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**The War in Ukraine Disrupts Agricultural Value Chains, but Trade Policy Measures Can
Mitigate the Impacts**

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Motivation

The war in Ukraine has major implications for the world agricultural and food markets, as the Black Sea region is a key supplier of crops and fertilizers (Figure 1).

Ukraine and Russia contribute over 20 percent to the global exports of various agricultural commodities including sunflower oil, wheat, barley, and sunflower seeds.

Russia and Belarus were the 2nd and 3rd largest potash producers in 2021, while Russia is a major energy exporter.

Contribution

This study:

Provides a quantitative assessment of the impacts of the war in Ukraine on global economy, agricultural and food markets, trade and value chains.

Accounts for a broader context of sanctions, weather conditions, and trade restrictions that shapes the impacts of the war on the agricultural sector.

Assesses the potential trade policy responses that countries could implement to mitigate the impacts.

Methodology

The developed framework links a global computable general equilibrium model ENVISAGE with a multi-region input-output GTAP database and nutritional module.

6 scenarios that cover impacts of the war and policy responses:

- (1) *Agricultural productivity shock* in Ukraine.
- (2) *Food and fertilizer export restrictions* imposed by countries around the world in response to the war in Ukraine.
- (3) An increase in the *price of imported fertilizer; weather-related agricultural productivity changes (positive and negative)*.
- (4) *Other shocks*: restrictions on energy imports from Russia; economy-wide productivity shock in the Black Sea region; trade sanctions imposed on Russia.
- (5) *Elimination of import tariffs* on agricultural and food commodities (by all countries except RUS and BLR).
- (6) Implementation of *trade facilitation measures (TFMs)* for agriculture and food commodities.

Conclusion

Food-security implications of the war in Ukraine are substantially exacerbated by adverse weather events, spillover effects from the distortion of energy and fertilizer markets, and domestic policies that countries around the world have implemented in pursuit of food security.

Cumulative effect of these channels on global food supply is on average three times larger than the direct agricultural supply disruptions in Ukraine. The latter, however, disproportionately impacts low-income countries that are particularly vulnerable to food shortages and price increases.

Elimination of import tariffs on agricultural and food commodities and implementation of TFMs could outweigh the adverse impacts of the war on food supply, increase overall food availability and lead to higher integration of agricultural and food commodities into GVCs.

