benefits, unionization rates, and employment protection legislation, is to protect the most vulnerable participants in the labour market, generally by guaranteeing certain rights and providing workers with some basic protection against harm and/or loss of income. We include a trade-institutions interaction term to examine how institutional quality affects trade openness-youth unemployment nexus, while also performing a gender-disaggregated analysis. We study 35 SSA countries using the random effects estimator to capture the country-specific effects from 2000 to 2020.

3. Methodology

This study uses panel data to analyze how trade openness affects youth unemployment in SSA. In addition, the study explores the effect of trade openness on youth unemployment at gender level, by considering the effect of trade openness on male youth unemployment and female youth unemployment. We use annual data from the World Bank's World Development Indicators, International Labour Organisation (ILO) and the Fraser Institute's Economic Freedom of the World (EFW) index databases. The sample for this study is drawn from thirty-five (35) SSA countries spanning the period 2000-2020. The study relies on data that are available for each country during the study period. Based on varying data for the countries over the study period, the panel is unbalanced. Based on the objectives of the study, we run regressions for aggregate youth unemployment as well as for male- and female-youth unemployment.

Following Anyanwu (2014), we specify our empirical models as:

$$UEMP_{it} = \alpha_{it} + \delta TRADE_{it} + \theta INST_{it} + \gamma(TRADE * INST)_{it} + \beta X_{it} + \eta_{it} + \varepsilon_{it} \quad (1)$$

$$MALE_{it} = \alpha_{it} + \delta TRADE_{it} + \theta INST_{it} + \gamma(TRADE * INST)_{it} + \beta X_{it} + \eta_{it} + \varepsilon_{it} \quad (2)$$

$$FEMALE_{it} = \alpha_{it} + \delta TRADE_{it} + \theta INST_{it} + \gamma(TRADE * INST)_{it} + \beta X_{it} + \eta_{it} + \varepsilon_{it} \quad (3)$$

where *UEMP* denotes youth unemployment rate, *MALE*, male youth unemployment, *FEMALE*, female youth employment, *TRADE* denotes trade openness (sum of exports and imports as percent of GDP); $INST$ denotes institutions (measured by Fraser Institute's EFW index on a scale of 0 to 10, with higher values depicting stronger institutions)[1]; $(TRADE * INST)$ is interaction between trade openness and institutions; X denotes the set of control which include GDP per capita, level of institutionalized democracy, foreign domestic investment, inflation, credit to private sector, and government expenditure. Further, θ, γ and β (vector) are parameters to be estimated, ε is the random error term and i denotes countries and t denotes time period.

To account for country heterogeneity and temporal variation, we estimate both random and fixed effects models. The fixed effect model controls for all time-invariant country characteristics, preventing bias from omitted time-invariant variables. We use the Hausman test (Hausman, 1978) to select between fixed and random effects models. The Hausman test determines whether the country-specific effects correlate with regressors. The null hypothesis states that there is no correlation between the country specific effect and the regressors, in which case the random effects model is preferred. Rejecting the null means the fixed effect model is preferred. Additionally, the study employs the panel unit root test by Im-Pesaran-Shin test to address the issue of stationarity (Im, Pesaran & Shin, 2003).

[1] Fraser Institute's EFW index is a composite index consisting of six sub-indicators that measure the influence of hiring and minimum wage regulations, hiring and firing regulations, centralized collective bargaining, working hour regulations, mandatory costs of laying off workers, and conscription.

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4. Results

Table 1 presents descriptive statistics for all model variables. Across 35 SSA countries (2000-2020), the average youth unemployment rate (UNEMP) was 13.2%. Female youth unemployment (FEMALE) averaged 14.3% - approximately 2 percentage points higher than the male rate (MALE: 12.5%). Sub-Saharan African countries are relatively open to trade with an average trade intensity index of 77.52 over the period. The institutional quality index (INST) averaged 6.03 (scale 0-10), suggesting moderately strong labour market regulations. Government expenditure (GEXP) averaged 14.09% of GDP, while foreign direct investment (FDI) inflows averaged 3.69% of GDP. Domestic credit (CRED) averaged 17.56% of GDP, and inflation (INFL) averaged 9.44% annually. Appendix A2 provides the panel unit root tests results using the Im-Pesaran-Shin test. The panel unit root results indicate that, none of the variables are integrated of order 2.

