

Impacts of the Russia-Ukraine War on women in four African countries

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Abstract

The Russia-Ukraine War caused a new economic shock by trade disruption for world food, fertiliser and energy markets. Among people in developing countries, women are more sensitive to these impacts than men. While the economic shocks are similar for the countries, the specific impact on women depends on the economic situation in the countries. Using static single-country Computable General Equilibrium models, we analyse the impacts of the Russia-Ukraine War on the economy of four African countries with a gender lens: Cameroon, South Africa, Senegal, and Tanzania. While Cameroon manages to limit the damage, the other three countries see a decrease in their real gross domestic product. In terms of employment, skilled women are more affected in South Africa and Senegal than in the other countries.

Key words: Global crisis, Ukraine, Gender, Economywide models, African countries

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1. Introduction

The Russia-Ukraine War (RUW) caused a new economic shock by trade disruption for world food, fertiliser and energy markets (Arndt et al., 2022). Starting in early 2022, it followed the COVID-19 pandemic and following economic crisis from 2020 to 2021, which already hampered economic growth in many developing countries. Countries of the global south and their inhabitants are expected to be most impacted by increasing prices and reduced supply of food, fertiliser and energy. Among people in developing countries, women are more sensitive to these impacts than men (UN Women, 2022). While the problems are similar in different countries, the specific expression and, thus, the specific impact on women depend on the economic situation in the countries. Thus, comparing the impacts of RUW on women in different countries can support understanding and designing counteractive policies.

In many Southern countries, women have smaller resilience capacities to cope with the negative impacts of economic shocks of unequal access to productive resources such as land or other assets (Deressa and Hassan, 2009; Eastin, 2018; Mehar et al., 2016; Mersha and Van Laerhoven, 2016; Terry, 2009). Many women face significant gender gaps in salary (Doss et al., 2018, 2015; Doss, 2018; SOFA Team and Doss, 2011) and work in sectors sensitive to economic changes (e.g. agriculture, tourism). Furthermore, women are responsible actors for domestic work, which reduces the time they have available for economic opportunities (Elson, 1999; Fontana and Van Der Meulen Rodgers, 2005). While facing economic disadvantages compared to men, women are essential for the economic development in Southern countries. Women work in key sectors for GDP (e.g. tourism) or food supply (e.g. agriculture) (Awokuse and Xie, 2015; Khan et al., 2020; SOFA Team and Doss, 2011).

Women are particularly affected by crises. Indeed, the impacts of crises are never gender-neutral (Binci, 2014), and COVID-19 or the Russia-Ukrainian war are no exception. Women tend to earn less than men and work in less skilled jobs. Furthermore, they are burdened with unpaid care and domestic work, which forces them to withdraw from the labour market (Azcona et al., 2020; OECD, 2020a). In Africa, the degree of economic development and gender inequality varies between countries. Thus, the impact of the RUW translates to women differently.

In our study, we investigate the impacts of the RUW on women from a macroeconomic perspective in four African countries with different state of inequality and economic development. We apply computable general equilibrium (CGE) analysis as analytical framework.

Gendered CGE models have been recently applied in different studies to analyse the impact of the economic shocks caused by the Covid-19 crisis in African countries. Chitiga et al. (2022) find in a CGE analysis that South African women are hit harder than men by the Covid-19 crisis. Particularly women in low skilled jobs and in vulnerable sectors are affected by the crisis. Similarly, Mabugu et al. (2023) the negative impact on poorer women, working in vulnerable sectors in Zimbabwe, which can be counteracted by mitigation measures. Maisonnave et al. (2023) provide different findings for Senegal, where female workers are relatively less affected than male workers because women work in the agricultural sectors, which is less vulnerable to the Covid19 crises and even benefiting by increased foreign demand for agricultural products.

These three studies analyse the gendered impact of a global economic crisis (i.e., Covid19 crisis) in African countries. While in South Africa the economic growth is higher than in Zimbabwe and Senegal, the inequality is higher. While in Zimbabwe and Senegal female employment is highly represented in agricultural production, the impacts via this channel is different in both studies. Although in method comparable, the findings are influenced by the scenario assumptions, which differ in each study. Thus, explaining the gendered impacts on women based on the country situation is difficult. A cross-country analysis with the same shocks applied could help to compare the gendered resilience to the global economic shock.) Our study analyses the impact on women by the next economic shock in a cross-country gendered CGE analysis on countries with different economic situation. Unlike, the simulations for Covid19 crisis the impacts are resulting from changes in international trade. Thus, scenarios can be simulated more comparable on single countries.