For additional details see <https://doi.org/10.1111/1746-692X.12389>

The War in Ukraine Disrupts Agricultural Value Chains, but Trade Policy

Measures Can Mitigate the Impacts

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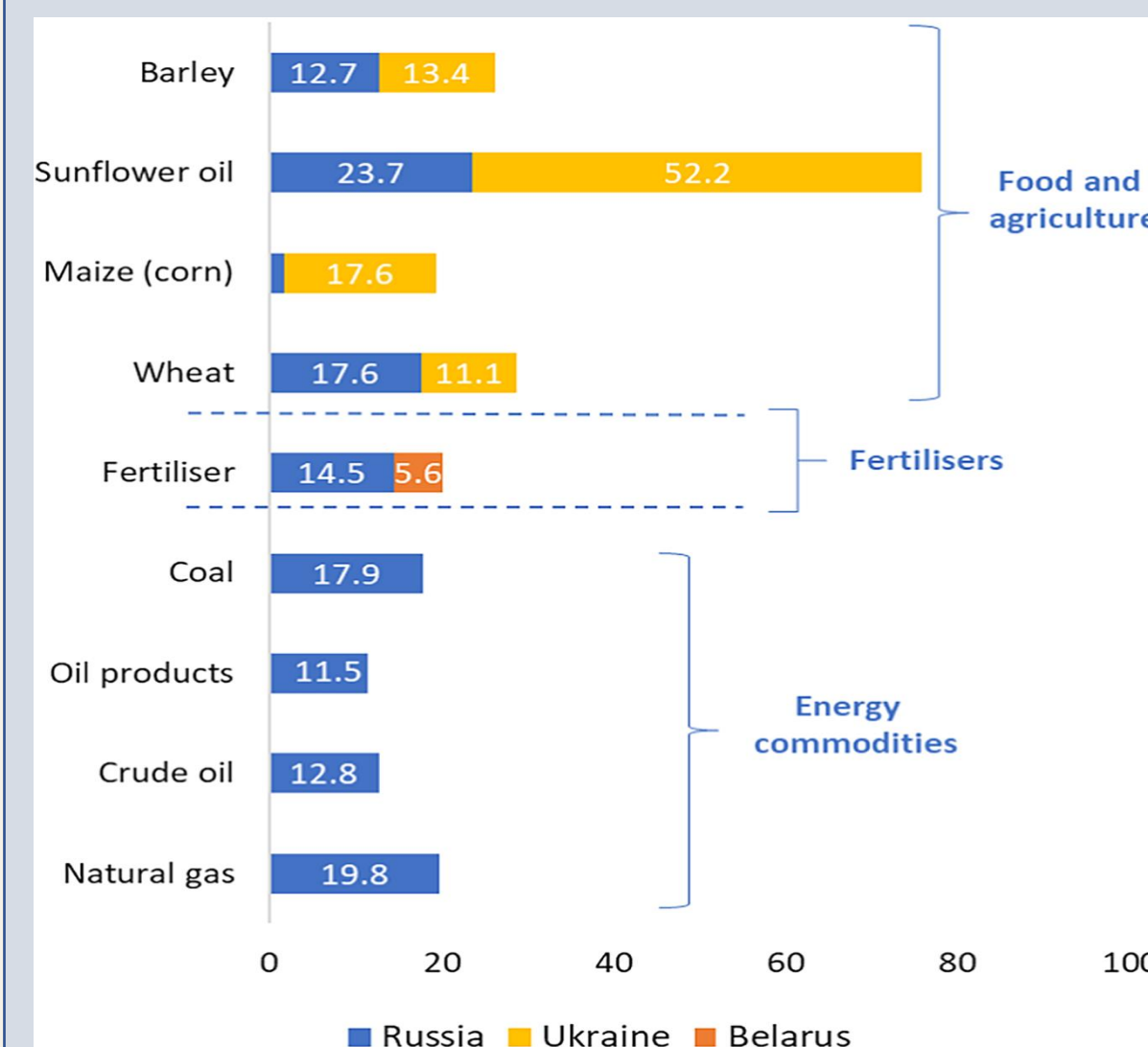


Figure 1. Black Sea region's share in global trade, %

Results

Overall macro impacts of the war are largely driven by the energy markets, with changes in real income varying heavily across countries (Figure 2).

Net agricultural and energy importers are hit hardest by the war in Ukraine. In developing countries, the role of agricultural disruptions is higher than in high-income regions.

Large energy exporters, such as countries in MENA and ECA, are gaining from increasing energy prices and energy trade reallocation.

