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Democracy and Intra-Africa Trade

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Abstract

Despite numerous efforts by policymakers, trade among African countries remains abysmal. In this paper, we investigate whether democracy influences intra-Africa trade of goods. Using the gravity model on bilateral trade among 48 Sub-Sahara African countries over the period 2000 to 2018, we find that democracy fosters intra-Africa goods trade. This effect is more pronounced in the manufacturing sector. Reversals to autocracy, however, adversely impact intra-Africa trade flows. Our paper therefore highlights democratic development as an important channel for accelerating trade among African countries.

Keywords Democracy · Intra-Africa trade · Gravity model

JEL Classification C14 · F14 · F15 · P16

"Democracies don't attack each other. They make better trading partners…".
Bill Clinton (State of the Union Address, 1994).

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Introduction

Fostering intra-Africa trade is pivotal for accelerating sustainable growth across the continent. It contributes to the creation of jobs, guards against external macroeconomic shocks (e.g., disruption in international supply chains induced by the COVID-19 pandemic), enhances the exploitation of regional economies of scale, and increases the survival of African export flows (UNDP 2011; Kamuganga 2012; Anyanwu 2014).

Unfortunately, however, intra-Africa trade remains abysmal. From 2015 to 2017, for example, the average of trade among African countries accounted for just 15.2% of the continents' total trade (UNCTAD 2019a). Compared to intra-regional trade over the same period in other parts of the world, such as the 47% in America, 61% in Asia, and 67% in Europe, the level of Africa's internal trade is extremely low (UNCTAD 2019a). The fact that Africa trades considerably less among itself is a key issue among policymakers as it obstructs the potential for deep regional integration and hampers economic development opportunities for Africa.

A large strand of the literature has therefore investigated the factors that account for the low trade among African countries (e.g., Fosu 2003; Longo and Sekkat 2004; Geda and Kebret 2008; De Melo and Tsikata, 2015; Hoekman and Senbet, 2017). The consensus broadly centers around three main issues: ineffective government policies and political instability, infrastructural weaknesses, and geography costs.

These findings raise questions about the role of political regimes in facilitating intra-Africa trade. Indeed, studies predict that democratic regimes are associated with lower transaction costs in exchanges and formulate trade policies that maximize preferences of the median voter (Mayer 1984; Decker and Lim 2009; Yu 2010). Moreover, a closer look at the data reveals important cross-country differences. For instance, the top four countries with the least share of intra-Africa exports in total exports between 2015 and 2017 are Chad with 0.2%, Guinea with 1.6%, Eritrea with 2.3%, and Equatorial Guinea with 3.5% (UNCTAD 2019a). Except Guinea (rated as "Partly Free"), Freedom House classifies all the remaining countries as autocratic states, with political rights and civil liberties ratings of "Not Free."[1]

In this paper, we question whether democracy contributes to foster intra-African trade of goods. Following Delis et al. (2020, p. 572), we consider democracy as the overall "institutional umbrella that primarily encompasses changes in constitutional characteristics of democracy, such as a system of free elections, the evolution of checks and balances by independent political bodies, and the evolution of civil liberties." We expect that the changes in these democratic characteristics may influence intra-Africa trade of goods.

[1] A country is rated by Freedom House as "Not Free" if "basic political rights are absent, and basic civil liberties are widely and systematically denied."

Theoretically, there are three main contributing factors to democracy fostering intra-Africa trade. First, democracy promotes the development of financial systems particularly for less-developed countries (Huang 2010), by reducing the cost of credit (Delis et al. 2020) and alleviating credit constraints (Osei-Tutu and Weill 2022) for firms.[2] This, in turn, favors bilateral trade by enabling countries take advantage of technology transfer and specialization, address firms' liquidity constraints, increase the level of physical capital, and exploit economies of scale. It accords with the finding from Beck (2002, 2003) that the share of exports in industries that use more external finance is higher in countries with better developed-financial systems. Democracy may therefore play a role in strengthening intra-Africa trade by improving the financial sector.

Second, democracy is associated with better institutional environment, *ceteris paribus*, which enhances trade of goods. Compared to autocracies, democracies better strengthen the rule of law, have well-defined political cycles enhancing political stability, better protect property rights, and have effective legal systems for contract enforcement (Clague et al. 1996; Rodrik 2000; Knutsen 2011). The importance of institutional quality in bilateral trade has been largely documented in the literature. For example, Berkowitz et al. (2006) show that institutions that better enforce contracts and protect property rights enhance mutually beneficial trade by reducing trade costs and risks associated with international transactions, which offers assurances to exporters and importers. Weak institutions may therefore act as a tax on trade and adversely impact trade flows. Using a sample of 45 Sub-Sahara African (SSA) countries, Bah et al. (2021) find that strong institutional framework boosts total exports of goods and services. Rodrik (2000) further highlights the role of better institutions in enhancing competitive markets which ensures high-quality products. Thus, better institutional framework in democracies may facilitate trade by reducing trade costs, improving product quality, and fostering trust in an exporters' products.

The third mechanism concerns the protection of civil liberties and the free flow of information in democracies. This dimension of enhanced press freedom and increased information flows in democracies may spur trade by reducing information asymmetry. As documented by Cotterlaz and Fize (2021) and Bjørnskov and Schröder (2022), better freedom of the press is associated with reliable bilateral market information which reduces uncertainty and information frictions for firms and consequently fosters bilateral trade.

