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Supporting African Union: Do Macroeconomic Fluctuations matter?

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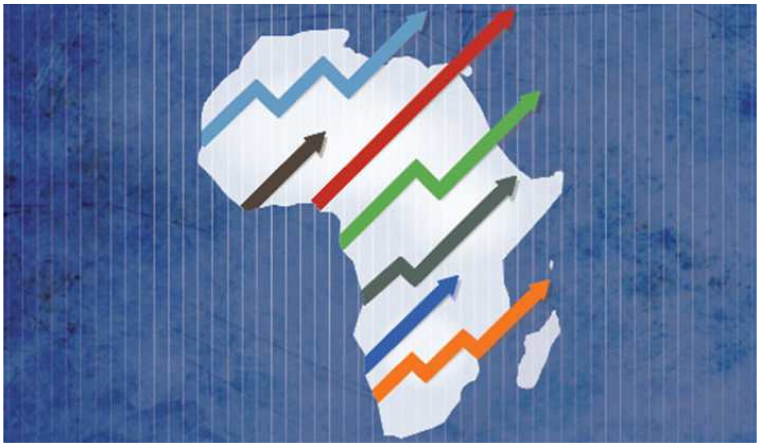


Abstract

In this paper, we contribute empirically to the debate on the legitimacy of the African Union by exploring the question on whether individual opinions in support of African integration are sensitive to macroeconomic fluctuations? For this purpose, we use the 4th, 5th, 6th and 8thAfrobarometer survey data waves and a contextual logistic model. We find that an increase in GDP per capita is associated with a decline in the probability to support the African Union. Accordingly, economic growth discourages citizens' positive appraisal for the union. Our results also show an asymmetry in the relationship between public opinion on supporting the African Union and economic growth. Policy implications are discussed.

Keywords: Afrobarometer survey, African Union, Institutional support, macroeconomic fluctuations

JEL Classification: C23, E32, O55

1. Introduction

The final objectives of the African Union (AU) are economic integration and a unified continental market and a monetary union. During previous years, most of the extant studies have been oriented towards the feasibility of the economic and monetary union, the corresponding costs and advantages, the creation of indexes of integration, *inter alia* (Desmidt, 2019; Asongu *et al*., 2023). To facilitate the integration process, many institutions have been created over the past decades including, the African Economic Community, Agenda 2063 of the AU, the African Development Bank and the African Continental Free Trade Area (AfCFA) (African Business Magazine, 2018; Tchamyou *et al*., 2022; Asongu & Diop, 2023). Despite the creation of these supra national institutions, the AU is less likely to be successful unless citizens of member states are convinced of the benefits of the unification.

To the best of our knowledge, two studies have been interested in the problem statement surrounding the positioning of the present study. The first consists of insights from Afrobarometer dispatches entailing the dissemination of the descriptive statistics after every survey wave (Isani & Schlipphak, 2022; Kamau, 2023) while the second is an empirical work by Asongu *et al*. (2023). Asongu *et al*. (2023) have empirically evaluated the determinants of supporting the AU using micro level information from Afrobarometer survey data. The authors have found that individual characteristics such as political membership, education, living conditions and the living poverty index (LPI) are significant determinants of supporting trust in the AU. Nevertheless, their study ignores the macroeconomic context, not least, because the determinants of support for a phenomenon also depends on the macroeconomic contingencies that are particularly relevant in determining the present and potential outlooks of phenomena. The underlying shortcoming is addressed in the present study which assesses the linkages between macroeconomic fluctuations and individual perceptions on support for African integration.

In Europe, the underlying concern has already been engaged in a substantial bulk of the literature. Some studies have been oriented towards trust in the European Central Bank and individual socioeconomic characteristics (Hudson, 2006; Hayo & Neuenkirch, 2014; Bursian & Furth, 2015; Melina & Schmidt, 2018). The same question is treated by Farvaque *et al.* (2017), Fischer and Hahn (2008), and Brouwer and Haan (2022) with the introduction of macroeconomic information. For example, Fischer and Hahn (2008) found that lagged GDP (gross domestic product) per capita and GDP growth are positively linked to trust in the European Central Bank while employment has no significant effect. Brouwer and Haan (2022) on their side suggest that inflation expectations of individuals trusting the central bank are more in line with the inflation target.

Consistent with Asongu *et al*. (2023), in spite of the multitude of emphasis on the AU project, the project has been hampered by the postponement of deadlines pertaining to the process of integration. To put this into perspective, whereas it was initially planned that the common currency of the Economic Community of West African States (ECOWAS) was going to be launched in 2003,

there have been several postponements, notably, in 2005, 2009 and 2020 (Asongu, 2021; Tchamyou *et al*., 2022). Beside the ECOWAS, in the process of constituting the AU, the corresponding studies have not arrived at a consensus on the feasibility of potential economic and monetary unions; these are the cases of, *inter alia* the, African Monetary Union (AMU), West African Monetary Zone (WAMZ), East African Monetary Union (EAMU) and Southern African Monetary Union (SAMU) (Masson & Patillo 2004; Coulibaly & Gnimassoun 2013; Asongu *et al*., 2017; Asongu & Diop, 2023). Furthermore, the corresponding AU-centric studies have not been concerned with the issue being assessed in this study, essentially because the attendant literature has fundamentally focused on *inter alia*: the prevention and management of conflicts (Desmidt, 2019); the imperative of involving more citizens in an AU that is people-focused (Kinkoh *et al.,* 2023a); progress of the AU in the last-two decades (Kinkoh *et al.,* 2023b) and examining the linkages that are imperative in the understanding of relations between the partners of the AU and the continental organ itself (Kinkoh *et al.,* 2023c).

