Women Inclusion in the Context of Multilateral Trade Agreements: The Nigerian Experience

Oyetayo, Oluwatosin Juliana
Department of Banking and Finance, College of Entrepreneurship and Development Studies, Federal University of Agriculture, Abeokuta

Olubiyi, Ebenezer Adesoji
Department of Economics, College of Entrepreneurship and Development Studies, Federal University of Agriculture, Abeokuta

Akinbode, Sakiru Oladele
Department of Economics, College of Entrepreneurship and Development Studies, Federal University of Agriculture, Abeokuta

Dada, Matthew Abiodun
Department of Economics, College of Entrepreneurship and Development Studies, Federal University of Agriculture, Abeokuta

Correspondence:
oyetayooj@funaab.edu.ng

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Abstract

In 2017, Nigeria, a member of the World Trade Organization (WTO), signed the agreement on 'Gender and Trade'. The main focus of the agreement is 'inclusive trade and gender equality'. Similarly in July 2019, Nigeria signed the African Continental Free Trade Area Agreement (AfCFTA). The main objective is to remove tariffs on 90% of goods, thereby encouraging more intra-regional trade across the African continent. In 2020, a World Bank report on women and trade argues for the positive and negative effects of trade, trade agreements, and trade policies on women. Women in developing countries including Nigeria are said to make up 33% of the total workforce of exporting firms. Based on the World Bank report, there are concerns that AfCFTA may facilitate competitive pressures on labor and capital markets which tend to discriminate against women due to lack of capacity. Therefore, this study aims to investigate the direct and indirect effects of exports on women's social inclusion in the period before and after 2017. Utilizing the autoregressive distributed lag (ARDL) with a policy shift period of 2017, in the short-run, results reveal that, increases in all exports, majorly, have positive and significant indirect effects on women inclusion that is more prominent in female primary school enrollment rate. In the long run, increases in manufactured and agriculture exports had positive and significant indirect effects on women inclusion through female primary school enrollment. The study recommended among others the targeting of parents or guardians of children in primary schools for some trade incentives or employment in the export sector. Women's participation in agriculture should be encouraged through access to high quality inputs and provision of gender-focused training in their application. Revamping of the food export sector and improved investment in human capital development; mainly health and education with a special focus on the female folk in order to enhance women inclusion are advocated.

Key words: Inclusive trade; trade impacts; trade liberalization; women labor force participation; human capital

Introduction

Following a post-2015 development agenda for 2030, the United Nations (UN) adopted the Sustainable Development Goals (SDGs). The goals were created to address the social, economic and environmental challenges that were faced by both humans and the planet. Therefore, at the center of the SDGs is sustainability and it highlights the connections between the environmental, social and economic aspects of sustainable development. Specifically, the goals are outlined as; no poverty (1), zero hunger (2), good health and well-being (3), quality education (4), gender equality (5), clean water and sanitation (6), affordable and clean energy (7), decent work and economic growth (8), industry, innovation and infrastructure (9), reduced inequalities (10), sustainable cities and communities (11), responsible consumption and production (12), climate action (13), life below water (14), life on land (15), peace, justice, and strong institutions (16), and partnerships for the goals (17) (UNDP 2024). Very prominent amongst the seventeen agenda of the sustainable development goal, is the achievement of gender equality stated as goal 5. Gender equality is meant to be achieved across all spectrums of life and economic activities which ensures socio-economic development for the women folk (UNDP 2022; USAID 2020). This makes gender equality not only a fundamental human right but also an economic imperative. It is especially important for developing economies with prevailing high levels of inequality between men and women in terms of education, health, and income (arising from a disproportionate ratio of labor participation rate against women (Lo bue et al. 2022; Banerjee 2019; Revenga & Shetty, 2012).

Trade is one major activity a lot of women in developing countries love to participate in. Their contribution to international trade through export is quite significant (Afrika & Ajumbo, 2012). As producers, they produce products (especially food and textiles) that are exported. As workers, it is a fact that in developing countries, 33.2 percent of export workers in all major sectors are women (World Bank & WTO, 2020). In addition, women constitute 36.7 percent of the workforce of Global Value Chain (GVC) firms, and 37.8 percent of the workforce of foreign-owned firms. In Nigeria, statistics show that women participate significantly in the manufacturing, agriculture, and food export sector (STATISTA 2023a). This is because the type of jobs they do require unskilled labor with a very low or minimal level of formal education (Alban Conto & Forti, 2022). With just a primary school certificate, a woman can secure a factory or laborer job with which she can sustain herself and complement her husband's income (STATISTA 2023b; Omorodion 2019; Uwakwe 2004). Low education is also a factor that has seen many women resort to petty trading.

Drawing from the 2015 sustainable development goal agenda of the United Nations (UN) which had gender equality as one of its goals, the World Trade Organization (WTO) in 2017, came up with the 'gender and trade' agenda. Nigeria, a member of the World Trade Organization (WTO), signed the agreement on 'Gender and Trade'. The main focus of the agreement as given by the informal working group (IWG) is 'inclusive trade and gender equality'. Similarly in July 2019, Nigeria signed the African Continental Free Trade Area Agreement (AfCFTA). The main objective is to remove tariffs on 90% of goods, thereby encouraging more intra-

regional trade across the African continent. Amongst the many benefits expected from the WTO and AfCFTA agreements is their impact on women's social and economic inclusion. Under the new arrangements, trade export can provide jobs for the skilled labor force amongst women (Echandi et al. 2022; Xolani et al. 2022). World Bank and WTO (2020), established that businesses that are part of a global value chain or with foreign investors on average, employ 11 to 12 percent more women compared to other firms. According to this report, because export companies pay better wages and employ more women, trade agreements such as AfCFTA have the potential to double the value of exports leading to an increase in the average female wage share from 24 percent to about 30 percent, especially for skilled workers. Trade exports under a free trade policy can also lead to the creation of more formal jobs with better benefits for women. Lastly, trade openness can increase women's consumption and spending on education and health. The report concluded that even with the benefits that trade portends for the women folk, trade can also lead to job losses and a concentration of work in lower-skilled jobs except that there is an objective assessment of the potential impact of trade rules on various groups of people (including women) and the development of policies based on evidence. Some other empirical works on trade policies and gender (OECD, WTO 2017; Nsowaa-Adu and Fornale, 2023) have argued for the positive and negative sides of trade agreements and the need to make provisions for gender equality and socio-economic development.