Democracy may however not always be beneficial for trade. In the African context, "pre-mature" democracies may not implement optimal welfare-enhancing decisions under pressure from special interest groups (Fernandez and Rodrik 1991; Persson and Tabellini 1992). This may create ethnic conflicts, increase political instability, raise trade barriers, and consequently reduce trade flows. Therefore,

[2] Several other studies provide direct or indirect support for this view (Haber and Perotti 2008; Yang 2011). For instance, Gaibulloev and Younas (2016) show that internal conflicts and terrorism—which is low in democracies—reduces the level of domestic bank lending to the private sector in developing countries.

whether democracy fosters intra-Africa trade is an empirical question we seek to address in this paper.

To investigate the impact of democracy on intra-Africa trade, we employ data on bilateral trade flows among 48 SSA countries for the period 2000 to 2018. We combine information on trade flows with democracy indicators from the Polity 5 project. Methodologically, we employ the gravity model with the Poisson Pseudo-Maximum Likelihood (PPML) estimator suggested by Santos Silva and Tenreyro (2006). The PPML estimator offers two advantages for our analysis: (1) It is more consistent with the estimation of gravity model of trade as it overcomes common issues associated with panel data analysis; and (2) it addresses potential bias due to the problem of zero trade flows between countries.

By way of preview, our results indicate that democratic development significantly influences intra-Africa trade. We find that democracy spurs total trade of goods among African countries, for both manufacturing and primary goods. Our estimates suggest that a one-unit increase in democracy (on a scale of −10 to 10) boosts total goods trade among African countries by almost 19.6 percentage points. To further assess the strength of our argument, we examine how abrupt reversals from democracy toward autocracy affect trade flows among African countries. Using data on *Coup d'état* from Polity project, we find that reversals have significant adverse effects on trade in manufacturing goods. Reversals to autocracy thus highlight an important mechanism through which the compounding benefits of democratic institutions are eroded.

We go a step further to explore the role of the various institutional components of democracy in facilitating intra-Africa goods trade. We observe that all four components of democracy, as emphasized by Polity (i.e., competitiveness of executive recruitment, openness of executive recruitment, constraints on executive, and competitiveness of participation), are important in explaining the positive impact of democracy on intra-Africa trade of goods. Overall, our results show that democratic development is an important channel for accelerating trade among African countries.

This paper contributes to the literature in three ways. First, we document the role of political regimes in facilitating intra-Africa trade, which has been overlooked in previous studies. Our paper is therefore the first, to the best of our knowledge, to provide evidence of an impact of democracy on trade among African countries. Second, we emphasize the beneficial role of democracy on intra-Africa trade as an important mechanism through which democracy exerts an impact on economic activities. Our paper therefore adds to the recent studies examining the effect of democracy on economic development in Africa (e.g., Masaki and Van de Walle, 2014; Colagrossi et al. 2020). We highlight enhanced trade among African countries as an important channel through which democracy spurs growth in Africa. Third, we extend the emerging literature studying the impact of democracy on trade (Decker and Lim 2009; Aidt and Gassebner 2010; Yu 2010). Our study shows that democratic development favors intra-Africa goods trade.

We organize the remaining parts of the paper as follows. Section "Empirical Analysis" discusses the empirical strategy, and the main findings are presented in

Section "Results and discussion." Section "Robustness checks" reports the robustness checks. Section "Conclusion" concludes the paper.

Empirical Analysis

Augmented Gravity Model

To examine the effect of democracy on intra-Africa trade, we use the gravity model developed by Anderson (1979). This model has established itself as the workhorse framework in international trade. The gravity equation is generally specified as follows:

$$X_{ij,t} = G_t \frac{\pi_{i,t}\Phi_{j,t}}{T_{ij,t}} \forall i,j$$

where $X_{ij,t}$ represents the value of exports from country i to country j at time t. $T_{ij,t}$ captures all bilateral frictions between i and j, including transportation costs and trade policies. $\pi_{i,t}$ and $\Phi_{i,t}$, respectively, denote all possible characteristics of the exporter and importer (e.g., country size and the multilateral resistance terms of Anderson and Van Wincoop (2003)). G_t is a gravity constant whose structural interpretation is a function of the value of output in the world at time t. In order to estimate this equation, we first need to linearize it by taking the logarithm of each variable in the model. The equation then becomes:

$$\ln X_{ij,t} = \alpha_0 + \alpha_1 \ln Y_{i,t} + \alpha_2 \ln Y_{j,t} + \alpha_3 \ln t_{ij,t} + \alpha_4 \ln \Pi_i + \alpha_5 \ln P_j + \varepsilon_{ij,t} \quad (1)$$

where α_0 is the constant term, $\alpha_3 = 1 - \sigma$; $Y_{i,t}$ and $Y_{j,t}$ represent, respectively, GDP of the exporting and importing countries at time t; $t_{ij,t}$ captures the bilateral costs between country pairs; Π_i denotes the terms measuring barriers to trade between each country and the rest of the world; P_j captures the price index of the importing country; and $\varepsilon_{ij,t}$ is the error term.

Employing the model of Anderson and Van Wincoop (2003; 2004), we specify our baseline equation as follows:

$$X_{ij,t} = \exp[\beta_0 + \beta_1 Z_{ij,t} + \beta_2 t_{ij} + \beta_3 \text{Democracy}_{i,t} \times \text{INTL}_{ij} + \mu i, t + \alpha ij + \pi ii] + \int ij, t \quad (2)$$

where $X_{ij,t}$ denotes the nominal exports of good commodities from exporter i to importer j in year t. We use nominal exports and not those deflated by US aggregate price indices to avoid bias problems. As noted by Baldwin and Taglioni (2006), the inclusion of this term may create biases via spurious correlations since there are global trends in inflation rates. $Z_{ij,t}$ is a vector of time-variant bilateral variables which includes a dummy variable that equals one if country i and country j share the same regional trade agreement (RTA) and zero otherwise. We add t_{ij} which captures time-invariant bilateral control variables by including dummies for bilateral distance (Ln dist$_{ij}$), common language (lang$_{ij}$), common border (border$_{ij}$), common currency (common currency$_{ij}$), and colonial links (Colonial links$_{ij}$).

