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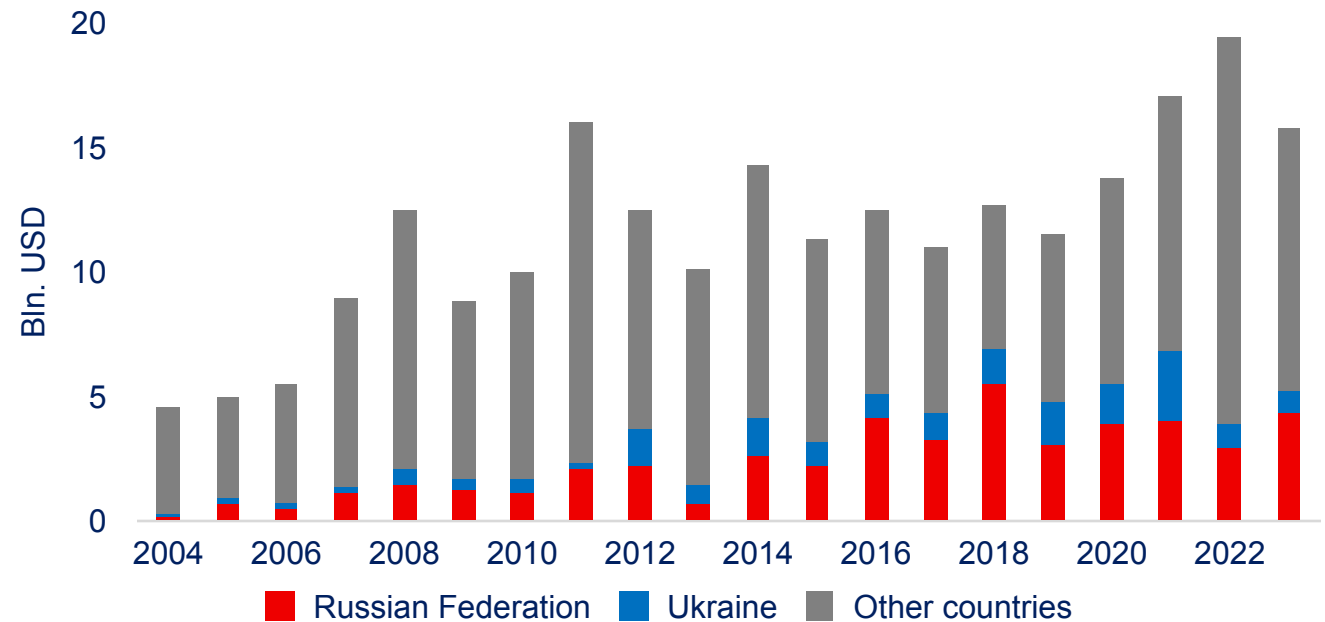
The Political Economy of Food Security: Evidence from Ukrainian & Russian Wheat Exports to Africa

Pavlo Martyshev, Theocharis Grigoriadis, Oleg Nivievskyi, Ivan Kolodiazhnyi

Motivation

- The full-scale war Ukraine in 2022 threatened global food security since both Ukraine and RF are global agricultural suppliers.
- Africa was the most food insecure region; despite the decline of global food prices in 2023 and 2024, the number of undernourished people on the continent continued to increase due to the complex mix of local geopolitical, socio-economic, and climate factors (Martyshev et. al, 2024).
- The other reason was high dependence of African countries on grain imports from Ukraine and Russia, which have been increased gradually over the last two decades.

Wheat exports to Africa



Source: ITC Trade Map

Motivation

- Since the start of the full-scale invasion, Russia substituted Ukrainian grain on the MENA markets and in Sub-Saharan region (KSE Agrocenter, 2022).
- RF's grain expansion on the continent is a part of political dialogue with Global South, in particular, with autocratic leaders of low-income African states.
- The geopolitical role of grain trade (so-called «weaponization» of grain trade) may have deep roots associated with the Soviet legacy as well as de-westernization trend on the continent.

Our research hypotheses:

H1. Since the start of the war in Ukraine in 2014, RF wheat exports shifted towards African states with lower food security to increase their dependence on Russian wheat.

