



ASPROWORDA

Working Paper 06/2022

**The African Continental Free
Trade Area and Financial
Development for Women
Economic Participation in Africa**

Vanessa S. Tchamyou
&
Juste Some,
Simplice A. Asongu

Association for Promoting Women in Research and Development in Africa

The African Continental Free Trade Area and Financial Development for Women Economic Participation in Africa¹

Vanessa S. Tchamyou

Association for Promoting Women in Research and
Development in Africa (ASPROWORDA), Cameroon.

E-mails: simenvanessa@asproworda.org / simenvanessa@yahoo.com

Juste Some

Department of Economics, Université Norbert Zongo,
01 BP 376 Koudougou, Burkina Faso

E-mail: juste.some@yahoo.fr

Simplice A. Asongu

(Corresponding Author)

Association for Promoting Women in Research and
Development in Africa (ASPROWORDA), Cameroon.

E-mails: asongusimplice@asproworda.org / asongusimplice@yahoo.com

Abstract

The study has contributed to the extant literature on the relevance of the African Continental Free Trade Agreement (AfCFTA) by assessing how financial development dynamics can moderate the incidence of African trade integration on female labour force participation. The focus is on 47 African countries for the period 1995 to 2019 and the empirical evidence is based on Fixed Effects regressions. The findings show that financial development moderates African trade integration to engender an overall positive effect on female labour force participation. Moreover, financial depth proxied by liquid liabilities should reach a threshold of approximately 15.47 (% of GDP) in order to completely dampen an initial negative incidence of intra-African trade integration on female labor force participation. It follows that financial development becomes a necessary and sufficient condition to moderate intra-African trade integration in order to positively affect female labor force participation only when the established threshold of financial depth is attained. Other policy implications are discussed.

Keywords: Trade; Financial development; Inclusion; Gender; Africa

JEL Classification: G20; I10; I32; O40; O55

¹ The views expressed in this working paper are those of the authors and do not necessarily represent those of the ASPROWORDA, its Executive Board, or its management.

1. Introduction

African countries have a great potential for intensive trade between themselves and for the global market overall. In essence, regional African trade can play a crucial role in the: diversification of economies and reduction of export dependence for some mineral products, delivery of food and energy security, creation of jobs for the youth, alleviation of poverty and promotion of shared prosperity (World Bank, 2013). Currently, intra-African trade represents 15% of the total merchandise trade of the continent. This is relatively low when compared with intra-regional trade in other continents. For instance, intra-regional trade is: 48% in North America; 58% in Asia and 67% in Europe (ABM, 2018). When and if the objectives of African Continental Free Trade Area (AfCFTA) become a reality, intra-African trade could rise by at least 50% over the next five years. However, in order to meet the needs of the continent, it will be imperative to reduce the export of primary commodities from African countries. For instance, Ghana and Côte d'Ivoire should retain most of their cocoa crop in order to locally produce chocolate and other related products, instead of exporting the bulk of the crop to the United States (US) and Europe. These developed countries transform cocoa and sell the finished products more expensively and most often even to the countries exporting the raw material. In the case of cobalt, instead of exporting the key input used to manufacture batteries to power electric cars to China, manufacturing could be done directly in the Democratic Republic of Congo and Zambia, where this mineral is found in abundance.

There are new opportunities appearing to provide manufactured goods and food to African cities. Trade in services also provides a new path to more diversification for exports and more competitive domestic markets. Women then play an important role in African trade and are also essential in exploiting the African trade potential (World Bank, 2013). In essence, women are tremendously contributing to trade in most African countries through their participation as owners and managers of firms as cross-border traders. In many African countries, the majority of farmers are women who mostly produce crops like rice, cotton, cassava or maize. They also provide cross-border services such as health, education or professional services like legal and accountancy services. However, the contribution of women to trade is lower than should be practically expected in the light of their potential to contribute towards economic development. This is essentially because of non-tariff barriers and constraints such as harassment and extortion at borders they face. These barriers sometimes push them to the informal economy with lack of information, access to finance and networks which can compromise their ability to grow and expand their businesses. Such conditions can prevent women from taking full benefits

of opportunities offered by trade and therefore weaken ambitions of African countries to actually see trade as a driver of employment, growth and poverty reduction (World Bank, 2013).

Trade policy is not gender-neutral. The distribution of the outcomes of trade differs from men to women. This is due to the different opportunities they have and their different roles in the economy and society. In African countries, women are mostly responsible for taking care and educating children; for housework and for collecting drinkable water from communal wells. Some women work in subsistence agriculture and can be small traders. Generally, women in Africa have limited opportunities to promote commercial activities at regional and international levels (Aranda, 2018; Asongu & Odhiambo, 2019; Efobi *et al.*, 2018). Although African economies are moving from farming to services, many women are still in the agricultural sector. To put this point into more perspective, statistics show that: (i) 96% of women in Burundi, 76% in Kenya, 84% in Rwanda, 71% in Tanzania and 77% in Uganda are working in the agricultural sector and (ii) 35% of women in Kenya and 46% in Rwanda have ownership of land (UN News, 2018).