Democracy$_{i,t}$ measures the level of democracy in the exporting country. $\mu_{i,t}$ represents the exporter fixed effects which accounts for multilateral resistance terms in the gravity model (Olivero and Yotov 2012). α_{ij} represents country-pair fixed effects, accounting for the potential endogeneity issue of RTA (Baier and Bergstrand 2007). They eliminate or account for, respectively, unobservable links between the endogenous trade policy covariate and the error term in the gravity regressions. Moreover, they also absorb all bilateral time-invariant covariates (e.g., bilateral distance, common language, common border, etc.), but will have the advantage of accounting for any unobservable time-invariant component of trade costs (Egger and Nigai 2015; Agnosteva et al. 2014).[3] π_{ii} represents the intra-national trade fixed effects, controlling for country-specific intra-national trade costs and "home bias" effects and any other country-specific time-invariant characteristics that may drive a wedge between internal and international trade. $\epsilon_{ij,t}$ is an error term.

A key issue concerns the fact that we cannot include the exporter specific democracy index and country-time fixed effects because the latter may absorb the former and we cannot then estimate the impact of Democracy$_{i,t}$. To solve this problem, we estimate the exporter democracy variable with international and intra-national trade (Heid et al. 2017). In Eqn (2), $X_{ij,t}$ therefore includes international and intra-national trade (*Xii,t*) in year *t*. *INTLij* is a dummy variable that captures international trade. It takes a value of one for international trade between countries *i* and $j \neq i$, and zero otherwise (thus when the exporter and the importer are the same country, therefore trade is intra-national). The interaction term Democracy$_{i,t}$ × INTL therefore represents our variable of interest and captures the effect of changes in democracy on the estimated flow of goods exports from country *i* to country *j* relative to the consumption of domestically sourced good commodities in country *i* and *j*.

As explained by Heid et al. (2017), the estimates of country-specific variables in the structural gravity model are less likely to be subject to endogeneity concerns as compared to their bilateral counterparts for two reasons: (1) It is unlikely that a country-specific variable will be influenced by any bilateral trade flow; and (2) the directional fixed effects in the structural gravity model will absorb much of the unobserved correlation between the country-specific variables covariates and the gravity error term. This approach resolves the "distance puzzle" in trade, by measuring the effects of distance on international trade relative to the effects of distance on internal trade (Yotov 2012).

The estimation of the gravity equation with an OLS estimator is biased in the presence of zero trade and heteroscedasticity. The fact that OLS estimator does not take into account countries that are not trading with each other biases our results, because zero trade reveals crucial information (for example, lack of information, high transport costs, or landlocked countries). Omitting zero trade may thus constitute a significant bias in our analysis.[4] Indeed, zero commerce is associated with high bilateral fixed costs of trade. To avoid biased estimation results, we employ the

[3] They show that country pair fixed effects are a better measure of bilateral trade costs than the standard set of gravity variables.

[4] Intra-African trade is pronounced by high zero trade flows. Almost 44% of total trade flows are zero.

Pseudo-Maximum Likelihood estimator (PPML) suggested by Santos Silva and Tenreyro (2006). We use the PPML to deal with the constraints of zero trade between countries and also estimate the nonlinear shape of the gravity model in the presence of heteroskedasticity. An important assumption of the PPML estimator however is equidispersion, which suggests that the conditional variance of the dependent variable and its conditional mean are equal.

Data Sources

This paper employs data on trade in goods products between 48 SSA countries from 2000 to 2018.[5] Our dependent variables are primary, manufactured, and total goods (primary plus manufacturing) exports. We consider primary and manufacturing products because they are the most important in intra-Africa trade. They include international and domestic trade. Data on primary goods are taken from the United Nations Conference on Trade and Development database (UNCTADstat), which uses the Classification Standard International Trade (SITC Rev.3).[6] The primary industry covers agricultural and mineral products (SITC 0, 1-4, 68, 667, and 971). Manufacturing products are products classified in SITC 5 to 8 less 667 and 68. We extract intra-trade data from the new International Trade and Production Database (ITPD-E) developed by Borchert et al. (2021).[7] The ITPD-E contains consistent data on international and domestic trade for 243 countries, 170 industries, and for 17-year period.

The data are constructed at the industry level covering agricultural, mining, energy, manufacturing, and services, so the ITPD-E describes almost all the traded sectors of each economy. Data on gross production of primary commodities include both agricultural and mining and energy production. The first one comes from the Food and Agriculture Organization of the United Nations Statistics Division (FAOSTAT)[8] and the second from the Mining and Utilities Statistics database (MINSTAT) of the United Nations Industrial Development Organization (UNIDO). The manufacturing gross output data are obtained from the United Nations Industrial Statistics Database (INDSTAT).[9]

We extract data on democracy from the Polity 5 project. This variable considers the presence of institutions through which citizens can take part in the political process and is widely used in the literature to measure the economic impact

[5] The countries include: Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo Dem. Rep., Congo Rep., Cote d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, São Tomé and Principe, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Tanzania, Togo.