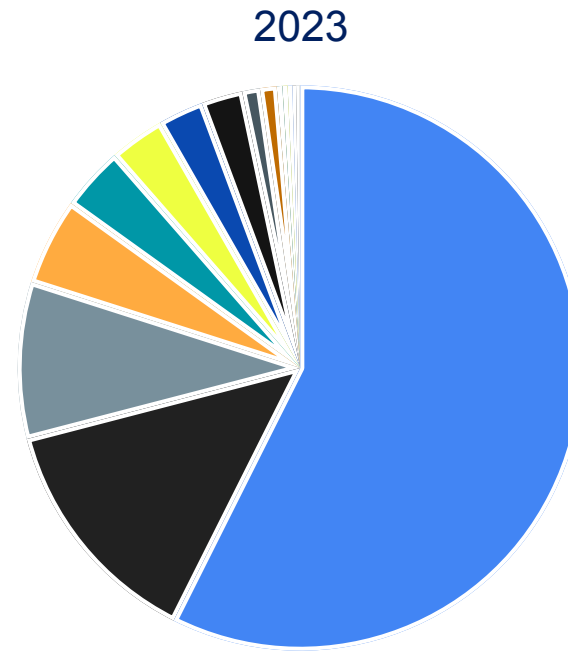
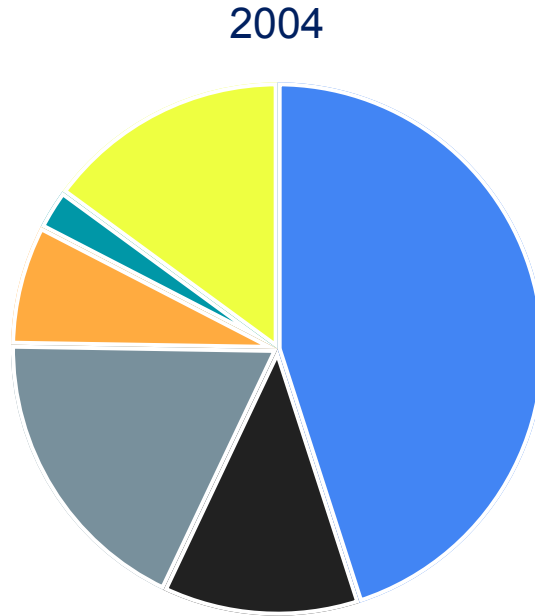
H2. RF tends export more wheat to non-democratic African states to support its allies on the continent.

Literature

- In 2008, a «**new Cold War**» between Russia and West started. This political trend was supported by «**Russia return to Africa**» via strengthening of political and economic relationships (Matusevich, 2019).
- Russia's presence in Africa increased after the start of war in Ukraine. «Russia has pioneered a model of disinformation to **gain political influence** in Africa that is now being replicated by other actors across the continent» (Africa Center for Strategic Studies, 2022). Also, RF strengthened the physical influence via the operations of private company «**Wagner Group**».
- The dependence of African countries on Russian and Ukrainian grain and Russian fertilizers increased over the last years. **Low-income states with high share of agriculture** in GDP are especially dependent (Badiane et. al, 2022; Laborde et. al, 2023; Devadoss et. al, 2024).
- Since 2022, food security indicators in Africa worsened despite the improvements in other regions; this was, in particular, due to **high dependence on Black Sea grain** (Glauben et. al, 2022).
- Russia showed **discriminating behavior** on wheat markets on 25 out of 61 destinations due to its high share in local imports (Uhl et. al, 2016).
- Over the last years, RF's grain exports was affected by geopolitical factors: 1) **consolidation of grain exports** around several **national companies** and exit of multinational companies from the RF market (Fastmarkets, 2024); 2) **redirection of grain flows to RF's allies**, in particular, **BRICS countries** (Melkadze et.al, 2024).

