

International Migration and Labour Force Participation Rate: Evidence from Sub-Saharan Africa

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Abstract

In recent time, the development of international migration as a simple essential feature of nearly all developed countries gave an indication to the strength and stability of the fundamental issue. Previous studies also established that migrant workers play a significant role in the labour market and contribute to the economies and societies of both their homes and destination countries. It is in the light of this that the study examined the interaction between international migration and labour force participation rate in sub-Saharan Africa (SSA) from 1990-2018. The study employed system Generalized Method of Moment to analyse a panel data of 46 SSA countries using variables such as net migration, international migrant stock (total), net remittances, labour force participation rate (total) and other control variables. Data were sourced from World Bank Development Indicator (2018). Results showed that net migration in the receiving countries has a significant positive relationship with labour force participation rate while the number of international migrant in the countries of origin revealed a significant negative relationship with the labour force participation rate. The findings further revealed that net remittances inflow has a significant negative relationship with labour force participation rate of the countries of origin. The study based on the findings, recommended that policy should be put in place to control the number of immigrants' job seekers entering the sub-region which can spur unemployment for the receiving countries. Also inflow of remittances should be discouraged as a means of reducing migration outflow as the long run effect can trigger reduction in the labour force participation rate in sub-Saharan African countries.

Keywords: International migration, Labour Force Participation rate, System GMM, sub-Saharan Africa, remittances.

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INTRODUCTION

A global phenomenon that is growing in scope, complexity and impact in recent time is the issue of international migration in which the cause and effect has broader development implications, and this has become an intrinsic feature of the present globalizing world (Pisarevskaya, Levy, Scholten & Jansen, 2020; Scholten, 2018; Zapata-Barrero and Yalaz, 2018; van Dalen, 2018; Nestorowicz and Anacka, 2018, Piguet, et al, 2018). International migration has been discovered to generate substantial welfare gains for migrants, their countries of origin and the countries to which they migrate (Mayda, 2010). In another scenario, it has been linked directly or indirectly to the world of work and decent employment opportunities (Wickramasekara, 2013). International migration offers good possibilities in such a way that it generates remittance which is seen as a new or additional source of finance for development, which is greater than the official development aid. (Adeseye, 2021; Muhammad et al., 2019). Through remittances, reduction of poverty is achieved and a positive value is attributed to the social transfer, that is, the flow of information and ideas. More so, countries of origin enjoyed the benefits of brain gain and balance on the labour market which leads to banishment of inequality and better distribution of the advantages of globalization (Alam, Siwar, Talilb & Islam, 2011). Furthermore, international migration impacts positively upon all stakeholders as evidenced by the sending countries in which migrant themselves benefits by securing jobs, development of skills, earn income and remit part of it to their countries of origin while destination countries benefits from skills and labour they receive from migrants (Reiko, Luisa & Robert, 2014).

From history, human mobility has been an activity undertaken by people and is likely to continue into the future given the fact that global migration has remained proportional to the growth of the world population with the migration rate fluctuating around 3% since the 1960s (European Union, 2018; United Nations, 2019). Migration can be traced to the creation of human which makes it an old phenomenon in the history of mankind with people migrating from a country to another country either permanent settlement or for a short duration in search of better social and economic life. Historically, migration has been identified to show that there are few checks on the movements of the people leaving one country for another owing to the reason of better quality of life (Ahad, 2015). Report from United Nations International Migration (2017) revealed that the 2030 Agenda for Sustainable Development with its commitment to leave no one behind, recognizes that international migration is of major relevance for the development of countries of origin, transit and destination, requiring coherent and comprehensive responses. In the Agenda, government pledges to facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies (SDG Target 10.7). The 2030 Agenda also seeks to reduce remittance transfer fees, to promote labour standards for migrant workers and to eliminate human trafficking.

