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Economic Growth and Participation of Women in Labor Markets: The Case of Southern Africa

Nthabeleng Moshoeshoe & Baorong Yu

Abstract:
This paper examines the relationship between economic growth and women's participation in Southern African Development Community (SADC). Using panel data from 2000 to 2018 in 16 SADC countries, the paper finds that the participation of women in labor market has a significant impact on economic growth over time. That means that a one percent change in the female labor force participation leads to six percent increase in economic growth. The results also show that the increasing participation of women in the labor market and the growing number of female employers have a significant and increasing impact on SADC economic growth in the long run. Thus a one percent change in female employment marks 0.03 percent increase in economic growth over time. This paper contributes to SADC women's empowerment policies. In order to increase women's participation in labor market and economic growth, SADC must focus on policies that allow women to access resources and become business owners.

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About Author (s)

Nthabeleng Lillian Moshoeshoe, (corresponding author), PhD Research student, School of Insurance and Economics, University of International Business and Economics, Beijing, China.

Professor Baorong Yu, PhD., School of Insurance and Economics, University of International Business and Economics (UIBE), Beijing, China.

I. Introduction

"Studying female labor force participation is not only an intellectual curiosity, but matters strongly for women and the economies they live in" (Klasen 2019, 162). Therefore, concerns about the involvement of women workers (FLFP) preceded the industrial revolution (Tilly and Scott 1987) and continue to this day. Since then the greater participation of women in the labor market has been the catalyst for social and economic growth (Verick 2014). Despite these economic benefits through women's participation in the labor market, the global FLFP situation remains volatile, with World Bank figures showing that less than half (47.7%) of all women participated in the labor market in 2019 and this fell from 50.9% in 1990 (World Bank 2019). Unfortunately, it is estimated that FLFP rates will continue to decline over the next decade, dropping to 45.9% by 2030. This is a strong case that unless FLFP rates are changed through policy measures, countries will find it difficult to increase the impact of women in the labor market (Verick 2014). However, in sub-Saharan Africa, the FLFP rate was 63% in 2010 and 64% in 2014 compared to other regions (World Bank 2016). This trend also needs to be taken into account given that the African Development Bank has acknowledged that African women are more active as economic workers than anywhere else in the world. Their main contribution to agricultural activities in Africa is that they have agricultural firms and most of them make up about 70% of the total workforce (AfDB 2015). But this is a common view because looking at other regions in Africa can provide a better understanding.

The study focuses on sub-Saharan Africa, especially those countries which are members of the Southern African Development Community (SADC). Although SADC was established in 1992 to promote economic development through economic integration in member states, much has not been achieved in 24 years, counting down from 1992 to 2016. Statistics show that the number of female employers is lower than for men and the number of unemployed as the proportion of all workers was higher for women than for men in all SADC countries. In addition, unemployment among young women was high in South Africa, Namibia and Lesotho (SADC Statistics Yearbook 2016). Sadly, SADC economic growth is reported low according to (AfDB 2019) which indicates that the region of Southern Africa was ranked very low in 2018, with an estimated GDP growth of 1.2 percent. This was compared to the other five economic regions in Africa namely; Central Africa 2.2%, West Africa 3.3%, North Africa 4.9% and East Africa 5.7%. The status of the FLFP in SADC is very worrying, (SADC Development Monitor 2016) emphasizes that SADC women continue to be part of the poor sector mainly due to high levels of illiteracy, limited access to productive resources and discriminatory laws. As a result of this crisis, SADC has been taking steps to integrate with a regional depth that includes expanding the FLFP and empowerment (SADC 2012). Therefore, this study aims to contribute to the journey.