Diversification of RF's wheat exports

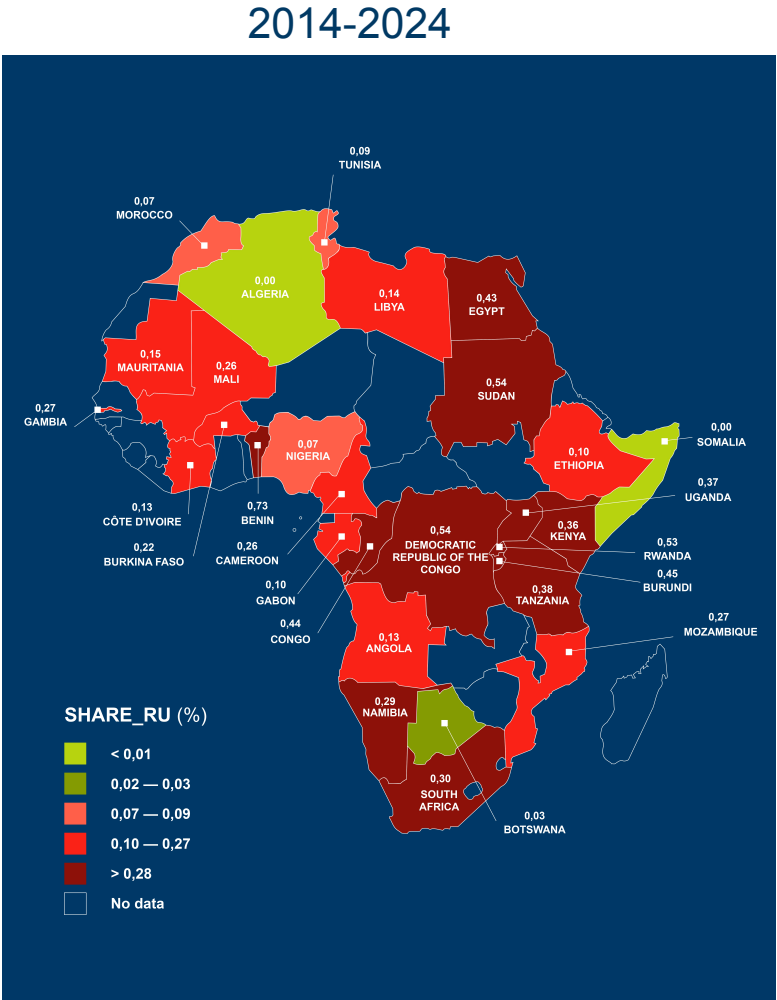
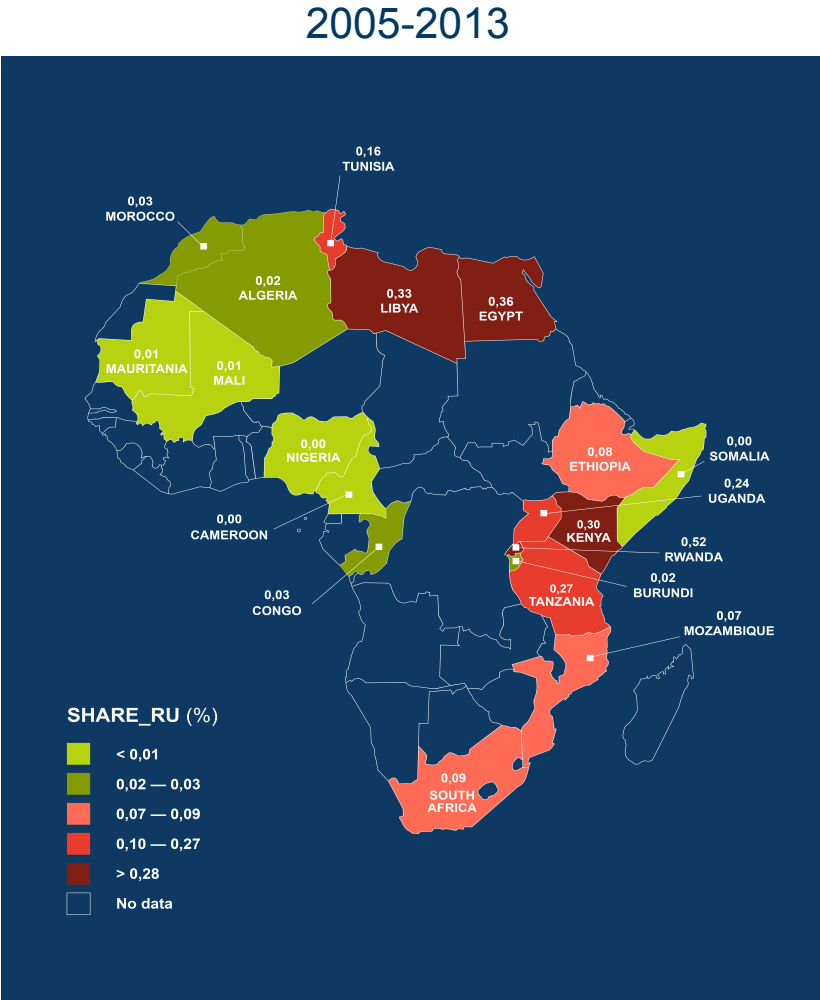
- RF wheat exports to Africa has been diversified over the last decades with higher presence in Sub-Saharan region.



Source: ITC Trade Map

Dependence of African states on Russian wheat

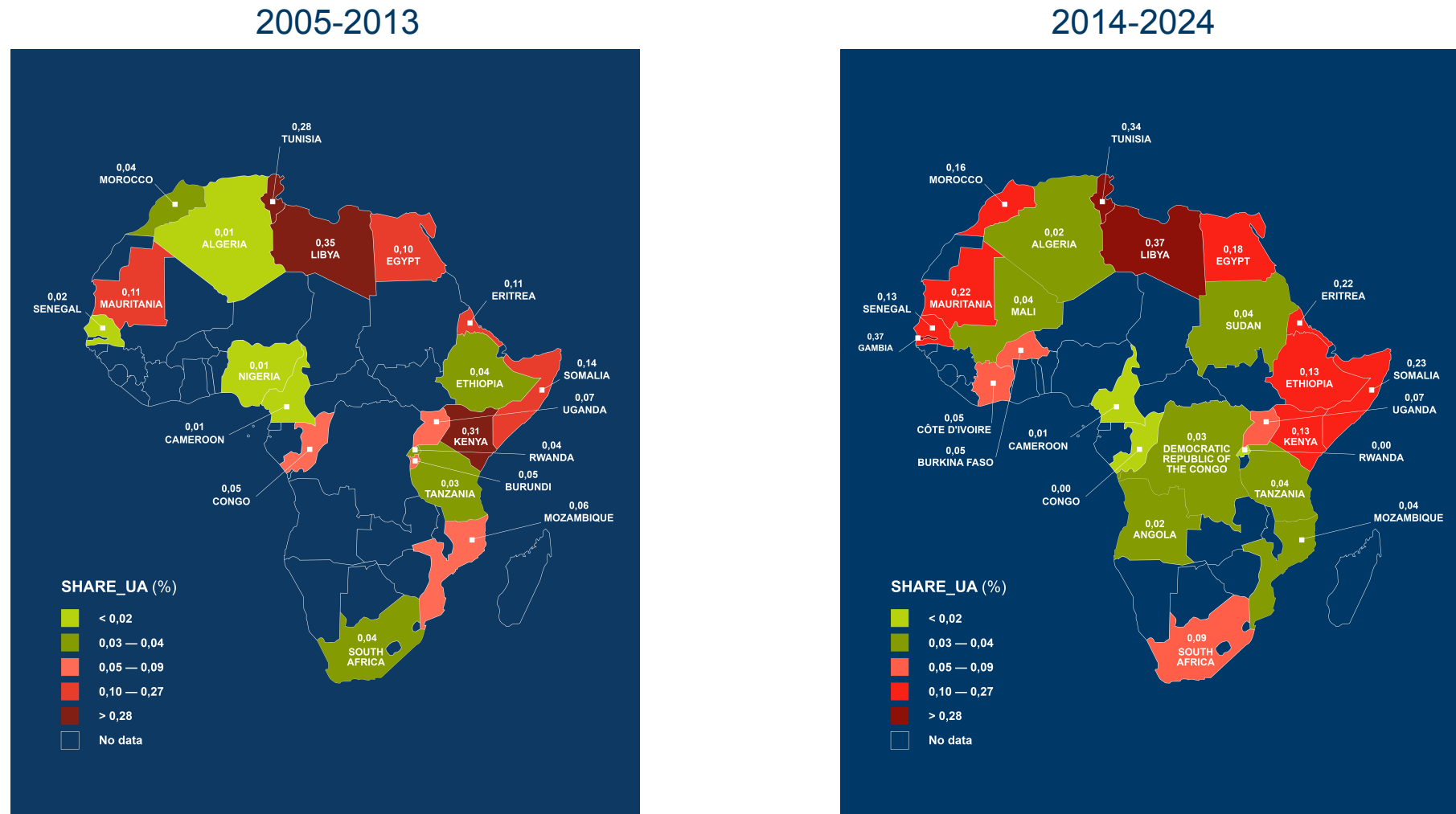
■ Many countries in North Africa and Sub-Saharan region became dependent on Russian wheat in 2014-2024 period.