[6] We use information on bilateral exports (annual frequency).

[7] Intra-national trade is calculated as the difference between gross output value data and total exports at aggregated levels.

[8] http://www.fao.org/economic/ess/ess-standards/commodity/en/

[9] Data can be accessed at: https:http://stat.unido.org.

Table 1 Descriptive statistics

Variables	Obs.	Mean	Std. dev.	Min	Max
Total goods$_{ij,t}$	45,608	41789.47	1189927	0	8.58e + 07
Primary goods$_{ij,t}$	45,592	25956.41	421256.6	0	3.86e + 07
Manufactured goods$_{ij,t}$	45,257	18325.16	955962.2	0	1.36e + 08
RTAij,t	46,080	0.293	0.455	0	1
border$_{ij}$	46,080	0.072	0.258	0	1
lang$_{ij}$	46,080	0.434	0.496	0	1
Colonial links$_{ij}$	46,080	0.262	0.44	0	1
Ln distance$_{ij}$	46,080	3.385	0.583	0	3.986
Common Currency$_{ij}$	46,080	0.037	0.19	0	1
Democracy$_{i,t}$	41,472	2.183	5.131	−9	10
Coup d' Etat$_{i,t}$	46,080	0.091	0.287	0	1
Electoral_dem$_{i,t}$	46,080	0.430	0.193	0.067	0.84
Dem_Acemoglu$_{i,t}$	39,312	0.527	0.499	0	1

of democratic institutions (Yu 2010; Delis et al. 2020; Osei-Tutu and Weill 2022). Our *democracy* measure is the combined Polity index which ranges from −10 to 10, where 10 indicates high level of institutional democracy. This index enables us to capture subtleties in differences in cross-country democracy levels covering a range from fully institutionalized autocracies through to mixed authority regimes to maximum level of institutionalized democracies.

Data on the bilateral resistance variables, i.e., bilateral distance between the two capitals, common border, language and colonial links, are extracted from the Centre d' Etudes Prospectives et d' Informations Internationales (CEPII). Data on regional trade agreements (RTA) come from the World Trade Organization (Regional Trade Agreements Information System, RTA-IS). Table 1 displays the descriptive statistics for the variables. Table 8 presents the detailed definitions and sources of all the variables employed in this study.

Results and Discussion

Baseline Results

Table 2 presents the baseline results of the gravity model. As explained earlier, we use the PPML estimator instead of standard OLS to control for heteroscedasticity and the zero trade issues. We first present results on the effect of democracy on overall trade in total goods in columns (1)–(2). Then we analyze separately the two components of total goods by investigating trade in primary goods in columns (3)–(4) and manufacturing goods in columns (5)–(6).

Our results show that democracy is beneficial for intra-Africa trade. In all estimations, we observe significantly positive coefficients for *Democracy* (except the

Table 2 Main results

	PPML estimate					
	Total goods		Primary goods		Manufacturing goods	
	(1)	(2)	(3)	(4)	(5)	(6)
$\text{Democracy}_{i,t} \times \text{INT}_{ij}$	0.115 (0.071)	0.196*** (0.956)	0.054** (0.024)	0.105*** (0.025)	0.174*** (0.018)	0.199*** (0.024)
$\text{RTA}_{ij,t}$	− 0.002 (0.288)	− 1.171 (0.956)	1.256*** (0.228)	− 1.265*** (0.441)	0.941*** (0.193)	0.169 (0.413)
border_{ij}	− 0.212 (0.337)		0.763*** (0.137)		1.297*** (0.14)	
lang_{ij}	1.025*** (0.319)		0.489** (0.215)		0.834*** (0.194)	
Colonial links_{ij}	− 1.504*** (0.390)		0.129 (0.208)		− 0.202 (0.225)	
Ln dist_{ij}	− 1.273*** (0.352)		− 1.790** (0.184)		− 1.485*** (0.226)	
Common currency_{ij}	2.101*** (0.619)		− 0.102 (0.38)		− 0.076 (0.42)	
R^2	0.87	0.968	0.957	0.981	0.973	0.988
Observations	41044	40805	40492	33904	39272	35782
Country-pair FE	No	Yes	No	Yes	No	Yes
Intra-national FE	Yes	No	Yes	No	Yes	No

The dependent variable is aggregated bilateral trade flows ($X_{ij,t}$), including domestic trade ($X_{ii,t}$). Constructed domestic trade flows are set to missing if negative. All regressions are performed using the ppmlhdfe STATA command written by Correia, Guimarães, and Zylkin (2019). Exporter-year and importer-year fixed effects are included in all the regressions. Detailed definitions of variables are provided in Table 8. Standard errors are reported in parentheses and clustered by country-pair level. *, **, *** denote significance at the 10%, 5%, and 1% level, respectively

positive but insignificant coefficient in column (1). This finding shows that democracy fosters exports of total goods (both primary and manufacturing goods) among SSA countries. The estimates suggest that a one-unit increase in democracy (on a scale of -10 to 10) boosts exports of total goods among African countries almost by 19.6 percentage points (column 2). The results indicate that democracy fosters development of the financial sector, reduces trade costs, and enhances trust in an exporter's products, which consequently increases trade among African countries.

Focusing on the components of total goods trade, we find that the manufacturing sector is the sector most affected by the democratization of African countries. This is explained by the fact that intra-African trade is mainly dominated by trade in manufacturing products than in primary goods. For example, intra-African trade has a higher technology content than extra-African trade. While medium and high technology manufactures account for 27% of intra-African trade, they only account for 16.6% of African countries' exports to developed countries in 2016. Similarly, intra-African trade has a relatively higher manufactured goods content, i.e., more machineries and other goods or component parts for use or consumption by other

industries or firms, than African countries' trade with the rest of the world (Saygili et al. 2017; UNCTAD 2019b).