Migrant workers play an important role in the Labour Market and contribute to the economies and societies of both their homes and destination countries (Adeseye, 2021). They spur development through the creation of new enterprises and strengthen ties between their

countries of origin and destination through transfer of technology and skills (Haas De, 2012). For the purpose of this study, international migrants are classified as persons who are foreign born or citizens where place of birth information is not available, while migrants of working age (15 years of age and over) is a subset of international migrants. The term “migrant worker” refers to international migrant individuals of working age and older who are either employed or unemployed in their current country of residence. Based on figures from the United Nations/Department of Economics and Social Affairs (UN/DESA, 2017) there are 277 million international migrants with 234 million migrants of working age (15 years and older) and 164 million migrant workers worldwide. The report also showed that migrants of working age constitute 4.2% of the global population aged 15 and older, while migrant workers constitute 4.7% of all workers.

International migrant workers have been discovered from a report by ILO (2017) to be employed in high income countries in which out of 164 million migrant workers worldwide, 112.2 million (67.9%) work in high income countries, 30.5 million (18.6%) in upper middle income countries, 16.6 million (10.1%) are found in lower middle income countries and 5.6million (3.4%) in low income countries. The majority of the migrant workforce is found in high income countries constituting 18.5% of the workforce with only 1.4 to 2.2% of labour force of migrant found in lower income countries. Labour Force Participation of migrants in recent times according to ILO (2015) estimates showed that in destination countries, the share of migrant workers among the global workforce is 70% compared to non- migrant at 61.6%. Report from ILO (2017) also revealed that migrants of working age have higher labour force participation than non-migrant of working age primarily due to the significantly higher labour force participation rates of international migrants. The report further showed that youth workers (aged 15-24) and older workers aged 65+ constitute 8.3% and 5.2% respectively with prime age adult constituting 86.5% of international migrants. The overwhelming majority of migrants' workers of prime age adults gives a signal that some countries of origin are losing the most productive part of their workforce which could have a negative impact on their economy. On the part of the destination countries, they benefit from receiving the prime age workers as they are increasingly faced with demographic pressures. On the aspect of remittances, emigration of prime age individuals serves as a source of remittances for countries of origin (ILO, 2016a).

A study by Pew Research Centre (2018) revealed that sub-Saharan African nations account for 8 of 10 fastest growing international migrant populations since 2010, based on the analysis of the latest United Nations data on the number of emigrants, or people living outside their country of birth. The number of emigrants from each of these sub-Saharan African countries grew by 50% or more between 2010 and 2017, significantly more than the 17% worldwide average increase for the same period. The total number of emigrants worldwide from all sub-Saharan African countries combined grew by 31% between 2010 and 2017, out spacing the rate of increase from both the Asia-Pacific (15%) and Latin America-Caribbean (9%) regions. Only the Middle East North Africa region saw a larger increase (39%) of people living outside

their birth country during the same span, driven largely by people fleeing conflict in Syria. It was also recorded that some 25 million sub-Saharan migrants lived outside their countries of birth in 2017 making the number of international migrants from sub-Saharan Africa between 2010 and 2017 to grow at the rate of 31% than in the 2000s (25%) and the 1990s (1%).

As international migration increased, the breakdown of where sub-Saharan emigrants live changed. In 1990, 75% of emigrants from the region lived in other sub-Saharan countries, a share that dropped to 68% by 2017. Over the same period, the share of sub-Saharan emigrants who live in the United States rose from 2% to 6%. This helped African immigrant in a little way but fast growing slice of the overall USA immigrant population. As at 2017, nearly 1.5 million sub-Saharan immigrants lived in the United States, according to the United Nations data. More substantially, the share of sub-Saharan migrants living in European Union countries, Norway and Switzerland rose from 11% in 1990 to 17% in 2017. Sub-Saharan emigrants are only part of Africa's international migration story and looking ahead, the number of international migrants from Africa as a whole is expected to increase in coming decade due in part to the continent's growing population. Based on this and given that sub-Saharan Africa's working-age population of 600 million people is expected to grow at the rate of 3% per year. This has created an issue with the absolute number expectation which is believed to continue to increase, reaching 2 million per month in 2037 and getting to the highest number of 2.3 million per month in 2055 (David, Murray & James, 2019).