Source: Authors` calculations using ITC Trade Map data.

Dependence of African states on Ukrainian wheat

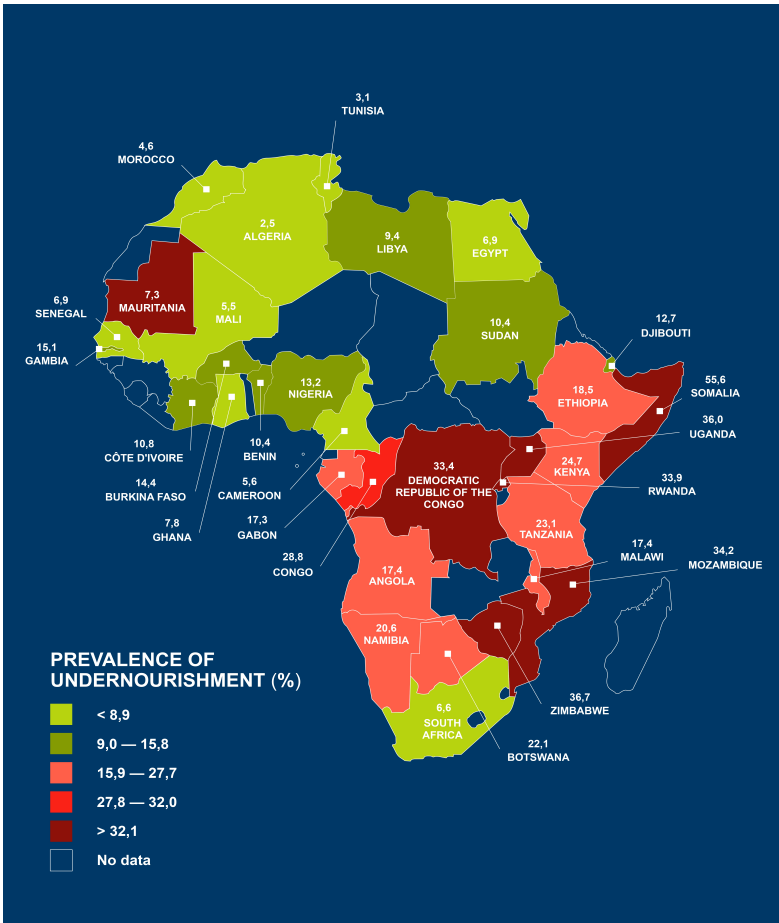
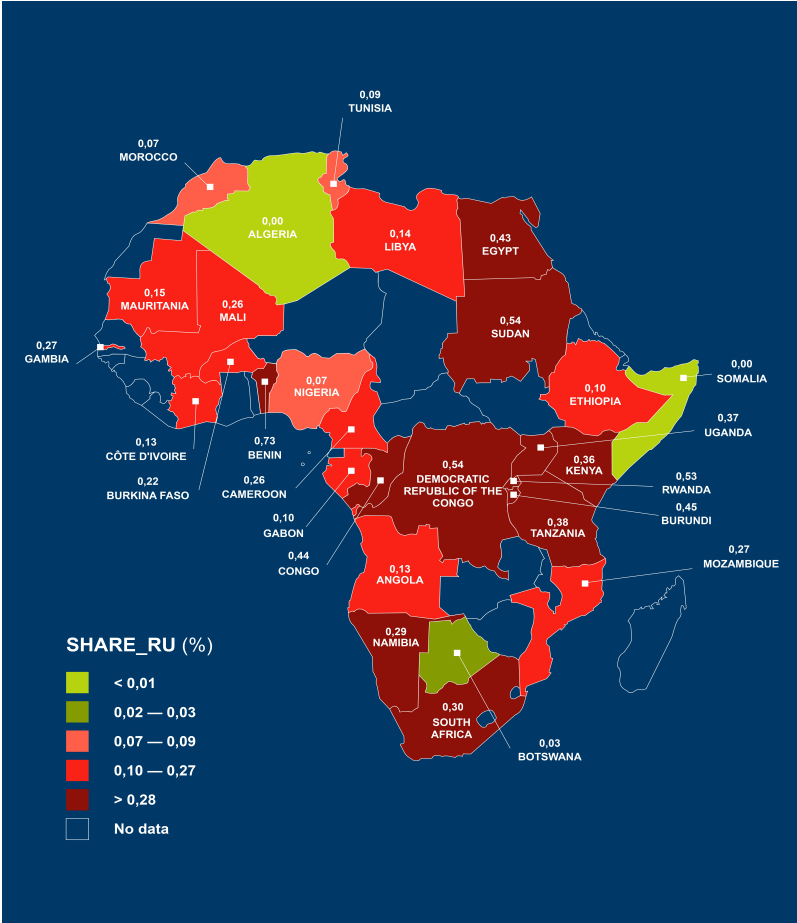
- Ukraine increased own presence in Sub-Saharan region, but it had a small share in total wheat imports.