Table 1: Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max	Obs.
UNEMP	13.20	11.97	0.47	47.41	735
MALE	12.48	10.90	0.69	43.91	735
FEMALE	14.29	13.63	0.16	52.23	735
TRADE	77.52	80.89	16.35	769.05	727
INST	6.03	1.61	1.33	9.24	683
GDPC	7.53	3.87	4.74	29.83	735
GEXP	14.09	6.63	0.95	43.48	701
FDI	3.69	5.49	-18.92	46.28	735
CRED	17.56	17.05	0.00	104.85	722
DEM	0.26	0.05	0.19	0.45	700
INFL	9.44	35.96	-16.86	557.20	706

Table 2 presents the empirical results. Based on the results of the Hausman Tests (as indicated in Appendices A3, A4 and A5), the study adopts the random effects model. Table 2 shows trade openness significantly reduces: aggregate youth unemployment, male youth unemployment; and female youth unemployment. The reduction is larger for female (-0.408) than male (-0.283) youth unemployment. A one-unit increase in trade openness reduces: 1) aggregate youth unemployment by 0.328 units; 2) male youth unemployment by 0.283 units; and 3) female youth unemployment by 0.408 units. Strong abour market institutions (EFW index) are negatively correlated with youth unemployment, with greater effects for females than males. The interaction of institutions with trade openness, however, reveals a positive effect on youth unemployment. In relation to the control variables, domestic credit to the private sector has a positive and significant effect on youth unemployment, male youth unemployment and female youth unemployment. The study also reveals that, democracy is positively correlated with unemployment rates across all youth categories. GDP per capita, government expenditure, and inflation, however, show no statistically significant effects on unemployment rates.

Our results align with Felbermayr *et al.* (2011), Anyanwu (2014), and Kpognon *et al.* (2020). As Anyanwu (2014) suggests, trade openness may reduce youth unemployment through new firm creation and sectoral expansion, which disproportionately employ young workers. Youth workforces may be particularly attractive to firms due to their greater adaptability (Awad, 2019), further reducing youth unemployment. While trade openness reduces unemployment for both genders, the effect is stronger for female youth. Institutional quality significantly reduces SSA unemployment rates. Labour market regulations (INST) show significant negative associations with unemployment across all youth categories. This supports Awad (2019) and Kpognon *et al.* (2020), confirming labour market regulations' importance in unemployment reduction. Comparatively, the effect of institutions in minimising the unemployment rate is higher for the female youth than male youth. The negative relationship between youth unemployment and institutions can be explained by the fact that labour market regulations and labour/employment policies in SSA are quite strong and favourable towards the youthful population of unemployed (Kpognon *et al.*, 2020) as countries on the continent work to fight youth unemployment.

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Table 2: Random effects estimates of trade openness on unemployment

	UNEMP	MALE	FEMALE
TRADE	-0.328***	-0.283**	-0.408***
	(-0.115)	(-0.113)	(-0.129)
INST	-0.843***	-0.867***	-0.893***
	(-0.274)	(-0.27)	(-0.309)
TRADEINST	0.0514***	0.0501***	0.0561***
	(-0.0146)	(-0.0144)	(-0.0164)
GDPC	0.00696	0.00667	0.00768
	(-0.0302)	(-0.029)	(-0.0343)
GEXP	0.0827	0.0852	0.0791
	(-0.0564)	(-0.0556)	(-0.0635)
FDI	-0.0515	-0.0642	-0.0459
	(-0.058)	(-0.0572)	(-0.0653)
CRED	0.0943**	0.0659*	0.125***
	(-0.0387)	(-0.0379)	(-0.0436)
DEM	0.316***	0.348***	0.275**
	(-0.106)	(-0.104)	(-0.119)
INFL	0.0224	0.016	0.0291
	(-0.0435)	(-0.0429)	(-0.0489)
Constant	3.755***	3.794***	3.893***
	(-0.673)	(-0.661)	(-0.758)
R-squared	0.342	0.258	0.32
Prob > chi2	0.002	0.001	0.004
Wald chi2	26.07	27.87	24.46
No. of Obs.	602	602	602

Note: Standard error in parenthesis. *, **, and *** correspond to 10%, 5% and 1 % significance level respectively

Unexpectedly, the trade-institutions interaction positively affects both aggregate and gender-specific youth unemployment. Thus, while trade and institutions generally reduce unemployment, trade openness increases youth unemployment in strong institutional settings. Ebaidalla (2016) finds strict employment protection discourages hiring during booms due to high firing costs during downturns. Consequently, firms hire only high-skilled workers to avoid dismissal costs. This limits job opportunities for youth. Consistent with Kpognon *et al.* (2020) and Helpman & Itskhoki (2010), strong institutions don't guarantee lower unemployment.