There are many theories about the rise and fall of FLFP but the popular U Hypothesis term is a buzz word in FLFP texts. Goldin (1994) argued that economic development leads to a U-shaped curve when the FLFP is thought to slow down initially with economic development, and then plateaus before rising again, giving it a U-shape. This has been influenced by changes in the economy, the impact of income and substitution effects, and an increase in the level of women's education. Gaddis and Klasen (2013) argue that there is a tradeoff in employment between gender equality and economic growth for less privileged economies and that the U Hypothesis could offer a better understanding to policy makers about the tradeoff. In turn this insight could help policy makers to interpret trends in overall labor supply as well as to design passable policies. It remains a question in this study whether the U Hypothesis is still valid in modern developing countries, especially in the SADC region, most of which have large agricultural sectors and can reasonably be expected to be at the declining U with per capita income. Specifically, we want to know whether SADC countries are still following this path and showing the U-shaped relationship. Addressing these questions is of significance especially to policymakers because as long as the relationship is

still in place the right policies will follow. However, if the relationship no longer holds the wrong policies may be implemented.

Panel data obtained from the World Bank Database is used for 16 SADC member states from the year 2000 to 2019 using the auto regressive distribution lag (ARDL) and cointegration to estimate the relationship between FLFP, female employment, female population, fertility rate and economic growth. The findings do not confirm U Hypothesis but show that in the long run increased FLFP and increased female employment have significant impact on economic growth while female population and fertility do not. This study contributes to the lack of available literature on women's participation in developing countries with a focus on the southern region of Africa and adds to the literature on women's empowerment in SADC. Much research has been done on FLFP, using data from developed countries (Jaumotte 2003; Goldin 1994; Wyrwich 2019; Altuzarra 2019), developing countries (Lahoti 2013; Verick 2014; Klasen 2019; Tsani 2013) and from a group of countries (Luci 2009; Tasseven etal. 2016; Verme 2015; Chapman 2015; Lechman and Kaur 2015). Although these studies provide useful information on the FLFP, few examine U Hypothesis in Southern Africa, especially the SADC. Studies that attempted to define FLFP in Africa include the work of (Sackey 2005; Yakubu 2010; Gronzales et al. 2015). But these inquiries use country-specific information and focus more on education as an important factor in driving FLFP. In addition, SADC is a region that has little research in the field of FLFP. So, the use of cross country data will help because countries in SADC have similar economic and social shortcomings which affect all member states. Accordingly, this can enhance recommendation of the same policy options designed to raise the level of FLFP. In essence, this study is one of the few that will focus on SADC using other factors without education. The scope of the study is in Southern Africa and in the 16 SADC member states. For this reason, this study aims to find a hypothesis on the U-shaped relationship between FLFP and economic growth. It also seeks to find out the impact of fertility on SADC economic growth and the impact on women population and women's employment on both economic growth and FLFP in SADC. The paper is arranged like this; the next section presents an overview of research in U Hypothesis. Section III reviews the existing literature in the FLFP. Section IV presents a methodology and data analysis. Section V provides a summary of the findings and implications of the policy.

II. The Overview of Research on U Hypothesis

The U Hypothesis sometimes referred to as the feminization hypothesis (Luci, 2009) has been leading policymakers to formulate economic development policies for years now. However, there have been a few studies that contradict the presence of the U in the feminization hypothesis. This makes the hypothesis controversial and requires further validation. Lahoti and Swaminathan (2016) analyzed the relationship between economic development and the participation of women in employment through state level data covering the period 1983/4 to 2011/2. While various studies highlight the U-shaped relationship between the economic development or growth and FLFP, their results suggest that at national level, there is no U-shaped relationship between GDP and FLFP. In examining the relationship between women's economic activity and economic structure of a country, they found that it was not economic growth but the composition of growth that was more important to women. In addition, their results suggested that the integrated changes in the rates of working women could be due more to the movement of workers in all sectors than to changes in the level of working women in a particular field. Women's participation in economic activities increases the country's GDP. In another study based in the Middle East and North Africa (MENA) the relationship between GDP and FLFP was significant. Panel data was used to study 20 countries for the period 1990-2012, and an econometric model was developed to test the U-shape hypothesis. The results of that study suggested that there was a U-shaped relationship between economic growth and FLFP levels. The low rate of FLFP in the MENA region was explained in part by their shift to the U-shaped curve (Lechman and Kaur 2015). Chapman (2015) used cross-country data