2. Study regions

2.1 Economic development, inequality and labour markets

Furthermore, the unemployment and labour force participation and women's employment in the sectors determine how the impact of economic shocks spills over to women. In South Africa, where the unemployment rate is for women relatively high (31%), women are employed in service (11%) and industry (85%), while in Tanzania, the unemployment rate is low (2%). Women work in agriculture (67%) and as family workers (46%). In Senegal, the share of women working in services and as family workers is relatively high (70%, 19%), and in Cameroon, the share of women working in agriculture and industry is relatively high (47%, 11%) (World Bank, 2021).

Table 1 Situation of economic development, inequality and employment in the study region.

Economic development and inequality		ZAF (2019)	SEN (2019)	CMR (2019)	TZA (2019)
GDP per head (current USD)		6001	1447	1498	1122
Gini-Index		ZAF (2014)	SEN (2011)	CMR (2014)	TZA (2017)
Gini-Index		63.0	40.3	46.6	40.5
Labour force participation and unemployment		ZAF (2020)	SEN (2020)	CMR (2020)	TZA (2020)
Female labour force participation of women in % of total labour		45.5	40.4	47	48.1
Labour force participation in % of all men(women)	Men	62.6	57.5	81	87.2
	Women	49.7	35.1	70.9	79.4
Unemployment rate in % of all men/women	Men	26.5	5.9	3.0	1.6
	Women	30.8	7.8	3.9	2.4
Employment in vulnerable jobs	Men	10.3	59.2	64.7	77.6
	Women	10.2	72	83.3	87.8
Occupation and employment in industries		ZAF (2020)	SEN (2020)	CMR (2020)	TZA (2020)
Family workers	Men	0.3	19.2	8.1	19.2
	Women	0.8	26.2	19.9	46.1
Agricultural workers	Men	6.1	32.9	39	63.0
	Women	3.6	24.3	47.2	66.9
Industrial workers	Men	31.7	19	18.3	10.2
	Women	11.3	5.5	11.3	3.1
Service workers	Men	62.2	48.1	42.6	26.8
	Women	85.1	70.3	41.4	30.0

Source: World Bank (2020) World Development Indicators. <https://data.worldbank.org/indicator>. The World Bank Group. Accessed: 2020-12-03

2.2 International markets

The RUW impacts African countries mainly by changes in international trade in terms of world market prices and supply of energy, agricultural commodities and fertilisers. The study regions differ in exports and import of these commodities and thus are differently impacted by these channels.

2.3 Labour market

In Senegal, women represent a relatively large percentage of the working-age population (79.65% vs 75.16% for men (ANSD, 2017)). The participation rate reveals gender disparities in labour market participation. Although the female working-age population is greater than that of men, the activity rate for men (60.5%) is about 20 points higher than that of women (39.6%) (ANSD, 2017). Women predominate in some specific sectors, such as the manufacture of dairy products and ice cream (95.78% of the workforce is female) or the catering and drinking establishments sector, where 83.2% of the workforce is female. However, they mainly own unskilled positions as over 80% of women have no qualifications, and only 2.5% qualify as equal to or superior to the baccalaureate (ANSD, 2017).

In Cameroon, women account for about 50% of the agricultural labour force, but are restricted to subsistence farming and are not sufficiently represented in higher value-added activities. They work more frequently in the informal sector.