Source: Authors' calculations using ITC Trade Map data.

Share of RF wheat & level of undernourishment

■ Share of RF wheat exports correlates with the undernourishment levels mostly in Sub-Saharan region.
2014-2024

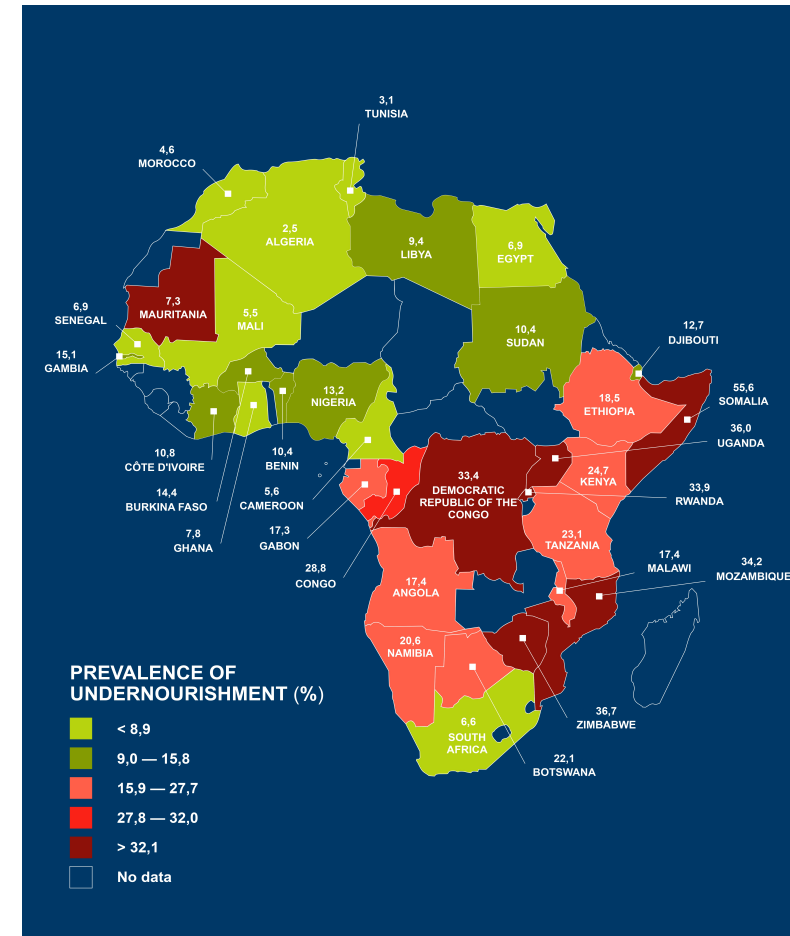
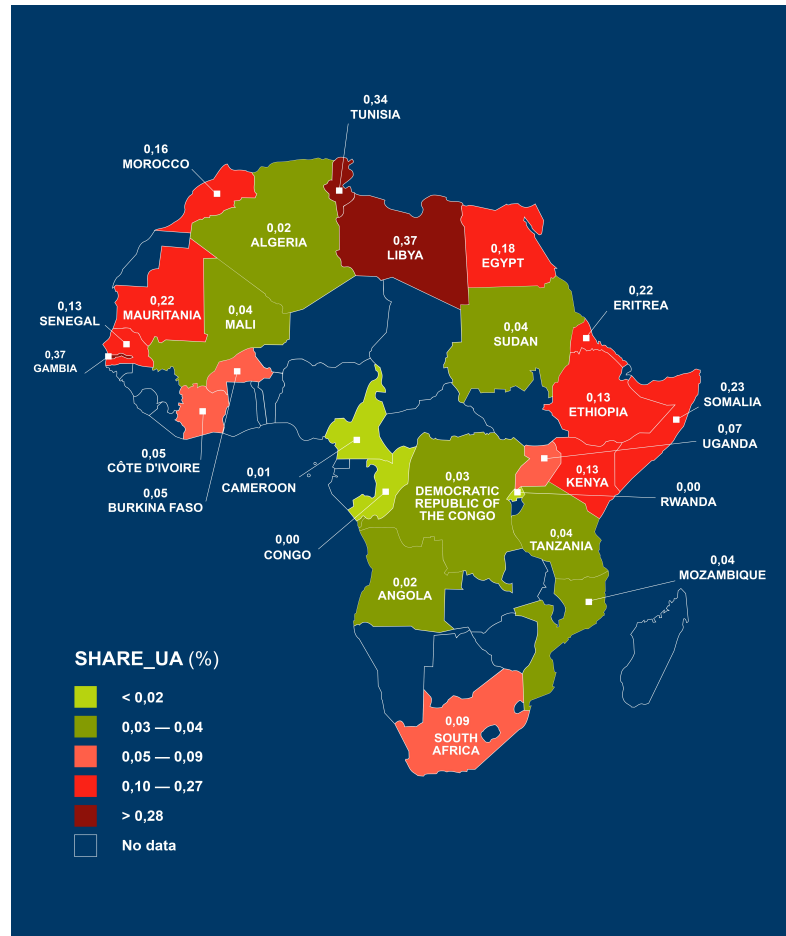