Overall, our results highlight the beneficial role of democracy on trade among African countries. From a policy perspective, our findings suggest that improving democratic institutions could play a critical role in stimulating intra-African trade, an important instrument for unlocking Africa's economic growth potential.

Regarding the standard gravity variables, our results are in line with those of previous studies (e.g., Fidrmuc and Fidrmuc 2016). We find that distance between capitals is negative and significant. RTAs have positive and significant effects on trade in primary and manufacturing goods if we do not consider pair fixed effects. Indeed, from 2008 to 2018, very few trade agreements have been signed between African countries, so controlling for pair fixed effects, the impact of the RTA is not very significant on trade. Moreover, the common currency variable has positive and significant effects on total exports of goods. This suggests that common currency reduces transaction costs, i.e., costs related to the exchange rate, which has a negative effect on trade (Kenen et Meade, 2008).

Reversals to Autocracy

Our main results show that democracy fosters intra-Africa trade. Democracy, working through its quality institutions, provides the enabling environment which fosters bilateral trade. A natural question that emerges especially among African countries is whether abrupt reversals from democracy toward autocracy affect such democratic institutions. Recent examples include the military coup d'état and civil unrest in countries such as Burkina Faso and Mali. Such reversals significantly hinder the development of strong and effective democratic institutions and undermine the compounding impact of steady growth. We expect such events to have significant negative effects on bilateral trade flows.

To examine whether democratic reversals impede intra-Africa trade, we employ data on coup d'état from the Polity project. The data include information on successful, attempted, plotted, and alleged coup events reported in Keesing's Record of World Events and other sources. We code *Coup d'état* as a dummy variable equal to one if a country experiences coup d'état in year *t*, and zero otherwise.[10]

Results in Table 3 show that *Coup d'état* is detrimental to trade flows. We observe a significantly negative effect of *Coup d'état* on exports of manufactured goods. We find positive (but insignificant) effect on total goods and primary goods in most regressions. The insignificant coefficient on primary and total products may be driven by the fact that intra-African trade is largely dominated by trade in manufacturing products rather than primary goods (UNCTAD 2019b).

[10] More specifically, Polity defines *coup d'état* as a "forceful seizure of executive authority and office by a dissident/opposition faction within the country's ruling or political elites that results in a substantial change in the executive leadership and the policies of the prior regime (although not necessarily in the nature of regime authority or mode of governance)."

Table 3 Reversals to autocracy and intra-Africa trade

	PPML estimate					
	Total goods		Primary goods		Manufacturing goods	
	(1)	(2)	(3)	(4)	(5)	(6)
Coup d'Etat$_{i,t-1}$ × INT$_{ij}$	−0.379	0.820	0.664	0.203	−2.194***	−2.583***
	(0.848)	(1.008)	(0.608)	(0.638)	(0.759)	(0.993)
RTA$_{ij,t}$	0.038	−1.319	1.251***	−1.251***	0.880***	0.176
	(0.281)	(0.888)	(0.231)	(0.424)	(0.192)	(0.389)
Border$_{ij}$	−0.082		0.808***		1.292***	
	(0.316)		(0.141)		(0.136)	
lang$_{ij}$	1.029***		0.510**		0.776***	
	(0.313)		(0.221)		(0.195)	
Colonial links$_{ij}$	−1.481***		0.107		−0.162	
	(0.376)		(0.216)		(0.222)	
Ln dist$_{ij}$	−1.253***		−1.734***		−1.528***	
	(0.345)		(0.186)		(0.226)	
Common Currency$_{ij}$	2.092***		−0.035		0.039	
	(0.604)		(0.392)		(0.414)	
R^2	0.869	0.966	0.953	0.980	0.971	0.987
Observations	45558	45398	44979	37803	43756	39726
Country-pair-FE	No	Yes	No	Yes	No	Yes
Intra-national-FE	Yes	No	Yes	No	Yes	No

The dependent variable is aggregated bilateral trade flows ($X_{ij,t}$), including domestic trade ($X_{ii,t}$). Constructed domestic trade flows are set to missing if negative. All regressions are performed using the ppmlhdfe STATA command written by Correia, Guimarães, and Zylkin (2019). Exporter-year and importer-year fixed effects are included in all the regressions. Detailed definitions of variables are provided in Table 8. Standard errors are reported in parentheses and clustered by country-pair level. *, **, *** denote significance at the 10%, 5%, and 1% level, respectively

Coup d'état increases instability, leads to the displacement of the population, and thus of factors of production, which has a negative impact on exports (Fosu 2003; Gaibulloev and Younas 2016). Democratic reversals thus adversely affect intra-Africa trade in manufacturing goods. Our results therefore convey a clear message: Even though democratic institutions take time to mature to be able to reap all the good benefits democracy has to offer, it takes just a small amount of time to undermine the compounding impact of democratic institutions.

Components of Democracy

Thus far, we have shown that democracy fosters trade of goods among African countries. In this subsection, we delve deeper to examine the specific constitutional dimensions of democracy that contribute to the positive impact on intra-Africa trade. As explained by Polity project, "a mature and internally coherent democracy, for example, might be operationally defined as one in which (a) political participation is unrestricted, open, and fully competitive; (b) executive recruitment is elective, and

(c) constraints on the chief executive are substantial." Our aim is to explore in detail which institutional characteristics of democracy foster intra-Africa trade.