The impact of trade policy on social and economic activities seems to be different between men and women. This is because of: (i) their different roles and needs in the economic and social life and (ii) differences in access to information and resources. This is essentially due to political, socio-cultural and economic factors. Hence, women seem to be more affected by the negative side-effects of trade liberalization and are equally faced with more challenges compared to men when it comes to benefiting from opportunities offered by trade (Osinubi & Asongu, 2021). This situation is the result of gender biases in education and training; income distribution; unequal access to resources, information, credits, land, and technology, among others.

One fundamental factor to take into account for a sustainable effect of gender equality on economic growth is a better accumulation of human capital for girls and women, which is a key aspect for the development of the capacity of national productivity. Additionally, there are important points with which to make trade policy gender-sensitive (UNCTAD, 2017): (i) a gender related assessment is necessary prior to the introduction of new policies in the agreement, and (ii) the relationship between trade, gender equity and development is becoming increasingly clear, hence new trade agreements should include the gender aspects.

The closest studies in the literature to the present study are Asongu *et al.* (2020) and Osinubi and Asongu (2021) which have assessed the influence of globalisation on female economic participation. In more perspective, Asongu *et al.* (2020) have assessed the nexus between globalisation and female economic participation in 47 sub-Saharan Africa (SSA) countries over the period 1990-2013 while Osinubi and Asongu (2021) have examined the impact of globalization on female economic participation in MINT (Mexico, Indonesia, Nigeria and Turkey) and BRICS (Brazil, Russia, India, China and South Africa) countries between 2004 and 2018. In the light of the above, this study contributes to the extant literature by assessing how financial development dynamics moderate the influence of African trade integration on the participation of women in the formal economic sector. To the best of knowledge, the underlying positioning has not yet been engaged in the empirical literature, not least, because, *inter alia*, the AfCFTA is relatively new. Hence, the motivation of this study also builds on the need for scholarly literature to motivate policy prescription especially as it pertains to the contingency of the nexus between trade integration and women economic participation, contingent on financial development dynamics.

The rest of the study is organised as follows. The theoretical underpinnings and related literature are covered in Section 2 while the data and methodology are covered in Section 3. Section 4 presents the empirical findings while Section 5 concludes with implications and future research directions.

2. Theoretical underpinning and literature review

2. 1. Theoretical underpinnings

The theoretical nexus between financial development and inclusive development builds from Tchamyou *et al.* (2019a) or a study on linkages between financial development and income inequality. According to the authors, the theoretical nexus between financial development and inclusive development can be premised on two main theoretical postulations, notably: the intensive margin theory and extensive margin theory. These theoretical stances are consistent with the attendant literature on the nexus between financial development and economic development outcomes (Greenwood & Jovanovic, 1990; Galor & Zeira, 1993; Beck *et al.*, 2007; Tchamyou & Asongu, 2017; Asongu & Odhiambo, 2018).

According to the intensive margin theory, inclusive development opportunities can be enhanced when more financial services are provided to existing clients already using financial

institutions. This position which is consistent with Chipote *et al.* (2014) is relevant to the context of this study because the AfCFTA can provide opportunities that motivate existing bank customers to benefit more from bank services, especially if corresponding operations for which the funds are needed are associated with opportunities from the AfCFTA. Conversely, the extensive margin theory is the position that, when the financial services are extended beyond the remit of existing bank customers (i.e., to include the fraction of the population that was previously unbanked), opportunities for inclusive development also become apparent. This can be the case when the AfCFTA provides opportunities for women who did not previously have access to bank accounts.

In the light of the above, financial institutions can improve conditions for the inclusive development, especially within the remit of women economic participation. Moreover, such gender inclusion can be achieved through various mechanisms and policies being implemented both within and across countries. Within the context of the present study, the mechanism by which such financial institutions are hypothesized to improve female economic inclusion outcomes is intra-African trade integration. It follows that the main argument on which the testable hypothesis stands is that African trade integration affects labour outcomes, contingent on financial development, granting that both trade and financial globalisation have been established to promote gender economic inclusion (Asongu *et al.*, 2020; Osinubi & Asongu, 2021).

Hypothesis 1: Financial development promotes women economic inclusion through African trade integration.