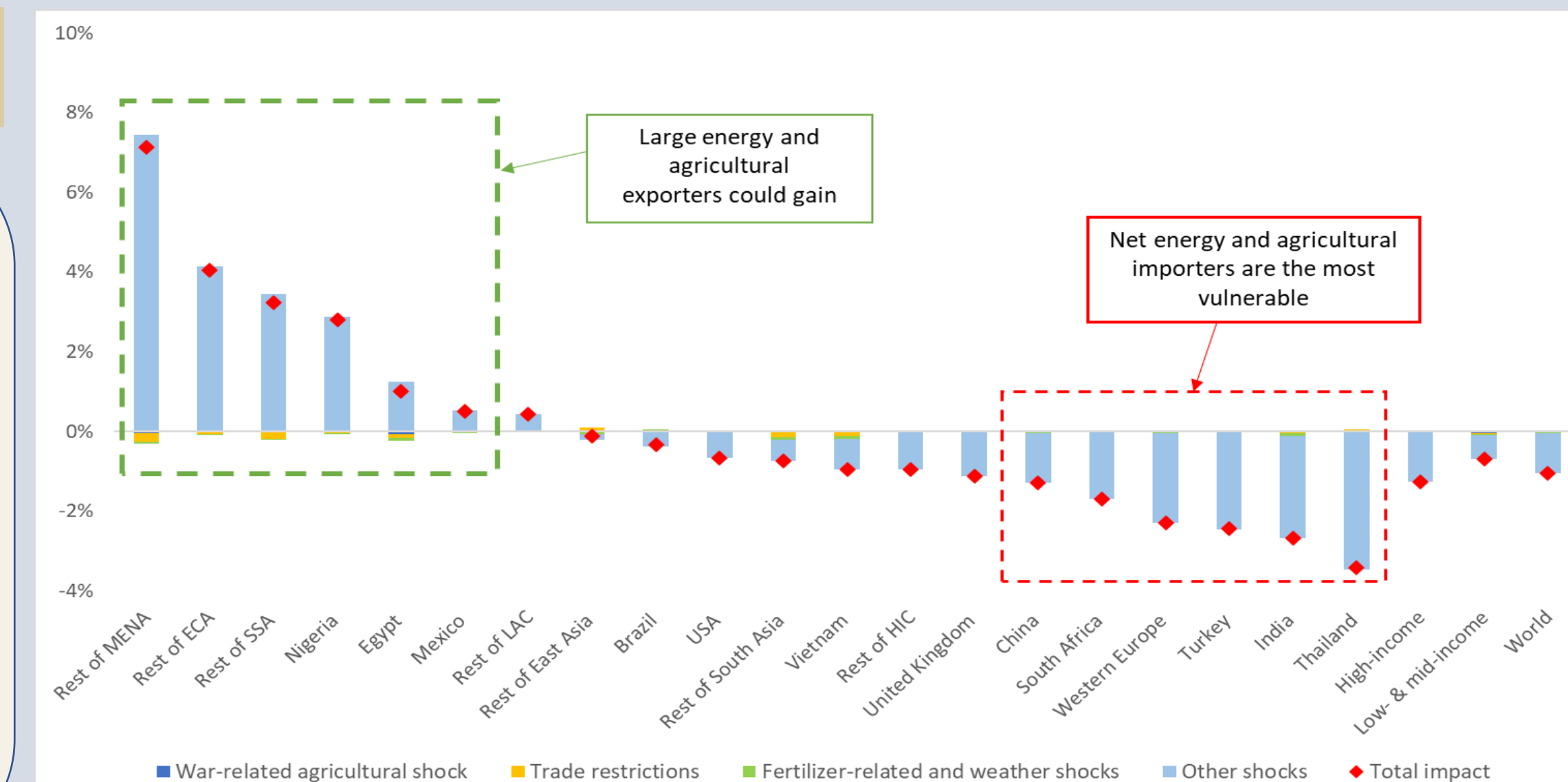


Figure 2. Change in real income in selected countries and regions, per cent

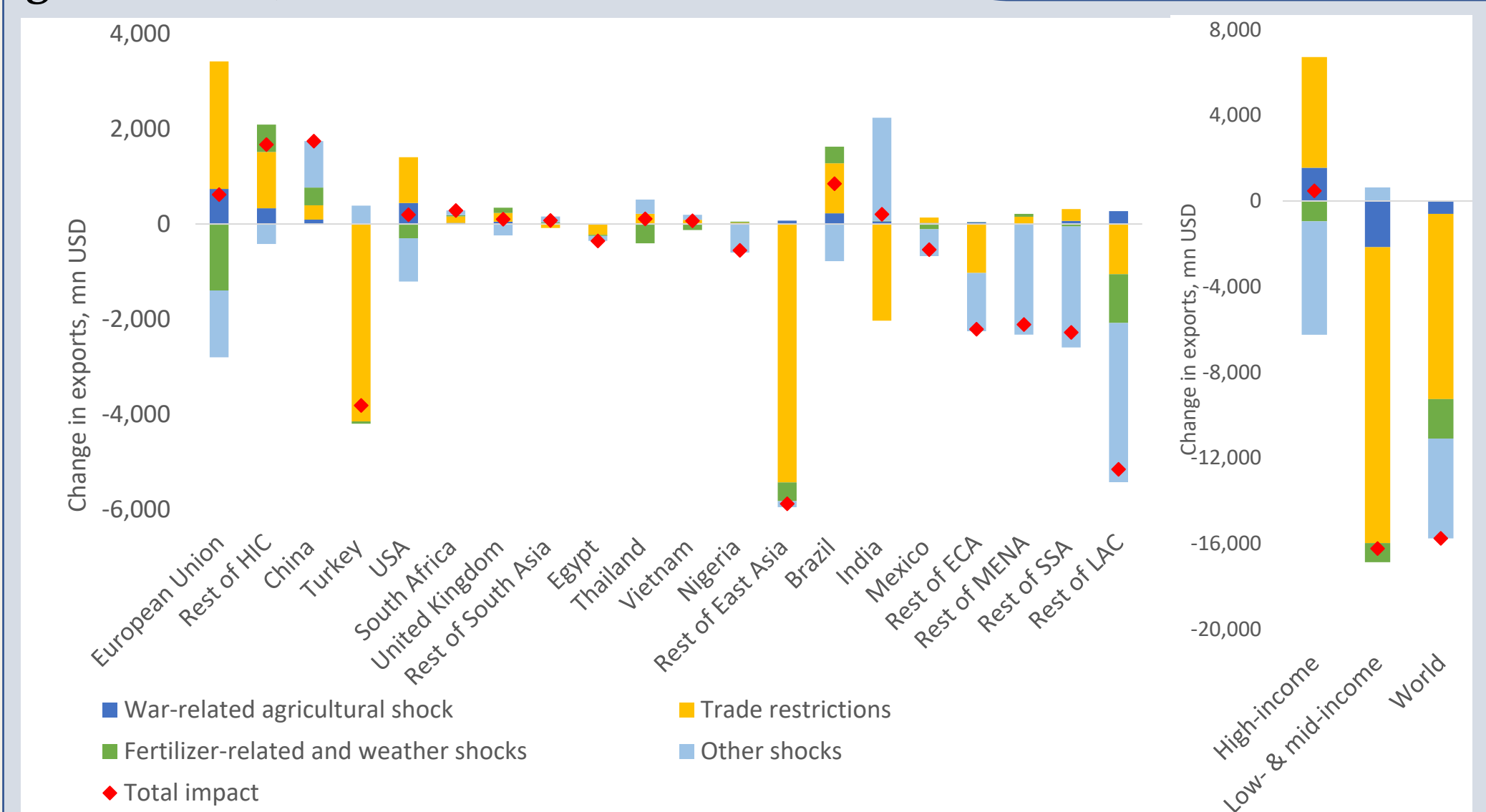


Figure 3. Change in agricultural and food exports, million \$2014

The war in Ukraine, when combined with other disruptions, leads to an overall reduction in agricultural trade (Figure 3).

Global exports of grains and crops decline by around 1.2 percent and of processed food by 1 percent.

Rising agricultural commodity prices create incentives for selected countries to expand production and replace some of the exports from the Black Sea region.

Countries in South and East Asia and Africa are impacted the most adversely in terms of food availability. Per capita kcal and carbs supply decline by up to 3%-4% (Figure 4).