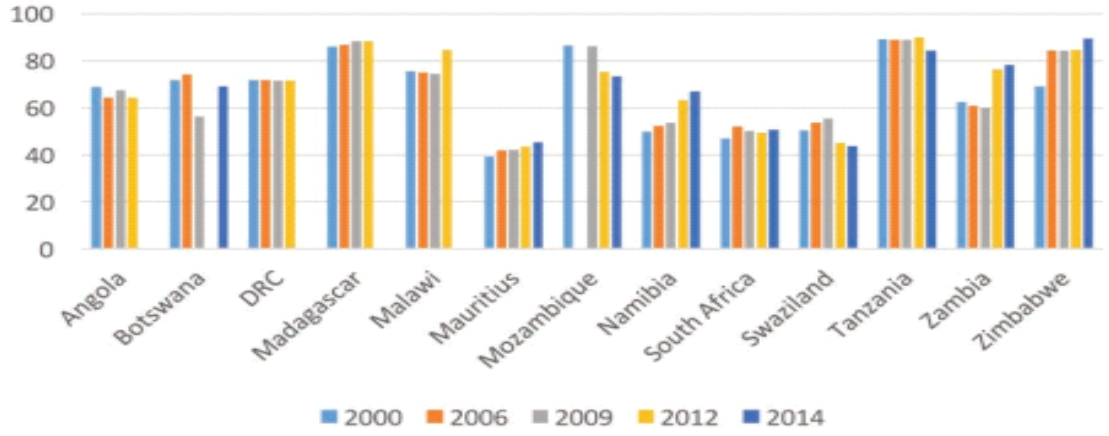
from 1980-2005 and found that the results of the U-shape hypothesis were very sensitive to the data source used. The structural change hypothesis denoting economic shift from agriculture to industry was not supported and did not explain the low levels of FLFP on the decreasing side of the U. Chapman found that fertility and education play a role in defining the ascending side of the U-curve. Tsani (2013) tested the U-shape hypothesis and regional effects of MENA then used the emerging coefficients to create a standardized equilibrium model. The data set was from the International Labor Organization (ILO) and the World Bank. The model used education, fertility, urbanization, religious practices, and unemployment rates as control variables. The results were robust for control variables and supported the U-shape hypothesis. Verme (2014) separated analysis between parametric and nonparametric evidence using data collected from the ILO and the World Bank. Non-linear evidence from the researcher confirmed that the U-shape hypothesis was supported at the global level and the MENA region. The paper suggested that MENA countries were in the rising side of the U, showing low FLFP levels. The parametric evidence was so weak that some countries in the region showed insignificance or a changed/inverted U-shape.

Notable in the study of the U Hypothesis and FLFP is the work done by Goldin (1994) in which she combined cross-sectional regression analyses based on data from 1980 with a historical case study of the USA. Her findings also support the idea of a U-shaped relationship between FLFP and economic development. However, Gaddis (2013) found little compelling evidence for the U-shaped hypothesis while testing by both a static (ordinary least squares - OLS and fixed effects) model and a dynamic (autoregressive) model. Gaddis had estimated separate regressions for OECD and non-OECD countries and found no evidence for the U-shaped relationship among non-OECD countries. The conclusions drawn from the findings of the study were that, “while it is still possible for modern developed economies to move to the U during their economic development, the U-shape seems to be less important in many developing countries today” (Gaddis and Klasen, 2013, 26).

1. Female Labor Force Participation in SADC

SADC strives to increase women's economic opportunities by increasing accessibility of women to a lot of good jobs and women - friendly financial sector, a business climate that encourages women to start and run businesses, trade policies that are gender sensitive and employment policies that promote women to be in top level of management in the private sector which has been dominated by men for a long time. Unfortunately, SADC women are less well represented in senior and middle positions compared to their male counterparts (SADC Selected Economic and Social Indicators 2018).

