# A G D I Working Paper

## WP/20/095

# Engendering Macroeconomic Policy for Gender Equality in sub-Saharan Africa

Forthcoming: Asian Women

**Ibrahim A. Adekunle**
**(Corresponding)**
Department of Economics, Olabisi Onabanjo University,
Ago-Iwoye, Ogun State, Nigeria[a]
European Xtramile Centre of African Studies, Liège, Belgium[b]
E-mail: adekunle_ia@yahoo.com

**Toluwani G. Kalejaiye**
Department of Economics, Tai SolarinUniversity of Education,
Ijagun, Ogun State, Nigeria

**Ayomide, O. Ogunade**
Department of Economics, Olabisi Onabanjo University,
Ago-Iwoye, Ogun State, Nigeria

**Sina J. Ogede**
Department of Economics, Olabisi Onabanjo University,
Ago-Iwoye, Ogun State, Nigeria

**Caleb O. Soyemi**
Department of Economics, Olabisi Onabanjo University,
Ago-Iwoye, Ogun State, Nigeria

2020 African Governance and Development Institute WP/20/095

Research Department

# Engendering Macroeconomic Policy for Gender Equality in sub-Saharan Africa

**Ibrahim A. Adekunle, Toluwani G. Kalejaiye, Ayomide, O. Ogunade, Sina J. Ogede & Caleb O. Soyemi**

January 2020

## Abstract

The social movement is inspiring meaningful conversation about the discriminatory practices' that Africa women have long faced in every aspect of their lives. However, despite considerable improvement in the gender balance discourse, the worst cases of gender imbalances are still recorded in sub-Sahara Africa (SSA). Macroeconomic volatility, both as a source and a reflection of underdevelopment, is a fundamental concern for women in SSA. This paper leans empirical credence to the role of macroeconomic policies (fiscal and monetary policies indices) for gender equality in SSA from 1993 through 2017. We gathered panel data on the indices of macroeconomic policies and gender inequality in all 48 SSA countries. We employed the dynamic panel system generalised method of moments estimation procedure (dynamic system GMM) to establish a baseline level relationship between the variables of interest. We adjusted for heterogeneity assumptions inherent in ordinary panel estimation and found a basis for the strict orthogonal relationship among the variables. Our results suggest fluctuations in macroeconomic policies as a lead factor for gender equality in SSA countries. Efforts should be tailored towards balanced macroeconomic policies that can guarantee sustainable gender equality approaches to collective prosperity.

**Keywords:** Macroeconomic Policy, Gender Equality, Dynamic GMM, Sub-Sahara Africa

**JEL Codes:** C33, E61, I18, J16

## 1.0 Introduction

Deeply-rooted structural obstacles such as the uneven resources allocations, men dominated power tussle and minority wealth creation opportunities for women, fuelled by obsolete and archaic social institutions and cultural orientation that favour discrimination seems the most significant impediment to an egalitarian or equal Africa. Despite considerable successes recorded in the gender equality discourse, some through closing the gender gap in education enrolment, African women have still only achieved only 47 per cent of the human development outcomes compared to their male counterparts (Portes, Atal, & Juárez Torres, 2019). This is driven partly by lowerlevels of female secondary educational attainment**,** lower female labour force participation and high maternal mortality rate (Adjiwanou & LeGrand, 2014; Baliamoune-Lutz, 2007; Baliamoune-Lutz & McGillivray, 2015). Anticipated and improved revenue from increase female participation is negated or lost through economic marginalisation as daily efforts are either underpaid or undervalued, and are mostly in the informal sector (Auspurg, Hinz, & Sauer, 2017). African women account for 66 per cent of jobs in the non-informal sector, thus making less revenue compared to their male counterpart (Aterido, Beck, & Iacovone, 2013; Rendall, 2013). It is shaming to know that only between 7 and 30 per cent of private firms have a female manager (Kabeer, 2005).

All these gender biasedness are peaked in Sub-Sahara Africa (SSA), characterised by age-long traditions and obsolete cultural orientation that has today been a clear and famous impediment to the growth of the African women (Aterido et al., 2013; Ogede, Adekunle & Adegboyega, 2020). This traditions and approach to women roles in the society have far-reaching implications for women education particularly as regards the number of times women are allowed to study and seekpaid jobs, demand for greater access to financial and economic benefits (Abebe & Jepkiyeny, 2016). It is shocking to know that rural African women still engage in about 71 per cent of water collection estimated to translate to about 40 billion hours a year (Quisumbing & Pandolfelli, 2010). They are equally less likely to have bank accounts and most importantly access to credit (Clark & Bower, 2016; Mayoux, 1999; Somolu, 2007). In key findings, estimated annual economic losses arising from gender inequality in Africa averaged US$95 billion per year since 2010 and could be as high as US$105 billion, or 6 per cent of the region's GDP in 2022 (Cuberes & Teignier, 2012; Ferrant, Pesando, & Nowacka, 2014; Wekwete, 2014).

These obsolete approach to female participation has structural and severe economic consequences that need to be checked if we are conscious about developing the much-proclaimed potentials of the Africa girl child and the realisation of Africa 2063 agenda (*the Africa we want*). The significance of achieving the age-long gender equality objectives in consonance with goal five (5) of the sustainable development agenda has heightened the discourse on the subject matter. Government, international organisations, donors, investment partners, female representative organisations and the society at large are demanding for an egalitarian society devoid of gender imbalances at all areas of life. It becomes apt to have evidence-based policy documents that offers new and insightful empirical backings to gender policy re-assesment, formulation and research. Thus, the core of this study.

Despite the overwhelming thoughts that macroeconomic policy, is gender-neutral, the severity of the consequences and benefits of economic policy options of government have heterogeneous, and unbalanced effect on men and women viewed from the perspectives of the market (paid labour for example) and non-market (unpaid care work for example) orientation strategies (Elson & Cagatay, 2000). In other climes, government budgetary constraints could propel a wave of austerity measures that impede social spending, which ultimately leads to greater women unpaid care work by default. The liberalisation of trade could also induce female over representations in the import-dependent sector, like agriculture and food production (Berik, van der Meulen Rodgers, & Seguino, 2009). Even so, policies mechanisms in a long time have ignored these growing menace of gender disparity, leading to ambiguity in the role of macroeconomic indices for gender mainstreaming in regions like Sub-Sahara Africa. It is not even entirely clear how macroeconomic policies could lead to the realisation of gender equality in Sub-Sahara Africa.