Source: Authors` calculations using ITC Trade Map & FAOSTAT data.

Share of Ukrainian wheat & level of undernourishment

■ Share of Ukraine wheat exports shows little correlation with the share of undernourished people.

2014-2024

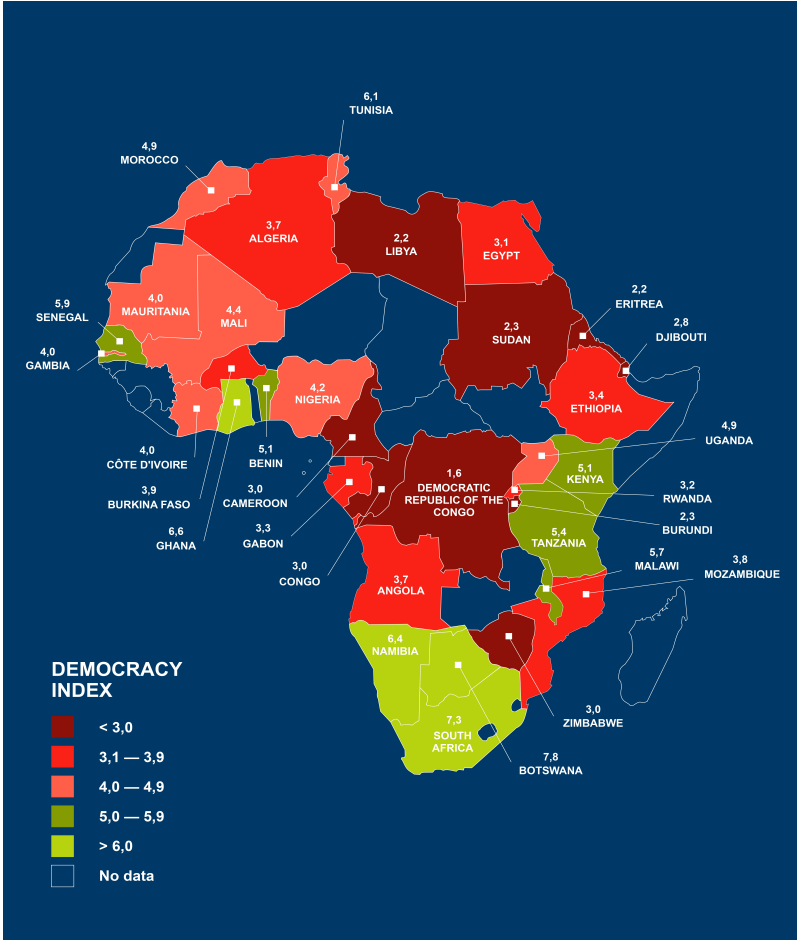
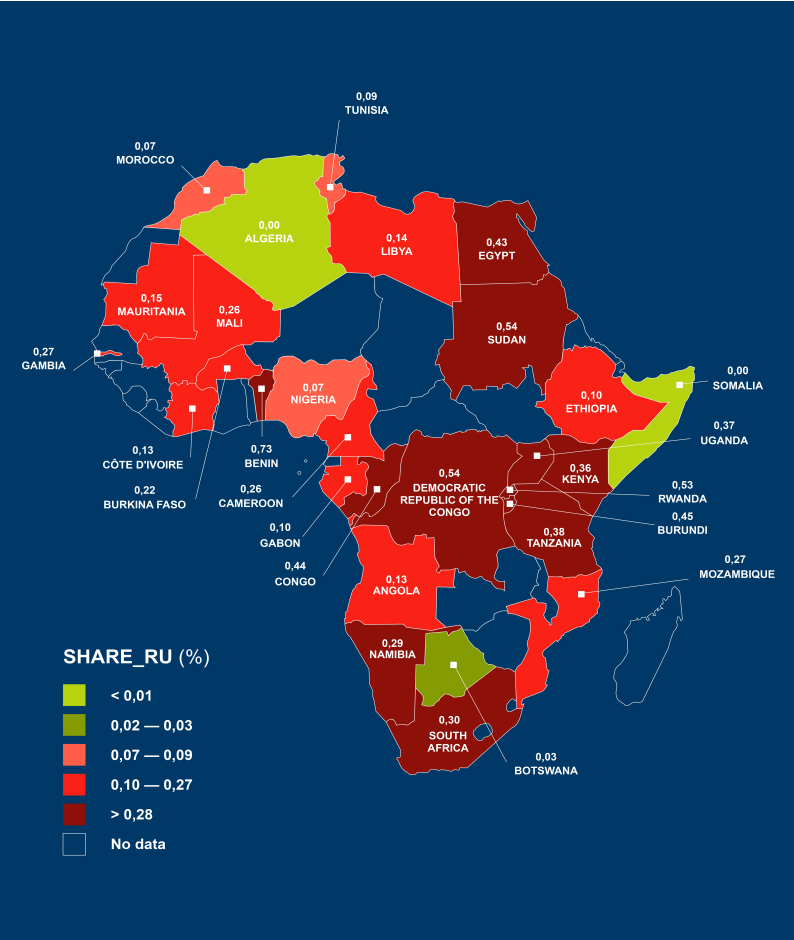