2.2. Literature review

Females trade across African borders every day and contribute substantially to the economy of the continent. Some estimates show that informal cross-border trade makes a major contribution to the economic prosperity of many African countries and is a means of income for close to 43% of the total population in Africa (Brenton & Soprano, 2018; Afrika & Ajumbo 2012). In Southern Africa for instance, informal cross-border trade represents 30-40 % of the totally recorded formal trade among countries in the sub-region (SARDC, 2008). A bulk of studies on the continent confirms that the majority of informal cross-border traders are women. For instance, Njiwa *et al.* (2011) reported that 75% of informal cross-border traders between Zambia and Malawi are women. This percentage is consistent with estimates from the United Nations Development Fund for Women. Breton and Isik (2012) found that 80% of informal

cross-border traders in the region of the Great Lakes are women. Consistent with the UNIFEM (United Nations Development Fund for Women), women constitute about 70% of the informal cross-border traders in the Southern African Development Community (SADC) region, while in the Western and Central parts of Africa the figure is nearly 60% (Afrika & Ajumbo 2012). These women use informal cross-border trade as a strategy for self-employment, poverty reduction and wealth creation, and include those who are self-employed owning informal, small-scale enterprises, those who work in the trade service sector, and those working as employees, managers, and executives in large-scale businesses.

According to Brenton and Soprano (2018), cross-border trade typically happens at small scale, and is often dominated by women. Traders generally exchange small quantities of modest value, due to a variety of constraints such as poor-quality inputs, lack of machinery, low capacity, limited financing, and inefficient marketing and distribution channels, among others. The authors further argue that the vast majority of Africa's small-scale traders are females who represent up to 70-80 percent in some cases. Cross-border trade is sometimes their only source of livelihood. Across the continent, female traders are also among the most vulnerable group in many areas, and compared to males, they suffer disproportionately from the various constraints related to cross-border trade activities. Additionally, they are exposed to a number of gender-specific challenges and risks. Furthermore, women are not a homogenous group and thus are differently affected by trade depending on, *inter alia* their position in the labour market, income status, educational level, access to information and resources.

Informal cross-border trade is one of the sources of income which provide a livelihood to many African families despite the very difficult conditions faced by women. Nonetheless, the liberalization and formalization of this trade is an opportunity for both traders and officials. Lesser and Moise-Leeman (2009) analysed the benefits of governments, on the one hand, from a progressive move towards formal trade to increased revenues; improved compliance with safety and health standards; enhanced governance at borders; better control at cross-borders and more accurate data to support better policy analysis and decisions. On the other hand, for traders, a shift from informality to formality will involve a move away from a survival economy to an economy where the degree of formality will enhance and improve access to information, finance and better protection against violence. Although informal cross-border trade has multiple beneficial socio-economic effects, particularly in the short and medium terms, it also has negative impacts in the long run. These include, *inter alia*: no application of national, regional, international trade norms and regulations; employment insecurity; low paid jobs; poor

working conditions; difficulty in obtaining credits; inability to sell to the government and other formal sector enterprises; and lack of access to government services. Overall, informal cross-border traders generally experience enormous challenges as entrepreneurs. Their operating environment is characterized by lack of adequate facilities such as financial services tailored to their needs; inadequate legal and regulatory frameworks; inefficient infrastructure services; corruption; and the lack of institutional and other support to businesses.

3. Data and methodology

3.1 Data

The main research question of this study is to assess how the AfCFTA (proxied by trade indicators from the International Labor Organisation (ILO)) can be moderated by financial development (FD) in Africa for Women Economic Participation (measured with female labour force participation rate). To attempt to respond to this question, we analyse a panel of 47 African countries for which data are available from 1995 to 2019.²The starting year of 1995 is motivated by data availability constraints in intra-regional trade indicators from the United Nations Conference on Trade and Development (UNCTAD) database that are only available from 1995 while the ending year of 2019 is because it is the most updated year.

Consistent with recent female economic participation literature (Efobi *et al.*, 2018), the main variable of formal gender economic inclusion from the International Labor Organisation (ILO) is female labor force participation. The female labor force participation rate is used as our primary outcome variable because it is more representative of the number of women that are involved in economic activities (Asongu *et al.*, 2020). To proxy the potential opportunities for the AfCFTA, we use a trade integration index based on two sub-indicators. The trade integration index assesses the extent to which a country trades with others in Africa. In accordance with Tchamyou (2019), Tchamyou et al. (2019a), and Meniago and Asongu (2018), financial development is proxied by the sum of z-score (i.e., financial stability), financial depth, financial activity, and financial efficiency. Finally, we controlled for factors which can potentially influence women economic participation, notably: the real GDP per capita growth rate, the

²The 47 countries include: Angola, Burundi, Benin, Burkina Faso, Botswana, Central African Republic, Cote d'Ivoire, Cameroon, Congo Democratic Republic, Congo Republic, Comoros, Cabo Verde, Algeria, Egypt, Ethiopia, Gabon, Ghana, Guinea, Gambia, Guinea-Bissau, Equatorial Guinea, Kenya, Libya, Lesotho, Morocco, Madagascar, Mali, Mozambique, Mauritania, Mauritius, Malawi, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Sao Tome and Principe, Eswatini, Chad, Togo, Tunisia, Tanzania, Uganda, South Africa, Zambia, and Zimbabwe.

fertility rate, dependency ratio, and female school enrolment. These factors have been documented in the extant inclusive development and gender inclusion literature to influence female economic participation (Duflo, 2012; Asongu & Odhiambo, 2020; Ngono, 2021; Ofori *et al.*, 2021; Asongu *et al.*, 2021).