Table 2 Shares of factor demand in the industries

		MaleSkil	FemaSkil	MaleUnsk	FemaUnsk	Capi
ZAF	aagcu	13,2	4,8	10,3	3,8	67,9
ZAF	aminp	30,7	7,3	8,3	1,3	52,4
ZAF	amanu	36,8	16,7	7,0	3,8	35,6
ZAF	aelwa	20,5	5,6	1,9	0,2	71,7
ZAF	acons	30,9	4,5	10,8	1,4	52,4
ZAF	atrco	31,1	5,6	7,5	0,0	55,8
ZAF	ahotl	20,1	19,0	4,0	4,0	52,9
ZAF	afibu	20,9	17,5	0,5	0,2	61,0
ZAF	aadmi	32,9	41,8	2,9	2,4	20,0
ZAF	apriv	0,3	10,7	0,9	23,2	65,0
		MaleSkil	FemaSkil	MaleUnsk	FemaUnsk	Capi
SEN	aagcu	6,8	1,7	45,8	14,8	31,0
SEN	aminp	18,8	3,6	14,8	3,8	59,0
SEN	amanu	13,0	3,9	16,1	4,8	62,2
SEN	aelwa	0,0	0,0	0,0	0,0	0,0
SEN	acons	20,5	1,2	23,9	0,9	53,5
SEN	atrco	15,8	5,6	10,3	4,8	63,5
SEN	ahotl	26,2	11,1	5,1	12,8	44,8
SEN	afibu	0,0	0,0	0,0	0,0	0,0
SEN	aadmi	13,8	2,8	0,5	4,9	78,0
SEN	apriv	37,5	23,8	9,4	1,4	28,0
		MaleSkil	FemaSkil	MaleUnsk	FemaUnsk	Capi
CMR	aagcu	2,3	0,7	1,4	0,6	95,0
CMR	aminp	7,6	2,8	0,1	0,1	89,4
CMR	amanu	6,5	2,9	3,5	3,0	84,1
CMR	aelwa	0,0	0,0	0,0	0,0	0,0
CMR	acons	10,8	4,4	11,2	5,7	67,8
CMR	atrco	8,8	5,1	6,9	4,9	74,3
CMR	ahotl	0,0	0,0	0,0	0,0	0,0
CMR	afibu	11,5	7,4	4,5	4,4	72,3
CMR	aadmi	57,0	22,7	0,4	0,4	19,5
CMR	apriv	9,4	7,1	6,3	6,2	71,1
		MaleSkil	FemaSkil	MaleUnsk	FemaUnsk	Capi
TZN	agri	34,7	12,0	21,5	4,3	27,5
TZN	minp	21,2	8,2	4,7	0,0	65,9
TZN	manu	60,4	8,6	4,3	0,4	26,3
TZN	elwa	35,3	6,7	0,4	0,0	57,7
TZN	cons	51,3	21,5	5,9	0,0	21,3
TZN	hotl	1,5	3,4	0,3	0,2	94,6
TZN	trco	61,0	20,6	8,2	0,0	10,2
TZN	fibu	29,4	61,0	2,1	1,0	6,4
TZN	admi	41,8	52,6	2,5	0,9	2,2
TZN	priv	41,0	41,0	3,8	6,9	7,2

3. Methodology: Model and Data

To simulate and analyse the shocks for the four countries with different gender-specific situations, we develop four single-country static computable general equilibrium (CGE) models based on the standard model PEP1-1 (Decaluwé et al., 2013). We calibrate the models based on the country-specific Social Accounting Matrix (SAM) for South Africa, Senegal, Cameroon and Tanzania (Cabral, 2020; Randriamamonjy and Thurlow, 2017; van Seventer and Davis, 2019) and specify them as gender-sensitive CGE models, with gendered labour markets and households if applicable. We customise the models using country-specific household surveys (MINEPA, 2017; SALDRU, 2018; Tanzania National Bureau of Statistics (NBS), 2015; WAEMU, 2018).

4. Scenarios

We simulate the impacts of the Russo-Ukraine War by simulating changes in world market prices based on the World Bank commodity price forecast. Figure 1 presents the relative price changes from 2015 to 2022 with 2021 as a reference. We select the price change in 2023 to simulate the impact scenario. The trade volume of commodities and the preferences of private consumption will determine the impact of these price changes on sectors, labour income and private consumption. In combination with the economic situation of women, the spill-over effects on women will differ between the countries.

Specifically, we evaluate the impacts of an increase of world prices in energy prices (+41%), fertilizers (+27%), vegetable oils (+7%) and wheat (+9%). There are no mitigating measure implemented by the government or any productivity losses from reduced fertilizer use as in Ardnt et al (2023).

Table 3 Change of indices for commodity prices, average Mar to Feb, base = 2021. Only for 2022 it is Mar 2022 to Mar 2023 to capture the last month of observation available

	2015	2018	2019	2020	2021	2022
Energy	0,59	0,85	0,74	0,51	1,00	1,41
Non-energy	0,68	0,72	0,70	0,75	1,00	1,05
Agriculture	0,77	0,77	0,75	0,81	1,00	1,09
Beverages	0,94	0,80	0,78	0,82	1,00	1,06
Food	0,69	0,71	0,70	0,77	1,00	1,14
Oils & Meals	0,63	0,63	0,60	0,73	1,00	1,07
Grains	0,67	0,71	0,71	0,79	1,00	1,20
Other Food	0,79	0,84	0,84	0,81	1,00	1,18
Raw Materials	0,98	0,96	0,92	0,91	1,00	0,93
Timber	1,06	0,97	0,95	0,97	1,00	0,87
Other Raw Mat.	0,88	0,95	0,88	0,84	1,00	1,01
Fertilizers **	0,55	0,48	0,45	0,45	1,00	1,27
Metals & Minerals	0,53	0,67	0,65	0,70	1,00	0,93
Base Metals (ex. iron ore)	0,57	0,72	0,66	0,68	1,00	0,97
Precious Metals	0,64	0,69	0,78	0,99	1,00	0,99

Source: World Bank (2023): World Bank Commodity Price Data (The Pink Sheet).