This study therefore aims to examine the impact of trade (export) on women's inclusion proxied by female labor participation rate and primary school enrollment in the period before and after the commencement of the implementation of the trade agreements. The work is limited by the non-availability of disaggregated data on exports to show the actual employment of men to women, the contribution of women to men, and the wages of men to women. However, as displayed in STATISTA (2023a), it is believed that the women folk in Nigeria have significant participation in the three export sectors captured (manufactured, agriculture, and food).

This work contributes to the trade and economic growth literature by highlighting the crucial role trade rules and policies play in gender equality and development in an emerging economy. This makes comparison across developing and emerging countries of the world possible. Further, it provides a veritable feedback channel for global and domestic policymakers and practitioners. For analysis, the following questions are raised; first, what are the effects of trade policy influenced exports on women's inclusion? Second, what are the indirect effects of trade policy influenced exports and (maternal mortality rate/female life expectancy) on women's inclusion? The rest of this paper is organized as follows. Section 2, presents the review of the literature, Section 3 contains the method of study, Section 4 is the analysis and discussion of findings while Section 5 concludes the work.

Literature Review

In the theoretical propositions of neo-classical economics (Becker 1971), the reduction of trade barriers, evident in trade liberalization is meant to promote international trade and competition. The assumption is that trade policies and agreements are unbiased toward the issues of gender, race, or class. The globalization effect that comes with trade liberalization fosters competition and the competitive

pressures generated underscore the need to allow both men and women to take opportunities and fully maximize their potential. This guarantees a buoyant economy that is competitive internationally (UN-IANWGE 2011). However, neo-liberalists think that these positive effects can only be realized when trade barriers that are against women are lifted and trade policies are tailor-made with provisions that consider women (Pieters 2015; Cagatay & Erturk, 2004). This position aligns with some theoretical models relating to the impact of trade liberalization on gender gaps in wages and employment. Some of those include the trade-induced competition model, human capital model, technical-change-based model, and factor-price equalization (Stolper-Samuelson theorem). However, only trade-induced competition and wage discrimination are relevant to this work.

The trade-induced competition and wage-discrimination model (Juhn et al., 2014; Busse and Spielman 2006; Becker 1971) assumes that education attainment for both men and women regardless, a shift in trade would lead to greater competition which makes discrimination between men and women costly and eventually close the gaps in employment and wages. This position has been proven to be non-applicable in developed countries where it has been established that male and female labor inputs are imperfect substitutes (Acemoglu et al., 2004). The implication is that trade liberalization may not necessarily lead to higher female labor participation in such countries. When applied to developing countries, on the one hand, some studies (Pieters 2015; Alhazzawi 2014) have findings that show trade liberalization can reduce gender gaps in wages and employment. On the other hand, some other studies (Baliamoune-Lutz 2020; Fontana 2003) reveal that trade liberalization even though may increase employment, may not usually lead to higher wages for the women folk in Africa especially. The argument is that a shift in trade will usually increase the demand for higher-level skills which the majority of the women do not have.

Concerning developing countries, trade liberalization could have some unfavorable gendered impacts evident in the inequalities observed in access to and control of economic and social resources, and opportunities (von Hagen, 2014). UNCTAD (2016) noted that trade policies will usually have effects on economic and social activities that differ by gender. Skills, capacity, and access to productive resources are never the same for men and women. Therefore, it can be expected that the impact of trade liberalization on women is double-edged. This impact is also mediated by the different conditions under which people live, and the roles they have in society (von Hagen 2014). On the one hand, trade liberalization provides an opportunity for women (especially in the export-oriented sectors), to earn extra income thereby fostering their economic and social empowerment (Fontana 2003). On the other hand, trade liberalization can lead to the restructuring of labor markets (Zi Hui & Chang, 2023; AlAzzawi, 2014). Under this new arrangement, occupational and wage segregation coupled with bad working conditions becomes common in many export industries. Because women are mostly employed in the export sector compared to other sectors within the space of international trade, they tend to be the first beneficiaries of this unpleasant situation (Baliamoune-Lutz, 2020). Favorable employment and wage effects of trade policy are only observed in countries that specialize in the production of labor-

intensive manufactures. Such effects are not like to be observed in agriculture where less well-established land-use policies and other resources will reduce the gains derivable for women in this sector (Berik, 2011).

Several works in the area of trade liberalization and gender equality (Audi and Ali 2017; Pieters 2015; Verick 2014), have advocated for an increase in women's capacity to be able to take advantage of trade opportunities that accompany trade policies. World Bank (2004) a study on Uganda, came up with findings which show that the achievement of gender equality evidenced by improved access to education and formal employment could increase the country's GDP by 2 percent. A similar conclusion was revealed for Kenya pointing out that improved access to education and agricultural inputs for both men and women could increase the GDP by 4.3 percent.

Arguing for how the capacity development of women in terms of access to education and skills development can facilitate gender equality and thus generate positive trade outcomes, WDR (2012) reveals that larger exports are witnessed in sectors characterized by female-intensive labor and higher gender equality. Investments in infrastructure, education, and health systems can improve the human capital of women and better position them for greater labor participation (Georgieva et al. 2022). This should be complemented with macroeconomic stability, functioning labor markets, and good governance (Cagatay and Erturk 2004).

In addition, WDR (2012) reveals that owing to globalization and trade openness there were increases in female labor force participation across countries and at every income level between 1980 and 2008. Fontana (2016), a study on Asia and Latin America, finds that trade openness influenced increases in paid employment and wages of women mainly in labor-intensive production, manufacturing and service exports. Wagner (2012); and Do et al., (2011), argue that increases in paid employment and wages owing to trade openness are only observed in countries whose comparative advantage lies in female-labor-intensive sectors such as textile and apparel manufacturing industries. The reverse could be the case when the country has a comparative advantage in technological-based and industrially advanced male-dominated sectors. Trade openness will not only have less positive effects, it may have outright negative effects which further exacerbate the issue of gender inequality.