The definitions of variables and related sources are provided in Table 1 while corresponding summary statistics is disclosed in Table 2. The summary statistics inform the study on the computation of net effects and attendant thresholds within the remit of interactive regressions, not least, because, *inter alia*: (i) mean values of the moderating financial development variables are employed to compute the net effect of the African regional trade on the outcome variable and (iii) when policy thresholds are computed, in order for the computed thresholds to be policy relevant and make economic sense, they should be within the minimum and maximum values of the attendant moderating variables disclosed in the summary statistics.

Table 1: Definitions and sources of variables

Variables	Signs	Variable definitions	Sources
------------------	--------------	-----------------------------	----------------

Panel A: AfCFTA (proxied with trade indicators)

Share of intra-Africa exports+ imports over GDP	trade1	The value of the goods that a country has exported within the region as a percentage of that country's GDP and the value of the goods that a country has imported from within the region as a percentage of that country's GDP.	Authors calculations using UNCTAD database
Share of intra-Africa trade over total intra-Africa trade	trade2	The sum of a country's exports and imports within the region over the country's GDP as a percentage of all of the intra-Africa trade over the Africa's GDP	Authors calculations using UNCTAD database
Intra-African Trade integration	ATII	Sum of z-score of the share of intra-Africa exports + imports over GDP and share of intra-regional trade over total intra-Africa trade	Authors calculations using UNCTAD database

Panel B: Financial development

Financial System Depth	FDepth	Liquid Liabilities (% of GDP)	
Financial System Efficiency	FEff	Private credit by deposit money banks and other financial institutions (% of GDP) to financial system deposits (% of GDP)	World Bank (Global Financial Development Database)
Financial System Activity	FAct	Private credit by deposit money banks and other financial institutions (% of GDP)	
Financial Development	FDev	Sum of z-score of financial system depth, financial system efficiency, and financial activity	

Panel C: Women's Economic Participation (WEP)

Female labour force participation rate	FeLPart	Labor force participation rate, female (% of female population ages 15+)	World Bank using ILO estimate
--	---------	--	-------------------------------

Panel D: Control Variables

Real GDP growth rate	RGDPG	Real GDP (constant 2011 international dollars) growth rate	World Bank (WDI)
Fertility rate	FrtRat	Fertility rate (births per woman)	World Bank (WDI)
Dependency ratio	DepRat	Age dependency ratio (% of working-age population)	World Bank (WDI)
Female education	SCHFE	Average years of schooling for female that are over 25 years old	UNDP using Barro and Lee

WDI: World Development Indicators. WGI: Worldwide Governance Indicators.

Table 2: Summary statistics of main variables (1995-2019)

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
Female labor force participation rate	1175	56.653	18.476	11.647	87.931
Female employment rate	1175	51.608	19.670	8.067	86.795
Intra-African Trade Integration	1175	0.000	1.989	-1.394	11.203
Financial Development	1098	0.003	2.384	-3.081	13.332
Financial Depth	1098	33.114	30.137	0.336	355.424
Financial Activity	1101	22.328	28.003	0.250	187.784
Financial Efficiency	1101	78.899	37.864	13.375	262.610
Real GDP growth rate	1163	4.631	8.066	-62.076	149.973
Age dependency ratio	1175	83.095	15.750	41.293	112.849
Fertility rate	1175	4.811	1.389	1.360	7.725
Femaleschoolenrolment	576	4.348	2.280	0.400	10.000

Source: Authors' computations.

3.2 Methodology

Our empirical methodology consists of using panel data analysis at the country level to examine to what extent the African Continental Free Trade Agreement (AfCFTA) in interaction with financial development can enhance women's economic participation in Africa. Based on the theoretical and empirical literature (Asongu *et al.*, 2020), we specify the following equation:

$$WEP_{it} = \gamma_1 ATII_{i,t-1} + \gamma_2 FDev_{i,t-1} + \gamma_3 (ATII_{i,t-1} \times FDev_{i,t-1}) + \phi Z_{i,t-1} + \mu_i + \lambda_t + \varepsilon_{it} \quad (2)$$

Where the dependent variable **WEP** is a measure of Women's Economic Participation. The explanatory variables of interest are measures of Intra-African trade integration (**ATII**) and the Financial Development (**FDev**). The vector **Z** is a set of control variables such as Real GDP per capita, fertility rate, dependency ratio, and governance indicator, and the average years of schooling for females. The terms μ_i are unobservable and time-invariant effects that are specific to each country, λ_t are unobservable time effects to capture the influence of macroeconomic shocks that may affect all the countries at the same time, and $\varepsilon_{i,t}$ are error terms. Subscripts *i* and *t* are country and time indicators, respectively. We lagged the explanatory variables because this tends to reduce potential reverse causality with the dependent variables (Asongu *et al.*, 2020).