Currently, international migration is now high on the agenda of development given the consequences of increasing problems with multicultural society in the receiving area with a fear of invasion. Based on the increasing ageing of the population of most developed countries and the growing conviction that international migration cannot be seen in isolation from the working population, few studies have been documented in the area of international migration and labour force participation rate. Studies on labour force participation until the early 70's have majorly been concentrated on the developed countries with few studies directed towards the developing countries. (Fadayomi and Olurinola, 2014). It is in the light of this that the study examined the dynamic interaction between international migration and labour force participation rate in the sub-Saharan region of Africa. The study aimed at determining the relationship in existence between international migration both in the country of origin and the destination countries and its impact on the growth rate of labour force participation in the region.

Theoretical Background

The theoretical foundation on which this study is based came out from Dual Labour Market Theory. This theory was brought into limelight in the 1970s by American Economist Michael Piore and Peter Doeringer. The theory has its foundation from Alfred Marshall and John Bates Clarks during the 19th century under the neoclassical theory of the labour market which represent the Mainstream approach to labour market analysis. The Dual Labour Market theory plays into economics through the labour market which can otherwise be known as the Job

Market. The Market entails the supply and demand for jobs in an economy. In context, employees and those looking for work provide the supply while employers provide the demand. In any economy, the labour market plays a critical role in enhancing the success or decline of economic well-being and in the achievement of sustainable development. Most countries with good economic health tend to have optimal balance in their labour market chain of supply and demand, while any failing economy suffer from an extreme imbalance on either side of the supply and demand spectrum. One major factor identified that can affect this balance includes the dynamics occurring both in domestic and international markets, migration (immigration and emigration), average age of the population and education.

The Dual Labour Market theory shows the relationship between migration and labour force participation. This is because this theory links migration to structural changes in the economy focusing mainly on the demand side of the economy. The duality theory focuses on both the capital-intensive and the labour-intensive economy. Under the capital-intensive economy, both skilled and unskilled labours are utilized, while for the labour-intensive economy, only the unskilled labour prevails. This theory states that migration is driven by the conditions of labour demand rather than supply. In other words, advanced countries have demand for low skilled jobs, which domestic workers refuse to take up due to prestige or status ((Reich, Gordon & Edwards, 1973).

Thus, migration becomes desirable and necessary to fill the jobs and policy choices in the form of active recruitment efforts following the needs of the market. In short, international labour migration is largely demand-based in developed societies. This demand grows out of structural features of developed economies: international wage differentials are neither sufficient nor necessary for migration to occur. Low-level wages in immigrant receiving societies are not likely to increase if immigrant supply decreases because they are held down by social and institutional mechanisms (job hierarchies). Low-level wages may fall in response to an increase in labour supply. Governments are unlikely to influence international migration as it is built into the structural mechanisms of post-industrial economies.

International Migration in sub-Saharan Africa: In sub-Saharan Africa, international migration is known to be in the form of South-South migration mainly dominated by relatively poor landlocked countries. People in countries such as Burkina Faso, Mali and Niger tend to migrate toward Ivory Coast, Nigeria and Senegal. In countries such as Lesotho and Mozambique migration tend towards South Africa and Botswana. Other countries such as Liberia, Sierra Leone, Burundi, Congo and Rwanda experiencing crisis and conflicts directed migration through refugee to Kenya, Uganda and Tanzania. In contrast to countries from the northern region of Africa, the possibilities for earning remittances are often not occurring through South-South migration which makes most international migration from sub-Saharan Africa region to be illegal with little protection from the receiving countries. Recently, migrants have been subjected to discrimination and Xenophobia mostly from receiving countries.

A report by Aderanti (2005) identified the main traditional countries of immigration in West Africa to be Cote d' Ivoire and Ghana. During the 1970s, Nigeria became a major migration receiving country due to the discovery of oil which led to employment in various sectors of the economy. Major labour exporting countries identified have been and are still Burkina Faso, Mali, Guinea, Cape Verde and Togo. Senegal combines as labour exporting and receiving country. In recent times, migration pattern have changed in this region of Africa as the countries have all turn to labour exporting countries to Europe, America, Asia and other High income countries due to deteriorating socio-economic conditions, deepening poverty, collapse of oil price e.t.c. International migration in middle African countries showed that the largest migrants stocks are enumerated in Democratic Republic of the Congo where mineral deposits and infusions of investment capital have created jobs for skilled and unskilled workers while the foreign born represent slightly more than 2% of the total population. Another major country of destination is Cameroon with the most of migrants composed of palm plantation workers from Nigeria and to a lesser extent from Chad and the Central African Republic (CAR). Another highest proportion of migrants in middle Africa are domicile in The Congo, Democratic Republic of the Congo, CAR, Angola, Mali, Senegal and Cameroon.