Trade openness can also be expected to put pressure on the functioning of industries thereby resulting in the restructuring of labor markets. This situation is characterized majorly by the transition from formal to informal employment. Informal employment is quite volatile as workers are employed on a casual basis under unfavorable working conditions. Because women have a significant representation in the manufacturing industries and possess lower skills compared to their male counterparts, shifts in labor demand affect them significantly (World Bank 2014).

An increase in the income of women resulting from trade openness could also have significant effects on their children and families. Women tend to invest in the education of their children and attend to their personal and family health needs. Glick (2002) a review of empirical evidences on women's employment and the

effects on children's education and health in developing countries, established that women's work may have significant impact on their investment in children's schooling which may be positive or negative. The study argued that this will depend upon women's preferences for educating their children compared to their spouses. There is the concern that women who work or trade may either engage substitute caregivers or keep their older children out of school to care for younger siblings. Naturally, going by the existing pattern of the household economy, the girl child is most likely to be the one to take that role of substitute caregiver. This has some negative implications for the girls' future economic status.

Available pieces of evidence show that additional household resources have a positive association with the schooling of the girl child (Glick and Sahn 2000; Behrman and Knowles 1999). From a study in Guinea, Glick and Sahn (2000) established that, in situations where maternal work adds to household income, children's school enrollment probabilities are expected to be even higher. This is because mothers are more inclined to spend on their children. Moreover, mothers also have relatively strong preferences for schooling the girl child.

Data Collection and Methodology

Data Collection

This study identifies the female labor force participation rate and female primary school enrollment rate as important factors indicating the outcome of women's involvement in trade whether as workers or as entrepreneurs (WDR 2012; Wagner, 2012; Glick & Sahn, 2000). Therefore, the two have been adopted as proxies for women's inclusion. Factors such as female life expectancy and maternal mortality rate are also found to play moderating roles. Hence, they are adapted to function as both independent variables and interaction variables. Current expenditures on education and health are found to be important factors determining enrollment and retention in schools, and, ultimately, the number of skilled or unskilled workers/entrepreneurs available in an economy (World Bank 2023; Idrees et al. 2021; World Bank 1995; Psacharopoulos 1994). They are adopted as independent variables. Gross national income per capita (Flug et al., 1998), and current health expenditure per capita (Gaies 2022), are important factors describing the economic contributions of individuals; male and female to economic growth, and the health provisions for individuals; male and female in an economy. Both serve as control variables reinforcing other variables like female life expectancy and maternal mortality rate (Anwar et al. 2023; Onofrei et al. 2021; Jaba et al. 2014). They are adopted as independent variables. Export values are taken from agriculture, manufactured, and food statistics. Annual data on all the variables identified are collected from secondary sources from 1990- 2022. The details of data collection are presented in Table 1.

Table 1. Variable Description and Measurements

Variables	Description	Units of Measurement
FLFP	Female labor force participation rate	Total, percent of national estimate
FPER	Female primary school enrollment rate	Total, percent of national estimate
X'	Manufacture, Agriculture, and food exports	Thousands US dollar
CEXPD	Current expenditure on education	Billion naira
CHEXPD	Current expenditure on health	Billion naira
GPCI	Gross national income per capita	Billion naira
MMR	Maternal mortality rate	Per thousand live birth
HPCI	Current Health expenditure per capita	Billion naira
D	Policy variable	Dummy: 1 = policy shift, 0 otherwise
FLEP	Female life expectancy	Per thousand live birth

Note: data on FLFP, FPR, X', and MMR are sourced from World Development Indicators, published by the World Bank. Data on other variables are sourced from statistical bulletin of the Central Bank of Nigeria.

Research Model

As suggested in Korinek et al. (2021), for analyzing the impacts of recently adopted trade policies in country reviews, an overall employment outcome of trade policy in the context of general equilibrium can be modelled using gender-differentiated data.

Therefore, following the trade-induced competition and wage-discrimination model (Juhn et al., 2014; Busse and Spielman 2006; Becker 1971), a general equilibrium with baseline regression models of the following forms are developed in equations (1 & 2) as follows;

$$FLFP_t = \beta_0 + \beta_1 X_t' + \beta_2 CEXPD_t + \beta_3 CHEXPD_t + \beta_4 GPCI_t + \beta_5 HPCI_t + \beta_6 FLEP_t + \beta_7 MMR_t + \varepsilon_t \quad \text{.....(1)}$$

$$FPER_t = \beta_0 + \beta_1 X_t' + \beta_2 CEXPD_t + \beta_3 CHEXPD_t + \beta_4 GPCI_t + \beta_5 HPCI_t + \beta_6 FLEP_t + \beta_7 MMR_t + \varepsilon_t \quad \text{.....(2)}$$

Equations (1) and (2) above are adjusted to reflect the interaction terms and the resulting equations are presented as;

$$FLFP_t = \beta_0 + \beta_1 X_t' + \beta_2 \left(X' * MMR\right)_t + \beta_3 \left(X' * FLEP\right)_t + \beta_4 CEXPD_t + \beta_5 CHEXPD_t + \beta_6 GPCI_t + \beta_7 HPCI_t + \beta_8 FLEP_t + \beta_9 MMR_t + \varepsilon_t \quad \text{.....(3)}$$

$$FPER_t = \beta_0 + \beta_1 X_t' + \beta_2 \left(X' * MMR\right)_t + \beta_3 \left(X' * FLEP\right)_t + \beta_4 CEXPD_t + \beta_5 CHEXPD_t + \beta_6 GPCI_t + \beta_7 HPCI_t + \beta_8 FLEP_t + \beta_9 MMR_t + \varepsilon_t \quad \text{.....(4)}$$

Where, female labor participation rate and female primary school enrollment rate both proxy for women inclusion, X' proxies for Agriculture, manufactured and food exports, MMR is the maternal mortality rate, CEXPD is the current expenditure on education, CHEXPD is the current expenditure on health, HPCI is health expenditure per capita, FPER is female life expectancy rate, t is the period; 1990 – 2022.