Owing to limited data availability, Djibouti, Eritrea, Libya, Seychelles, Somalia, and South Sudan are not included in our baseline sample of estimations. Our estimation methodology is based on the OLS fixed effects regressions as the N is larger than T.

4. Empirical results

4.1 Presentation of results

The results of these baseline estimations are reported in Tables 3. In all the regressions, the standard errors in parentheses are clustered at the country level. Time dummies (coefficients not reported) are also included. Table 3 shows nexuses between financial development, Intra-African trade integration and female economic participation. It is divided into four main specification columns, each representing an engaged financial development dynamic. In order to assess the validity of the stated hypothesis in Section 2.1, the study is in line with the extant literature in computing corresponding net effects of Intra-African trade integration on the outcome variable (Tchamyou & Asongu, 2017; Nchofoung *et al.*, 2021, 2022). Accordingly, the study is cautious not to interpret the estimated coefficients as in linear additive models, consistent with the pitfalls of interactive regressions documented in Brambor *et al.* (2006) and in more contemporary literature (Tchamyou *et al.*, 2019b; Tchamyou, 2020).

To put the above into more perspective, in the first specification of Table 3, the net effect from the role of financial development in moderating Intra-African trade integration to affect female economic participation is $\partial WEP/\partial ATII = \gamma_3 FDev + \gamma_1$, which yields $0.395 = ([0.003 \times 0.192] + [0.394])$. In the attendant computation, 0.003 is the mean value of financial development (*FDev*) apparent in the summary statistics, 0.394 is the unconditional effect of Intra-African trade integration while 0.192 is the corresponding interactive or conditional effect. It is worthwhile note that net effects are computed exclusively in regressions for which at least one estimated coefficient needed for the computation of such net effects is significant. In the light of the findings for which net effects of Intra-African Trade Integration are computed in Table 3, *Hypothesis 1* is valid. More precisely, financial development promotes women economic inclusion through African trade integration.

Table 3: Effects of AfCFTA and financial development on Women economic participation in Africa

Depvar: Female Labor Force Participation	1a	1b	1c	1d
L.Financial Development	0.319**			

L.(Financial Development)×(Intra-African Trade Integration)	(0.147) 0.192* (0.096)			
L.Financial Depth		0.027** (0.011)		
L.(Financial Depth)×(Intra-African Trade Integration)		0.023** (0.011)		
L.Financial Activity			0.032* (0.016)	
L.(Financial Activity)×(Intra-African Trade Integration)			0.024*** (0.008)	
L.Financial Efficiency				0.006 (0.008)
L.(Financial Efficiency)×(Intra-African Trade Integration)				0.001 (0.002)
L.Intra-African Trade Integration	0.394* (0.213)	-0.425 (0.335)	-0.155 (0.232)	0.128 (0.234)
L.Real GDP growth rate	-0.008 (0.007)	-0.007 (0.007)	-0.008 (0.007)	-0.009 (0.007)
L.Fertility rate	2.604** (0.986)	2.568** (0.992)	2.449** (1.008)	2.851*** (1.026)
L.Agedependency ratio	-0.186*** (0.060)	-0.186*** (0.062)	-0.181*** (0.061)	-0.191*** (0.061)
Net effect of Intra-African Trade Integration	0.395	na	na	na
Financial Development Threshold	nsa	na	na	na
Countries\Observations	47\1050	47\1050	47\1051	47\1051
R-squaredwithin	0.19	0.20	0.20	0.17
F-statistic\p-value	5.4\0.00	4.7\0.00	8.0\0.00	3.0\0.00

Notes: *** (**) (*) denotes significance at the 1 (5) (10) percent level. Robust standard errors in parentheses are clustered at the country level. Time dummies are included. L. denotes the first lag. na: not applicable because at least of the estimated coefficients needed for the computation of net effects and threshold is not significant. nsa: not specifically applicable because a synergy net effect is apparent.

For robustness checks of our results, we run the estimation using five-year non-overlapping averages over 1995-2019. We then have five data (time) points for each country: [1995-1999], [2000-2004], [2005-2009], [2010-2014], and [2015-2019]. This reduces issues of missing values for some of the countries in the sample and reduces yearly serial correlation from business cycles. The estimations now include the female school enrolment as an additional control variable given that this variable is only available each five year between the period 1995-2010. The corresponding findings are shown in Table 4 and from the results, it is apparent that *Hypothesis 1* is valid in the first-two specifications from which net effects can be computed. Consistent with the earlier narrative, net effects are not computed in the last-two specifications because at least one estimated coefficient needed for their computations is not significant. Another worthwhile finding is that thresholds can be feasibly computed for the second specification pertaining to nexuses between financial depth, financial activity, intra-African trade integration and female economic participation.