Figure 1. Trend of SADC Female Labor Force Participation from 2000-2014



Source: SADC Statistics Yearbook (2014)

Figure 1 shows that since 2000 to 2014 FLFP rate has been increased in some member states like Zimbabwe, Zambia, South Africa, Mauritius and Namibia unlike in states like Swaziland (Eswatini), Tanzania and Botswana. Seychelles and Lesotho are not included due to absence of data.

Table 1. Labor force participation by gender from 2000 to 2014 in SADC

Country	2000		2006		2009		2012		2014	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Angola	68.8	76.3	64.4	77.6	67.4	73.6	64.3	77.9	-	-
Botswana	71.8	81.7	74.2	81.7	56.2	68.2	-	-	69.1	81.4
DRC	71.8	73.7	71.7	73.2	71.5	73.2	71.5	73.4	-	-
Lesotho	-	-	-	-	-	-	-	-	-	-
Madagascar	85.8	90.3	86.7	90.3	88.4	91.5	88.4	91.4	-	-
Malawi	75.4	78.2	74.9	78.5	74.4	77.9	84.6	80.6	-	-
Mauritius	39.2	79.9	41.8	77.4	42.1	75.6	43.4	75.0	45.3	75.2
Mozambique	86.5	87.2	-	-	86.3	86.4	75.2	71.1	73.3	72.5
Namibia	49.9	65.0	52.2	63.9	53.5	63.9	63.2	69.1	66.9	71.6
Seychelles	-	-	-	-	-	-	-	-	67.0	73.8
South Africa	46.9	63.1	51.9	64.8	50.2	65.2	49.4	63.3	50.7	63.7
Swaziland	50.4	79.0	53.7	76.5	55.5	75.8	45.2	72.5	43.8	60.8
Tanzania	89.1	91.5	88.9	91.2	88.8	91.2	90.0	91.2	84.2	89.4
Zambia	62.5	78.7	60.8	78.7	60.0	79.3	76.3	75.5	78.2	77.1
Zimbabwe	69.0	81.7	84.3	90.7	84.3	90.4	84.6	90.6	89.4	92.3

Source: SADC Statistics Yearbook (2014)

It is apparent from table 1 that in the years 2000, 2006, 2009, 2012 and 2014 gender inequality in labor market persisted among many member states whereby more men than women were represented in the SADC labor market. Exceptional cases were Malawi in 2012 and Mozambique in 2012 and 2014. The trend of nominal GDP per capita in SADC has been fluctuating since 2009. In 2011 GDP per capita reached a highest of US$2454 while it stood at a low of US$1927 in 2019. When looking at country level, Seychelles was highest at US$ 17 406 followed by Mauritius at US$ 16 348 in 2018 while Malawi stood lowest at US$ 430 in 2019 (SADC Selected Economic and Social Indicators 2019). It is evident that there is a wide gap of disparity among SADC member states when it comes to economic growth.

2. The Impact of Working Women on GDP per capita

A report by Southern African Trust (2018) indicates that SADC women are biggest labor force in agricultural sector. However, in many developing countries women participate in work activities that are often risky and that do not improve their economic development (Verick 2014). Statistics from the ILO show that at least one-third or more of working women in Africa are involved in unpaid family work. This type of work often puts women in a lower and more vulnerable position than men. The situation in SADC is similar as many member states have seen a decline in the number of women in parliament over the past seven years (see Table 2). The lowest percentage of women participating in the workforce was in Mauritius and the highest percentage was in Tanzania at 86% (SADC 2012). The SADC Statistics Yearbook (2016) also shows that in 2015 the agricultural sector contributed at least 20. 2% of SADC GDP while the Industrial sector was 20.3% and the service sector contributed the most to 59.4%. This shows that even the agricultural sector with women as workers contributes less to GDP than other sectors. So, Verick (2014) laments that although women in many developing countries are still working in the

agricultural sector, shares in this sector have declined over the years as many have joined services and manufacturing sectors e.g. Bangladesh.