In this study, an attempt is made to provide experimental proof on the macroeconomic policy-gender imbalances in SSAto reach conclusions capable of influencing gender policy and research in contemporary ages. Assessing the quantitative relevance of macroeconomic policies for gender equality will go a long way in addressing the almost seemly impossible objectives of gender imbalances in SSA. With particular reference to SSA, this study attempts to unravel the underlying structural relationship between macroeconomic policies and gender equality as to inform policy directions on the subject matter. Focusing on goals, measurement and policy instruments, an empirical examination of the macroeconomic policy-gender relationship can

provide building blocks for an alternative macroeconomic agenda that is rights-based and gender-responsive.

There is a greater need to harness the coordinating power of macroeconomic policy instruments to achieve gender balance in SSA for some reasons. The prevalence of under-age marriage, sexual and physical violence, as well as high maternal mortality rate in SSA, jeopardises women health (Sarich, Olivier, & Bales, 2016). A concerted effort to end gender imbalances in SSA will require complete governmental and societal ordinances, such that women's social wellbeing and economic opportunities for more productive lives are achieved (Power, Boughen, & Ames, 2019; Adekunle, Williams, Omokanmi & Onayemi, 2020). It is important to note that gender equality is an offshoot of the Sustainable Development Agenda 2030 and Africa's Agenda 2063, therefore, narrowing the gender imbalance gap will ensure SSA andAfrica at largeare positioned for double-digit economic growth and quick realisations of its development objectives.

The novelty of this paper is in three folds; (1) This paper informs policy direction on gender mainstreaming, gender inequality when macroeconomic policies interact, (2) it reveals the quantitative relevance of macroeconomic policy for gender inequality in SSA and why gender inequality should not be relegated to the background in the face of contrasting development objectives, (3) It argues that the unintended gender consequences in Sub-Sahara Africa policy formulation and development are by-products of the debacle of gender mainstream, and points to alternative policy agenda that could be encouraged to optimise economic gains associated with gender equality. Having introduced the study, the rest of the paper is organised as follows. 2.0 discusses the literature review in terms of theoretical underpinning and empirical evidence in a chronological order to show the historical progression on the subject matter, 3.0 discusses the data used, and the methodology pursued to study the link between macroeconomic policy and gender equality in Sub-Sahara Africa. 4.0 presents the empirical results and discuss the findings, and 5.0 concludes.

## 2.0 Literature Review

The overriding consequences of macroeconomic policy for gender equality in SSA remain dimly discerned and need to be studied to illuminate important structural relations in the policy-gender mainstreaming literature. No cross-country or country-specific studies have examined this

phenomenon in SSA. The paucity of research along this core area that is indispensable to the socio-economic welfare of the African nation, particularly SSA informs the need for a study of this study. In the findings of Stotsky (2006) who examined the implications of gender differences in economic behaviour for macroeconomic policy, the authors found gender equality to lead to greater and sustainable growth outcomes. In the separate findings of Potrafke and Ursprung (2012)who assessed the influence of globalisation on social institutions that govern female subjugation and gender equality in 208 developing countries in four different regions: Africa Asia Eastern Europe and South America,findings revealed that economic and social globalisation exerts a positive influence on the social institutions that reduce female subjugation and promote gender equality.

In other climes, Wyndow, Li, and Mattes (2013)investigated the causal effects of female empowerment on democratic development for 97 sovereign countries from 1980 to 2005 using dynamic panel model with system generalised method of moments. The result revealed that improvements in female empowerment were associated with democratic development over this period, with female education and female labour force participation having a significant positive and causal effect on these movements. The authors also found growth in female education which suggested the growth of democracy in nations where the girl child are educated, leading to substantive economic growth and development. However, Wekwete (2013), in their examination of gender inequalities between men and women in Africa, identified gender gaps in economic opportunities to inversely relates to growth. The underlying determinants of variations in the female emancipation and growth outcomes can be associated with the different responsibilities for care and housework between women and men, which consequently lead to different time use, thus affecting choices of employment and economic activity; the inequity between women and men to access to productive inputs and agricultural extension services, and the differential treatment by markets; and the support of these constraints which can generate 'female productivity trap'. To Branisa, Klasen, and Ziegler (2013), who examined the effect of social institutions related to gender inequality on development outcomes in developing countries using macro data at the country level, social institutions related to gender inequality are associated with female education, child mortality, fertility, and governance (corruption) in developing countries, even when controlling for other socioeconomic and cultural factors.

Agénor and Canuto (2015) studied the long-run impact of policies aimed at fostering gender equality on economic growth in Brazil through their effects on women's time allocation and intrahousehold bargaining power. The analysis was based on a three-period gender-based overlapping generations (OLG) model in which women's time allocation takes centre stage and accounts for women's time allocation between market work, child-rearing, human capital accumulation, and home production. Bargaining between spouses was assumed to depend on relative human capital stocks, and thus indirectly on access to infrastructure. Thus, the model provides an endogenous macro theory of bargaining power. The model was calibrated, and various experiments were conducted, including investment in infrastructure, a reduction in gender bias in the market place, and a composite pro-growth, pro-gender reform program. The analysis showed that fostering gender equality, which may partly depend on the externalities that infrastructure creates in terms of women's time allocation and bargaining power, may have a substantial impact on long-run growth, as well as educational and health outcomes, in Brazil.

Hakura, Hussain, Newiak, Thakoor, and Yang (2016) investigated the high impact inequality has on growth performance and also the drivers behind income inequality as well as factors explaining its persistence in SSA using newly available data from the Standardised World Income Inequality Database (SWIID) from 1990-2010. The study used system GMM to test for the joint effects of income and gender inequality on growth at different stages of development. The result revealed that income and gender inequality jointly impede growth mostly in the initial stages of development, resulting in substantial growth losses in sub- Saharan Africa and that further progress in reducing income and gender inequality could deliver significant, sustained growth dividends, particularly for low-income countries. The growth decomposition analysis highlights that average annual GDP per capita growth in sub-Saharan African countries could be higher by as much as 0.9 percentage points if income and gender inequality were reduced to the levels observed in the fast-growing Association of South-East Asian Nations (ASEAN). The analysis also revealed that the growth shortfall of Latin America and the Caribbean with ASEAN is mainly explained by income inequality.Ekbrand and Halleröd (2018) used a combination of country-level data and micro-level survey data from 49 low- and middle-income countries to analyse the relationship between gender equity and malnutrition, and gender equity and health deprivation among children. The results indicate that gender equity in education employment decreases child and malnutrition and that women's empowerment decreases health deprivation

for children with unschooled mothers.