Table 4: Effects of AfCFTA and financial development on Women economic participation in Africa (using five-year averages data)

Depvar: Female Labor Force Participation	1a	1b	1c	1d
L.Financial Development	0.625** (0.286)			
L.(Financial Development)×(Intra-African Trade Integration)	0.506*** (0.135)			
L.Financial Depth		0.047** (0.019)		
L.(Financial Depth)×(Intra-African Trade Integration)		0.045*** (0.008)		
L.Financial Activity			0.067** (0.031)	
L.(Financial Activity)×(Intra-African Trade Integration)			0.059*** (0.014)	
L.Financial Efficiency				0.015 (0.014)
L.(Financial Efficiency)×(Intra-African Trade Integration)				0.010 (0.007)
L.Intra-African Trade Integration	1.041*** (0.230)	-0.696** (0.271)	-0.347 (0.238)	-0.149 (0.480)
L.Real GDP growth rate	-0.168** (0.073)	-0.150 (0.091)	-0.158* (0.079)	-0.147* (0.085)
L.Fertility rate	1.196 (0.929)	0.941 (0.993)	0.847 (0.979)	1.704 (1.042)
L.Agedependency ratio	-0.148** (0.067)	-0.139* (0.069)	-0.139** (0.068)	-0.157** (0.073)
L.Femaleschoolenrolment	0.828 (0.755)	0.999 (0.796)	0.920 (0.745)	0.744 (0.813)
Net effect of Intra-African Trade Integration	1.042	0.794	na	na
Financial Development Threshold	nsa	15.472	na	na
Countries\Observations	46\158	46\158	46\158	46\158
R-squaredwithin	0.31	0.30	0.33	0.22
F-statistic\p-value	6.1\0.00	14.1\0.00	7.0\0.00	3.5\0.00

Notes: *** (***) (*) denotes significance at the 1 (5) (10) percent level. Robust standard errors in parentheses are clustered at the country level. Time dummies are included.L. denotes the first lag. na: not applicable because at least of the estimated coefficients needed for the computation of net effects and threshold not significant. nsa: not specifically applicable because a synergy net effect is apparent.

4.2 Financial development thresholds for gender economic inclusion

In interactive regressions, thresholds can be computed when the unconditional and conditional effects of the corresponding interactive variables have opposite signs. This is not the case in the first specifications of Table 3 and Table 4 from which positive synergies are apparent instead, not least, because the unconditional and conditional effects of the intra-African trade integration are positive. Moreover, with synergy effects, net effects should not be computed unless the moderating variables have a negative sign.

The above result tendency is different from the second and third specifications in Table 4, notably because: (i) the mean value of financial depth is positive and (ii) the unconditional effect of African trade integration on female economic inclusion is negative while the

corresponding conditional or interactive effect is positive. This implies that there is a threshold of financial depth above which the unconditional negative effect of intra-African trade integration is completely nullified. The narrative on the computation of thresholds in interactive regressions in order to provide room of more policy implications is consistent with extant interactive regressions literature (Nchofoung & Asongu, 2022a, 2022b). Furthermore, in order for the computed threshold to be policy-relevant and make economic sense, the attendant threshold should be situated within the range (minimum to maximum values) provided in the summary statistics.

In the light of the above, the financial depth threshold in the second specification of Table 4 needed to annul the unconditional negative effect of intra-African trade integration is 15.472 (0.696/0.047). In the computation 0.696 is the absolute value of the unconditional effect of intra-African trade integration while 0.047 is the corresponding interactive or conditional effect. It follows that when financial depth or liquid liabilities are 15.472 (% of GDP), intra-African trade integration become favorable in terms of promoting female economic participation. In the same vein, below a 15.472 (% of GDP) threshold of liquid liabilities, intra-African trade integration has an unfavorable impact on female economic participation. The computed threshold is statistically relevant, makes economic sense and is policy-relevant because it is situated between the statistical range of 0.336 to 355.424 which are respectively, the minimum and maximum values of financial depth documented in the summary statistics or Table 2.

5. Concluding implications and future research directions

The study has contributed to the extant literature on the relevance of the AfCFTA by assessing how financial development dynamics can moderate the incidence of intra-African trade integration on female labour force participation. The focus is on 47 African countries for the period 1995 to 2019 and the empirical evidence is based on Fixed Effects regressions. The findings show that financial development moderates intra-African trade integration to engender an overall positive effect on female labour force participation. Moreover, financial depth or liquid liabilities should reach a threshold of 15.472 (% of GDP) in order to completely dampen an initial negative incidence of intra-African trade integration on female labor force participation. It follows that financial development becomes a necessary and sufficient condition to moderate intra-African trade integration in order to positively affect female labor force participation only when the established threshold of financial depth is attained. More policy implications are discussed in what follows.