Empirical Results and Discussion

Table 2. Descriptive statistics

	Mean	Max	Min	Std. Dev.	Jarque-Bera	Probability	Observations
AGRIEXP	1.93	18.05	0.00	3.60	226.02	0.00	33
FOODEXP	1.11	7.64	0.00	1.56	126.11	0.00	33
MANUEXP	1.94	6.63	0.06	1.92	4.03	0.13	33
CEXPD	203.16	646.75	0.29	212.35	4.45	0.11	33
CHEXPD	123.72	423.33	0.15	137.25	4.99	0.08	33
GPCI	275.07	892.75	4.92	267.62	3.65	0.16	33
HPCI	51.57	106.12	17.65	30.48	2.97	0.23	33
FPER	84.36	94.29	72.48	5.72	1.25	0.54	33
MMR	1028.73	1200.00	917.00	99.72	3.56	0.17	33
FLEP	50.12	53.32	47.03	2.26	3.28	0.19	33
FLFP	55.15	56.93	51.46	2.33	5.72	0.06	33

Note: AGRIEXP FOODEXP MANUEXP respectively stand for agriculture exports, food exports, manufactured exports, non-oil exports.

The result illustrated in table 1 shows the descriptive statistics of the data for all the variables employed in the study. All the export variables have data whose mean fall below the standard deviation. Their mean values are also far below the median values. This is an indication of high level of fluctuation in export data. However, there is a goodness-of –fit of all the export data as indicated by the Jarque-Bera test.

The data on female primary school enrollment rate, maternal mortality rate, female life expectancy and female labor participation rate have similar characteristics. They have mean values close to their median, their mean values are also greater than their standard deviation which are very low compared to the mean. This implies lesser fluctuation in these values. However, only the data on female labor force participation rate have a goodness-of-fit that can be accepted at 10%. The goodness of fit of others is rejected as they are all above the level of significance. The result of the descriptive statistics has made it imperative to test for unit root in the time series data employed in this study.

The unit root test reveal that while some export and other explanatory variables are

non-stationary, others, like agriculture export, manufactured export, gross national per capita income and current expenditure on education are stationary. The combination of I(0), I(I), and I(II) variables in the result necessitate the use of the autoregressive distributed lag (ARDL) technique to generate the short and the long run regression results. ARDL approach is well known for its capacity to generate short run and long run elasticities for a small sample size while also presenting the co-integration properties of variables in the order of ordinary least squares (Duasa 2007).

The ARDL is employed bearing in mind the need to separate the period before the trade policies from the period after. In order to achieve this, another unit root test with structural break was conducted using both the Zivot & Andrews (1992) and the Narayan & Popp's (2010) methods. The structural break results from both tests have 2017 in common. Therefore, the ARDL technique is adopted with a policy shift period assigned to 2017. Incidentally, 2017 coincides with the signing of the first agreement by Nigeria with the WTO. The agreement is based on inclusive gender and trade. The bounds co-integration test embedded in the ARDL framework was also carried out. The result shows critical values with acceptable probabilities of long-run co-integration relationships among variables.

In the ARDL model, variables in equations 1 & 2 are first converted to their natural log form. A dummy variable is introduced to reflect the trade policy. The model constructs are presented as follows;

$$\Delta \ln FLFP_t = \beta_0 + \sum_{k=1}^{n} \beta_1 \Delta \ln FLFP_{t-k} + \sum_{k=1}^{n} \beta_2 \Delta \ln X'_{t-k} + \sum_{k=1}^{n} \beta_3 \Delta \ln CEXPD_{t-k} + \sum_{k=1}^{n} \beta_4 \Delta \ln CHEXPD_{t-k} +$$
$$\sum_{k=1}^{n} \beta_5 \Delta \ln GPCI_{t-k} + \sum_{k=1}^{n} \beta_6 \Delta \ln HPCI_{t-k} + \sum_{k=1}^{n} \beta_7 \Delta \ln FLEP_{t-k} + \sum_{k=1}^{n} \beta_8 \Delta \ln MMR_{t-k} + \sum_{k=1}^{n} \beta_9 \Delta D_{t-k} +$$
$$\lambda_1 \ln FLFP_{t-1} + \lambda_2 \ln X'_{t-1} + \lambda_3 \ln CEXPD_{t-1} + \lambda_4 \ln CHEXPD_{t-1} +$$
$$\lambda_5 \ln GPCI_{t-1} + \lambda_6 \ln HPCI + \lambda_7 \ln FLEP_{t-1} + \lambda_8 \ln MMR_{t-1} + \lambda_9 D_{t-1} + \varepsilon_t \quad \text{.....(5)}$$

$$\Delta \ln FPER_t = \beta_0 + \sum_{k=1}^{n} \beta_1 \Delta \ln FPER_{t-k} + \sum_{k=1}^{n} \beta_2 \Delta \ln X'_{t-k} + \sum_{k=1}^{n} \beta_3 \Delta \ln CEXPD_{t-k} + \sum_{k=1}^{n} \beta_4 \Delta \ln CHEXPD_{t-k} +$$
$$\sum_{k=1}^{n} \beta_5 \Delta \ln GPCI_{t-k} + \sum_{k=1}^{n} \beta_6 \Delta \ln HPCI_{t-k} + \sum_{k=1}^{n} \beta_7 \Delta \ln FLEP_{t-k} + \sum_{k=1}^{n} \beta_8 \Delta \ln MMR_{t-k} + \sum_{k=1}^{n} \beta_9 \Delta D_{t-k} +$$
$$\lambda_1 \ln FLFP_{t-1} + \lambda_2 \ln X'_{t-1} + \lambda_3 \ln CEXPD_{t-1} + \lambda_4 \ln CHEXPD_{t-1} + \lambda_5 \ln GPCI_{t-1} + \lambda_6 \ln HPCI +$$
$$\lambda_7 \ln FLEP_{t-1} + \lambda_8 \ln MMR_{t-1} + \lambda_9 D_{t-1} + \varepsilon_t \quad \text{.....(6)}$$

Where, β_0 is the drift component, Δ is the first difference, dummy variable which is also tagged INCLUSION variable is represented as D (D = 0 before 2017, and D = 1 above 2017), ε_t is the white noise. Equation (5) and (6) is the conditional error correction method. This method allows us to generate coefficients for all the variables in the model in the short-run. In choosing the lag length, the study relies on the Akaike information criterion (AIC).