Polity highlights four components of democracy: *Competitiveness of executive recruitment* which captures the "extent that prevailing modes of advancement give subordinates equal opportunities to become superordinates"; *Openness of executive recruitment* reflects "whether recruitment of the chief executive is 'open' to the extent that all the politically active population has an opportunity, in principle, to attain the position through a regularized process"; *Constraints on executive* measures "the extent of institutionalized constraints on the decision making powers of chief executives, whether individuals or collectivities"; and finally the *Competitiveness of participation* captures "the extent to which alternative preferences for policy and leadership can be pursued in the political arena." We therefore examine the impact of each individual democracy characteristics on intra-Africa trade of goods.

We present the estimation results in Table 4. In panel A, we observe significantly positive coefficients for all four components of democracy (note that our preferred results are the estimations with country-pair fixed effects). This finding suggests that all the components of democracy contribute to foster trade of goods among African countries. In panels B and C, we focus, respectively, on primary and manufacturing goods. We find positively significant coefficient when explaining primary products. However, we obtain positive but insignificant coefficients for the components of democracy on manufacturing products. Overall, our results point to the fact all constituents of democracy are important in explaining the positive impact of democracy on intra-Africa trade of total goods.

Robustness Checks

In this subsection, we test the robustness of our results in several ways. We start by employing alternative measures of democracy; then, we control for the level of institutional development. We finally perform estimations without the interaction terms.

Alternative Measures of Democracy

In our analysis, we use the democracy index from the Polity project. Given the existence of other democracy indicators, we examine the stability of our results using alternative measures of democracy from two sources. We first rely on the democracy measure from Acemoglu et al. (2019). This dataset combines democracy indicators from both the Polity project and Freedom House. We construct *Dem_Acemoglu* as a dummy variable equal to one (democracy) if Freedom House classifies a country as "Free" or "Partially Free" and Polity gives the country a positive score (Polity 5 scale of -10 to 10). This variable is coded as zero (autocracy) if a country is rated by Freedom House as "Not Free" and Polity also gives the country a negative score.

Second, we employ the electoral democracy index compiled by the Varieties of Democracy project (Coppedge et al., 2021). This variable *Electoral_dem* measures the fairness of elections in a country and the freedom of expression. *Electoral_dem*

Table 4 Components of democracy

	PPML estimate							
	Competitiveness of executive recruitment		Openness of executive recruitment		Constraints on Executive		Competitiveness of Political Participation	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Total goods								
Democracy channel × INT_{ij}	0.002	0.014**	0.0003	0.012*	0.002	0.013*	0.0075	0.016**
	(0.01)	(0.007)	(0.009)	(0.007)	(0.009)	(0.007)	(0.011)	(0.007)
Country-pair-FE	No	Yes	No	Yes	No	Yes	No	Yes
Intra-national-FE	Yes	No	Yes	No	Yes	No	Yes	No
Panel B: Primary goods								
Democracy channel × INT_{ij}	0.015***	0.019***	0.014***	0.018***	0.015***	0.019***	0.016***	0.019***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Country-pair-FE	No	Yes	No	Yes	No	Yes	No	Yes
Intra-national-FE	Yes	No	Yes	No	Yes	No	Yes	No
Panel C: Manufacturing goods								
Democracy channel × INT_{ij}	0.001	0.003	0.001	0.003	0.001	0.003	0.002	0.004
	(0.004)	(0.006)	(0.003)	(0.006)	(0.004)	(0.006)	(0.004)	(0.006)
Country-pair-FE	No	Yes	No	Yes	No	Yes	No	Yes
Intra-national-FE	Yes	No	Yes	No	Yes	No	Yes	No

The dependent variable is aggregated bilateral trade flows ($X_{ij,t}$), including domestic trade ($X_{ii,t}$). Constructed domestic trade flows are set to missing if negative. All regressions are performed using the ppmlhdfe STATA command written by Correia, Guimarães, and Zylkin (2019). Exporter-year and importer-year fixed effects are included in all the regressions. Detailed definitions of variables are provided in Table 8. Standard errors are reported in parentheses and clustered by country-pair level. *, **, *** denote significance at the 10%, 5%, and 1% level, respectively

Table 5 Alternative measures of democracy

	PPML estimate											
	Total goods				Primary goods				Manufacturing goods			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dem_Acemoglu$_{i,t}$ × INT$_{ij}$	1.146** (0.477)	1.223*** (0.381)			0.605*** (0.222)	1.065*** (0.247)			2.097*** (0.303)	2.461*** (0.362)		
Electoral_dem$_{i,t}$ × INT$_{ij}$			3.234 (2.924)	10.708*** (2.594)			2.137** (0.936)	2.826*** (1.009)			4.66*** (1.667)	6.255*** (1.735)
RTA$_{ij,t}$	−0.027 (0.278)	−1.395 (1.077)	0.035 (0.281)	−1.311 (0.866)	1.272*** (0.223)	−1.279*** (0.485)	1.243*** (0.232)	−1.278*** (0.402)	0.931*** (0.188)	0.147 (0.437)	0.878*** (0.192)	0.197 (0.381)
Border$_{ij}$	−0.432 (0.329)		−0.086 (0.316)		0.721*** (0.138)		0.795*** (0.139)		1.335*** (0.142)		1.291*** (0.136)	
lang$_{ij}$	1.12*** (0.338)		1.026*** (0.313)		0.470** (0.214)		0.516** (0.221)		0.824*** (0.195)		0.774*** (0.195)	
Colonial links$_{ij}$	−1.484*** (0.413)		−1.476*** (0.376)		0.143 (0.207)		0.095 (0.218)		−0.14 (0.215)		−0.159 (0.222)	
Ln dist$_{ij}$	−1.629*** (0.341)		−1.252*** (0.345)		−1.826*** (0.181)		−1.773*** (0.191)		−1.477*** (0.225)		−1.529*** (0.226)	
Common Currency$_{ij}$	2.011*** (0.633)		2.094*** (0.604)		−0.147 (0.376)		−0.028 (0.393)		−0.128 (0.415)		0.04 (0.414)	
R^2	0.876	0.968	0.869	0.967	0.958	0.982	0.954	0.981	0.975	0.989	0.971	0.988
Observations	38904	38672	45558	45398	38352	31927	44979	37803	37157	33711	43756	39726
Country−pair-FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Intra-national-FE	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No