First, the perspective that the tested hypothesis is validated has an implication in that financial development is a policy means by which the AfCFTA can be promoted in Africa for inclusive development outcomes such as female economic employment. In other words, this study has empirically established that financial development is one of the instruments by which the AfCFTA framework can be moderated for an overall positive incidence in gender economic inclusion. Hence, the interaction between the AfCFTA and financial development is a policy strategy for the achievement of SDG5 focusing on gender equality, women empowerment and socio-economic inclusion.

Second, the implementation of the AfCFTA can be associated with an initial unfavorable effect on gender economic inclusion. Hence, policy makers should ensure that a financial depth penetration threshold of 15.472 (% of GDP) is attained in order to generate favorable outcomes in terms of female labor force participation.

Third, the insignificance of the financial dynamic channels of activity and efficiency is an indication that more needs to be done in terms fighting concerns of surplus liquidity in African financial institutions, especially as it concerns transforming mobile deposits into credit for economic operators (i.e., financial efficiency) in order to enhance financial access (i.e., financial activity).

The findings in this study obviously leave space for improvement especially as it pertains to assessing complementary variables that financial development dynamics of activity and efficiency can be combined with in order to engender an overall positive incidence on the outcome variable or female labor force participation. Moreover, future research should also engage how the AfCTFA is relevant in the achievement of other United Nations' goals of sustainable development projected for 2030.

Acknowledgments

The views expressed in this paper are those of the authors and do not necessary reflect those of their institutions. The authors declare that they have no competing interests.

References

Afrika, J.-G., & Ajumbo, G., (2012). "Informal Cross-Border Trade in Africa: Implications and Policy Recommendations." African Development Bank, Africa Economic Brief, 3(10): 1.

African Business Magazine (ABM), 2018. "CFTA: Africa positions for "the world's largest free trade area". What are the implications?". <https://africanbusinessmagazine.com/latest/cfta-africa-positions-for-the-worlds-largest-free-trade-area-what-are-the-implications/>

Aranda, J. L. G., (2018). "Trade and Gender: an Unsustainable Situation in African Countries". Africa Europe Faith and Justice Network.

Asongu, S. A., Efobi, U. R., Tanankem, B. V., & Osabuohien, E. S. (2020). Globalisation and female economic participation in sub-Saharan Africa. *Gender Issues*, 37(1), 61-89.

Asongu, S. A., Nounamo, Y., Njangang, H., & Tadadjeu, S. (2021). "Gender inclusive intermediary education, financial stability and female employment in the industry in Sub Saharan Africa". *Finance Research Letters*, 43(November), 101968.

Asongu, S. A., & Odhiambo, N. M., (2018). "ICT, Financial Access and Gender Inclusion in the Formal Economic Sector: Evidence from Africa", *African Finance Journal*, 20(2), pp. 46-66.

Asongu, S. A., & Odhiambo, N. M., (2019). "How Enhancing Information and Communication Technology has affected Inequality in Africa for Sustainable Development: An Empirical Investigation", *Sustainable Development*, 27(4), pp. 647-656.

Asongu, S. A., & Odhiambo, N. M., (2020). "Inequality and the Economic Participation of Women in Sub-Saharan Africa: An Empirical Investigation", *African Journal of Economic and Management Studies*, 11(2) pp. 193-206.

Beck, T., Demirgüç-Kunt, A., & Levine, R., (2007). "Finance, inequality and the poor." *Journal of Economic Growth*, 12(1), pp. 27-49.

Boateng, A., Asongu, S. A., Akamavi, R., & Tchamy, V. S., (2018). "Information Asymmetry and Market Power in the African Banking Industry", *Journal of Multinational Financial Management*, 44(March), pp. 69-83.

Brambor, T., Clark, W. M., & Golder, M. (2006). "Understanding Interaction Models: Improving Empirical Analyses", *Political Analysis*, 14 (1), pp. 63-82.

Brenton, P., & Isik, G., (2012). "Defragmenting Africa: Deepening Regional Trade Integration in Goods and Services. Washington, DC: World Bank.

Brenton, P., & Soprano, C., (2018). "Small-Scale Cross-Border Trade in Africa: Why It Matters and How It Should Be Supported", *Bridges Africa*, Vol. 7, Num. 4.

Caulderwood, K., (2015). "Sub-Saharan Africa Falls Behind In Fight Against Extreme Poverty: World Bank Report", *International Business Times* (April 14th 2015).

Chipote, P., Mgxekwa, B., & Godza, P., (2014). "Impact of Financial Liberalization on Economic Growth: A Case Study of South Africa", *Mediterranean Journal of Social Sciences*, 5(23), pp. 1-8.