Diagnostic and Stability tests

The diagnostic test results illustrated in table 3 consists of both the diagnostic tests for the four baseline regression models analyzed respectively (i.e equations 1 – 4). Each of the export sector variants (manufacture, agriculture, and food) and their interaction terms are separated into models for analysis, thereby resulting in twelve models. As can be observed, all the models satisfy conditions for the absence of no serial correlation, the variances are constant over time (no heteroskedasticity), the models are selection are appropriate (RESET). Further, there is no presence of any form of ARCH effect, neither there is any worry about the normality of the error term associated with each model. The CUSM and CUSUM of squared that provides information about the stability of the models also indicate that the models are stable. In summary, the diagnostic tests for each of the model which involve; serial correlation, jarque-bera (normality), heteroscedasticity, arch and reset, show F-statistics and P-values leading to a rejection of the null hypothesis and the acceptance of the alternate hypothesis of serially uncorrelated residuals, normality, correct functional model form, and, homoscedasticity of all the models analyzed. Also, the models are stable going by the F-statistics and the associated *chi-square* of the CUSUM and CUSUME of square[1].

Table 3. Diagnostic and Stability Tests

CATE-GORY	MODEL	Jacque-Bera	Serial Corr.	Hetero	ARCH	RESET	CUSUM	CUSUM-SQUARED
FLFP	MANUFEXP	2.71 [0.22]	0.88 [8.99]	1.67 [0.16]	0.99 [0.33]	0.27 [0.79]	STABLE	STABLE
	MANUF*MMR	1.124 [0.541]	0.483 [0.910]	0.892 [0.351]	1.670 [0.161	1.143 [0.268]	STABLE	STABLE
	AGRIC	1.731 [0.421]	0.480 [0.676]	0.345 [0.953]	0.188 [0.672]	0.672 [0.549]	STABLE	STABLE
	AGRIC*MMR	0.544 [0.531]	0.725 [0.529]	1.289 [0.386]]	0.015 [0.901]	0.301 [0.218]	STABLE	STABLE
	FOODEXP	1.344 [0.514]	1.106 [0.114]	0.632 [0.376]	1.079 [0.331]	1.533 [0.112]	STABLE	STABLE
	FOOD *MMR	2.512 [0.234]	0.332 [0.723]	0.501 [0.903]	0.281 [0.611]	0.562 [0.533]	STABLE	STABLE
FPER	MANUFEXP	1.338 [0.163]	0.283 [0.798]	0.668 [0.762]	0.757 [0.391]	0.258 [0.531]	STABLE	STABLE
	MANUF*FLEP	0.571 [0.681]	1.198 [0.341]	1.127 [0.425]	0.875 [0.357]	1.697 [0.111]	STABLE	STABLE
	AGRICEXP	0.099 [0.999]	1.174 [0.251]	0.267 [0.993]	0.611 [0.441]	0.287 [0.778]	STABLE	STABLE
	AGRIC*FLEP	0.129 [0.557]	0.1645 [0.851]	0.622 [0.788]	0.349 [0.555]	0.099 [0.925]	STABLE	STABLE
	FOOD	3.256 [0.393]	0.471 [0.679]	0.184 [0.974]	1.047 [0.294]	0.208 [0.848]	STABLE	STABLE
	FOOD*FLEP	0.744 [0.790]	0.435 [0.387]	1.565 [0.209]	2.121 [0.156]	1.413 [0.182]	STABLE	STABLE

*Note:; *,**,*** indicate significant at 10%, 5% and 1% respectively; values in parentheses are t-statistics*

[1]The graphs of CUSUM and CUSUM of square are available on request. Also, the comprehensive report of the diagnostic tests can be accessed on request

Following the satisfactory results from the diagnostic tests, we now proceed to presenting and discussing the estimated models.

Short-run Regression Results

In the short run regression results illustrated in table 4, 5 and 6, the four models are seen to be non-parsimonious with virtually all the export and other variables including the interaction terms having their first, second, and third differences significant. The analysis of result will therefore focus on the coefficients and probabilities of the policy variables revealed under each model.

In table 4, except under the female labor force participation model, the policy variable signifying inclusion, reveals a positive effect of increases in manufactured export in the short run in all other models. Increases in manufactured export under the female labor force participation rate without interaction has a negative, however, insignificant effect. Notably, the policy variable under the female labor force participation model with the interaction term is positive and significant. This implies that increases in manufactured export with the interaction of maternal mortality rate and female life expectancy in the short run (the period leading to the adoption of the policy), positively and significantly affected female labor force participation rate. This finding provides support for the conclusions reached in: WDR (2012); Wagner (2012); Glick and Sahn (2000). The same can be said for female primary school enrollment model with the interaction term except that the policy variable signifying inclusion is positive, however, not significant here.

Table 4. Short-run dynamic result of the effect of trade on women's inclusion: Manufactured Export

	1	2	3	4
C	-0.551** (2.297)	-0002 (-0.960)	-0.591 (-1.045)	-0.285 (-1.235)
FLFP(-1)	-0.268** (-2.959)		-0.542* (-1.773)	
FPER(-1)		-0.874*** (-4.737)		-0.988*** (-4.823)
MMR(-1)	-0.005** (-2.182)	0.019* (1.183)	-0.003 (-0.810)	-0.032* (-1.805)
FLEP(-1)	0.290** (2.929)	0.560 (1.370)	0.427* (1.895)	0.599* (1.935)
HPCI(-1)	-0.061*** (-3.963)	0.055 (0.691)	-0.112*** (-3.600)	0.301** (2.885)
GPCI	0.001 (0.288)	-0.086** (-2.272)	0.019 (1.259)	-0.257*** (-3.544)
CEXPD	-0.014*** (-3.115)	0.216*** (3.145)	-0.017 (-1.389)	0.045 (0.793)