International migration in East Africa also known as the Horn of Africa was affected by pre-colonial inflows of Arabs and Asians in which resulted in the partition of the area into colonies, the development of export oriented agriculture as well as mining and extractive industries. Countries such as Ethiopia, Eritrea, Rwanda, Burundi, Uganda, Malawi and Mozambique experienced labour outflow to South Africa, Zimbabwe and Zambia whereas Tanzania experienced labour inflow and outflow from other sub-Saharan African Countries. Kenya, on the other hand experienced increased availability of skilled graduates which placed pressures on the Kenyan labour market which made labour to migrate out of the country. Sudan also became an exporter of migrants to the oil producing countries of the Middle East and elsewhere. International migration in the Southern Africa was characterized as temporary and oscillatory tending towards Republic of South Africa (RSA) majorly from Botswana, Lesotho, Swaziland (BLS), Mozambique, Malawi and Zimbabwe. In recent times, the increase in the level of education both in labour supplying countries and with South Africa itself revealed that the country has benefitted from an educated workforce and enact laws in the establishment of a permanent, skilled labour force from domestic sources.

Empirical Studies: A study from South Africa by Thoka and Geyer (2019) identified through the use of 2011 census the demographic and socio-economic characteristics that are significantly linked to employ and unemployed migrants that have settled in Gauteng and which age groups have a better chance of finding employment in either the province of the origin or in Gauteng. The study made use of univariate, bivariate and multivariate statistical techniques such as frequency, tables, graph of cross-tabulations, chi-square and binary logistics regression. Findings revealed that specific individual and socio-economic characteristics are significant and highly associated with employed and unemployed migrants who have settled in Gauteng. Another study

by Kollamparambil (2017) attempted an empirical verification on the impact of in-migration on labour market outcomes in South Africa using the dynamic system GMM analysis. The study indicates that in-migration decreases the labour market participation rate of the migrant receiving districts. It highlighted migration for non- economic purposes as well as discouraged migrants not seeking work post-migration. The study found a nonlinear relationship between in-migration and the labour markets of the receiving areas.

A similar study by Karymshakov and Sulaimanova (2017), studied the impact of migration on labour supply and time use of women left behind in Krygyzstan using the instrumental variable approach. The study shows that migration of a household member increases the choice of left-behind women to be unpaid family workers and they work more hours in this occupation. Another study by Gorodzeisky and Semyonov (2017), examines the modes of immigrant's labour market incorporation into European societies with emphasis on the role played by immigrant status, using the Logit and Probit regression model. They found that in all countries, non-European origin is associated with greater disadvantage in finding employment not only among first generation immigrants but also second- generation immigrants. The results also show that the pattern of labour force incorporation vary considerably across origin groups and across generations.

In a study by Ilse and Glem (2013) which tested an empirical model for intraregional migration in sub-Saharan Africa within an extended human capital framework taking into account spatial interaction. Through the use of bilateral panel data from 1980-2000, they found out that intra- regional migration on the sub-continent is predominantly driven by economic opportunities and socio-politics in the host country facilitated by geographical proximity. The study recommended that origin and destination spatial dependence should definitely not be ignored. A similar study on sub-Saharan Africa by Naude (2008) on the reasons for international migration was conducted in a panel study on 45 countries spanning the period of 1965-2005. Findings revealed that conflict, disasters and lack of job opportunities stands as the major reasons. The study recommended that government in recipient SSA countries should formulate strategies to better accommodate the inflow so as not to worsen the plight of people who have been largely forced to migrate.