<https://www.worldbank.org/en/research/commodity-markets>

5. Results

The same set of shocks for these four countries will have different effects. Indeed, depending on the structure of the economies, countries will be affected differently.

For example, for fertilisers, Cameroon, South Africa and Tanzania import all of what they consume. This proportion falls to 36.32% for Senegal. An increase in the price of fertilisers will therefore have a very significant impact on the three countries as they will not be able, at least in the short term, to substitute local products for fertiliser imports. As fertilisers are mainly used as intermediate consumption, especially by the agricultural branches, this will result in higher production costs.

With regard to the impact on the price of oil, only Cameroon, which exports oil, should benefit from an increase in the world price. For the other three countries, an increase in the energy bill for imports can be expected.

As expected, Cameroon reacts slightly differently from the other countries. The real gdp growth rate is slightly positive whereas for the other countries, the real gdp is contracting.

The increase in world prices leads to an increase in the general price level and subsequently to a decrease in real household consumption.

Table 4 Change of macroeconomic indicators

	South Africa (ZAF)	Senegal (SEN)	Cameroon (CMR)	Tanzania (TZN)
Gross domestic product (GDP)	-0,26	-1,23	0,01	-0,67
Consumer price index (CPI)	1,00	0,79	7,63	-5,15
Export	0,57	5,05	3,55	3,74
Imports	-0,60	-0,24	9,15	-6,79
Private consumption (real)	-0,79	-1,85	1,88	-4,30

As mentioned earlier, the increase in world prices impacts both households and industries that use these products (fertilisers, oil) as inputs for production. The different branches of production will be impacted according to their more or less intensive use of products whose world prices are rising. Thus, it is easy to understand that the agricultural sector is particularly impacted and consequently its production decreases for all countries. The impacts on production will have impacts on employment in the different sectors.

Sectors that use a lot of oil to produce (such as the transport sector) are facing a sharp increase in their production costs and will reduce their production and workers.

There is an increase in unemployment rates for all categories of workers.

Table 5 Change of unemployment rate for labour types (formal labour only)

	High and medium skilled		Low and unskilled	
	Male	Female	Male	Female
ZAF	0,42	0,46	0,73	-0,09

	High skilled		Medium skilled	
	Male	Female	Male	Female
SEN	1,06	2,01	1,34	1,41

	Agricultural workers		Non-agricultural workers	
	Male	Female	Male	Female
CMR	1,02	-0,53	0,30	-0,20

	High skilled		Medium skilled		Unskilled	
	Male	Female	Male	Female	Male	Female
TNZ	1,55	0,17	2,60	1,91	2,69	2,42

Table 6 Change in sectoral labour demand in South Africa

	High and medium skilled		Low and unskilled	
	Male	Female	Male	Female
aagcu	-0,67	-0,91	-1,03	-1,28
aminp	-0,49	-0,73	-0,85	-1,10
amanu	1,40	1,16	1,04	0,78
aelwa	2,05	1,80	1,68	1,42
acons	-1,69	-1,93	-2,05	-2,30
atrco	-1,89	-2,13	-2,25	-2,50
ahotl	0,71	0,47	0,35	0,10
afibu	-0,09	-0,33	-0,45	-0,71
aadmi	-0,64	-0,88	-1,00	-1,25
apriv	1,19	0,94	0,83	0,57
Total	-0,44	-0,51	-0,98	0,12

Table 7 Change in sectoral labour demand in Senegal

	Formal				Informal	
	High skilled		Medium skilled		Male	Female
	Male	Female	Male	Female		
aagcu	-3,33	-3,31	-2,87	-3,06	-0,69	-1,11
aminp	4,24	4,35	4,82	4,63	7,20	6,76
amanu	3,16	-3,72	-1,59	-1,00	-0,46	1,94
aelwa						
acons	-2,97	-2,86	-2,41	-2,59	-0,16	-0,57
atrco	-2,16	-2,39	-2,01	-2,36	0,11	-0,31
ahotl	-3,39	-3,28	-2,87	-3,05	-0,78	-1,18
afibu	-1,91	-1,80	-1,42	-1,59	0,80	0,39
aadmi	-1,97	-1,86	-1,44	-1,62	0,62	0,20