Table 4 continued

	1	2	3	4
CHEXPD(-1)	0.003 (0.402)	-0.208* (-1.954)	-0.030 (-1.151)	0.174 (1.345)
MANUEXP	-0.043 (-0.600)	-0.693* (-1.728)	0.263 (0.329)	0.149*** (4.831)
FLEP(-1)*MANUEXP(-1)				0.131*** (5.642)
D(MMR)	0.001 (0.642)		0.001 (0.474)	-0.002 (-0.171)
D(FLEP)	-0.456 (-1.107)		-0.370 (-0.566)	-0.016 (-0.005)
D(FLEP(-1))	-0.047* (-1.717)		-0.248 (-1.634)	
D(HPCI)	-0.019 (-1.322)		0.066** (2.092)	-0.764** (-2.714)
D(HPCI(-1))	0.025 1.826		0.025 1.607	
D(GPCI)		0.110** (2.176)	-0.034 (-1.844)	0.147*** (3.272)
D(GPCI(-1))				0.185** (2.031)
D(CEXPD)		0.082** (2.201)	-0.005 (-0.481)	
D(CEXPD(-1))		-0.085** (-2.477)	0.018** (2.443)	
D(CHEXPD)		-0.036 (-0.721)	-0.006 (-0.403)	0.042 (0.608)
D(CHEXPD(-1))		0.125** (2.554) (0.180)	(1.604)	-0.069 (-1.527) (-4.777)
D(MANUEXP(-1))			0.981 (1.153)	0.361** (2.545)
D(MANUEXP*MMR)			-0.005 (-0.984)	0.122** (4.287)
D(MANUEXP(-1)*MMR (-1))			-0.005 (-0.780)	

Table 4 continued

	1	2	3	4
D(FLEP*MANUEXP)			-0.496*	0.584***
			(-1.798)	(4.857)
D(FLEP(-1)*MANUEXP			-0.523	-3.944**
(-1))			(-1.255)	(-2.482)
INCLU	-0.013	0.011	0.014**	0.042
	(-0.72)	(0.41)	(2.765)	(0.266)

Note: *models 1 to 4 indicate the model for female labor force participation rate, female primary school enrolment rate, female labor force participation rate interaction (MANUEXP*MMR)), and female primary school enrolment rate interaction (FLEP*MANUEXP) respectively; ; *,**,*** indicate significant at 10%, 5% and 1% respectively; values in parentheses short-rustics. Any variable with -1 indicates the previous year.*

Table 5. Short-run dynamic result of the effect of trade on women's inclusion: Agriculture Exports

	5	6	7	8
C	0.520**	-0.617	1.702	0.754***
	(2.291)	(-1.010)	(0.456)	(3.251)
FLFP(-1)*	0.000		0.100*	
	(0.054)		(1.806)	
FLFP(-1)*				
FPER(-1)*		-0.913***		-1.486**
		(-4.151)		(-2.470)
MMR**		0.030*	0.002**	-0.190**
		(1.901)	(2.067)	(-2.737)
FLEP**	-0.047	2.151	-0.195	-0.214**
	(-0.405)	(1.516)	(-1.454)	(-3.470)
HPCI(-1)	0.007	0.031	0.018***	0.463**
	(1.211)	(0.351)	(3.248)	(2.251)
GPCI(-1)	-0.002	-0.049	0.005**	-0.607**
	(-1.002)	(-1.686)	(2.420)	(-2.614)
CEXPD**	0.006**	0.055*	-0.004	1.567**
	(2.501)	(1.997)	(-1.139)	(2.650)
CHEXPD**	-0.009**	-0.018	-0.004	-1.289**
	(-2.345)	(-0.435)	(-0.964)	(-2.618)
AGRIEXP**	-0.150***	-0.298	-0.075***	-0.174***
	(-8.221)	(-0.970)	(-4.134)	(-3.285)
AGRIEXP(-1)*MMR(-1)			0.001	0.774**
			(1.340)	(2.826)

Table 5 continued

	5	6	7	8
AGRIEXP(-1)*FLEP(-1)			0.329*** (4.310)	0.814*** (3.588)
D(MMR)				-0.145** (-2.587)
D(MMR(-1))			-0.001** (-2.698)	0.791 (1.739)
D(FLEP)	0.108 (0.897)		0.069 ((0.86)	
D(FLEP)	-0.206 -1.359			0.107 (0.015)
D(FLEP(-1))			-0.228 (-0.251)	3.160 (0.651)
D(HPCI)	-0.004 (-0.662)	0.000 (0.001)	0.003 (0.774)	-0.216 (-1.033)
D(HPCI(-1))		0.199* (1.874)		-0.753** (-2.169)
D(GPCI)	0.009*** (4.713)	0.064 (1.206)	0.014*** (6.658)	-0.160 (-0.888)
D(GPCI(-1))			-0.010*** (-3.717)	0.618 (1.658)
D(CEXPD)	0.000 (-0.037)		-0.007*** (-3.001)	0.710** (2.551)
D(CEXPD(-1))			0.004** (2.280)	-0.562** (-2.639)
D(CHEXPD)	-0.001 (-0.541)		0.004 (1.510)	-0.498** (-2.430)
D(CHEXPD(-1))	0.003* (1.971)		0.004*** (3.253)	0.564** (2.680)
D(AGRIEXP)	0.099*** (7.483)		-0.284 (-5.762)	-0.835** (-2.380)
D(AGRIEXP(-1))	0.127*** (6.858)		-1.997*** (-3.758)	1.476** (2.446)
D(AGRIEXP*MMR)			0.001** (2.926)	0.796** (2.586)

Table 5 continued

	5	6	7	8
D(AGRIEXP(-1)*MMR(-1))			0.002*** (3.999)	-0.373*** (-3.003)
D(AGRIEXP*FLEP)			0.236*** (6.136)	1.115* (1.811)
D(AGRIEXP(-1)*FLEP(-1))				-0.980** (-2.041)
INCLU	-0.011	0.002	0.003**	0.000
	(-0142)	(1.38)	(1.105)	(-0.010)