In the light of the above, the research question being considered within the remit of the present study is the following: how do macroeconomic fluctuations affect support for the AU? The study's positioning departs from Asongu *et al.* (2023) which is the study that is closest in the literature to the present study in the perspective that, as clarified in the second paragraph of this study, the underlying (i.e., Asongu et al., 2023) study has been concerned with determinants of the support of the AU using micro level data while the present study is more concerned with macroeconomic data as independent variables of interest within the remit of economic fluctuations.

Beyond the emphasis on AU-centric literature, it is also relevant to note that consistent with the attendant literature (Tchamyou *et al.,* 2022), the present exposition is also partly motivated by the importance of more integration in the development of the continent. Accordingly, it is documented that enhanced integration by means of regional trade and monetary blocks engenders a significant number of favorable development externalities, among others: boosting of economic diversification, mitigation of dependence on exports, improvement of food delivery, ameliorations of conditions for food security, creation of employment avenues and mitigation of extreme poverty (World Bank, 2013; UN News, 2018; Aranda, 2018; Efobi *et al.*, 2018; Asongu & Odhiambo, 2019; Tchamyou *et al.,* 2022).

The remainder of the study is organised as follows. Section 2 describes the data we employed and presents the empirical methodology. Section 3 presents and discusses the main results while Section 4 concludes.

2. Data and model specification

2.1 Data presentation

To evaluate the determinants of support in an institution or a project, survey data on public opinion attitudes may be useful. The data are from the Afrobarometer survey covering the period 2008-2021. The Afrobarometer survey has covered most African countries in its last rounds, thus becoming a major source of data for African governments in responding to concerns of their citizens (Asongu *et al*., 2023). It is a large survey linked to public opinion relative to politics and socio-economic conditions of individuals in Africa. The survey depicts people's perception of public goods and services, institutions, corruption, politics, *inter alia*. Our dependent variable is support of the African Union. To measure support, we create our variable from responses to questions asked in the Afrobarometer Round 4 (2008/2009), Round 5 (2011/2013), Round 6 (2014/2015), and Round 8 (2019/2021) surveys[1]. The question is defined as follows in Round 4, Round 5 and Round 6:

"*In your opinion, how much do African Union help your country, or haven't you heard enough to say?*".

The possible answers are in a four-step Likert-scale and range from "*do nothing, no help*" to "*help a lot*". The responses are recorded in a binary manner: 1, is assigned if the respondent answered with "*help somewhat*" or "*help a lot*" and 0 for the responses with "*do nothing to help*", "*help a little bit*". The other responses such as "refused", "don't know" are added on missing values.

According to Round 8, the question is formulated as follows:

"*In general, do you think that the economic and political influence of each of the following organizations (on your country) is mostly positive, more negative, or haven't you heard enough to say? African Union*"

The possible answers are on a five-step Likert-scale and range from "*very negative*" to "*very positive*". We construct our dependent variable by defining a binary variable that takes the value of 1 if the respondent answered by "*somewhat positive*" or "*very positive*" and 0 for the responses "*very negative*", "*somewhat negative*" and "*neither positive nor negative*". The other responses such as "refused", Don't know" are coded as missing values. While the underlying question targets the scholarly community or a specific part of the population, it is imperative to note that in recent years, the role of supranational institutions such as the African Union and other regional economic communities has been increasingly discussed by African citizens, including those who have not attained a certain level of education. This awareness is exacerbated by both geopolitical and economic circumstances. For example, during the recent popular uprisings in certain West African countries (Burkina Faso, Niger and Mali), the population as a whole (especially the youth) demonstrated their disagreement with the decisions taken by corresponding multilateral development institutions (i.e., the African Union and ECOWAS). These factors justify the fact that in recent years, African communities as a whole have become increasingly interested in the workings and decision-making of supranational institutions. That is why the Afrobarometer's latest survey

[1] Round 7 is not integrated into the data because the question on the African Union or regional alliance is not asked in the corresponding round.

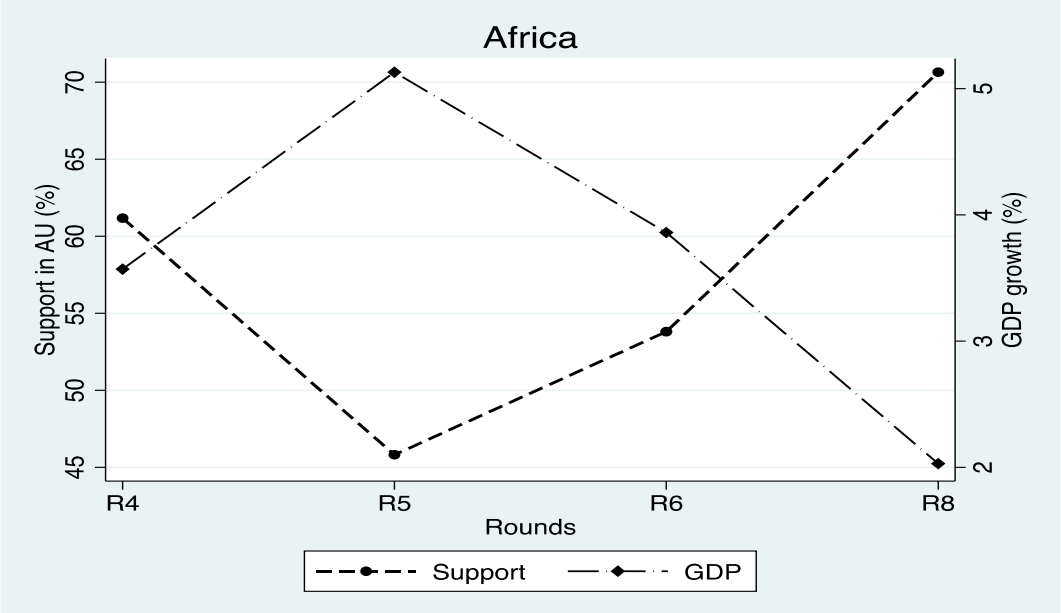
findings suggest that many African citizens still need to be convinced on the benefits of African integration (Asongu et al., 2023).