Table 2. Percentage of women in National parliament, 2012-2018

SADC member	2012	2013	2014	2015	2016	2017	2018
Angola	34.1	34.1	36.8	36.8	36.8	30.5	30.5
Botswana	7.9	7.9	9.5	9.5	9.5	9.5	9.5
Comoros	3	3	3	3	3	6.1	6.1
DRC	8.3	8.3	9.7	8.2	8.2	8.2	8.2
Eswatini	21.9	14.7	14.7	14.7	14.7	14.7	12.1
Lesotho	26.8	26.8	26.8	24.8	24.8	22.7	22.7
Madagascar	15.8	15.8	20.5	20.5	20.1	19.6	19.6
Malawi	22.3	22.3	22.3	16.6	16.6	16.6	16.6
Mauritius	18.6	18.6	18.6	11.6	11.6	11.6	11.6
Mozambique	39.2	39.2	39.6	39.6	39.6	38.8	39.6
Namibia	25	25	n.a.	37.7	36.3	36.3	39.7
Seychelles	42	42	42	42	21	21	21
South Africa	41.1	41.1	40.7	41.2	41.2	41	41.8
Tanzania	36	36	36	36	36.6	37.2	37.2
Zambia	11.5	11.5	10.8	12.7	18	18	18
Zimbabwe	17.9	35.1	36	36	37	37	37

Source: SADC Gender Monitor (2016)

It can be seen from table 2 that in 2012 and 2013 Seychelles had the highest percentage (42) of women in parliament followed by South Africa (41.1) while Comoros had the lowest at 3 percent from 2012 to 2018. But in 2018 South Africa was leading with 41.8 followed by Namibia at 39.7 percent. While Comoros had improved and was at 6.1 percent, Seychelles had declined by half from 42 to 21 percent. The proportion of seats held by women in parliament in 2018 was 23 percent in SADC region.

Table 3. The Trend of Women in Ministerial Positions in SADC from 1995 to 2015

Country	Women Ministers 1995	Women Ministers 2000 %	Women Ministers 2006 %	Women Ministers 2009 %	Women Ministers 2012 %	Women Ministers 2015 %	Women Ministers 2015	Total Cabinet Ministers
Angola	4	11 (2002)	7	32.3	22.9	21	8	38
Botswana	2	23 (2002)	28.6	18.8	12.5	16.7	4	24
DRC	—	—	2.5	2.5	10.7	8.3	3	36
Lesotho	1	12.5(2002)	31	31.6	23.8	17.8	5	28
Madagascar	—	—	—	-	-	20	6	30
Malawi	3/33(9)	17.3	21	24	27.3	15	3	20
Mauritius	—	8	10	9.5	12.0	12.5	3	24
Mozambique	1	12.5	23	25.9	28.6	22.7	5	22
Namibia	2/20 (10)	14.2	27	22.7	22.7	22.2	6	27
Seychelles	22.7	21.4	27.2	28	23.1	21.4	3	14
South Africa	3/24 (12.5)	33	42.8	42	38.8	40.5	15	37
Swaziland	—	13.3	18	20	22.2	25	5	20
Tanzania	3/23 (13)	13	20	23.3	30.0	20	4	20
Zambia	12	8.3	28.8	13.6	15.0	25.9	7	27
Zimbabwe	2/24 (8)	24	19	17.5	17.5	15	4	26

Source: SADC Gender Monitor (2016)

Table 3 depicts an interesting trend of women in positions of influence. The trend has been fluctuating. In 1995 women who were ministers was 1 for Lesotho and Mozambique but in 2015 Lesotho had 8 and Mozambique 5. The highest number of total cabinet female ministers

is in Angola followed by South Africa and the least is Seychelles. This shows an increase in the number of women joining services sector at leadership level