METHODS

Model Specification: The Dynamic Panel Data model was employed as the model specification for the study. The justification for the use of the model is based on the function of the Dynamic Panel Data model which has the capacity to include lag dependent variables as co-variates along with the unobserved effects, fixed or random and exogenous regressors. This allows modelling of partial adjustment mechanism. The benefits also extends to the ability to determine short and long run values of coefficients and choose which explanatory variables are potentially endogenous or exogenous.

The Dynamic panel model is stated thus;

$$y_{it} = \delta y_{it-1} + X'_{it} \beta + \mu_i + v_{it} \quad (1)$$

All variables and symbols are defined below;

y_{it-1} is the lagged independent variable.

Where y_{it} is the dependent variable, X_{it} are the explanatory variables

i indexes individual country, and $i=1, 2, \dots$

$t=1, 2, \dots, T$ indexes year.

μ_{it} is the composite stochastic error term, which consists of other components, given as

$$\mu_{it} = \mu_i + v_{it}$$

μ_i is the country specific effects and

v_{it} is the remaining stochastic disturbance term, which is assumed to be normally distributed and has a zero mean with constant variance.

The study employed the System Generalized Method of Moment (SYSGMM) as a technique of estimation of the model specified. This SYSGMM was employed due to the shortcoming of Generalized Method of Moment which only estimate the high variance of individual effect term across individual observation with the stochastic process y_{it} yet to get close to being a random walk. This deficiency was corrected by Blundell and Bond (1998) where they derive a condition under which it is possible to use an additional set of moment conditions. These additional moment conditions is used to improved small sample performance of the Arellano-Bond estimator. Specifically, they advocated in their study using moment conditions as specified below;

$$E(\Delta y_{it-i}(\alpha_i + \mu_{it})) = 0 \text{ for } t \geq 3 \quad (2)$$

These additional moment conditions are valued under conditions provided in their paper which was adopted for this study. Therefore, the full set of the moment conditions can be written as;

$$E(Z^T_{SYS,i} P_i) = 0 \quad (3)$$

Dynamic Empirical Model (Baseline Model)

$$lfp_{it} = \alpha_0 + \alpha_1 lfp_{it-1} + \alpha_2 netmig_{it} + \alpha_3 intmig_{it} + \alpha_4 remita_{it} + \alpha_5 infl_{it} + \alpha_6 popg_{it} + \mu_{it} + v_{it} \quad (4)$$

Where;

Lfp = Labour Force Participation

Netmig = Net Migrant Stock

Intmig = International Migrant (% total population)

Remita = Remittances received

Infl = Inflation

Popg = Population growth

Sources of Data and Measurement of Variables

The study made use of system GMM to analyze a panel of 46 SSA countries on variables such as net migration, international migrant stock (total), remittances, labour force participation (total) and other control variables. Data were sourced from World Bank Development Indicators.

This study relies on panel dataset from 1990 to 2018 on 46 Sub-Saharan African countries namely; Angola, Burundi, Benin, Botswana, Burkina Faso, Cameroon, Central Africa Republic, Chad, Comoros, Congo Democratic, Cape Verde, Republic of Congo, Cote d'ivoire, Djibouti, Eritrea, Ethiopia, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea Bissau, Guinea, Kenya, Lesotho, Liberia, Mali, Malawi, Mozambique, Madagascar, Mauritania, Mauritius, Namibia, Niger, Nigeria, Rwanda, Sudan, Sierra Leone, Somalia, South Sudan, Zambia, Zimbabwe, Senegal, South Africa, Togo, Tanzania and Uganda. The criterion used to create the sample was based upon the availability of data, where the candidate countries should have available data on labour force participation rate (% of total population ages 15+), Net migration (measured total immigrant minus emigrant for both citizen and non-citizen), International migrant stock (% of Population), Personal remittances received (% of GDP), Population growth (annual %) and inflation rate (measured by consumer price index (annual %)). Finding appropriate proxies for the variables is relatively based on some general rules following (Gyimah-Brempong *et. al.*, 2006) which states that the proxy variables must be comparable across the economies in Sub-Saharan Africa and they must be estimable with data availability. The choices of proxies used in this study are based on these criteria.

RESULTS AND DISCUSSION

Descriptive Statistics: In order to examine the effect of international migration on labour force participation rate in SSA, we begin our analysis with descriptive analysis. We first examine the descriptive statistics and the correlation matrix of variables used.