The macroeconomic data are from the World Bank's World Development Indicators. We include various macroeconomic covariates such as GDP per capita, Consumption Price Index, economic growth and natural resources dependence. Table 1 provides a description of the variables. There is no outlier for our interested variables (i.e., GDP growth and GDP per capita). Regarding GDP growth, the use of positive and negative GDP growth terms as splines allows us to take into account the potential outliers.

Figure 1 shows the evolution of the proportion of the African population who have a positive appraisal for the support of African Union in Rounds 4, 5, 6 and 8 and the mean of the GDP growth rate in the country. We note an opposite evolution of the two variables. In effect, from Round 4 to Round 5, the proportion of respondents supporting the unification decreases drastically while the GDP growth rate increases strongly in the same period. Indeed, the proportion of individuals with a high rate of positive appraisal in supporting African integration rises with a linear trend. During the same period, the figure suggests a sustained decline of economic growth. Overall, the graphic representation suggests that respondents living in a macroeconomic context of losses are more inclined to support the unification of African countries.

The underlying finding is also apparent if the regional economic communities (RECs) are considered separately (Figure 2). In fact, in all RECs and specifically ECOWAS, SADC, EAC and CEEAC, the period of economic recession corresponds to an increase of the proportion of citizens supporting African Union and *vice-versa*.

Figure 1: Economic growth and support of the African Union in Africa



Source: authors

2.2Empirical strategy

To evaluate the determinants of support in African integration, we base our empirical strategy on a multilevel mixed-effects logistic regression which contains both random and fixed effects. This methodology is more appropriate because sampled individuals are nested in countries. Hence the country level could matter in the empirical specifications.

In this study, we estimate the probability that the respondent $i = 1,2,\cdots,N$ living in country $j = 1,2,\cdots,M$ interviewed in the round t, $(t = 4,5,6,8)$ supports African Integration, contingent on its characteristics and the macroeconomic context of the country. We consider a two-model level for M independent countries, conditional on a set of random effects u_j,

$$Pr(y_{ijt} = 1|x_{ijt}, u_j) = H(\beta_1 Macro_{jt} + \beta_2 x_{ijt} + t + z_{ijt}u_j) \qquad (1)$$

Every country j consists of $i = 1,2,\cdots,n_j$ respondents.y_{ijt} is a binary variable ($y_{ijt} = 1$ if the response is "*help somewhat*" or "*help a lot*" and $y_{ijt} = 0$, otherwise).

$Macro_{jt}$includes the country-level characteristics such as GDP growth, GDP per capita, inflation, cycle phases, natural resources dependence with fixed regression parameters β_1.

$$Macro_{ijt}{}' = (GDP_{jt}, GDPPC_{jt}, IPC_{jt}, Cycle_{jt}, Nat_{jt})'$$

x_{ijt} is a vector $(1 \times k)$ of the covariates for the fixed effects at individual level such as socio-demographic characteristics of the respondents with fixed regression parameters β_2. z_{ijt} is a vector $(1 \times q)$ of the covariates for the random effects which can be noted to represent both random intercepts and random coefficients. The random effects represented by u_j are M realizations from the multivariate normal distribution with mean 0 and $(q \times q)$ variance matrix Σ. $H(\cdot)$ is the logistic cumulative distribution function corresponding to the cumulative probability:

$$Pr(y_{ijt} = 1) = H(v) = exp(v)/\{1 + exp(v)\} \qquad (2)$$

Equation (1) can be expressed in terms of a latent linear response, for

$$y_{ijt} = I(y^*_{ijt} > 0)$$

is noticed for the latent:

$$y^*_{ijt} = \beta_1 Macro_{jt} + \beta_2 x_{ijt} + t + z_{ijt}u_j + \varepsilon_{ijt} \qquad (3)$$

The error term ε_{ijt}, independent on u_j, is distributed as logistic with mean 0 and variance $\frac{\pi^2}{3}$.

Here, we consider a random-intercept model, so we have $z_{ijt} = 1$ and the constant u_j from the level 1 equation is decomposed into an intercept common to all countries (β_{00}), a part explained by country level parameters (c_j) and a country specific random term (v_j):

$$u_j = \beta_{00} + \alpha c_j + v_j, \quad v_j \sim \mathcal{N}(0, \sigma_v^2) \quad (4)$$

The global random term of our model is composed by a random country specific error term (v_j) and an individual-level error term (ε_{ijt}) and as we can see, the constant is varying among countries. We use GDP growth, the Consumption Price Index, GDP per capita and natural resources dependence a country-specific regressors.