3. Fertility rate and GDP per capita

Sub-Saharan Africa did not report a dramatic decline in fertility but a rate of 3 per woman in 2010 compared to other regions. However, declining fertility may encourage FLFP as women will have more time to participate in paid jobs than breastfeeding or minding pregnancy. Following the trend of FLFP levels from 1990 to 2015 for 15-54 years old women, it is clear that Sub Saharan Africa has seen an increase in FLFP levels (Klasen 2019). The number of children a woman has can also prevent her from participating in the labor market. Aaronson, et. al. (2017) show that the negative relationship between fertility and a mother's work behavior is evident only when countries are at higher levels of economic development. But at low income levels, for example in the U.S. and Western Europe before the Second World War, there was no relationship between birth and a mother's labor supply. Combining U.S. historical data with data from a broad set of developing countries at the time, the results implied that women in the U.S. at the turn of the 20th century made the same labor supply decision in response to additional children as women in developing countries today. Although the relationship between fertility and economic development is widely studied in the field of economics, there is no conclusive evidence that relationships have changed over time and in the process of economic development. For instance, the researchers (Angrist and Evans 1998 as cited in Aaronson, et. al. 2017) discovered a negative effect of fertility on female labor supply using both gender mix and twin births as instruments for subsequent children. Although the Malthusian model has suggested that fertility increases as income rises and vice versa, fertility declined as income rose 150 years ago in the West and in other parts of the developed world. As a result, many scholars have provided evidence of a negative relationship between growth in fertility and income per capita, for example Tamura 1988; Barro 1991 as mentioned in Micevska 2001). Similarly, another framework was set up to analyze how communities are fleeing the stagnant Malthusian equality and embark on a journey to modern economies, where per capita incomes, human capital, and physical capital all continue to grow, fertility drop dramatically, and married women significantly participate in the labor market (Becker 1992).

III. Methodology

This methodology closely follows cross country regression approach as well as use panel data and estimation techniques applied in many studies related to labor economics and development economics. Notable in the methodology of this study is the work of Goldin (1994) in which she combined cross-sectional regression analyses based on data from 1980 with a historical case study of the USA. Her results also support the notion of a U-shaped relationship between female labor force participation and economic development. However, this study does not follow a case study approach but similar to Goldin (1994) we conduct cross sectional regressions analyses based on 16 developing countries located in the southern part of Africa which are also member states of SADC in the period from 2000 to 2019. Data is obtained from world development indicators of the World Bank. Panel data analysis is used in our study to investigate the relationship between FLFP and economic growth as indicated in the research questions. The first set of regression analysis investigates whether there is indeed a U shaped curve relationship between FLFP and GDP. Control variables are introduced in the model to account for other factors that influence economic growth. The model estimation includes unit root tests, tests for causality and non-stationary characteristics. The model also investigates the short-run and long-run relationship using a Vector-Error-Correction Model (VCEM).

1. Model Specification and Method of Estimation

The ARDL approach and the cointegration is chosen for this study because it can be applied regardless of the stationarity present in the variables. The different natures of stationarity involve

the level of [I (0)], level of [I (1)] and level of [I (2)]. The error correction mechanism takes in the different aspects of the long and the short-term equilibrium. The problems arising from the non-stationary data of time series can be nullified using the ARDL approach and the forms of the model are given below:

$GDP = f(FLFP, FE, FP, FLR)$ (1)

$GDP = \beta_0 + \beta_1 FLFP_t + \beta_2 FE_t + \beta_3 FP_t + \beta_4 FLR_t + e_t$ (2)

In the equation above,

Female labor force participation is (FLFP), Female employment is (FE), Female population is (FP), Fertility rate is (FLR) and GDP per capita is (GDP). β_0 is a constant term whereas, β_1, β_2, β_3 and β_3 are showing the explanatory variables and e is showing to be the error term.