- Duflo, E. (2012). "Women empowerment and economic development". *Journal of Economic Literature*, 50(4), pp. 1051–1079.
- Efobi, U. R., Tanaken, B. V., & Asongu, S. A., (2018). "Female Economic Participation with Information and Communication Technology Advancement: Evidence from Sub-Saharan Africa", *South African Journal of Economics*, 86(2), pp. 231-246.
- Galor, O., & Zeira, J., (1993). "Income Distribution and Macroeconomics", *Review of Economics*, 60(1), pp. 35-52.
- Greenwood, J., & Jovanovic, B. (1990). "Financial development, growth and the distribution of income", *Journal of Political Economy*, 98(5), pp. 1076-1107.
- Kiratu, S. & Roy, S., (2010). "Beyond Barriers: The Gender Implications of Trade Liberalization in Southern Africa". International Institute for Sustainable Development
- Lesser, C., & Moise-Leeman, E., (2009). "Informal Cross-Border Trade and Trade Facilitation Reform in Sub-Saharan Africa." OECD Trade Policy Working Paper 86, Organisation for Economic Co-operation and Development, Paris.
- Meniago, C., & Asongu, S. A., (2018). "Revisiting the Finance-Inequality Nexus in a Panel of African Countries", *Research in International Business and Finance*, 46 (December), pp. 399-419.
- Nchofoung, T. N., & Asongu, S. A., (2022a). "ICT for sustainable development: Global comparative evidence of globalisation thresholds". *Telecommunications Policy*, 46(5), 102296
- Nchofoung, T. N., & Asongu, S. A., (2022b). "Effects of infrastructures on environmental quality contingent on trade openness and governance dynamics in Africa", *Renewable Energy*, 189(April), 152-163.
- Nchofoung, T.N., Achuo, E.D. & Asongu, S. A., (2021). "Resource rents and inclusive human development in developing countries". *Resources Policy*, 74(4), 102382.
- Nchofoung, T. N., Asongu, S. A., Kengdo, A. A. N., (2022). "Linear and non-linear effects of infrastructures on inclusive human development in Africa", *African Development Review*, 34(1), pp. 81-96.
- Ngono, J. F. L., (2021). "Financing women's entrepreneurship in Sub-Saharan Africa: bank, microfinance and mobile money", *Labor History*, 62(1), pp. 59-73.
- Njiwa, D., Nthambi, T., & Chirwa, J., (2011). "Reconnaissance Survey Report of Informal Cross-Border Trade at STR Implementing Borders of Zambia, Malawi and Zimbabwe". Unpublished report prepared by the CBT/REFORM project team. Lusaka: COMESA Secretariat.
- Ofori, I. K., Armah, M. K., Taale, F., & Ofori, P. E., (2021). "Addressing the severity and intensity of poverty in Sub-Saharan Africa: how relevant is the ICT and financial development pathway?" *Heliyon*, 7(10), e08156.
- Osinubi, T. & Asongu, S. (2021). "Globalization and female economic participation in MINT and BRICS countries", *Journal of Economic Studies*, 48(6), pp. 1177-1193.

Pieters, J., (2014). "Trade liberalization and gender inequality". IZA World of Labor 2014: 114
doi: 10.15185/izawol.114

Southern Africa Research and Documentation Centre (SARDC), (2008). "Optimizing Regional Integration in Southern Africa: Assessing Informal Cross Border Trade in SADC."

Tchamyou, V. S., (2019). "The Role of Information Sharing in Modulating the Effect of Financial Access on Inequality". *Journal of African Business*, 20(3), pp. 317-338.

Tchamyou, V. S., (2020). "Education, Lifelong learning, Inequality and Financial access: Evidence from African countries". *Contemporary Social Science*. 15(1), pp. 7-25.

Tchamyou, V. S., & Asongu, S. A., (2017). "Information Sharing and Financial Sector Development in Africa", *Journal of African Business*, 18(7), pp. 24-49.

Tchamyou, V.S., Erreygers, G., & Cassimon, D., (2019a). "Inequality, ICT and Financial Access in Africa", *Technological Forecasting and Social Change*, 139(February), pp. 169- 184.

Tchamyou, V.S., Asongu, S. A., & Odhiambo, N. M., (2019b). "The role of ICT in modulating the effect of education and lifelong learning on income inequality and economic growth in Africa", *African Development Review*, 31(3), pp. 261-274.

UN News(2018). "Gender-sensitive' trade policies help empower East African women". <https://news.un.org/en/story/2018/05/1009242>

United Nations Inter-Agency Network on Women and Gender Equality (IANWGE), (2011). "Gender Equality & Trade Policy". http://www.un.org/womenwatch/feature/trade/gender_equality_and_trade_policy.pdf

United Nations Conference on Trade and Development (UNCTAD), (2017). "The new way of addressing gender equality issues in trade agreements: is it a true revolution?".

UNCTAD/PRESS/PB/2017/2 (No. 53).

http://unctad.org/en/PublicationsLibrary/presspb2017d2_en.pdf

United Nations Conference on Trade and Development (UNCTAD), 2009. "Mainstreaming Gender in Trade Policy: Considering women in the design and implementation of trade policy", Geneva: UNCTAD.

World Bank(2013). "Women and Trade in Africa: Realizing the Potential". Washington, DC.