Source: Authors` calculations using ITC Trade Map & FAOSTAT data.

Share of RF wheat & democracy index

- Share of RF wheat exports is high in the states with low democracy index

2014-2024

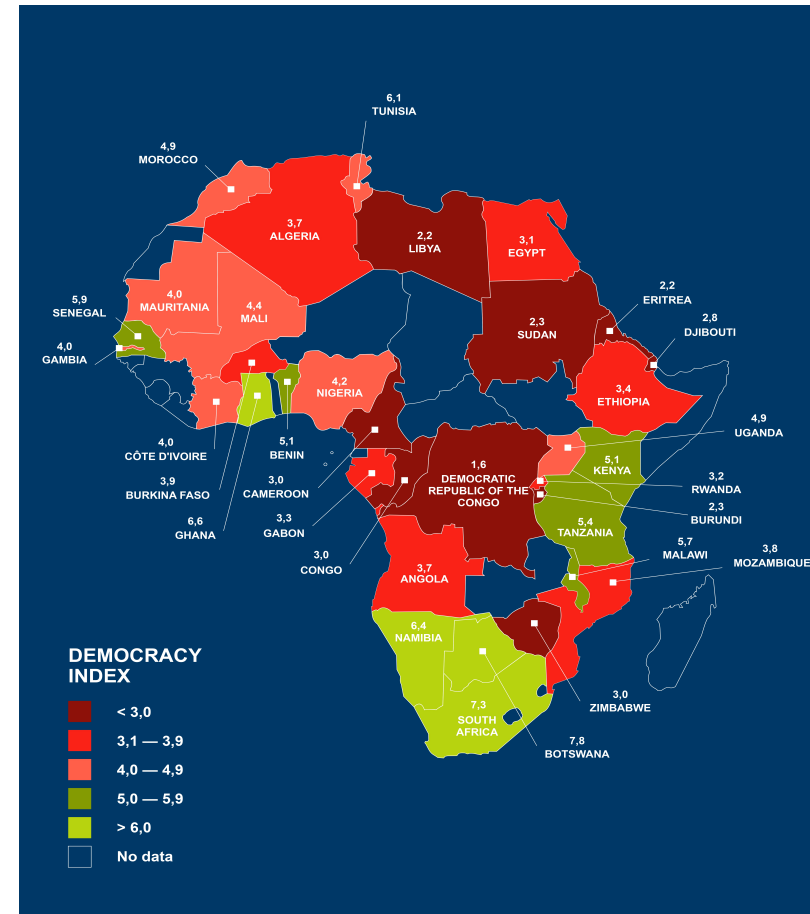
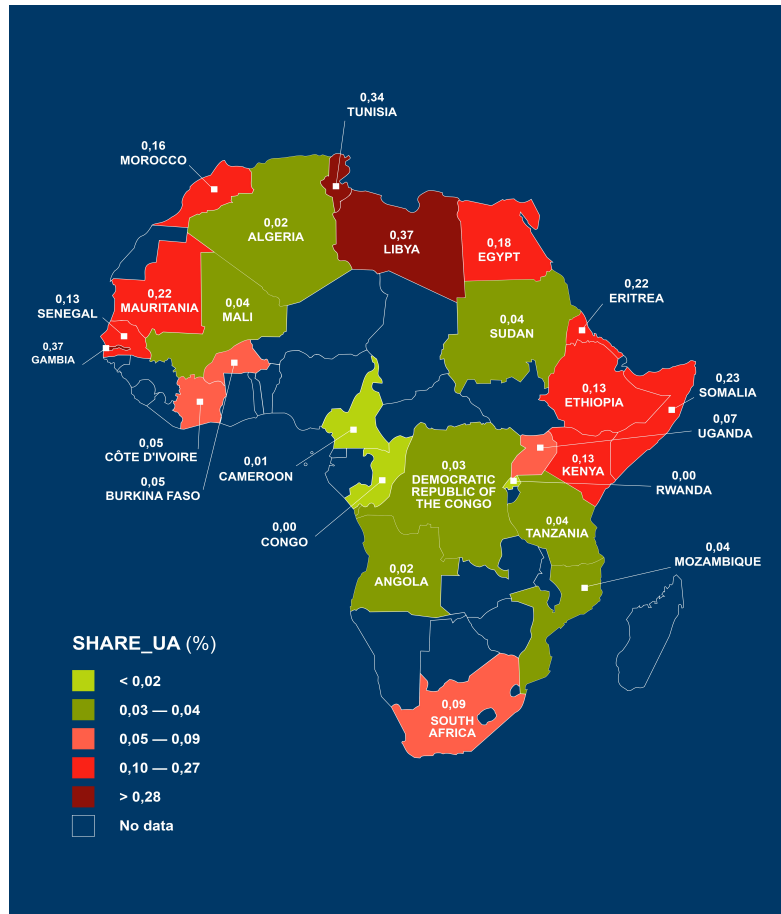


Source: Authors` calculations using ITC Trade Map and Economist Intelligence Unit data.