Findings show the numerical descriptive statistics and the distribution measured by skewness which is the deviation of the distribution from symmetry. The measures of central tendency were the mean and median. These give estimate of the central of the distribution, while the measures of variability are the minimum and maximum values, the standard deviation measure deviation from the mean while the sum of squared deviations indicate the spread of data

set employed in the study. The table shows that on the average, the labour force participation rate (LFP) in Sub-Saharan Africa was 68%, net migration (NETMIG) was -26%, international migrant (INTMIG) was 3%, remittances (REMITA) was 3%, inflation (INFL) was 44% while the average rates of population growth within these periods 1990 – 2018, stood at 3%. The maximum labour force participation rate was recorded as 91%, while the minimum was 2%. The maximum level of net migration based on its measurement was 15% while the minimum was – 13%. The maximum level of international migrants based on its measurement was 20% while the minimum was 0%. The maximum level of remittances received was 17% while the minimum was 0%. The maximum inflation rate over the period was 24% against the minimum of -11%. The maximum level of population growth was 8% while the minimum was –7%. Skewness which measures the asymmetry of distribution around its mean showed that labour force participation rate and population growth was negatively skewed at the value of -0.5% and -1.5% respectively meaning that labour force participation rate and population growth has been fluctuating over the period under study, more so it indicates increase at a low rate. Net migration, International migrants, remittances and inflation was stable during the period of study.

The row under kurtosis in the table, measures the flatness and peakedness of the distribution of the series. A normal distribution has a kurtosis value of 3 (leptokurtic) while platykurtic distributions are characterized with kurtosis value less than 3. Net migration, international migrants, remittances received, inflation and population growth showed a peaked (leptokurtic) distribution relative to the normal distribution, while the labour force participation rate showed a platykurtic distribution of 2.87 kurtosis value which is less than 3. The Jarque-Bera test had the null hypothesis of normally distributed residuals.

Standard deviation showed measurement of dispersion around the mean series. It is often interpreted in relative terms by comparing deviation of two different distributions. The distribution with smaller standard deviation is said to exhibit less dispersion while larger standard deviation shows higher dispersion. Looking at the table above, all the variables exhibit a less dispersed series.

Table 1: Descriptive Statistics

	LFP	NETMIG	INTMIG	REMITA	INFL	POPG
Mean	68.02	-26	3.42	3.48	44.43	2.52
Median	70.60	-21	2.24	0.63	4.91	2.69
Maximum	90.63	15	20.77	167.43	23	8.12
Minimum	1.89	-13	0.00	0.00	-11.69	-6.766
Std. Dev.	11.98	29	3.80	11.41	700.26	1.05
Skewness	-0.47	0.73	2.08	9.10	31.32	-1.53
Kurtosis	2.87	11.65	6.88	102.63	11	12.69
Jarque-Bera	48	40	17	54	58	54
Probability	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
Sum	857	-32	43	438	56	32

Sum Sq. Dev.	18	1.04	19	16	6.17	13
Observations	1260	1260	1260	1260	1260	1260

*, **, ***denote significant at 1%, 5% and 10%.

Source: Authors' Computation, 2021.

The next step is to examine the possible degree of association among the variables. The study employed correlation matrix to achieve this objective and the result was presented in Table 2. Results show the correlation coefficients and the directions of the relationship among the variables. From the results, international migrants and remittances received showed a negative association with labour force participation rate while net migration, inflation rate and population growth presented a positive relationship with labour force participation rate. It also reveals that these variables do have a strong relationship with labour force participation rate. Generally, the correlation matrix has shown interesting results on the relationship between dependent and independent variables.

Table 2: Correlation Matrix

	LFP	NET MIG	INTMIG	REMITA	INFL	POPG
LFP	1.00					
NET MIG	0.01 (0.72)	1.00				
INTMIG	-0.25 (0.00)*	0.10 (0.00)*	1.00			
REMITA	- 0.00 (0.99)	-0.03 (0.28)	-0.10 (0.00)*	1.00		
INFL	0.02 (0.42)	0.17 (0.00)	-0.02 (0.41)	-0.01 (0.60)	1.00	
POPG	0.01 (0.81)	0.38 (0.00)*	0.01 (0.39)	-0.14 (0.04)**	0.05 (0.08)***	1.00

*, **, ***denote significant at 1%, 5% and 10%.