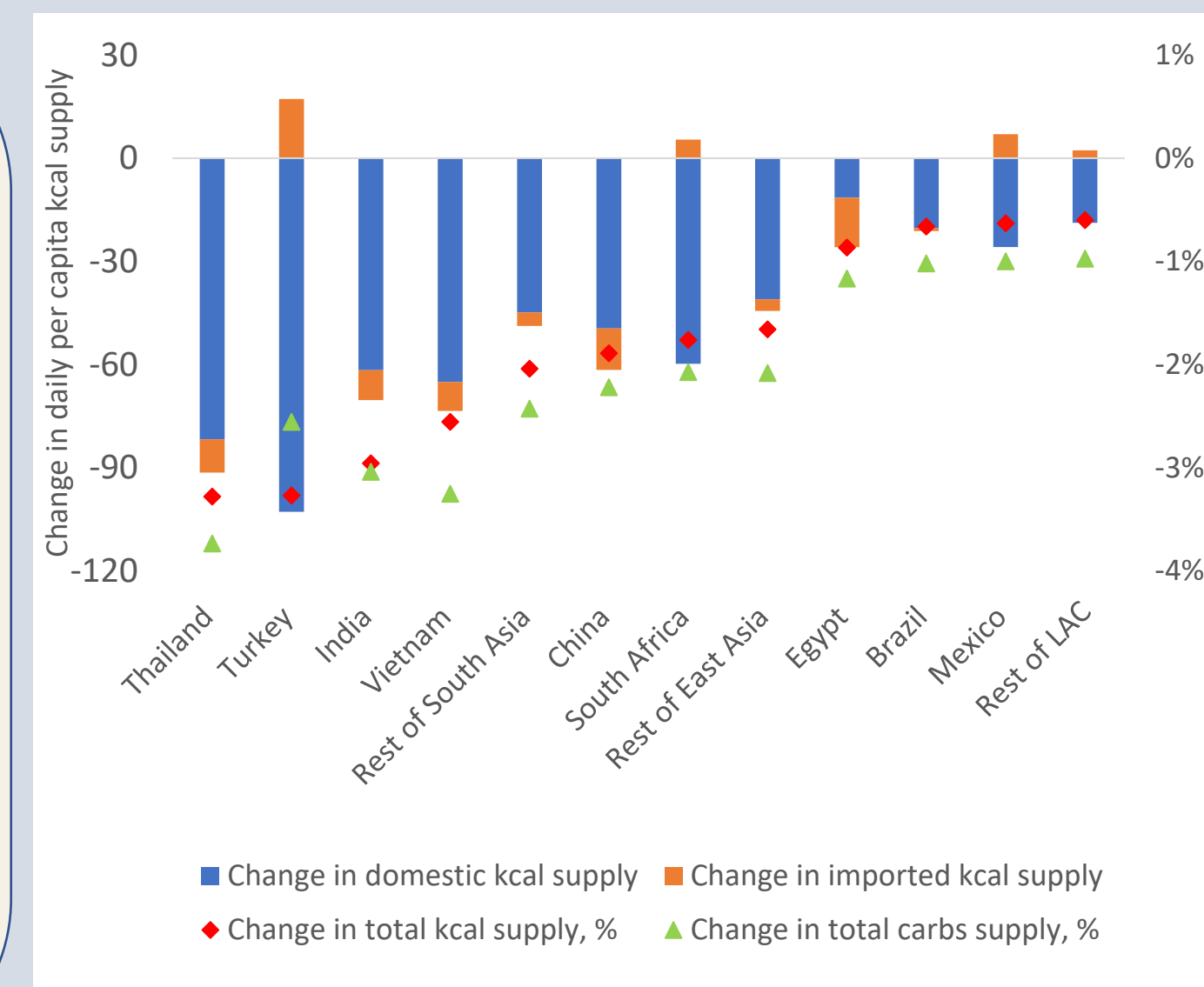


Figure 4. Change in daily per capita kcal supply

Developing economies, such as Vietnam, Thailand, countries in MENA and SSA benefit the most from considered trade policies (in gained income).

Trade policies lead to the substantial expansion in food exports, as the latter increase by over 100 billion USD overcompensating the adverse impacts of the war (Figure 5a). Caloric supply increase both in high- and low/middle-income regions with most of the expansion coming from TFMs (Figure 5b).

Elimination of import tariffs and implementation of TFMs boosts countries' integration into GVCs (Figure 6). As shown in the earlier studies, higher GVC participation makes countries more resilient to the external shocks, helping to reduce income losses.