Share of Ukrainian wheat & democracy index

■ UA wheat exports to Africa is not much correlated with democracy index.

2014-2024



Source: Authors' calculations using ITC Trade Map and Economist Intelligence Unit data.

Data & methodology

Data:

Annual panel data on UA and RU wheat exports to **35 African countries**, share of UA and RU in local wheat imports, number of undernourished people, prevalence of undernourishment (%), GDP per capita, Democracy Index, war in Ukraine dummy (post 2014).

Timeframe:

2005-2024.

Data sources:

ITC Trade MAP, FAOSTAT, Economist Intelligence Unit.

Methodology:

Random-effects and fixed-effects GLS regressions with heteroskedasticity-consistent standard errors.

Model 1. Number of undernourished people with import UA and import RU effects (random effects)

ln_overnourished_people_mln	Coef.	Std. Err.	P> t
ln_Share_UA	.0716653	.0397304	0.071*
ln_Share_RU	-.0618438	.0334638	0.065*
post2014	.3339662	.1188065	0.005***
post2014#c.ln_Share_UA	-.0379229	.0352537	0.282
post2014#c.ln_Share_RU	.0751655	.0522088	0.150
ln_democracy_index	-.4175339	.117889	0.000***
Politicalstabilityandabsence	.0289895	.0594524	0.626
ln_GDPpercapitaUSDconstant20	.0047305	.1417737	0.973
_cons	15.38798	1.174711	0.000

***-1% significance; **-5% significance; *-10% significance

Postestimation tests:

- Hausman test for endogeneity.
- Breusch-Pagan test for heteroskedasticity.
- VIF test for multicollinearity.

- Over 2005-2024, the share of Ukraine in wheat imports had a positive effect on the number of undernourished people. This means that Ukraine tends to export more in countries with low food security.
- The share of Russia in wheat imports has a weak negative effect on the number of undernourished people.
- The democracy index is negatively correlated with the number of starving people.

Model 2. Prevalence of undernourishment with import UA and import RU effects (fixed effects)

prevalence_of_overnourishment	Coef.	Std. Err.	P> t
ln_Share_UA	.7380582	.4081863	0.073*
ln_Share_RU	-.9595468	.4703867	0.043**
post2014	2.331024	1.579382	0.142
post2014#c.ln_Share_UA	-.796014	.5033176	0.116
post2014#c.ln_Share_RU	.9435606	.5369076	0.081*
ln_democracy_index	-1.248735	1.989025	0.531
Politicalstabilityandabsence	1.079144	.8091351	0.184
ln_GDPpercapitaUSDconstant20	-.0840962	3.159766	0.979
_cons	15.96182	27.49131	0.562

***-1% significance; **-5% significance; *-10% significance

Postestimation tests:

- Hausman test for endogeneity.
- Breusch-Pagan test for heteroskedasticity.
- VIF test for multicollinearity.

- UA share in imports is positively associated with the share of undernourished people; RU share is negatively associated.
- After 2014, Russia increased its own share in less food secure countries.

Model 3. Prevalence of undernourishment with lagged import UA and import RU effects (fixed effects)

prevalence_of_overnourishment	Coef.	Std. Err.	P> t
ln_Share_UA.L1	.866592	.4094772	0.036**
ln_Share_RU.L1	-1.015193	.4842441	0.038**
post2014	2.164004	1.515677	0.156
post2014#c.ln_Share_UA	-1.017805	.4968188	0.043**
post2014#c.ln_Share_RU	1.237794	.523739	0.020**
ln_democracy_index	-.5045041	1.941864	0.795
Politicalstabilityandabsence	.7356808	.8079397	0.364
ln_GDPpercapitaUSDconstant20	.553407	3.159434	0.861
_cons	9.185428	27.56827	0.740

***-1% significance; **-5% significance; *-10% significance

Postestimation tests:

- Hausman test for endogeneity.
 - Breusch-Pagan test for heteroskedasticity.
 - VIF test for multicollinearity.
-
- UA share in imports is positively associated with the share of undernourished people; RU share is negatively associated.
 - After 2014, Russia increased its own share in less food secure countries.
 - After 2014, Ukraine increased its own share in more food secure countries.

Conclusions

1. Since the start of the war in Ukraine in 2014, RF's wheat exports became more oriented to African states with low food security and low democracy index.
2. Meanwhile, Ukraine's wheat exports partially re-oriented to more democratic states with moderate food security.
3. Lagged effects of RF's post-2014 wheat exports show that RF exports was not positively associated with reduced hunger rates on the next years (correlation, not causation). This may imply on higher RF's market power in these states (could be subject for other studies).