Finally, by incorporating equation (4) into (3), we obtain the following general model:

$$y_{ijt}^* = \beta_1 Macro_{jt} + \beta_2 x_{ijt} + t + \beta_{00} + \alpha c_j + v_j + \varepsilon_{ijt} \quad (5)$$

The term $v_j + \varepsilon_{ijt}$ in the last equation corresponds to the random part of the model where v_j represents the country-specific effect and ε_{ijt} is individual-level shock.

The interclass correlation which provides the proportion of the residual variance attributable to the country-level corresponds to the correlation between the latent responses of i and i' from the same country j. It is defined as:

$$\rho = Corr\left(y_{ijt}^*, y_{i'jt}^*\right) = \frac{\sigma^2}{\pi^2/3 + \sigma^2}$$

In order to test the asymmetric effects of economic growth, we introduce separate terms for positive growth and negative growth such as:

$$y_{ijt}^* = \alpha_1 Growth_{jt}^+ + \alpha_2 |Growth^-|_{jt} + \beta x_{ijt} + t + \beta_{00} + \alpha c_j + v_j + \varepsilon_{ijt} \quad (6)$$

Where $Growth^+$ represents the GDP growth rate in country $j$at round t in which the growth is positive, 0 otherwise and $Growth^-$ is the GDP growth rate in country where growth is negative and 0 otherwise. Positive and Negative GDP growth terms are splines. More precisely, the negative (positive) GDP growth rate is equal to the absolute value of the term when it is negative (positive) and zero otherwise. We use the absolute value of negative growth rate to take into account the direction of the resulting estimated parameters more intuitively in interpreting the results.

The multilevel mixed-effects logistic regression is used to predict a single binary variable from one or more explanatory variables. Thus, the first assumption is that the variable to be predicted should be binary. Other assumptions for the model include linearity, no outliers and no multicollinearity. The logistic regression assumes that the relationship between the natural log of the probabilities (when expressed as odds ratio) and the predictor is linear. As mentioned previously, we use the logistic cumulative distribution function and the natural log of ratio of the probabilities $\left(Pr(y_{ijt} = 1) = /1 - Pr(y_{ijt} = 1)\right)$ and the predictor is linear. Indeed, the logistic regression is sensitive to outliers and to account for this, we first provide descriptive statistics and

observe if any values are very large or small. Finally, if we are in the presence of multicollinearity, the estimated coefficients and their significance could become unstable. Several tools are usually used (simplified alterative models, a step-by-step regression or factorial analysis). To take into account the multicollinearity problem, we estimate simplified alternative regression models and observe the stability and the significance of coefficients. This procedure consists of introducing the regressors one by one into the equation and retaining only those that are most significantly associated with the dependent variable.

3. Empirical findings

3.1Baseline results

Our baseline results are presented in Table 2. We estimated five contextual regressions corresponding to the five columns. In Column 1, we regress a logistic model with only individual characteristics. In Columns 2-5, we run the same model and introduce macroeconomic covariates.

Our main empirical findings regarding individual characteristics are such that, across all regressions, support for the AU increases if the individual is fully employed. The estimated coefficient of this variable is positive and significant at level in all regressions. The same result is noted according to the living conditions of the citizens. The estimated coefficient is positive and significant at 1% level indicating that respondents' living in good conditions are more likely to provide a positive appraisal of supporting the AU. We also note that citizens living in urban areas present a lower probability to support the integration while age is significant at the 5% level and negative only in three out of the eight regressions. The last finding suggests that young people have more trust in the African Union[2]. This result could be linked to youth Pan-Africanism union trends in the contemporary era. In fact, youth people play a crucial role in the promotion of African Unity. Accordingly, young people have the possibility to organize events, panels discussion and inter-African organisations to highlight the relevance of African integration as understood by African nations. Indeed, in Africa, most of the rigorous activisms towards fighting neo-colonialism, economic exploitation and promoting African Unity are largely carried out by young people with platforms such as networks, collaborations and political engagement. This empowerment is reinforced by the use of social media and technology. According to education, we note that in all regressions, the estimated coefficient of Education 1 coded 1 if the respondent has no formal education and 0 otherwise, is negative and significant. This finding shows that people with no formal education have a lower probability of support. The results regarding the effects of the individual's characteristics in supporting African integration are in line with those found by Asongu et al. (2023) which focused on microeconomic aspects. Thus, the findings are supportive of a microeconomic foundation for macroeconomic analysis.

When we turn our interpretations to the macroeconomic variables, the findings can be presented as follows. Firstly, the estimated coefficient of (log) GDP per capita is negative and significant in all regressions at the 1% significance level. This finding reveals that the AU is less trusted when people are in a context of a high level of economic development. The same result is found when we consider the GDP growth rate. Supporting African integration is negative and significantly (at 1% level) associated with economic growth. In Columns 4 and 5, we introduce two separate terms (positive and negative growth dynamics) as explained in the

[2] The respondents to Afrobarometer surveys must be at least 18 years at least.

previous section. This approach allows us to evaluate the slope gradient during economic losses and gains. The results indicate that the relationship between economic growth and the support for African integration depends on the episodes of positive and negative growth. In effect, positive economic growth terms are negatively and significantly (at 1% level) associated with AU support while negative growth values are positively linked to a positive appraisal of African integration. These findings point to an asymmetric relationship between economic growth and supporting African integration. The findings relative to GDP and individual characteristics such as living conditions are not conflictual. In effect, GDP represents the macroeconomic environment whereas living conditions are exclusively individual. In other words, an individual could have good living conditions even though the macroeconomic environment is not favourable and vice versa. This is the main reason for choosing a multilevel model.