Source: Authors' Computation, 2021

In order to estimate the dynamic equation, the study employs a system-GMM estimator, proposed by Arellano and Bover (1995). Our choice of this technique is informed by its ability to control for omitted variable problem, simultaneity and potential endogeneity issue. More importantly, this approach is appropriate for our unique dataset which has the characteristics of large cross-section and short time series. Our model is analysed by jointly estimating the original level and first-differenced regressions as against two-step differenced GMM of Arellano and Bond (1991). We use the lagged level variables as instruments in the first-differenced regression, and adopt the first-differenced variables as instruments in the level regression. This system-GMM estimator is shown to be more precise and efficient over the first-differenced GMM estimator of Arellano and Bond (1991) [Blundell and Bond, 1998; Blundell *et. al.*, 2000; Ahmed and Suardi, 2009].

Results of our estimates are presented in 6 columns in table 4. Column 1 is our baseline model result where effects of net migration, international migrants, remittances, and inflation rate and population growth were examined on labour force participation rate. In column 2, we include the interactive effect of net migration and international migrants as a proxy for international migration in our baseline model and determine their effect on labour force participation rate. We repeated the same process for International migrants and remittances received through international migration and the result is presented in column 3. In column 4, we interact net migration and population growth and determine their effect on labour force participation. In columns 5 and 6, we interact the two control variables (remittances and population growth) with the proxy for international migration which are net migration and international migrants, and examine their effects on labour force participation rate.

Result from column 1 showed that international migrants, inflation and population growth are pro- labour force participation variables as there exist positive relationships between the three variables and labour force participation rate. A 1% increase in the international migrants, inflation and population growth will increase labour force participation rate by 21%, 10% and 5% respectively in the long run at 1% significance level on average *ceteris paribus*. By implication, the number of international migrants in a country can enhance the growth of the labour force and working population of the country. Rising consumer prices tend to make cost of living higher in the country of origin and destination of international migrant. This implies that more people will tend to look for job both within and outside their country so as to survive in the midst of high cost of living thereby increasing the rate of labour force participation. Population growth is another factor that triggers the rate of labour force participation rate. Increase in population especially the working age group has been identified as a determining factor to increase the labour force participation rate. This finding conforms to the study by Agnieszka, Anna & Weronika (2018), UNDESA (2017), Mountford & Papoport (2014) and Hania (2004).

In column 2, where net migration and international migrants were interacted, results output has similarities with our baseline model where international migrants, inflation and population growth have positive effects. Result of our interactive term shows that net migration and international migration are two opposite measures which individually determines international migration as the coefficient is positive. This implies the two variables can be individually used by policy makers to determine labour force participation rate in the sub-region as the variables were significant at 1% level of significance on average *ceteris paribus*.

Furthermore, in columns 3, 4, 5 and 6, net migration and total of international migrants result with other control variables was consistent with our baseline model result as the coefficients in all the columns exhibit positive relationship with labour force participation rate. Column 4 and 5 where population growth was interacted with net migration and international migrants revealed a positive coefficient, which implies that population growth stands as a resultant effect of international migration which in turn has a positive impact labour force participation rate in the sub region as shown in the six columns. Coefficients of inflation rate as a

measure of macroeconomic determinant of labour force were positive all through the model. By implication, inflation rate through increase in consumer prices have the ability to increase labour force participation rate in the sub-region on average ceteris paribus.

For robustness check, the results of AR (2) indicate the absence of serial correlation in the estimation. In addition, the study is over-identified as the number of instruments is greater than the estimated parameters. The number of instrument is 34 while the estimated parameter is 12. In addition, to correct for simultaneity, the first-differenced explanatory variables are used as instrumental variables. Lastly, for exclusion restriction, our instrumental variables are independent of error term. This implies our instrumental variables do not affect the dependent variable when our independent variables are held constant.