Cabeza-garc, Brio, and Oscanoa-victorio (2018) investigated the gender factors that trigger economic growth in both high- and low-income countries using four characteristic dimensions of gender inclusion: education, access to the labour market, fertility, and democracy for 127 countries. Findings revealed that that high fertility in women has adverse effects on economic growth. Minasyan, Zenker, Klasen, and Vollmer, (2019) conducted a systematic review and meta-analysis of empirical literature to examine whether a gender gap in education harms or boos economic performance by examining the link between gender inequality in education and per capita economic growth. They found out that studies that include male and female education as separate covariates in the growth regression reported larger correlation sizes of female compared to male education with economic growth, except when an arguably problematic regression specification is used.

## 3.0 Methodology

### Theory and Model

This study adopted a simplified version of the endogenous-growth theory. The endogenous growth theory emphasised the significant influence of endogenous variables such as macroeconomic policy and policy volatility on long-run growth. Specifically, macroeconomic policy is expected to have a substantial effect on economic growth, but the impact of these macroeconomic factors on heterogenous growth components (gender objectives) remains underexplored and less understood. This study using the endogenous framework explores outliers in the endogenous-growth relations and examine the underexplored influence of endogenous factors (macroeconomic policy) on gender equality objectives. We seek quantitative answers in the macroeconomic policy-gender links for some reasons.On the one hand, higher policy volatility could lead to conservative household measures, due to precautionary motives, resulting in lower labour force participation. On the other, it increases risk-adjusted returns, which increases investment as well as economic growth, thus forcing more female labour participation (Bloom, Canning, Fink, & Finlay, 2009). It becomes apt and expedient to unravel the correlates, magnitude and policy implications of the macroeconomic policy-gender relations

using the endogenous growth framework since whatever that could lead to changes in gender imbalances are most likely to influence growth objectives.

In accounting for the dynamics of the macroeconomic policy and gender imbalances relationship in SSA, this study follows Stratigaki (2005). The empirical strategy is to estimate a series of baseline fixed effects estimators by assuming that all explanatory variables are strictly exogenous. Second, we estimate dynamic panel data GMM estimators and impose (and test) the common factor restrictions to account for the potential endogeneity of macroeconomic policy and gender imbalances within the Sub-Sahara countries. We estimated the dynamic system GMM for some reasons. Rather than follow a conventional full-sample distribution, GMM uses assumptions about specific moments of random variables and that makes it more robust than maximum probability at the expense of some efficiency (Davidson & MacKinnon, 2004). The dynamic system GMM enables the most flexible identification and is highly consistent and asymptotically normal when dealing with large sample properties (Hansen, 1982) particularly with a large cross-section and a time series dimension with $T < 25$. It could also effectively integrate moment conditions when the estimator is over-identified. Our macroeconomic policy-gender model takes the functional form:

$$GENDER_{it} = f\ (MACRO_{POL_{it}}) \qquad \textbf{(1)}$$

Where $GENDER_{it}$ is gender equality in the country *i*over period *t*; $MACRO_{POL_{it}}$is macroeconomic policies in the country *i*over period *t*, *t* is the time-series dimension of the scope that the study covered (1993 through 2017, (25 years), *i* is the domain that contains the cross-sectional characteristics of the data (the Sub-Saharan Africa countries under investigation).

If the assumption of strict exogeneity on macroeconomic policy for gender equality is violated, our baseline fixed effects estimator is potentially inconsistent. Therefore, to obtain asymptotically consistent parameter estimates, we estimate single equation dynamic GMM estimators by using a common factor representation (Blundell & Bond, 2000)

The dynamic panel regression model to capture the relationship between macroeconomic policy and gender imbalances is specified as follows:

$$GENDER_{it} = \rho + \omega GENDER_{it-1} + \theta MACRO_{POL_{it}} + \sum_{j=1}^{k} \delta_j X_{j_{it}} + \mu_{it}$$

$$j = 1 \ldots\ldots, k, i = 1 \ldots\ldots n, t = 1 \ldots\ldots\ldots T \qquad \textbf{(2)}$$

Where, $GENDER_{it}$gives gender equality which assesses the extent to which country *i* has installed institutions and programs to enforce laws and policies that promote equal access for men and women in education, health, the economy, and protection under the law. $\rho$gives the value of the dependent variable when explanatory variables are zero, $MACRO_{POL_{it}}$denotes macroeconomic policies for country *i*over period *t*, $X_{j_{it}}$is the other regressors included in the model as control variables for country *i*over period *t*, *j* is the numbers of included control variables, $\omega, \delta and\ \theta$are the parameter estimates measuring the impact of explanatory variables on the dependent variables.

A country-specific fixed effect is assumed for the disturbance term as follows:

$$\varepsilon_{it} = e_i + \mu_{it}$$

where $\varepsilon_{it}$ represents error term. It entails $e_i$, which represents country-specific fixed effects that are time-invariant, meanwhile, $\mu_{it}$ is assumed to be independent with zero (0) mean and constant variance $\sigma_\mu^2$ both over time and across countries that is, $u_{it} \approx n(0, \sigma_\mu^2)$.

To adjust for the violation of the orthogonal assumption in the dynamic model in **(2)**,we differenced the equations as

$$\Delta lnGENDER_{it} = \rho + \omega \Delta lnGENDER_{it-1} + \theta \Delta lnMACRO_{POL_{it}} + \sum_{j=1}^{k} \delta_j \Delta lnX_{j_{it}} + \Delta\mu_{it} \textbf{(3)}$$

However, estimating the ordinary least square on the first differenced dynamic panel model still, violate the strict exogeneity assumption since the transformed error term $\Delta\mu_{it}$still correlates with $GENDER_{it-1}$ since both contain $\mu_{it-1}$. The possibility of the $E(GENDER_{it-h}\Delta\mu_{it}) = 0 \forall h \geq 2, t = 3, \ldots\ldots T$makes it possible to use the lagged variable as instruments to adjust the explanatory variables to be orthogonally consistent as in Anderson and Hsiao (1982); Blundell and Bond (2000); Blundell, Bond, and Windmeijer (2000)

**Sources and Measurement of Data**

In setting a clear line of thought on the macroeconomic policy gender relations in SSA, we estimatedcross-country panel data for forty-eight (48) SSA countries based on regional

classifications from 1993 through 2017, (25 years). This scope permitted by data availability, allows the researchers to establish the influence of heterogenous macroeconomic policies for the realisation of the gender objectives across SSA countries since austerity measures of the IMF and World Bank was abolished in 1992. The structural adjustment Programme (SAP) era witnesses significant state-imposed austerity measures which limit consumables through a shortfall in money supply and a mindset of export higher than import to achieve a favourable balance of payment; although never materialised. It will be interesting to see how well gender objectives have fared since the policies abolished and alternative measures proposed in many African nations amidst various political regimes.