We can also discuss our result in comparison with previous research carried out in the Euro Zone because this question has been widely debated in Europe. For example, with Eurobarometer surveys, Fischer and Hahn (2008) find that lagged gross domestic product per capita and GDP growth are positively related to trust in the European Central Bank while employment is not significant. Hudson (2006) with micro data surveys confirms that several demographic indicators such as education, age and gender are related to support for the ECB while Bursian and Fürth (2015) find that citizens' education level, political orientation and employment status are the main determinants of trust in the ECB. These findings thus confirm those of Farvaque et al. (2017). Brouwer and Haan (2022) on their side suggest that inflation expectations of individuals trusting the European Central Bank are more in line with the inflation target.

Economic growth is negatively connected with support of African unification, showing that an increase in the GDP growth rate provokes a decline of the support. This finding can be interpreted by a signal of a negative impact on the probability to trust in the integration. In effect, high incomes reinforce citizen's pessimism for their macroeconomic conditions and sustained economic development. People in episodes of economic gains (positive economic growth) are less favourable to support the AU. The interpretation is that in an economic union, the valid policy is "each for all and all for each". This strategy implies that countries in economic gains should support those which are in losses. Our previous result implies that those individuals who feel that they are in good macroeconomic conditions are not yet ready to take-on this burden. Thus, in economic gains, African people are in favour of "each for himself" and in economic losses, they prefer "each for all and all for each".

3.2Robustness checks

As robustness checks, we first replace our methodology by using a simple logistic regression. Secondly, we evaluate the relationship between supporting African integration and macroeconomic fluctuations in Regional Economic Communities in which we have enough observations (i.e., the ECOWAS and SADC). Thirdly, we estimate the model in two samples namely formal educated and non-formal educated respondents. This procedure is justified by the fact that our dependent variable is constructed from the question, "In your opinion, how much do African Union help your country, or haven't you heard enough to say?" and the response to this question could be related to the scholarly community. Thus, testing the robustness of the results around the education level is essential. Fourthly, we assess the robustness by tackling the potential endogeneity problem. For this purpose, we use the Lewbel method. Lewbel (2012) provides an Instrumental Variables (IV) technique which uses heteroskedasticity in the error term to generate internal instruments that can be used when an external valid instrument is not available or weak.

In the first sensitivity analysis where we use a simple logistic model without contextual effects, the results are provided in Table 3. Our basic results remain empirically valid. The estimated parameter of log GDP per capita is still negative and significant. Indeed, the estimated coefficient of economic growth is also negative and significant at 1% significance level. When we consider the positive and negative terms of economic growth, the asymmetric relationship holds. In effect, people in positive economic growth are less favourable to support African integration contrarily to individual in negative economic growth.

The results of the second alternatives are presented in Table 4. Once again, the results we found are robust. In effect, in ECOWAS, the estimated coefficient of log GDP per capita and economic growth are negative and significant at 1% significance level indicating that the more the macroeconomic conditions are good, the lower is the probability to support African union. We note the same results in the SADC and the coefficient of positive and negative economic growth holds perfectly.

The findings of the third alternative are driven in Table 5. The results are also consistent with our findings which confirms that our estimates exhibit robustness when we split-up the sample between formal educated and non-formal educated respondents. Table 6 reports the results of the fourth alternative (Lewbel method). Based on the Hansen J-statistic, the null hypothesis of valid instrument is not rejected for all regressions with the exception of GDP per capita (in log). In effect, this finding suggests that the IV regression passes the overidentification test. Overall, the findings for the Lewbel method are consistent with those from the baseline results

indicating the negative effect of growth on African unification and pointing that the effect is asymmetric.

To put the above in more perspective, according to the narrative, intra-regional trade represents, *inter alia*: 67% of trade in Europe, 58% in Asia and 48% in North America (ABM, 2018). Moreover, it also projected that when the African Continental Free Trade Area (AfCFTA) is effective, intra-regional trade in the continent will increase to about 50% within the first-five years (ABM, 2018). In essence, according to Tchamyou *et al.* (2022), intra-African trade currently accounts only for about 15% of the total trade in the continent; a percentage that is comparatively low in relation to those of other continents in the world.

4. Concluding implication and future research directions

In this paper, we have evaluated how macroeconomic fluctuations affect the support of trust in the African Union. We have used the Afrobarometer survey data in Rounds 4, 5, 6 and 8 for 38 countries as well as some macroeconomic variables and estimated a contextual logistic model to depict the macroeconomic environment. Our findings can be briefly outlined as follows.

An increase in GDP per capita is associated with a decline in support for the African Union. This result indicates that supporting the integration is lower if economic development proxied by GDP per capita is higher. Indeed, our results suggest that economic growth discourages African unification. In effect, individuals who support the integration are in a macroeconomic context where GDP growth is low. Finally, our results point to an asymmetry in supporting the African Union in terms of positive and negative growth. Overall, our analysis of the nexus between macroeconomic fluctuations and support for the African Union reveals that economic growth is not a favourable driver for the support of the unification.