*Note: the models 5 to 8 indicate model for female labor force participation rate, labor force participation rate interaction (AGREXP*MMR), female primary school enrolment rate and primary school enrolment rate interaction (AGRIEXP*FLEP) respectively. Any variable with -1 indicates previous year.; *,**,*** indicate significant at 10%, 5% and 1% respectively; values in parentheses are t-statistics*

The short run regression result for agriculture export illustrated in table 4 reveals similar characteristics to those of the manufactured export. Like in manufactured export, in the short run (the period leading to the adoption of the policy), increases in agriculture export when interacted with maternal mortality rate and female life expectancy, as revealed by the policy inclusion variable, has a significant positive effect on the female labor force participation rate. Increases in agriculture export without interaction has a negative, however, insignificant effect on female labor force participation rate. The policy inclusion variable under the female primary school enrollment rate with the interaction term reveals that, in the short run, increases in agriculture export when interacted with maternal mortality rate and life expectancy, positively and significantly affects female primary school enrollment. These findings provide support for those of Maskaeva and Omamuli (2023), who simulated the impact of policy reforms both from the literature and from government proposals on key indicators of women's economic empowerment, using the computable general equilibrium models (CGE). Amongst others, when the impact of policies to provide women with equal access to agricultural land (alongside increasing the number of women farmers) was simulated, the study has findings which show that the reform has positive impacts on agricultural output, demand for female labor, and households' purchasing power. Without interaction, policy variable reveals agriculture export has positive, however insignificant effect on female primary school enrollment.

Table 6. Short-run dynamic result of the effect of trade on women's inclusion: Food Exports

	9	10	11	12
C	-0.779* (-1.968)	-0.542 (-1.026)	-0.933 (-1.218)	-0.607** -(2.299)
FLFP(-1)*	-0.007 (-0.076)	-0.984*** (-4.562)	0.017 (0.106)	
FPER(-1)*		-0.984*** (-4.562)		-0.945*** (-3.348)
MMR(-1)	-0.001 (-0.687)	0.031** (2.078)	0.001 (0.361)	0.017 (0.949)
FLEP**	0.258* (1.823)	0.199 (1.606)	0.220 (0.742)	0.241 (2.769)
HPCI(-1)	-0.007 (-0.917)	0.059 (0.673)	-0.005 (-0.418)	-0.223 (-1.046)
GPCI(-1)	-0.002 (-0.716)	-0.057** (-2.035)	0.007 (1.032)	-0.032 -(0.522)
CEXPD(-1)	0.001 (0.208)	0.063** (2.291)	-0.016** (-2.263)	-0.085 (-0.915)
CHEXPD(-1)	-0.002 (-0.293)	-0.016 (-0.407)	0.009** (2.129)	0.077 (1.191)
FOODEXP(-1)	-0.265*** (-3.470)	-1.140 (-1.509)	0.419** (2.041)	-0.177*** (-3.096)
FOODEXP(-1)*MMR(-1)			-0.013*** (-3.104)	0.117** (2.769)
FOODEXP(-1)*FLEP(-1)			-0.405 (-1.546)	8.201*** (3.037)
D(MMR)	-0.001 (-0.688)		0.001 (1.028)	0.020 (1.096)
D(MMR(-1))	-0.002** (-2.030)		-0.001 (-0.802)	-0.024 (-1.386)
D(FLEP)			0.102 (0.452)	
D(FLEP(-1))			-0.278 (-0.707)	
D(HPCI)	-0.030** (-2.777)	0.012 (0.091)	0.013 (0.723)	-0.538** (-2.284)

Table 6 continued

	9	10	11	12
D(HPCI(-1))	-0.023**	0.242**	0.039	
	(-2.273)	(2.275)	(1.657)	
D(GPCI)	0.013***	0.067	0.015***	0.112*
	(3.893)	(1.363)	(3.875)	(1.862)
				0.112
				(1.643)
	-0.010***		-0.014***	-0.080
	(-4.065)		(-3.333)	(-1.108)
				0.061
				(1.364)
	0.009**			
	(2.404)			
	0.003			
	(1.332)			
	0.170***		-0.818	9.227
	(3.037)		(-0.485)	(0.283)
D(GPCI(-1))			-0.675***	
			(-3.168)	
			-0.003	0.004
			(-1.157)	(0.094)
			0.010***	
			(4.394)	
			0.169	-1.057
			(0.857)	(-0.370)
			0.412**	-0.071*
			(2.651)	(-1.854)
	-0.008	0.066*	0.002*	0.008*
	(-0.975)	(1.829)	(1.829)	(1.903)

*Note: models 9 to 12 indicate the model for female labor force participation rate, labor force participation rate interaction (FOODEXP*MMR), female primary school enrolment rate, and female primary school enrolment rate interaction (FLEP*FOODEXP) respectively; Any variable with -1 indicates previous year *,**,*** indicate significant at 10%, 5%, and 1% respectively; values in parentheses are t-statistics*

The short run regression result illustrated in Table 6 for food export reveals, yet similar characteristics as in table 3 and 4. However, the policy variable is not only positive in other models apart from female labor participation without interaction, they are all significant. The implication is that in the period leading to the adoption of the policy, food export directly and indirectly, positively and significantly affect women

inclusion through female primary school enrollment. This finding provides support for Urama and Yuni (2019), a study on the food crop sector in Nigeria from 1999 – 2016. The study has findings which show that food production in Nigeria after series of fluctuations in per capita value starting with US$204 in 1999 - 2001, US$220 in 2004 -2006, and, US$192 in 2008, increased geometrically to an all-time high between 2014 and 2016 with a corresponding increase in the value of food production per capita of US$204 between 2012 -2014. The study further reported a decline in value of food production per capita from 2014 which as at 2016 had gone back to the 1999 value. Women in different regions of Africa including Nigeria, have been actively involved in the food export sector. Before trade liberalization, women had been involved in cross-border trade in food crops and livestock contributing as much as 43 percent of income to the national income of the entire continent (Ajumbo & Afrika, 2012).