Gender Equality $GENDER$was measured with data on the gender parity index ratingfor Sub-Sahara countries in consonance with Shannon, Im, Katzelnick and Franco (2013). Gender parity index for gross enrolment ratio in primary and secondary education is the ratio of girls to boys enrolled at primary and secondary levels in public and private schools. Macroeconomic policiesconsidered in this study are fiscal policies and monetary policies series.Monetary policies component measures used are nominal exchange rate as in Oseni, Adekunle and Alabi (2019); inflation as in Mboweni (1999). Fiscal policies measure used was net government expenditure (net general government expenditure includes all current government expenditures and revenues for purchases of goods and services and income received) as in Oseni, Akinbode, Babalola and Adegboyega (2020); taxes on income, profit and capital gains as used in the work of Casale (2012). We controlled for population growth as in Kibirige (1997) and technological change as in Asongu (2013). These controls were relevant to avert problems of omitted variable biases and because of their high relevance in explaining differences in the realisation of gender objectives in SSA. The data used in this study are secondary data spanning from 1993 through 2017, which are derived from the UNESCO Institute for Statistics, the IMF database and World Bank Development Indicators of various issues up to 2017.

**Table 1: Variable Description**

| Abbreviation | Description | Source | Motivating Studies? |
|---|---|---|---|
| $GENDER$ | Gender Parity Index | UNESCO Institute for Statistics | Shannon, Im, Katzelnick and Franco (2013) |
| $GOV_{EXP}$ | Government Expenditure | World Bank National Accounts Data, and OECD National Accounts Data Files | Oseni, Akinbode, Babalola and Adegboyega (2020) |
| $EXC$ | Exchange Rate | International Monetary Fund, International Financial Statistics. | Oseni, Adekunle and Alabi (2019) |
| $INFL$ | Inflation measured with consumer Price Index (CPI) | International Monetary Fund, International Financial Statistics. | Mboweni (1999) |
| $TAXES$ | Taxes on income, profit and capital gains | International Monetary Fund, Government Finance Statistics Yearbook and Data Files. | Casale (2012) |
| $POP$ | Population Growth | World Bank National Accounts Data, and OECD National Accounts Data Files | Kibirige (1997) |
| $TECH$ | Technology | World Bank National Accounts Data, and OECD National Accounts Data Files | Asongu (2013) |

**Estimation Technique**

In accounting for the dynamics of macroeconomic policies and gender imbalances in Sub-Saharan Africa, the study made use of a four (4)-prong econometric procedure. First, is the pre-estimation assessment using the descriptive statistics method to help show, describe and summarise the data in a meaningful way and also to know if the data are normally distributed through their averages and Jarque-Bera values (Gujarati & Dawn, 2009). Secondly, the panel unit root testing to ensure the variables under investigation are covariance-stationary. The tools used here for detecting non-stationarity of the data are the panel unit-root tests developed by Levin, Lin, and Chu (2002), and Im, Pesaran and Chin (2003). The more traditional unit-root tests, such as the Dickey-Fuller, Augmented Dickey-Fuller (ADF), Phillips-Peron, and KPSS tests, may also be applied to serve the same purpose. However, those univariate/single-equation methods are well known for their low power in small samples. By contrast, the panel unit-root tests can be more potent than the conventional tests since they combine the information from the time-series dimension with that from the cross-sectional dimension.

Since the pioneering work of Levin *et al.* (2002), several panel unit-root tests have become available. Here we use the tests developed by Levin *et al.* (2002); and Im, Pesaran, and Shin (2003). As in the literature, the tests are based on estimating the model:

$$\Delta Y_{it} = \alpha_i + \eta_i y_{it-1} + \delta_{it} + \sum_{k=1}^{k_i} \theta_i^{(k)} \Delta y_{it-k} + \varepsilon_{it}$$

$$\varepsilon_{it} \sim iidN(0, \theta_\varepsilon^2)\ i = 1, 2\ \ldots . \mathrm{N}, t = 1, 2\ \ldots \mathrm{T} \qquad \textbf{(4)}$$

Where $y_{it}$ denotes the variable $y$ observed for the $ith$ of $N$ entities in the $t$th of $T$ periods, and $\Delta$ is the difference operator. The LLC test involves the null hypothesis $H_0 : \rho_i = 0\ \forall\ i$ against the alternative $H_A : \rho_i = \rho < 0\ \forall\ i$. The Breitung test does not employ a bias adjustment, which results in a substantially higher power than that of the LLC test. The IPS test involves the same null hypothesis as the last test, but its alternative hypothesis allows for non-stationarity for some individuals. The idea of IPS is to compute the average of the individual ADF test statistics.

Once stationarity of the variables has been verified, the dynamic system GMM was used to account for the structural dynamics of the model.

## 4.0 Results

**Table 2: Summary Statistics**

| | $GENDER$ | $GOVT_{EXP}$ | $EXC$ | $INFL$ | $TAXES$ | $POP$ | $TECH$ |
|---|---|---|---|---|---|---|---|
| **Mean** | 5.764 | 3.523 | 3.242 | 4.842 | 5.838 | 2.422 | 3.563 |
| **Median** | 4.611 | 2.904 | 2.592 | 3.635 | 4.969 | 1.453 | 2.662 |
| **Maximum** | 34.435 | 10.998 | 9.911 | 4.456 | 8.127 | 3.637 | 4.883 |
| **Minimum** | 2.517 | 4.626 | 5.963 | 1.235 | 3.570 | 0.452 | 1.552 |
| **Std. Dev.** | 6.422 | 9.423 | 2.885 | 3.454 | 2.354 | 1.324 | 1.453 |
| **Skewness** | 3.370 | 0.822 | 3.532 | 2.492 | 3.781 | 4.572 | 2.883 |
| **Kurtosis** | 1.642 | 2.115 | 8.038 | 2.754 | 8.039 | 1.472 | 2.773 |
| **Jarque-Bera** | 206.010 | 97.551 | 307.963 | 572.356 | 987.010 | 89.422 | 22.672 |
| **Probability** | 0.381 | 0.229 | 0.525 | 0.457 | 0.826 | 0.239 | 0.372 |
| **Observations** | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 |

Source: Authors, 2020

Table 2 shows the mean and median values of the variables in the panel dataset lie within the maximum and minimum values indicating a high tendency of the normal distribution. All the variables are positively skewed. The kurtosis statistics showed that all the variables were platykurtic, suggesting that their distributions were flat relative to a normal distribution (values are less than 3). The Jarque-Bera statistics shows that the series is normally distributed since the p-values of all the series are not statistically significant at 5% level. Thus, informing the acceptance of the alternate hypothesis that says each variable is normally distributed.