The results we found in this paper are insightful for many reasons and especially in the African integration process. Our results indicate that economic development and economic growth are associated with a lower probability to support the process. Thus, more efforts should be done in terms of communication, credibility and legitimacy mostly in countries with higher economic growth rate and GDP per capita. Such policy efforts should be tailored to implementing a communication strategy to spread the message that the AU's objective is not simply to share risks but rather to achieve sustainable development and reinforce security for all countries.

In the light of the established findings, the benefits of economic integration need to be clarified to citizens of members states, especially as it pertains to existing bodies like the United States of America (USA) and the European Union (EU) that are politico-economically strong because small entities can come together to increase their common voice in the league of nations. For instance, a common African voice in institutions such as the United Nations (UN) Security Council will increase Africa's voice in the prevention of potential conflicts that can seriously damage economic development prospects of the continent. For instance, the 2011 intervention of NATO (the North Atlantic Treaty Organization) in Libya is partly due to a weak African Union which could not stand firm to her decision of a peaceful settlement to the domestic conflict in Libya during the Arab Spring. The externalities of the Libyan intervention have today led to serious insecurity concerns in the Sahel region (Michael, 2023; Petersson, 2023).

Another worthwhile policy implication is that the communication strategy of the African Union should be tailored such that as nations grow richer in terms of GDP per capita, they should be aware of the seriousness of supporting the AU and African integration in order to put Africa's interest more robustly in global decision-making processes. For instance, the EU still substantially funds the AU which should not be the case if the AU is to remain independent as well as exclusively defend African interests (Staeger, 2023).

However, our paper presents some limitations that we plan to address in future research. A first way is to evaluate the relationship between optimism expectations in living conditions and trust in African integration. Another way is to examine causalities among trust, national institutions and the African Union, within the empirical remit of the role played by macroeconomic fluctuations.

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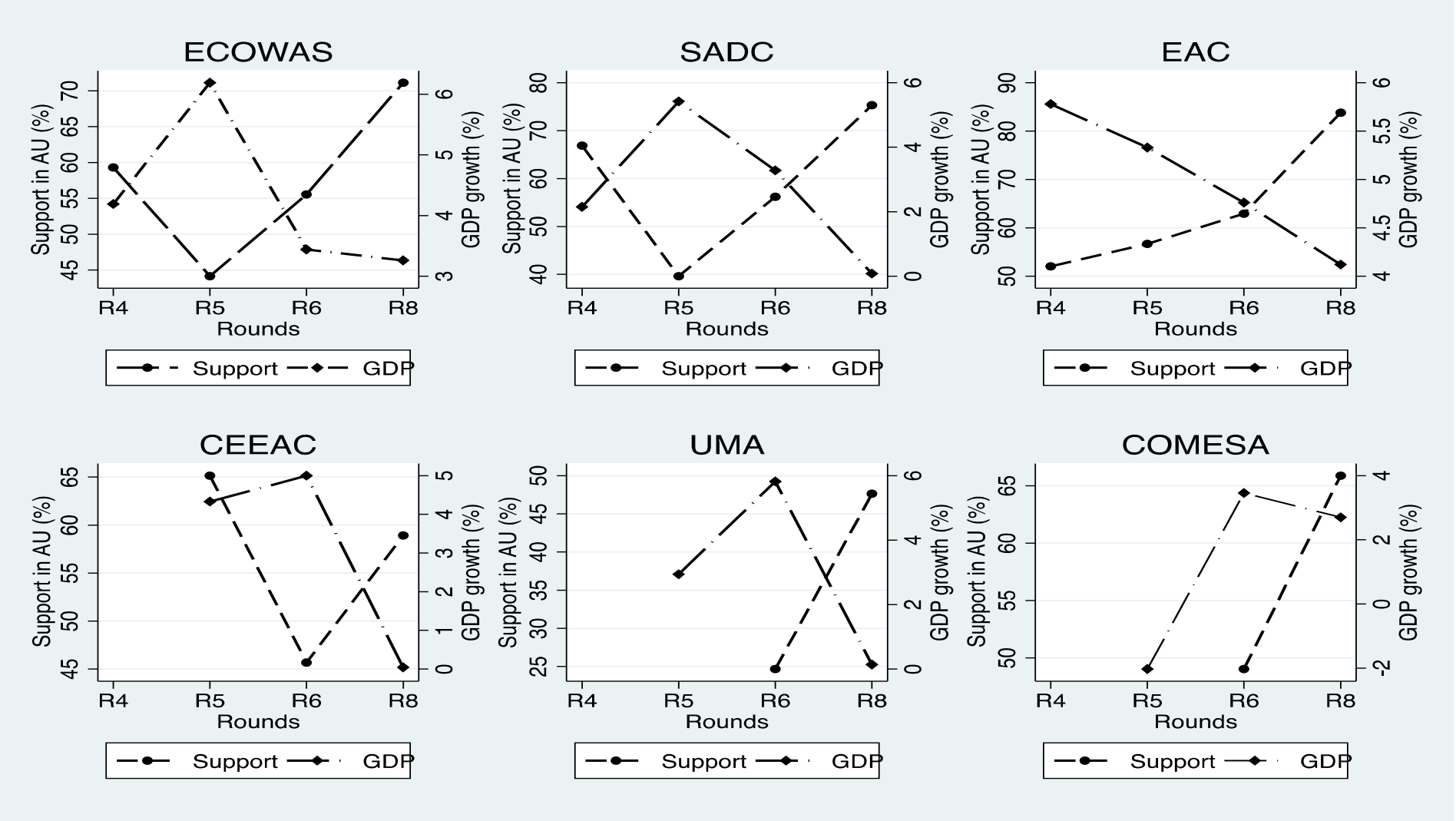
Figure 2: Economic growth and support in RECs