5. Conclusion and Recommendations

This paper examined the effect of trade openness on youth (aggregate and gender-specific) unemployment and explored the role of institutions in the link between trade openness and youth unemployment in 35 SSA countries from 2000 to 2020, using the random effects estimator to capture the country-specific effects. Results show that trade openness significantly reduces youth unemployment (aggregate and gender-specific). This reduction is larger for female than male youth. Furthermore, institutional quality significantly lowers youth unemployment. However, the interaction of institutions and trade openness increases youth unemployment. To deal with the rising youth unemployment problem in SSA, policymakers should strengthen the trade sectors to boost exports, competitiveness, and youth employment. In addition, labour market liberalization should balance flexibility with worker protection to optimize trade's employment benefits. Complementary policies should promote youth hiring without market distortions. Targeted regulations should address female youth's higher unemployment. Policies such as affirmative actions and investments could reduce female youth unemployment. While advancing the institutional and gender roles in the trade openness-youth unemployment relationship using the random effects estimator, this study does not account for dynamic effects of trade openness on youth unemployment. Future research could employ the Pooled Mean Group estimator to assess both country-specific and pooled effects across time horizons.

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Appendices

Table A1: Correlation Matrix

	UNEMP	MALE	FEMALE	TRADE	INST	GDPC	GEXP	FDI	CRED	DEM	INFL
UNEMP	1										
MALE	0.99	1									
FEMALE	0.99	0.96	1								
TRADE	0.08	0.08	0.09	1							
INST	0.27	0.24	0.28	0.08	1						
GDPC	-0.08	-0.08	-0.08	-0.05	0.10	1					
GEXP	0.45	0.41	0.49	-0.07	0.05	0.04	1				
FDI	0.06	0.08	0.03	0.05	-0.12	0.02	0.06	1			
CRED	0.51	0.46	0.54	-0.02	0.21	0.02	0.34	-0.05	1		
DEM	-0.07	-0.07	-0.08	-0.05	-0.11	-0.08	-0.09	-0.08	-0.19	1	
INFL	-0.03	-0.02	-0.04	0.01	0.01	-0.03	-0.11	-0.04	-0.08	0.06	1

Table A2: Im-Pesaran-Shin test

Variables	**Levels**		**First Difference**		**Order of Integration**
	T-Statistics	5% Critical Value	T-Statistics	5% Critical Value	
UNEMP	-0.4715	-1.730	-2.4145	-1.730	I(1)
MALE	-0.8129	-1.730	-2.3050	-1.730	I(1)
FEMALE	-0.5510	-1.730	-2.5628	-1.730	I(1)
TRADE	-1.7722	-1.730	-4.4033	-1.730	I(0)
INST	-2.1447	-1.730	-4.8023	-1.730	I(0)
GDPC	-1.3184	-1.730	-3.9252	-1.730	I(1)
GEXP	-1.7312	-1.730	-4.4098	-1.730	I(0)
FDI	-2.5536	-1.730	-5.8083	-1.730	I(0)
CRED	-1.0255	-1.730	-2.9770	-1.730	I(1)
DEM	-3.3649	-1.730	-5.0185	-1.730	I(0)
INFL	-3.7602	-1.730	-5.8323	-1.730	I(0)

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Table A3: Hausman Test-Youth Unemployment

	Coefficients	----		
	(b) fe	(B) .	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
lnTRADE	-0.35507	-0.327642	-0.0274306	0.0234794
lnINST	-0.85153	-0.842961	-0.0085717	0.030194
lnTRADEINST	0.050067	0.051407	-0.0013403	0.0022543
lnGDPC	-0.02236	0.0069569	-0.0293216	0.0446882
lnGEXP	0.064053	0.0826543	-0.0186011	0.0103734
lnFDI	-0.0442	-0.051549	0.0073501	0.0024759
lnCRED	0.093232	0.0942652	-0.0010331	0.0163867
lnDEM	0.258805	0.3156582	-0.0568536	0.0777507
lnINFL	0.015913	0.0223615	-0.0064485	0.0016554

b= consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 13.47
Prob>chi2 = 0.1424
(V_b-V_B is not positive definite)

Table A4: Hausman Test- Male Youth Unemployment

	Coefficients	----		
	(b) fe	(B) .	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
lnTRADE	-0.3127147	-0.2833636	-0.0293511	0.0241042
lnINST	-0.8783886	-0.8669653	-0.0114234	0.0313327
lnTRADEINST	0.049025	0.0500577	-0.0010327	0.0023296
lnGDPC	-0.0152728	0.0066688	-0.0219416	0.0446531
lnGEXP	0.0666777	0.0852132	-0.0185354	0.0106584
lnFDI	-0.0577414	-0.0641825	0.0064411	0.0028583
lnCRED	0.0702092	0.0658946	0.0043146	0.0167591
lnDEM	0.3116186	0.348173	-0.0365544	0.0778717
lnINFL	0.0097382	0.0160128	-0.0062746	0.0020408

b= consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 12.12
Prob>chi2 = 0.2064
(V_b-V_B is not positive definite)