**Levin–Lin–Chu (LLC) Test**

As presented in Table 3 below, one of the first-panel unit root tests formulated by Levin, Lin, and Chu (2002) suggests the following hypotheses for testing stationarity in panel data. Under the null hypothesis, LLC test shows that each time series contains a unit root, i.e., $H_0 : \rho_i = 0 \; \forall \; i$, and for the alternative hypothesis, each time series is stationary, i.e.,$H_A : \rho_i = \rho < 0 \; \forall \; i$. Like other unit root tests in the literature, LLC assume that the individual processes in each cross section are independent. The LLC test is mainly based on the estimation of the following equation;

$$\Delta Y_{it} = \alpha_i + \delta_{it} + \theta_t + \rho_i y_{it-1} + \varsigma_i, t \qquad \textbf{(5)}$$

Where $i$=1, 2 …. N, $t$=1, 2 …T

This test might be treated as a pooled Dickey-Fuller or augmented Dickey-Fuller test potentially with different time lags across the units of the panel.

**Im–Pesaran–Shin (IPS) test**

The IPS test formulated by Im, Pesaran, and Shin, (2003b) is the extension of LLC test incorporating heterogeneity in the dataset under the alternative hypothesis. Here, IPS test estimation is also based on Eq. **(5)**. The null hypothesis is stated as $H_0 : \rho_i = 0 \; \forall \; i$ against the alternative hypothesis of $H_A$: $\rho_i < 0$ where $i$= 1, 2, 3, …, $N_1$; $\rho_i$= 0, $i$= $N_1$ + 1, $N_1$ + 2, …, $N$.

In the IPS test, it is presumed that all series is non-stationary under the null hypothesis and a fraction of the series is stationary under the alternative hypothesis. It is the difference with LLC test, in which all series are supposed to be stationary under the alternative hypothesis.The outcomes of Levin-Lin (LL) and the Im-Pesaran-Shin (IPS) test are shown in Table 3. All test

confirmed that variables were non-stationary at levels and are stationary after first difference. It is hereby inferred that variables are first differenced stationary.

**Table 3: Panel Unit Root Test**

| Variables | $GENDER$ | $GOVT_{EXP}$ | $EXC$ | $INFL$ | $TAXES$ | $POP$ | $TECH$ |
|---|---|---|---|---|---|---|---|
| **Levin–Lin–Chu (LLC)** | 1.134* | 3.526* | 0.498** | 2.568** | 0.725* | 1.552** | 0.662* |
| **Im–Pesaran–Shin (IPS)** | -1.742* | 0.837** | -0.778* | -0.043** | -1.562* | -0.067** | 1.323* |

*Significant at 1 %; ** significant at 5 %

Source: Authors, 2020

**Table 4**: **Empirical Result from the Dynamic System GMM- Robust Two-Step Estimate**

| **Dependent Variable: Gender Equality (ΔlnGENDER)** | | | |
|---|---|---|---|
| Variables | **Coefficients** | **T-Statistics** | **P-Value** |
| Constant $\boldsymbol{\rho}$ | 2.673 | 6.872 | 0.000* |
| Lag Regressor of Response Variable$\mathbf{GENDER_{it-1}}$ | 0.476 | 3.737 | 0.048** |
| $\mathbf{GOVT_{EXP}}$Government Expenditure | 0.159 | 2.263 | 0.063* |
| **EXC**Exchange Rate | -0.562 | -4.377 | 0.017** |
| **INFL**Inflation measured with consumer Price Index (CPI) | 0.493 | 3.253 | 0.042** |
| **TAXES**Taxes on income, profit and capital gains | -0.324 | -4.532 | 0.034** |
| $\boldsymbol{POP}$Population Growth | -0.683 | -3.263 | 0.043** |
| $\boldsymbol{TECH}$Technology | 0.243 | 4.4532 | 0.026** |
| F-test of Joint Significance | $F = 1845.39$ | | |
| Arellano Bond for AR(1) in First Differences | $z = -2.54 \ pr > z = 0.003$ | | |
| Arellano Bond for AR(2) in First Difference | $z = -0.84 \ pr > z = 0.593$ | | |
| Hansen J-Test for Overidentifying Restrictions | $Chi2\ (4) = 1.67$<br>$Prob > chi(2) = 0.851$ | | |
| Instruments | 7 | | |
| Countries | 48 | | |
| Observations | 1200 | | |

**Source**: Author, 2020

**Note:** The *two-step* statistics were obtained after taking the natural logs;*Significant at 1 %; ** significant at 5 % respectively; the bold values represent significant values for the estimated output elasticities, failure to reject the null of over-identifying restrictions.

The outcome of the dynamic two-step system GMM is contained in Table 4.The coefficient of the lagged dependent variable is positive and statistically significant at 5% level. This conforms with theory assertion previously attained level of gender equality influences prevailing gender equality. The trend is gender discourse particularly in terms of education, female representation in governance and management boards across major organisations are essential in scaling new heights in the gender-equal representation and pay(Adekunle, Tella & Adelowokan, 2020). Thus, a percentage increase lagged dependent variable will result in 0.476% increase in attainment of gender equality in SSA. Further evidence from this study revealed that both fiscal policy measures have a contrasting effect on gender attainment in SSA. With an increase in government expenditure having positive relations with gender equality and taxes on income, profit and capital gains having a negative influence on gender equality in SSA (both at 5% level of significance), we aver that an appropriate fiscal policy interaction that takes into considerations the socio-economics status of SSA residents will most likely produce the most gains in the pursuit of an egalitarian society that is devoid of gender imbalances. Explicitly, we established that a percentage increase in government expenditure and taxes on income, profit and capital gains would lead to 0.159% increase and 0.324% decrease in gender disparity index in SSA. These results align with the findings of Anyanwu (2016) in their analysis of gender and youth employment in Africa.

In other findings, monetary policy indices have a mixed effect on gender disparity index in SSA. With negative and positive relations with gender disparity index at a 5% significance threshold, we establish that a percentage increase in the exchange rate and inflation will lead to 0.562% decrease and 0.493% increase in gender disparity index in SSA. These results are similar to those found in Diouf and Pépin (2017); Cho (2016) could be due to undesirable exchange rate relation, which caused commodity prices to increase beyond an acceptable threshold. The uneven exchange rate and commodity price factors have consequences for a large pool of SSA women who are predominantly engaged in jobs that are classified in the informal economy. A persistent rise in the general price level could be interpreted as more cash flow in an economy largely dominated by women, and in turn, the labour participation rate increases, female income increase and female welfare also increase. However, the worsening exchange rate hurts these growth trajectories in SSA, which is overly import-dependent, causing purchasing power parity to reduce and leading to hardship.