Sources: authors

Table 1: Definition of variables and summary statistics

Variables	Definitions	Mean	Std. Dev	Min	Max
Age	Age of the respondent (in log)	3.539	0.379	2.890	4.787
Urban	Living area (1 if urban)	0.405	0.491	0.000	1.000
Educ 1	Binary variable (1 if no formal education and 0 otherwise)	0.197	0.398	0.000	1.000
Educ 2	Binary variable (1 if secondary level of education and above and 0 otherwise)	0.500	0.500	0.000	1.000
Empl	Binary variable (1 if employed and 0 otherwise	0.352	0.477	0.000	1.000
Living	Living condition (1 if good conditions)	0.316	0.465	0.000	1.000
GDPpc	GDP per capita (in log)	7.318	0.878	5.475	9.204
Growth	GDP growth (in %)	3.691	3.324	-8.020	14.070
CPI	Consumer Price Index	11.040	30.831	-1.310	303.68
Natural resources	Natural resource dependence	8.710	6.408	0.001	35.370

Table 2: Macroeconomic fluctuations and support of the African Union (contextual model)

	(1)	(2)	(3)	(4)	(5)
Individual characteristics					
Age(ln)	0.026 (0.018)	0.022 (0.018)	-0.042** (0.018)	-0.045** (0.018)	-0.045** (0.018)
Urban	-0.100*** (0.014)	-0.165*** (0.013)	-0.228*** (0.013)	-0.236*** (0.013)	-0.236*** (0.013)
Educ 1	-0.069*** (0.022)	-0.138*** (0.020)	-0.093** (0.020)	-0.096*** (0.020)	-0.096*** (0.020)
Educ 2	0.031* (0.016)	-0.025 (0.015)	-0.130*** (0.015)	-0.123*** (0.015)	-0.123*** (0.015)
Empl	0.036** (0.016)	0.059*** (0.015)	0.038** (0.015)	0.034** (0.015)	0.034** (0.015)
Living	0.210*** (0.014)	0.168*** (0.013)	0.165*** (0.013)	0.162*** (0.013)	0.162*** (0.013)

Macroeconomic indicators					
GDPpc (ln)		-0.231*** (0.007)			
CPI				-0.002*** (0.000)	-0.002*** (0.000)
Growth (%)			-0.043*** (0.002)		
Positive growth				-0.053*** (0.003)	-0.053*** (0.003)
Negative growth				0.030*** (0.007)	0.030*** (0.007)
Natural resources					-0.000 (0.001)
Constant	0.617*** (0.078)	2.109*** (0.081)	0.889*** (0.067)	0.966*** (0.068)	0.967*** (0.069)
Diagnostics					
Random effect					
Var (_cons)		0.395 (0.284)	0.652 (0.466)	0.652 (0.465)	0.651 (0.465)
Rho (ICC)		0.107	0.165	0.165	0.165
Log likelihood	-70344.043	-72513.247	-72787.116	-72717.049	-72717.043
Wald Chi2	9553.94***	4923.93***	4430.41***	4451.06***	4551.21***
LR test vs logit model		0.000	0.000	0.000	0.000
# Observations	110845	110845	110845	110845	110845
Round FE	Yes	Yes	Yes	Yes	Yes

Notes: significance level: ***P<0.01, **P<0.05, **P<0.10, Robust standard errors are in parentheses

Table 3: Macroeconomic fluctuations and support of the African Union (logistic model)

	(1)	(2)	(3)	(4)	(5)
Individual characteristics					
Age(ln)	0.026	0.030	0.027	0.028	0.030**

	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Urban	-0.100***	-0.097***	-0.109***	-0.107***	-0.101***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Educ 1	-0.069***	-0.077***	-0.070**	-0.067***	-0.079***
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Educ 2	0.031*	0.030*	0.036***	0.037***	0.035***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Empl	0.036**	0.039**	0.032**	0.030**	0.031**
	(0.016)	(0.016)	(0.016)	(0.016)	(0.015)
Living	0.210***	0.210***	0.227***	0.228***	0.225***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Macroeconomic indicators					
GDPpc (ln)		-0.300***			
		(0.021)			
CPI				-0.001***	-0.001***
				(0.000)	(0.000)
Growth (%)			-0.068***		
			(0.003)		
Positive growth				-0.085***	-0.086***
				(0.004)	(0.004)
Negative growth				0.020**	0.020**
				(0.009)	(0.009)
Natural resources					-0.022
					(0.002)
Constant	2.714***	2.714***	0.936***	1.040***	1.163***
	(0.169)	(0.169)	(0.079)	(0.081)	(0.082)
Diagnostics					
Log likelihood	-70344.043	-70245.767	-70075.461	-70036.474	-69990.262
Wald Chi2	9553.94***	8815.09***	8761.89***	8773.42***	8780.72***
Pseudo R^2	0.064	0.065	0.067	0.068	0.068
# Observations	110845	110845	110845	110845	110845
Round FE	Yes	Yes	Yes	Yes	Yes

Notes: significance level: ***P<0.01, **P<0.05, **P<0.10, Robust standard errors are in parentheses