apriv	0,00	0,00	0,00	0,00	0,00	0,00
Total	-0,67	-2,07	-1,23	-0,99	0,00	0,00

Table 8 Change in sectoral labour demand in Cameroon

	Formal		Informal	
	Agricultural workers		Agricultural workers	
	Male	Female	Male	Female
aagcu	-1,12	0,57	4,56	-0,69
	Non-agricultural workers		Non-agricultural workers	
	Male	Female	Male	Female
aagcu	2,80	2,41	0,81	-0,17
aminp	28,56	28,08	26,07	24,84
amanu	1,04	0,40	-0,62	-1,46
aelwa				
acons	7,22	6,82	5,14	4,12
atrco	2,75	2,52	1,41	0,45
ahotl				
afibu	-0,39	-0,77	-2,32	-3,27
aadmi	-5,17	-3,76	-3,43	-4,12
apriv	1,23	0,85	-0,73	-1,70
Total	-0,33	0,23	0,98	-0,42

Table 9 Change in sectoral labour demand in Tanzania

	High skilled		Medium skilled		Unskilled	
	Male	Female	Male	Female	Male	Female
aagcu	-3,99	#DIV/0!	-3,28	-3,73	-3,23	-3,40
aminp	-0,61	-1,69	0,11	#DIV/0!	0,17	#DIV/0!
amanu	-3,90	#DIV/0!	-3,20	-3,65	-3,14	-3,31
aelwa	-3,29	#DIV/0!	-2,59	-3,04	-2,53	#DIV/0!
acons	-4,39	-5,43	-3,69	#DIV/0!	-3,63	#DIV/0!
atrco	-5,03	-6,06	-4,34	-4,78	-4,28	-4,45
ahotl	-1,22	-2,29	-0,50	-0,96	-0,44	-0,61
afibu	-2,63	-3,69	-1,92	-2,38	-1,86	-2,03
aadmi	3,34	2,22	4,10	3,62	4,16	3,98
apriv	-5,17	-6,19	-4,47	-4,92	-4,41	-4,58
Total	-1,68	-0,19	-2,82	-2,08	-2,92	-2,63

Impacts on households are negative. In South Africa, the decrease in real consumption is greater for the better-off households, while for Senegal and Tanzania, the decrease is greater for the poorer categories.

Table 10 Change in household real consumption in South Africa

	Poor	Low and middle income	Rich
	Decile 0 and 1	Decile 2 to 7	Decile 8 and 9
Decile 0	-0,22		
Decile 1	-0,28		
Decile 2	-0,35		
Decile 3	-0,42		
Decile 4	-0,51		

Decile 5	-0,64			
Decile 6	-0,79			
Decile 7	-0,87			
Decile 8	-0,95			
Decile 9	-0,96			
Aggregated	-0,79	-0,25	-0,75	-0,96

Table 11: Change in household real consumption in Senegal

	Urban		Rural
	Dakar	Other	
Decile 1	-1,96	-1,89	-1,77
Decile 2	-1,87	-1,88	-1,84
Decile 3	-1,93	-1,90	-1,78
Decile 4	-1,97	-1,70	-1,84
Decile 5	-1,90	-1,77	-1,87
Decile 6	-1,89	-1,76	-1,88
Decile 7	-1,94	-1,76	-1,88
Decile 8	-1,92	-1,78	-1,91
Decile 9	-1,95	-1,78	-1,71
Decile 10	-1,88	-1,79	-1,84
Total	-1,92	-1,79	-1,83

In Tanzania, the decline is also greater for rural households, while in Senegal the opposite is true.

Table 12: Change in household consumption in Cameroon

	Urban	Rural	Both
Male headed	1,82	1,82	1,82
Female headed	2,04	2,12	2,07
Both	1,87	1,90	1,88

Table 13: Change in household consumption in Tanzania

	Rural	Urban	Total
Quintile 1	-4,85	-4,82	
Quintile 2	-4,74	-4,43	
Quintile 3	-4,61	-4,41	
Quintile 4	-4,53	-4,23	
Quintile 5	-4,25	-3,84	
Total	-4,55	-3,98	-4,30

6. Conclusion and outlook

After two years of the pandemic that impacted women more than men, the crisis in Ukraine could again have gender-differentiated impacts. Indeed, depending on the structure of the economy as well as the structure of the labour market in different countries, the population and women in particular may be affected differently.

We found that the four countries studied react differently to conflict-induced price shocks. Indeed, Cameroon, a net oil exporter, benefits from the increase in oil prices, while the other three countries, net importers, see their energy bills increase. Similarly, the increase in fertiliser prices, for which South Africa, Cameroon and Tanzania are net importers, has led to a sharp decrease in agricultural production for all the countries. This leads to a long term problem in terms of food production and food security for the countries.

In terms of employment, each country faces a drop in employment with skilled women being the most affected in South Africa and Senegal.

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