Population worsen gender parity gains. We confirmed this inverse relationshipin our study. At 5% level of significance, a percentage increase in population will result in 0.683% decrease in gender parity in SSA. This result affirms that even under the most favourable conditions, gender parity objectives may be difficult to realise when the population continue to grow as we have it in SSA. Population growth, make shared resources increasing difficult to redistribute evenly, keeps pressure on female quota representations and could even leave some female at a disadvantage in navigating their socio-economic desires. However, technological change could lead to faster realisation of gender objectives. With a percentage increase in a technological change leading to0.243% increase in gender parity in SSA (5% level of significance), this study found similar results to Murage, Pittchar, Midega, Onyango and Khan (2015). The positive technological-gender change could be due to recent advances in globalisation and smart technology that has seen economies transform from industry-based to service-centric economies. The path of green evolution could also explain the technology-gender relation since physical interactions are beginning to play less role in modern economic development. Even with a public health crisis of COVID-19 dimension, the role of technological change has spread beyond IT firms to even common phenomena that are in the time past not present. All this structural transformation has exposed age-long dichotomy as regards gender emancipation and the role of the most represented gender in human history.

We testedfor the validity of the instrument used in the system GMM technique. Compared to the OLS model system GMM does not assume normality, and it allows for heteroscedasticity in the data. Dynamic panels irrespective of the kind of model are known for the problems of heteroskedasticity in the data set, which can be controlled (Kittler et al., 2000). The system GMM approach assumes linearity and that the error terms not autocorrelated justifying the need to test for the validity of the instruments through the examination of the first order and second-order autocorrelation in the disturbance term. In tandem with (Arellano & Bond, 1991) the GMM estimator requires the presence of first-order serial correlation and not the second-order serial correlation in the residual term. Since the null hypothesis inference assumes no first-order and second-order serial correlation, we reject the null hypothesis in the first-order serial correlation and accept the null hypothesis for second-order serial correlation test in order to obtain appropriate diagnostics. The result above confirms the existence of first-order serial correlation since the null hypothesis of first-order serial correlation was rejected ($z =$

$-2.54;\ p < 0.05$) at 5% significance level and no second order serial correlation since null hypothesis of no second order serial correlation is accepted because calculated z is not statistically significant at 5% ($z = -0.84;\ p > 0.05$). Thus, supporting the validity of our model specification. The Hansen J-statistics test the null hypothesis of correct specification and valid overidentified restrictions, i.e. the validity of instruments (Oguzie, Onuoha, & Onuchukwu, 2005). They argued further Hansen J-Statistics is the most commonly used diagnostics test in GMM estimation for assessment of the appropriateness of the model. The results of the Hansen J-Statistics of overidentifying restrictions do not reject the null hypothesis at any conventional level of significance ($p > 0.05; i.e\ p = 0.851$), thus, confirming the model has valid instrumentation. The F-statistics value all the variables are jointly significant at 5% level of significance.

**Table 5**: **Robustness Results**

| **Dependent Variable: (ΔlnGENDER)** | | |
|---|---|---|
| Variables | **POLS** | **FE** |
| Constant $\boldsymbol{\rho}$ | 0.782*(1.562) | 0.444(2.673) |
| Lag Regressor of Response Variable $\mathbf{GENDER_{it-1}}$ | 0.232**(2.672) | 0.636(1.662) |
| $\mathbf{GOVT_{EXP}}$Government Expenditure | -0.059*(2.562) | 0.562(672) |
| **EXC**Exchange Rate | 0.562*(1.562) | 0.662*(4.882) |
| **INFL**Inflation measured with consumer Price Index (CPI) | 0.442*(8.672) | 0.342*(1.782) |
| **TAXES**Taxes on income, profit and capital gains | 0.982*(2.772) | 0.722*(1.763) |
| $\boldsymbol{POP}$ Population Growth | -0.367**(0.672) | 0.553(1.762) |
| $\boldsymbol{TECH}$Technology | -0.553(0.372) | -0.826**(-1.389) |
| $\boldsymbol{F\ Stat}$ | 73.763* | 82.562* |
| $\boldsymbol{Adjusted\ R^2}$ | 0.552 | 0.842 |
| Countries | 48 | 48 |
| Observations | 1200 | 1200 |

Pooled OLS and Fixed Effect Results

**Source**: Author, 2020

**Note:** The statistics were obtained after taking the natural logs$*\ P < 0.01, **\ P < 0.05$, respectively;the Coefficients are reported in the text box and the T-Stat in parenthesis.

In order to check the validity of the system GMM results, the study also employed pooled OLS and Fixed effects in consonance with Blundell, Bond and Windmeijer (2000). They suggested additional detections of dynamic panel validity by checking if the estimated coefficient of the lagged dependent variables lies between the values obtained from pooled Ordinary Least Square (POLS) and Fixed Effect (FE) estimator. Our results established that the in Tables 5, the coefficient of the lagged dependent variables of the system GMM results lies between the values obtained from POLS and FE estimators ($FE = 0.232 < GMM = 0.4765 < POLS = 0.636$)

## 5.0 Conclusions and Recommendation

This paper explains the macroeconomic implications for the attainment of gender equality in Sub-Sahara Africa from 1993 through 2017. In evaluating its objectives, the paper adopts the dynamic system GMM to account for the short-run dynamics of the model as well as established the robustness of the model estimated. The empirical result reveals that previously attained level of gender equality influences prevailing gender equality. Also, exchange rate and inflation exhibit an inverse relationship with the attainment of gender equality in Sub-Sahara Africa and government expenditure is positively and linearly related to the attainment of gender equality in Sub-Sahara Africa. Given this empirical finding, in countries where women's opportunities to earn a living are limited by cultural and economic factors, public policies could be geared to enhancing women's employment possibilities, yielding benefits to their homes and their children, and ultimately their societies. In this context, taking account of gender differences in economic behaviour and in the effects of public policies already enriches economic modelling and influences public policy decisions ranging from the structure of the tax system, government spending programs, and social insurance programs as well as regulatory policies and structural reforms. The findings of this study agree with the conclusions fromSeguino (2019); Seguino and Grown (2006); (2011). It is therefore recommended that in determining the pace and composition of fiscal adjustment, it is important to consider the potentially harsher short-term effects of economic austerity and structural adjustment measures on women to avoid exacerbating gender inequalities. Over the medium term and long term, fiscal and structural policy measures should be designed to further reduce gender inequalities and ensure that women can take full advantage of the beneficial effects of improvements in macroeconomic conditions.