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Table A5: Hausman Test- Female Youth Unemployment

	----Coefficients ----			
	(b) fe	(B) .	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
lnTRADE	-0.4402111	0.4081298	-0.0320813	0.0258257
lnINST	-0.90358	0.8925102	-0.0110698	0.0324052
lnTRADEINST	0.054634	0.056119	-0.001485	0.0024582
lnGDPC	-0.0350473	0.0076791	-0.0427264	0.0500192
lnGEXP	0.0584543	0.0791085	-0.0206542	0.0113846
lnFDI	-0.0361747	0.0458864	0.0097117	0.0020097
lnCRED	0.1182768	0.1251589	-0.0068821	0.0181594
lnDEM	0.1860835	0.2745853	-0.0885018	0.0869158
lnINFL	0.0212954	0.0291101	-0.0078147	0.001125

b= consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 13.93
Prob>chi2 = 0.1250
(V_b-V_B is not positive definite)

Table A6: Ordinary Least Squares and Fixed Effects Estimates

	UNEMP	MALE	FEMALE	UNEMP	MALE	FEMALE
	OLS (1)	OLS (2)	OLS (3)	FEM (4)	FEM (5)	FEM (6)
lnTRADE	-0.0305	0.0773	-0.0954	-0.355***	-0.313***	-0.440***
	(-0.176)	(-0.168)	(-0.2)	(-0.117)	(-0.115)	(-0.132)
lnINST	-0.967*	-0.668	-1.275**	-0.852***	-0.878***	-0.904***
	(-0.548)	(-0.523)	(-0.623)	(-0.276)	(-0.272)	(-0.31)
lnTRADEINST	0.0829***	0.0640**	0.102***	0.0501***	0.0490***	0.0546***
	(-0.0261)	(-0.0249)	(-0.0297)	(-0.0147)	(-0.0146)	(-0.0166)
lnGDPC	0.0159*	0.0131	0.0219**	-0.0224	-0.0153	-0.035
	(-0.00946)	(-0.00902)	(-0.0108)	(-0.0539)	(-0.0532)	(-0.0607)
lnGEXP	0.641***	0.615***	0.698***	0.0641	0.0667	0.0585
	(-0.0739)	(-0.0705)	(-0.084)	(-0.0573)	(-0.0566)	(-0.0645)
lnFDI	-0.106	-0.087	-0.168	-0.0442	-0.0577	-0.0362
	(-0.145)	(-0.139)	(-0.165)	(-0.058)	(-0.0573)	(-0.0653)
lnCRED	0.0576**	0.0128	0.110***	0.0932**	0.0702*	0.118**
	(-0.0263)	(-0.0251)	(-0.0299)	(-0.042)	(-0.0415)	(-0.0473)
lnDEM	0.208	0.213	0.199	0.259**	0.312**	0.186
	(-0.203)	(-0.193)	(-0.23)	(-0.131)	(-0.13)	(-0.148)
lnINFL	0.314***	0.332***	0.347***	0.0159	0.00974	0.0213
	(-0.104)	(-0.0988)	(-0.118)	(-0.0435)	(-0.043)	(-0.049)
Constant	-0.382	-0.806	-0.303	4.082***	4.097***	4.307***
	(-1.174)	(-1.12)	(-1.334)	(-0.729)	(-0.72)	(-0.82)
R-squared	0.314	0.285	0.33	0.341	0.25	0.31
Prob>F	0.000	0.000	0.009	0.004	0.001	
Observations	602	602	602	602	602	602

Note: Standard error in parenthesis. *, **, and *** correspond to 10%, 5% and 1 % significance level respectively.

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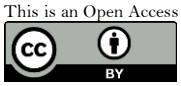
Table A7: List of countries in the sample

Angola	Gambia	Niger
Benin	Ghana	Nigeria
Burkina Faso	Guinea Bissau	Rwanda
Burundi	Kenya	Senegal
Botswana	Lesotho	Sierra Leone
Cameroon	Madagascar	South Africa
Central African Republic	Malawi	Tanzania
Congo Dem. Rep.	Mali	Togo
Congo Rep.	Mauritania	Uganda
Cote d'Ivoire	Mauritius	Zambia
Ethiopia	Mozambique	Zimbabwe
Gabon	Namibia	



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