$\Delta GDP_t = \beta_0 + \Delta FLFP_{t-1} + \Delta FE_{t-1} + \Delta FP_{t-1} + \Delta FLR_{t-1} + ECM_{t-1} + e_{t-1}$ (3)

Where Δ is showing the operator changes and ECM_{t-1} is showing the error correction term.

$\boldsymbol{\gamma}$ is the sign to denote the distance from short to long run. The ARDL model is given below:

$\Delta GDP_t = \beta_0 + \Delta FLFP_{t-1} + \Delta FE_{t-1} + \Delta FP_{t-1} + \Delta FLR_{t-1} + e_{t-1}$ (4)

Thus, it can be said that there is an expectation that, β_1, β_2 and $\beta_4 < 0$; $\beta_3 > 0$. It is expected that the variables will be significantly impacting each other.

H_0: $\beta_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4$ (There is no long-term relationship)

H_1: $\beta_0 \neq \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4$ (There is long-term relationship)

Table 4 Descriptive Statistics of female labor force participation in SADC from 2000-2018

Statistics	GDP	FLFP	FE	FP	FRL
Mean	7.3828	3.8513	1.7338	3.9300	4.5691
Median	7.1806	3.8795	1.4330	3.9254	4.6602
Maximum	9.3010	4.0118	6.5110	3.9681	5.2817
Minimum	5.6206	3.5318	0.1940	3.9031	3.2300
Std. Dev.	1.0920	0.0921	1.4009	0.0158	0.4678
Observations	300	300	300	300	300

The descriptive statistics displayed above shows that the mean value of GDP is 7.38 with a minimum of 5.6 and a maximum value of 9.3. The mean value of FLFP is 3.8513 with a minimum of 3.5318 and a maximum value of 4.0118. The average value of female employment is 1.738, with a minimum and maximum value of 0.1940 and 6.5110 respectively. The average value for female population is 3.93, with 3.903 and 3.9681 as minimum and maximum values respectively. The average for fertility rate is 4.5691. The standard deviation values for all of the variables show that there is minimal variation in the values.

IV. Presentation of Empirical Results

The long run evaluation shows that female labor force participation has a significant impact on GDP. This shows that an increase in the level of participation of women in the work activities leads to increase in the economic growth. So a one percent change in the female labor force participation is followed by a 6 percent of economic growth. The impact of female employment is also positive but significant, showing that increased female labor force participation and employment of women will have a significant and increasing effect on the economic growth of the SADC countries. Hence, a percent change in female employment leads to a 0.03 percent in economic growth. The results further show a negative but significant relationship between female population and economic growth. This can be due to the fact that a greater proportion of female population in the SADC countries is neither working nor contribute to the economic growth effectively. Upon a unit increase in the female population, the economic growth will decrease by 3.5 percent.

Table 5 ARDL estimation of the long run and short run evaluation of the variables

Dependent Variable: D(GDP) Method: ARDL Selected Model: ARDL(1, 2, 2, 2, 2)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
	Long Run Equation			
FLFP	6.634307	0.605460	10.95747	0.0000
FE	0.036995	0.019142	1.932629	0.0552
FP	-3.567152	1.015689	-3.512053	0.0006
FRL	-0.672667	0.124430	-5.405980	0.0000
	Short Run Equation			
COINTEQ01	-0.361314	0.136604	-2.644973	0.0091
D(FLFP)	5.093698	8.692262	0.586004	0.5588
D(FLFP(-1))	-8.083718	6.717447	-1.203391	0.2308
D(FE)	0.984387	0.444719	2.213503	0.0284
D(FE(-1))	0.439696	0.504126	0.872195	0.3845
D(FP)	102.3602	165.0128	0.620317	0.5360
D(FP(-1))	-10.66433	48.97290	-0.217760	0.8279
D(FRL)	0.079881	0.392413	0.203563	0.8390
D(FRL(-1))	0.709020	0.874676	0.810608	0.4189
C	-0.347484	0.215054	-1.615798	0.1083
Mean dependent var	0.019800	S.D. dependent var		0.039393
S.E. of regression	0.023579	Akaike info criterion		-4.824731
Sum squared resid	0.081169	Schwarz criterion		-2.923456
Log likelihood	877.7096	Hannan-Quinn criter.		-4.063838