## References


Adekunle, I.A., Tella, S.A. & Adelowokan O.A (2020). Demographic Responses to Political Transformation in Africa. *Estudios de Economia Aplicada, 38*(2), 1-12.

Adekunle, I.A.,Williams, T.O., Omokanmi O.J. & Onayemi, S.O. (2020). Mediating Roles of Institutions in the Remittance-Growth Relationship: Evidence from Nigeria. Forthcoming in *Economic Annals*.

Abebe, J. O., & Jepkiyeny, A. (2016). Accelerating Action to End Violence against Women and Girls in Africa. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2797611

Adjiwanou, V., & LeGrand, T. (2014). Gender inequality and the use of maternal healthcare services in rural sub-Saharan Africa. *Health and Place*, *29*, 67–78. https://doi.org/10.1016/j.healthplace.2014.06.001

Agénor, P. R., & Canuto, O. (2015). Gender equality and economic growth in Brazil: A long-run analysis. *Journal of Macroeconomics*, *43*, 155–172. https://doi.org/10.1016/j.jmacro.2014.10.004

Anderson, T. W., & Hsiao, C. (1982). Formulation and estimation of dynamic models using panel data. *Journal of Econometrics*, *18*(1), 47–82. https://doi.org/10.1016/0304-4076(82)90095-1

Anyanwu, J. C. (2016). Analysis of Gender Equality in Youth Employment in Africa. *African Development Review. 28*(4), 397-415. https://doi.org/10.1111/1467-8268.12220

Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *The Review of Economic Studies*, *58*(2), 277. https://doi.org/10.2307/2297968

Asongu, S. A. (2013). How has Mobile Phone Penetration Stimulated Financial Development in Africa? *Journal of African Business*. *14*(1), 7-18. https://doi.org/10.1080/15228916.2013.765309

Aterido, R., Beck, T., & Iacovone, L. (2013). Access to Finance in Sub-Saharan Africa: Is There a Gender Gap? *World Development*, *47*, 102–120. https://doi.org/10.1016/j.worlddev.2013.02.013

Auspurg, K., Hinz, T., & Sauer, C. (2017). Why Should Women Get Less? Evidence on the Gender Pay Gap from Multifactorial Survey Experiments. *American Sociological Review*, *82*(1), 179–210. https://doi.org/10.1177/0003122416683393

Baliamoune-Lutz, M. (2007). Globalisation and gender inequality: Is Africa different? *Journal of African Economies*, *16*(2), 301–348. https://doi.org/10.1093/jae/ejl037

Baliamoune-Lutz, M., & McGillivray, M. (2015). The impact of gender inequality in education on income in Africa and the Middle East. *Economic Modelling*, *47*, 1–11. https://doi.org/10.1016/j.econmod.2014.11.031

Berik, G., van der Meulen Rodgers, Y., & Seguino, S. (2009). Feminist economics of inequality, development, and growth. *Feminist Economics*, *15*(3), 1–33.

https://doi.org/10.1080/13545700903093524

Bloom, D. E., Canning, D., Fink, G., & Finlay, J. E. (2009). Fertility, female labor force participation, and the demographic dividend. *Journal of Economic Growth*, *14*(2), 79–101. https://doi.org/10.1007/s10887-009-9039-9

Blundell, R., & Bond, S. (2000). GMM Estimation with persistent panel data: An application to production functions. *Econometric Reviews*, *19*(3), 321–340. https://doi.org/10.1080/07474930008800475

Blundell, R., Bond, S., & Windmeijer, F. (2000b). Estimation in dynamic panel data models: Improving on the performance of the standard GMM estimator. *Advances in Econometrics*, *15*, 53–91. https://doi.org/10.1016/S0731-9053(00)15003-0

Branisa, B., Klasen, S., & Ziegler, M. (2013). Gender Inequality in Social Institutions and Gendered Development Outcomes. *World Development*, *45*, 252–268. https://doi.org/10.1016/j.worlddev.2012.12.003

Cabeza-García, L., Del Brio, E. B., & Oscanoa-Victorio, M. L. (2018). Gender factors and inclusive economic growth: The silent revolution. *Sustainability (Switzerland)*, *10*(1), 1–14. https://doi.org/10.3390/su10010121

Casale, D. M. (2012). Indirect Taxation and Gender Equity: Evidence from South Africa. *Feminist Economics*. *18*(3), 25-54, https://doi.org/10.1080/13545701.2012.716907

Cho, S. Y. (2016). Does Gender Equality Promote Social Trust? An Empirical Analysis. *World Development*. *88*, 175-187. https://doi.org/10.1016/j.worlddev.2016.07.019

Clark, M. E., & Bower, J. D. (2016). Career Experiences of Women With Major Financial Barriers. *Career Development Quarterly*, *64*(4), 373–386. https://doi.org/10.1002/cdq.12072

Cuberes, D., & Teignier, M. (2012). Gender gaps in the labor market and aggregate productivity. *Sheffield Economic Research Paper Series*.

Diouf, I., & Pépin, D. (2017). Gender and central banking. *Economic Modelling.61*, 193-206. https://doi.org/10.1016/j.econmod.2016.12.006

Ekbrand, H., & Halleröd, B. (2018). The more gender equity, the less child poverty? A multilevel analysis of malnutrition and health deprivation in 49 low- and middle-income countries. *World Development*, *108*, 221–230. https://doi.org/10.1016/j.worlddev.2018.01.028

Elson, D., & Cagatay, N. (2000). The social content of macroeconomic policies. *World Development*, *28*(7), 1347–1364. https://doi.org/10.1016/S0305-750X(00)00021-8

Ferrant, G., Pesando, L. M., & Nowacka, K. (2014). Unpaid Care Work: The missing link in the analysis of gender gaps in labour outcomes. *OECD Development Centre*, 12.