The dependent variable is aggregated bilateral trade flows ($X_{ij,t}$), including domestic trade ($X_{ii,t}$). Constructed domestic trade flows are set to missing if negative. All regressions are performed using the ppmlhdfe STATA command written by Correia, Guimarães, and Zylkin (2019). Exporter-year and importer-year fixed effects are included in all the regressions. Detailed definitions of variables are provided in Table 8. Standard errors are reported in parentheses and clustered by country-pair level. *, **, *** denote significance at the 10%, 5%, and 1% level, respectively

Table 6 Controlling for institutional quality

	PPML estimate					
	Total goods		Primary goods		Manufacturing goods	
	(1)	(2)	(3)	(4)	(5)	(6)
$\text{Democracy}_{i,t} \times \text{INT}_{ij}$	0.245**	0.363***	0.112***	0.186***	0.297***	0.296***
	(0.111)	(0.066)	(0.038)	(0.041)	(0.030)	(0.037)
$\text{RTA}_{ij,t}$	0.042	−1.129	1.235***	−0.972**	0.943***	0.353
	(0.308)	(0.973)	(0.232)	(0.441)	(0.198)	(0.398)
Border_{ij}	−0.059		0.831***		1.324***	
	(0.359)		(0.144)		(0.143)	
lang_{ij}	1.066***		0.454**		0.845***	
	(0.324)		(0.221)		(0.194)	
Colonial links_{ij}	−1.532***		0.091		−0.237	
	(0.407)		(0.217)		(0.229)	
Ln dist_{ij}	−1.063**		−1.747***		−1.481***	
	(0.414)		(0.197)		(0.237)	
Common Currency_{ij}	1.504**		−0.036		−0.195	
	(0.750)		(0.387)		(0.444)	
Inst-Quality $\times \text{INT}_{ij}$	2.291*	0.840	1.192**	1.906***	0.580	5.862***
	(1.198)	(0.848)	(0.502)	(0.565)	(1.336)	(1.975)
R^2	0.867	0.968	0.958	0.982	0.965	0.985
Observations	37214	36899	36795	30446	35578	32266
Country-pair-FE	No	Yes	No	Yes	No	Yes
Intra-national-FE	Yes	No	Yes	No	Yes	No

The dependent variable is aggregated bilateral trade flows ($X_{ij,t}$), including domestic trade ($X_{ii,t}$). Constructed domestic trade flows are set to missing if negative. All regressions are performed using the ppmlhdfe STATA command written by Correia, Guimarães, and Zylkin (2019). Exporter-year and importer-year fixed effects are included in all the regressions. Detailed definitions of variables are provided in Table 8. Standard errors are reported in parentheses and clustered by country-pair level. *, **, *** denote significance at the 10%, 5%, and 1% level, respectively

ranges from 0 to 1, with higher values indicating better quality of electoral democracy.

The estimation results are reported in Table 5. Consistent with our baseline findings, we find that the coefficients on both democracy indicators are significantly positive in all estimations, suggesting that democracy increases trade among African countries. Thus, our key finding that democratic development fosters intra-Africa trade is robust to alternative measures of democracy.

Controlling for Institutional Development

One potential concern is that our estimated results could be influenced by the differences in the perceptions of institutional development across countries. Indeed, our democracy measure is an objective measure based on the presence of democratic institutions in a country. Bilateral trade among African countries

Table 7 Regressions without interaction term

	PPML estimate					
	Total goods		Primary goods		Manufacturing goods	
	(1)	(2)	(3)	(4)	(5)	(6)
Democracy$_{i,t}$	−0.007	0.122*	0.094***	0.423***	0.147***	0.48***
	(0.078)	(0.236)	(0.029)	(0.104)	(0.046)	(0.111)
Ln GDP$_{i,t}$	0.822	−0.20	2.029***	3.412***	1.947***	3.654***
	(0.43)	(3.654)	(0.240)	(0.909)	(0.143)	(0.653)
Ln GDP$_{j,t}$	0.207	1.569	1.655***	−0.173	1.157***	01.233*
	(0.246)	(2.399)	(0.264)	(0.799)	(0.137)	(0.65)
$^{RTA}ij,t$	0.244	−0.442	1.308***	−0.335***	1.259***	−0.080
	(0.367)	(0.526)	(0.316)	(0.109)	(0.259)	(0.116)
border$_{ij}$	−0.582		0.891***		1.285***	
	(0.654)		(0.255)		(0.268)	
lang$_{ij}$	1.183***		0.303		0.799***	
	(0.452)		(0.244)		(0.227)	
Colonial links$_{ij}$	−0.679		−0.235		−0.73***	
	(0.645)		(0.198)		(0.206)	
Ln dist$_{ij}$	−0.476		−0.689**		−0.371	
	(0.776)		(0.311)		(0.263)	
Common Currency$_{ij}$	−0.675		0.016		−0.025	
	(0.715)		(0.193)		(0.276)	
R^2	0.131	0.681	0.562	0.843	0.620	0.854
Observations	36131	35903	36131	30487	36131	32958
Country-pair-FE	No	Yes	No	Yes	No	Yes
Intra-national-FE	Yes	No	Yes	No	Yes	No