Long run Regression Results[2]

The long run regression result for manufactured export reveals the direct and indirect effect of manufactured export on female labor participation rate and female primary school enrollment rate. Directly, manufactured export has negative, however, not significant effect on women inclusion (female labor force participation and female primary school enrollment rate). Indirectly, when interacted with maternal mortality rate and female life expectancy, manufactured export, negatively, however insignificantly, impacted on female labor force participation. It positively and significantly, impacted on women inclusion through female primary school enrollment rate. The implication is that the involvement of women in the manufactured export sector post-trade liberalization brought more benefit in terms of higher wages which enabled them to enroll their female children in primary school. However, the labor participation of women in that sector has reduced over time, although insignificantly. At the initial stage, adoption of export-oriented policies tend to encourage massive movement of female workers into labor intensive manufacturing production which has led to the feminization of labor (UNCTAD 2014c). Because most of these women offer unskilled labor, they are employed en-masse, and offered cheap wages thereby helping the manufacturers meet up with the pressure to supply the international competitive market. Due to lower levels of skills and education, resulting in lower mobility, these women accept precarious conditions of employment. The jobs created in non-agricultural sector such as manufacturing are often informal in nature. They are hardly covered by labor law, therefore they offer low remuneration and protection (Otobe, 2015). Even tough women earn regular wages from manufactured export sector, with which they are able to support their families and send their female children to school (this may not have been possible without the woman's income) (Glick 2002; Glick & Sahn 2000), feminist economist have raised concerns over the employment which they consider as "decent work deficit" (Otobe 2015).

The long run regression result for agriculture export reveals it has direct negative effects on women inclusion through female labor force participation rate and female primary school enrollment

[2]Owing to limited space, tables showing the long run results are not presented. However, the table will be made available on request

rate which is more significant in female primary school enrollment rate. Agriculture export when interacted with maternal mortality rate has no significant indirect effect. However, when interacted with female life expectancy, on one hand, it has negative and significant indirect effect on female labor force participation, on the other hand, it has positive and significant indirect effect on female primary school enrollment. The implication is that overtime, trade policy have reduced female labor force participation in the agriculture export sector, however, it has made agriculture export more lucrative for the women who participated. FAO (2004) a report of selected developing countries' case study on the effect of trade liberalization strategies on welfare and livelihoods of women pointed out that women's work in the agricultural sector is often integral to the functioning of smallholder farms, by carrying out sustenance activities and participating in post-harvesting. Trade liberalization alters the course of resource allocation as competition for higher production becomes stiff. Women tend to be dislocated from the land they tend. Therefore, benefits of the economic and trade reforms largely accrue to medium and large farmers who are mostly not women. This position is expatiated in Spieldech (2007) in the discussion of women in global agriculture in the face of trade and economic liberalization. Women producers who cannot favorably compete in the agricultural sector have been forced to offer their labor and services to other sectors such as hotel operations and tourism. Others who have stayed in the agricultural sector no longer cultivate their own crops but are employed in the post-harvest packing and processing. Some women even find employment in the non-traditional agricultural export sector and in export processing factories as pickers, sorters, graders, and, packers.

The long-run regression result for food export reveals it has no significant direct or indirect effects on women inclusion either through female labor force participation or female primary school enrollment. The rising quantum of food import from the USA and other Western countries into Nigeria since the last two decades and the rising impact of climate change, extremist insurgencies and insecurity (ITA (2023), are some of the major factors that can be attributed to the no effect situation of food export on women inclusion post-trade liberalization. Lecoutere et al. (2023) a study on women in agri-food systems and the effect of climate risk in India, argue that when structural constraints to gender equality underlie unequal access to resources, and services, and constrain women's agency, local climate hazards and stressors such as drought, floods, or shortened crop-growing seasons tend to negatively affect women more than men as women's adaptive capacities tend to be more restrained than men's. The study concluded that low-middle income countries (LMICs) at highest risk are majorly situated in Asia and Africa.

Conclusion and Policy Recommendations

Generally, in the short run, trade policy could not cause any significant direct effect on women's inclusion in all the major export sectors. However, it had significant and positive indirect effects on women's inclusion in all the major export sectors. An exception occurred in food export where a direct positive and significant effect was revealed for female primary school enrollment. In the long run, the positive and significant effects of increases in manufactured and agriculture exports on

women's inclusion were indirect through female primary school enrollment.

Therefore, for policy considerations, it should be noted that the trade benefits that come to women easily manifest in the rate at which they enroll their children in elementary schools. Policymakers can target young women who are likely to have their children in primary schools for some trade/skill incentives or improved employment condition in the export sector. Women's participation in agriculture should be encouraged through access to high quality inputs and provision of gender-focused training in their application. Gender-focused training in high-quality inputs in the agricultural sector to a large extent, is not happening yet in Nigeria (Sahay & Geist, 2023; Bello et al. 2021; Ikhide et al. 2021; Rufai et al. 2018).

While there are government policies for economic empowerment in Nigeria such as N-power, Cash Transfer for the poorest households, and, some recent initiatives like She-works here, Women's Investment Fund, She-Trades et.c, all of which addresses the needs of women traders or exporters, currently, there are no economic policy, legislation, or aspect of an existing policy that focuses on labor conditions or incentives for women who are employees in the export sector in Nigeria. It is reported in ILO (2019); UN-women (2015a); UNCTAD (2014c) that women employees in developing countries, especially those offering unskilled labor in the export sector, are the worst victims of casualization, harassment, and lack of incentives. To date, there are no government policies or legislation on the issue of casualization in all the export sectors. In addition to the issue of casualization and harassment, women in these sectors are not entitled to maternity leave/allowance. Therefore, there is a need to revisit the Nigerian labor laws with a view to introducing clauses that discourage temporary employments for permanent jobs and also including some conditions favorable to women.

Special attention needs to be paid to the food export sector which had significant positive contributions to women's inclusion before the implementation of the trade policy, however, has seized to have any significant contribution in the period after. In addition, improved investment in human capital development; mainly health and education with a special focus on the female folk to enhance women's inclusion is advocated. It is generally reported that the food export sector in Nigeria has been negatively affected by climate change, extremist insurgencies and insecurity (ITA 2023; Lecoutere et al. 2023). The food sector in mostly Asian and African countries has been under-performing with an increasing volume of food import witnessed in the last two decades and the attendant negative effects on smallholder women producers (Lecoutere et al. 2023).

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