Hakura, D., Hussain, M., Newiak, M., Thakoor, V., & Yang, F. (2016). *Inequality, Gender Gaps and Economic Growth: Comparative Evidence for Sub-Saharan Africa* (No. WP/16/111). *IMF Working Papers* (Vol. 16). https://doi.org/10.5089/9781484382349.001

Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics*, *115*(1), 53–74. https://doi.org/10.1016/S0304-4076(03)00092-7

Kabeer, N. (2005). Gender equality and women's empowerment: A critical analysis of the third Millennium Development Goal 1. *Gender and Development.13*(1), 13-24. https://doi.org/10.1080/13552070512331332273

Kibirige, J. S. (1997). Population growth, poverty and health. *Social Science and Medicine*. *45*(2), 247-259. https://doi.org/10.1016/S0277-9536(96)00341-3

Kittler, J. T., Wang, J., Connolly, C. N., Vicini, S., Smart, T. G., & Moss, S. J. (2000). Analysis of GABA(A) receptor assembly in mammalian cell lines and hippocampal neurons using γ2 subunit green fluorescent protein chimeras. *Molecular and Cellular Neurosciences16*(4), 440–452. https://doi.org/10.1006/mcne.2000.0882

Levin, A., Lin, C. F., & Chu, C. S. J. (2002). Unit root tests in panel data: Asymptotic and finite-sample properties. *Journal of Econometrics*, *108*(1), 1–24. https://doi.org/10.1016/S0304-4076(01)00098-7

Mayoux, L. (1999). Questioning virtuous spirals: Micro-finance and women's empowerment in Africa.*Journal of International Development*.*11*(7),957–984. https://doi.org/10.1002/(sici)1099-1328(199911/12)11:7<957::aid-jid623>3.0.co;2-%23

Mboweni, T. T. (1999). Inflation Targeting in South Africa. *The South African Journal of Economics*, *67*(4), 221–225. https://doi.org/10.1111/j.1813-6982.1999.tb01152.x

Minasyan, A., Zenker, J., Klasen, S., & Vollmer, S. (2019). Educational gender gaps and economic growth: A systematic review and meta-regression analysis. *World Development*, *122*, 199–217. https://doi.org/10.1016/j.worlddev.2019.05.006

Murage, A. W., Pittchar, J. O., Midega, C. A. O., Onyango, C. O., & Khan, Z. R. (2015). Gender specific perceptions and adoption of the climate-smart push-pull technology in eastern Africa. *Crop Protection*. *76*, 83-91. https://doi.org/10.1016/j.cropro.2015.06.014

Ogede, J. S., Adekunle, I. A. & Adegboyega, S. B. (2020). Macroeconomic Policy and Gender Equality: Evidence from Nigeria. *Dutse International Journal of Social and Economic Research*, *4*(2), 70-79

Oguzie, E. E., Onuoha, G. N., & Onuchukwu, A. I. (2005). Inhibitory mechanism of mild steel corrosion in 2 M sulphuric acid solution by methylene blue dye. *Materials Chemistry and Physics*, *89*(2–3), 305–311. https://doi.org/10.1016/j.matchemphys.2004.09.004

Oseni, I.O., Adekunle, I.A. & Alabi, M.O. (2019). Exchange Rate Volatility and Industrial Output Growth in Nigeria (2019). *Journal of Economics and Management*, *38*(4), 129-156. https://doi.org/10.22367/jem.2019.38.07

Oseni I.O., Akinbode, S.O., Babalola, D.A.& Adegboyega, S.B. (2020). Government spending and school enrolment in sub-Saharan Africa: A system GMM approach. *Journal of Economics and Management*, *40*(2), 91-108. https://doi.org/10.22367/jem.2020.40.05

Potrafke, N., & Ursprung, H. W. (2012). Globalization and gender equality in the course of development. *European Journal of Political Economy*, *28*(4), 399–413.

https://doi.org/10.1016/j.ejpoleco.2012.04.001

Power, A., Boughen, A., & Ames, C. (2019). Out of Africa: Students' reflections on the personal and professional impact of volunteering. *British Journal of Midwifery*. *27*(1), 59-61. https://doi.org/10.12968/bjom.2019.27.1.59

Quisumbing, A. R., & Pandolfelli, L. (2010). Promising Approaches to Address the Needs of Poor Female Farmers: Resources, Constraints, and Interventions. *World Development*, *38*(4), 581–592. https://doi.org/10.1016/j.worlddev.2009.10.006

Rendall, M. (2013). Structural Change in Developing Countries: Has it Decreased Gender Inequality? *World Development*, *45*, 1–16. https://doi.org/10.1016/j.worlddev.2012.10.005

San Vicente Portes, L., Atal, V., & Juárez Torres, M. (2019). From households to national statistics: Macroeconomic effects of Women's empowerment. *Economic Modelling*, *79*, 286–294. https://doi.org/10.1016/j.econmod.2019.01.024

Sarich, J., Olivier, M., & Bales, K. (2016). Forced marriage, slavery, and plural legal systems: An African example. *Human Rights Quarterly*, *38*(2), 450–476. https://doi.org/10.1353/hrq.2016.0030

Seguino, S. (2020). Engendering Macroeconomic Theory and Policy. *Feminist Economics*, *26*(2), 27–61. https://doi.org/10.1080/13545701.2019.1609691

Seguino, S., & Grown, C. (2006). Gender equity and globalization: Macroeconomic policy for developing countries. *Journal of International Development*. *18*(8), 1081-1104. https://doi.org/10.1002/jid.1295

Seguino, S., & Grown, C. (2011). Feminist-Kaleckian Macroeconomic Policy for Developing Countries. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.900565

Shannon, G. D., Im, D. D., Katzelnick, L., & Franco, O. H. (2013). Gender Equity and Health: Evaluating the Impact of Millennium Development Goal Three on Women's Health in South Asia. *Women and Health*. *53*(3), 217-243. https://doi.org/10.1080/03630242.2013.767300

Somolu, O. (2007). "Telling our own stories": African women blogging for social change. *Gender and Development*, *15*(3), 477–489. https://doi.org/10.1080/13552070701630640

Stotsky, J. G. (2006). *Gender and its Relevance to Macroeconomic Policy: A Survey* (06/233). *IMF Working Papers* (Vol. 06). https://doi.org/10.5089/9781451864939.001

Stratigaki, M. (2005). Gender mainstreaming vs positive action: An ongoing conflict in EU gender equality policy. *European Journal of Women's Studies*, *12*(2), 165–186. https://doi.org/10.1177/1350506805051236

Wekwete, N. N. (2014). Gender and economic empowerment in Africa: Evidence and policy. *Journal of African Economies*, *23*(1), 87-127.. https://doi.org/10.1093/jae/ejt022

Wyndow, P., Li, J., & Mattes, E. (2013). Female Empowerment as a Core Driver of Democratic Development: A Dynamic Panel Model from 1980 to 2005. *World Development*, *52*, 34–54. https://doi.org/10.1016/j.worlddev.2013.06.004