The dependent variable is aggregated bilateral trade flows ($X_{ij,t}$). Estimations in columns (2), (4), and (6) control for the endogeneity of the RTA. All regressions are performed using the ppmlhdfe STATA command written by Correia, Guimarães, Zylkin (2019). Detailed definitions of variables are provided in Table 8. Standard errors are reported in parentheses and clustered by country-pair level. *, **, *** denote significance at the 10%, 5%, and 1% level, respectively

may however be influenced in fact by the perception of institutional development rather than by the level of democracy. To disentangle the effect of democracy on intra-Africa trade from the perception of institutional development, we include in our model the control variable *Inst. Quality*, which is measured as the average of the six governance indicators with data from the World Governance Indicators: voice and accountability, political stability, effectiveness of government, regulatory quality, rule of law, and control of corruption. We report the results of the estimations in Table 6. After controlling for the level of institutional quality, we still observe our previous finding that democracy increases trade among African countries.

Table 8 Definition and sources of variables

Variables	Description	Source
Total products	Bilateral aggregated products (Primary + Manufacturing goods)	UNCTAD
Manufacturing goods	Bilateral manufactured products.	UNCTAD
Primary goods	Bilateral primary products	UNCTAD
RTA	Dummy=1 if both countries have a trade agreement in force, and 0 otherwise.	WTO (RTA-IS)
Border	Dummy=1 if countries share a common border, and 0 otherwise.	CEPII
Language	Dummy=1 if two countries share a common language, and 0 otherwise.	CEPII
Colonial links	Dummy=1 if two countries share colonial links, and 0 otherwise.	CEPII
Distance	Distance in kilometers between country capitals.	CEPII
Democracy	Measures the level of democracy in the exporting country	Polity5
Competitiveness of Executive recruitment	The extent that prevailing modes of advancements give subordinates equal opportunities to become superordinates.	Polity5
Openness of executive recruitment	Recruitment of the chief executive is "open" to the extent that all the politically active population has an opportunity, in principle, to attain the position through a regularized process.	Polity5
Constraints on executive	The extent of institutionalized constraints on the decision-making powers of chief executives, whether individuals or collectivises.	Polity5
Competitiveness of participation	The extent to which alternative preferences for policy and leadership can be pursued in the political arena.	Polity5
Coup d'etat	Dummy=1 if an exporting country experiences coup d'état in a particular year, and 0 otherwise.	Polity5
Electoral_dem	A measure of electoral democracy from Varieties of Democracy Project.	Coppedge et al., (2021)
Dem_Acemoglu	Democracy variable measured as a dummy= 1 if Freedom House classifies a country as "Free" or "Partially Free and Polity gives the country a positive score, and 0 otherwise.	Acemoglu et al. (2019).

Estimations Without Interaction Terms

Recall that our main estimations include the interaction term $\text{Democracy}_{i,t} \times \text{INTL}$, which captures the effect of changes in democracy on the estimated flow of goods exports from country i to country j relative to the consumption of domestically sourced good commodities in country i and j. To test the stability of our baseline findings, we analyze the impact of democracy on intra-African trade without the interaction term to assess the individual impact of our variable of interest (Brambor et al. 2006). Our gravity model therefore takes the standard form; thus, we include traditional variables in the model by estimating Eq (1). Results are presented in Table 7. Despite the change in the model specification, our results are consistent with the baseline findings: Democracy fosters intra-Africa trade of goods.

Overall, these findings provide additional support to our previously reported findings that democracy fosters intra-Africa trade of goods.

Conclusion

Despite numerous efforts by policymakers, trade among African countries remains abysmal. In this paper, we examine whether democratic development spurs intra-Africa trade of goods. To this end, we employ bilateral trade data on 48 SSA countries for the period 2000 to 2018 to investigate the impact of democracy on intra-Africa trade.

Our key finding is that democracy contributes to foster intra-Africa trade of goods. We observe that the manufacturing sector is the most impacted sector. We further find that reversals from democracy to autocracy have adverse effects on trade in manufacturing goods. Additionally, we find that all four components of democracy, as emphasized by Polity (i.e., competitiveness of executive recruitment, openness of executive recruitment, constraints on executive, and competitiveness of participation), matter in explaining the positive effect of democracy on intra-Africa trade of goods. Our results are robust to a number of sensitivity tests.

We explain these findings by the fact that democracy encourages intra-African goods trade by enhancing financial development, by strengthening the institutional environment which favors bilateral trade, and by reducing trade costs and market information frictions.

This work provides important policy implications. Given the beneficial role of bilateral trade among African countries, any characteristic that enhances trade is beneficial through this channel. This study therefore highlights increased trade among African countries as an important channel through which democracy may stimulate economic development on the continent. From a policy perspective, our study suggests that measures that favor democratization should facilitate trade of goods among African countries. In the context of the recent commitment by African leaders to establish the African Continental Free Trade Area (AfCFTA), our findings emphasize that democratic development is a key driver of intra-Africa trade and

hence should be taken into account in order to maximize the full potential benefits of the trade agreement.

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