Table 4: Macroeconomic fluctuations and support of the African Union (contextual model by REC)

	ECOWAS			SADC		
Individual characteristics						
Age(ln)	-0.000 (0.029)	-0.013 (0.030)	-0.008 (0.030)	0.063** (0.031)	0.078** (0.031)	0.064** (0.031)
Urban	-0.077*** (0.022)	-0.129*** (0.022)	-0.142*** (0.022)	-0.118*** (0.025)	-0.117*** (0.025)	-0.127*** (0.025)
Educ 1	-0.058* (0.031)	0.004 (0.031)	0.017 (0.031)	-0.098** (0.049)	-0.105*** (0.049)	-0.108** (0.050)
Educ 2	-0.017 (0.027)	-0.027 (0.027)	-0.016 (0.028)	0.073** (0.029)	0.069 (0.028)	0.062** (0.028)
Empl	-0.027 (0.026)	-0.070*** (0.026)	-0.052** (0.026)	0.095*** (0.027)	0.083*** (0.027)	0.094*** (0.027)
Living	0.179*** (0.022)	0.265*** (0.022)	0.280*** (0.022)	0.161*** (0.025)	0.159*** (0.025)	0.150*** (0.025)
Macroeconomic indicators						
GDPpc (ln)	-0.180*** (0.017)			-1.118*** (0.011)		
CPI			-0.008*** (0.002)			-0.000 (0.000)
Growth (%)		-0.113*** (0.004)			-0.027*** (0.004)	
Positive growth			-0.148*** (0.005)			-0.020*** (0.006)
Negative growth			-0.005 (0.010)			0.033** (0.013)
Constant	1.735*** (0.165)	0.948*** (0.111)	1.204*** (0.114)	1.340*** (0.133)	0.319*** (0.120)	0.456*** (0.122)
Diagnostics						
Random effect						
Var (_cons)	0.033 (0.056)	0.108 (0.163)	0.120 (0.179)	2.56e8 (1.56e7)	2.99e8 (1.60e7)	3.99e8 (2.21e7)
Rho (ICC)	0.010	0.032	0.035	1.000	1.000	1.000

Log likelihood	-26523.075	-26097.383	-26021.990	-22286.115	-22294.849	-22292.725
Wald Chi2	1603.35***	2309.41***	2425.35***	2447.22***	2483.35***	2458.58***
LR test vs logit model	0.000	0.000	0.000	1027.13***	1201.64***	1115.05***
# Observations	40511	40511	40511	35705	35705	35705
Round FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: significance level: ***P<0.01, **P<0.05, **P<0.10, Robust standard errors are in parentheses

Table 5: Formal education vs non-formal education

	Formal educated respondents			Non formal educated respondents		
	(1)	(2)	(3)	(1)	(2)	(3)
Individual characteristics						
Age(ln)	-0.073*** (0.025)	-0.070*** (0.025)	-0.070*** (0.025)	0.091** (0.045)	0.084* (0.046)	0.084* (0.046)
Urban	-0.111*** (0.018)	-0.123*** (0.018)	-0.121*** (0.018)	-0.075* (0.041)	-0.080* (0.042)	-0.080* (0.042)
Empl	0.045** (0.019)	0.039** (0.019)	0.037* (0.019)	0.031 (0.054)	0.013 (0.054)	0.012 (0.054)
Living	0.220*** (0.018)	0.237*** (0.018)	0.238*** (0.018)	0.195*** (0.037)	0.208*** (0.037)	0.207*** (0.037)
Macroeconomic indicators						
GDPpc (ln)	-0.301*** (0.028)			-0.204*** (0.054)		
CPI			-0.001*** (0.000)			-0.005*** (0.002)
Growth (%)		-0.070*** (0.004)			-0.052*** (0.007)	
Positive growth			-0.086*** (0.005)			-0.063*** (0.010)
Negative growth			0.030** (0.012)			0.032 (0.021)
Constant	3.275*** (0.227)	1.492*** (0.109)	1.580*** (0.112)	1.551*** (0.423)	0.340*** (0.187)	0.428** (0.192)
Diagnostics						

Log likelihood	-40077.082	-39968.518	-39948.90	-10635.418	-10613.694	-10608.122
Wald Chi2	5760.65***	5680.29***	5687.00***	1068.08***	1108.79***	1117.69***
Pseudo R^2	0.075	0.077	0.077	0.053	0.055	0.056
# Observations	63527	63527	63527	16732	16732	16732
Round FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: significance level: ***P<0.01, **P<0.05, **P<0.10, Robust standard errors are in parentheses

Table 6: 2SLS-IV estimations using the Lewbel method

	(1)	(2)	(3)	(4)
GDPpc (ln)	-0.018* (0.009)			
Growth (%)		-0.043*** (0.003)		
Positive growth			-0.047*** (0.003)	
Negative growth				0.105*** (0.014)
Constant	0.763*** (0.067)	0.799*** (0.113)	0.826*** (0.011)	0.614*** (0.004)
		diagnostics		
Hansen J-statistic p-value	9.747 0.002	0.900 0.343	0.733 (0.392)	2.384 (0.123)
F-statistic	89.78	170.86	195.51	111.02
# Observations	112029	112029	112029	112029

Notes: significance level: ***P<0.01, **P<0.05, **P<0.10, Robust standard errors are in parentheses.
We control both aggregated variables and individual characteristics