Fertility rate also has a negative relationship with the economic growth. The reason for this estimate to be negative could be the fact that the increased fertility implies that many women in the SADC don't effectively contribute to the economic growth of their countries since they have to nurse babies. Hence, a percentage increase in the fertility rate leads to a decrease of 0.67 percent in the economic growth. Thus, the long run estimations have showed that all variable relations are significant. Although female employment and female labor force participation are significant and contribute to the economic growth of their respective SADC countries, female population and fertility rate do not. The results of the short equation show that the cointegration equation is significant, thus indicating effective short run dynamics as well. The differenced and lagged versions of the variables have been included in the short run evaluation. It can be seen that in the short run the impact of female labor force participation is insignificant. In addition, the relationships between female population and fertility rate are also insignificant and pose no effect on the economic growth in the short run. Alternatively, the impact of female employment is significant and contributes towards the economic growth in the short run as well.

V. Discussion of Results

The findings of this study did not confirm the U Hypothesis of the SADC region. However similar results were obtained by other researchers. Lechman and Kaur (2015) used panel data of 20 countries in the period from 1990 to 2012 and found a rather inverted U shape for a group of low income countries, so the U Hypothesis was not confirmed. Similarly, Verme (2015) found that the U Hypothesis was unclear but other aspects of U Hypothesis measurements were evident. This was a cross-country study in the countries of the Middle East and North Africa. For that reason, Verick (2014) and Klasen (2019) argue that one of the reasons why many developing countries do not show the U-hypothesis is that women in developing countries have limited economic opportunities in the labor market.

However, the results of the ARDL estimates provide exciting results showing that FLFP has a significant impact on GDP over time. And the results show that more women employers can boost economic growth in the SADC region. Already many women work in the agricultural sector and

have third of agribusinesses (AfDB 2015). With agriculture in the SADC region being the main source of food, employment and income of 61% (or 142 million) of the SADC's 232 million population and accounting for about 8% of regional GDP (Chilonda 2007), employment for women is essential for economic growth. Interestingly, the study also found that as female population increases the rate of economic growth tends to decrease. This could be explained by Psacharopoulos and Tzannatos (1989) argument that underutilization of females brings significant economic costs such as social losses and productivity. Moreover, Goldin's (1994) suggests that as economic growth increases more women join the labor market or pursue education which is why fertility rates will decline. This is also in line with other researchers who have confirmed the negative relationship between fertility rate and per capita income growth for example Tamura 1988; Barro 1991 as mentioned in Micevska 2001).

VI. Conclusions and Policy Implications

This study examines the relationship between women's participation in labor and economic growth in Southern Africa, especially in the SADC region. Although the U Hypothesis has not been found, the results show that economic growth in the region is positively affected by the level of women participation and employment of women. However, it is negatively affected by women population and fertility rates. This means that as the number of unemployed women increases economic growth slows down. And the number of children born to a woman negatively affects their participation in the labor market and their contribution to economic growth. The results suggest that current SADC policies on women's empowerment do not work to promote women's participation in the labor market in all sectors of agriculture, manufacturing and services. This explains why many women remain unemployed and few employers. The SADC Selected Indicators (2019) reports that many women in SADC countries still face problems associated with financial inclusion and access to finance other than women in the Seychelles and Mauritius.

VII. Limitations and Areas for Future Research

Due to lack of extensive and reliable data some of the variables that make up the U Hypothesis are not measured in the study. And those that were measured were determined by data availability such as fertility rate where the only available data were women aged 15 to 24 years. Women of childbearing age, ages 15 to 49 are more likely to provide a better analysis. Therefore, further analysis should include the time spent by women in unpaid care work, impact of exports and imports as well as foreign direct investment.

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