Table 3: System GMM results: Dependent Variable: Labour Force Participation Rate

VARIABLES	SYSGMM					
	1	2	3	4	5	6
Labour Force Participation Rate (-1)	0.94 (0.00)*	0.94 (0.00)*	0.94 (0.00)*	0.94 (0.00)*	0.94 (0.00)*	0.94 (0.00)*
Net Migration	-4.92 (0.12)	-1.09 (0.02)	-4.78 (0.14)	-3.72 (0.41)*	-5.38 (0.10)**	-4.91 (0.13)*
International Migrants (% Of Total Population)	0.21 (0.00)*	0.22 (0.00)*	0.21 (0.00)*	0.22 (0.00)*	0.21 (0.00)*	0.22 (0.00)*
Remittances	-0.01 (0.47)	-0.01 (0.47)*	-0.03 (0.30)*	-0.02 (0.45)*	-0.02 (0.42)*	-0.01 (0.00)*
Inflation Rate	0.00 (0.81)	0.00 (0.71)	0.00 (0.81)	0.00 (0.80)	0.00 (0.82)	0.00 (0.81)*
Population Growth	0.18 (0.16)	0.17 (0.17)	0.18 (0.16)	0.17 (0.18)	0.18 (0.14)	0.18 (0.23)
Netmig*Intmig		1.66 (0.05)				
Intmig*Remita			0.005 (0.45)			
Netmig*Popg				-0.21 (0.03)**		
Netmig*Remita					8.15 (0.37)	
Intmig*Popg						-0.00 (0.96)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
No of Observation	774	774	774	774	774	774
F Statistics	21168.327	21168.327	21168.327	21168.327	21168.327	21168.327
Group/ Instrument	58/34	58/34	58/34	58/34	58/34	58/34
AR(2)	0.96	0.95	0.96	0.96	0.94	0.96

Hansen Statistics (Prob)	0.105	0.105	0.105	0.105	0.105	0.105
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*, **, ***denote significant at 1%, 5% and 10%. Lags of all the independent variables are used as Instruments.

Source: Authors' Computation, 2021

Conclusion and Recommendations

The study examined the dynamic interaction between international migration and labour force participation rate in sub-Saharan Africa (SSA). The study made use of forty six countries in SSA based on availability of data. Data were sourced from the World Development Indicators relying on panel dataset from 1990 to 2018. Data were sourced on identified variables from literature on Labor force participation rate (% of total population ages 15+), Net migration (measured total immigrant minus emigrant for both citizen and non-citizen), International migrant stock (% of Population), Personal remittances received (% of GDP), Population growth (annual %) and inflation rate (measured by consumer price index (annual %)). The data were analysed through various estimation techniques such descriptive statistics, correlation matrix, unit root and a system-GMM estimator, proposed by Arellano and Bover (1995). Results revealed that net migration and remittances received through international migration have no direct effect on labour force participation rate. This implies the two variables does not have any input in reducing labour force participation in the sub-region. Of the two variables, net migration has the highest negative effect on labour force participation rate as 1% increase in net migrants will reduce labour force participation by 4.92% on the average ceteris paribus as against personal remittances received that will reduce labour force participation by 1% respectively. In addition, international migrants, inflation and population growth are pro- labour force participation variables as there exist positive relationships between the three variables and labour force participation rate. A 1% increase in the international migrants, inflation and population growth will increase labour force participation rate by 21%, 10% and 5% respectively on average ceteris paribus.

The study recommended that policy should be put in place to control the number of immigrants entering the each country in the sub region as the long run effect can put pressure on labour force participation rate which can trigger unemployment especially for youths in the region. Inflow of remittances in the form of personal transfers and compensation of employees should also be discouraged as the long run effect as revealed from the findings of this study can reduce the labour force participation rate in countries from the region thereby leading to brain drain. Policy should also be put in place to control the influx of international migrants to the countries in the region as they tend to increase the labour force participation rate of the region in which the resultant effect can lead to increase in population. Inflation rate and Population Growth should be controlled by the countries in the sub-region as their positive effect on Labour force participation rate can affect the achievement of sustainable development goals of decent work and inclusive growth.

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