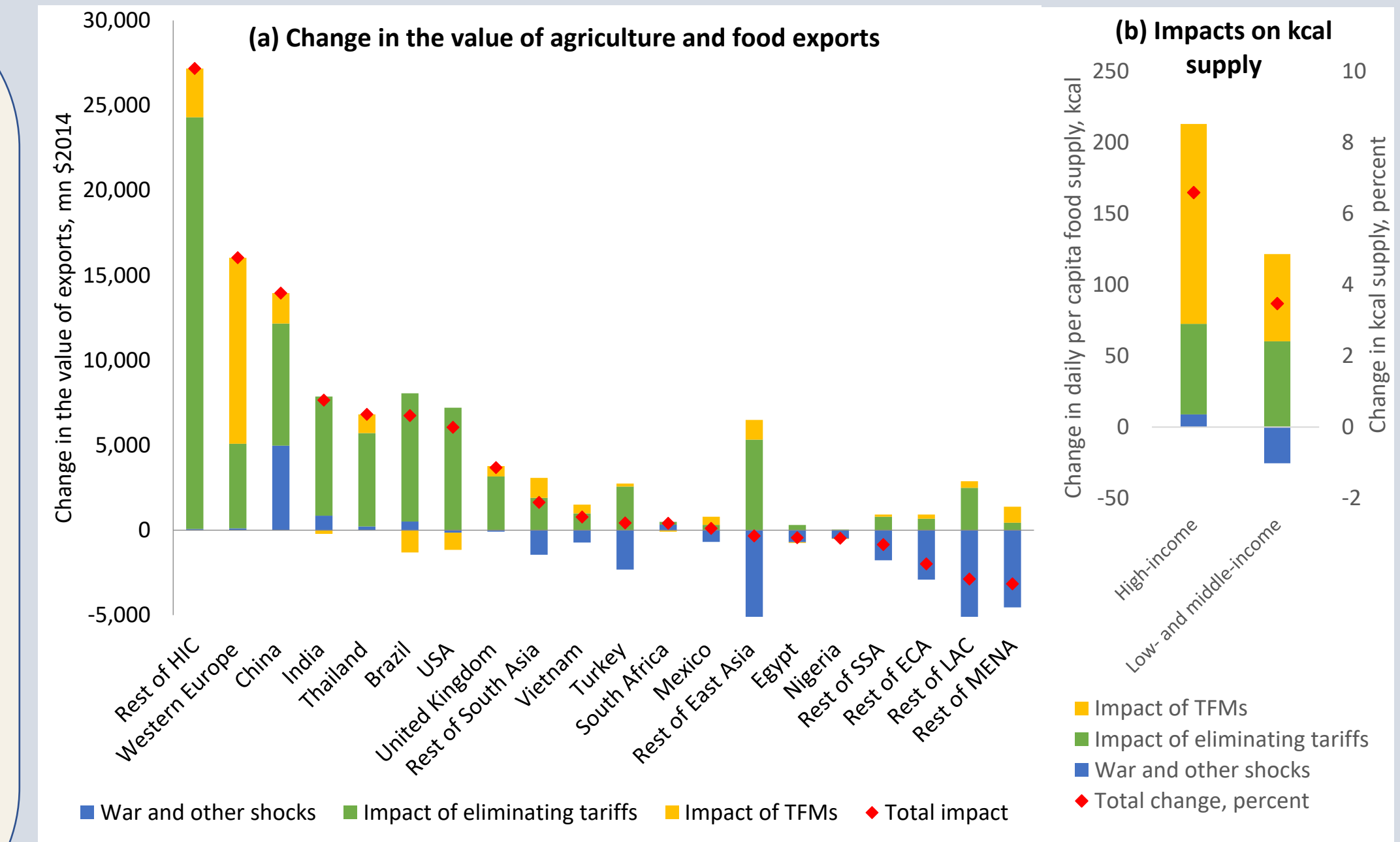


Figure 5. Impact of trade policies on the value of exports (panel a) and caloric food supply (panel b)

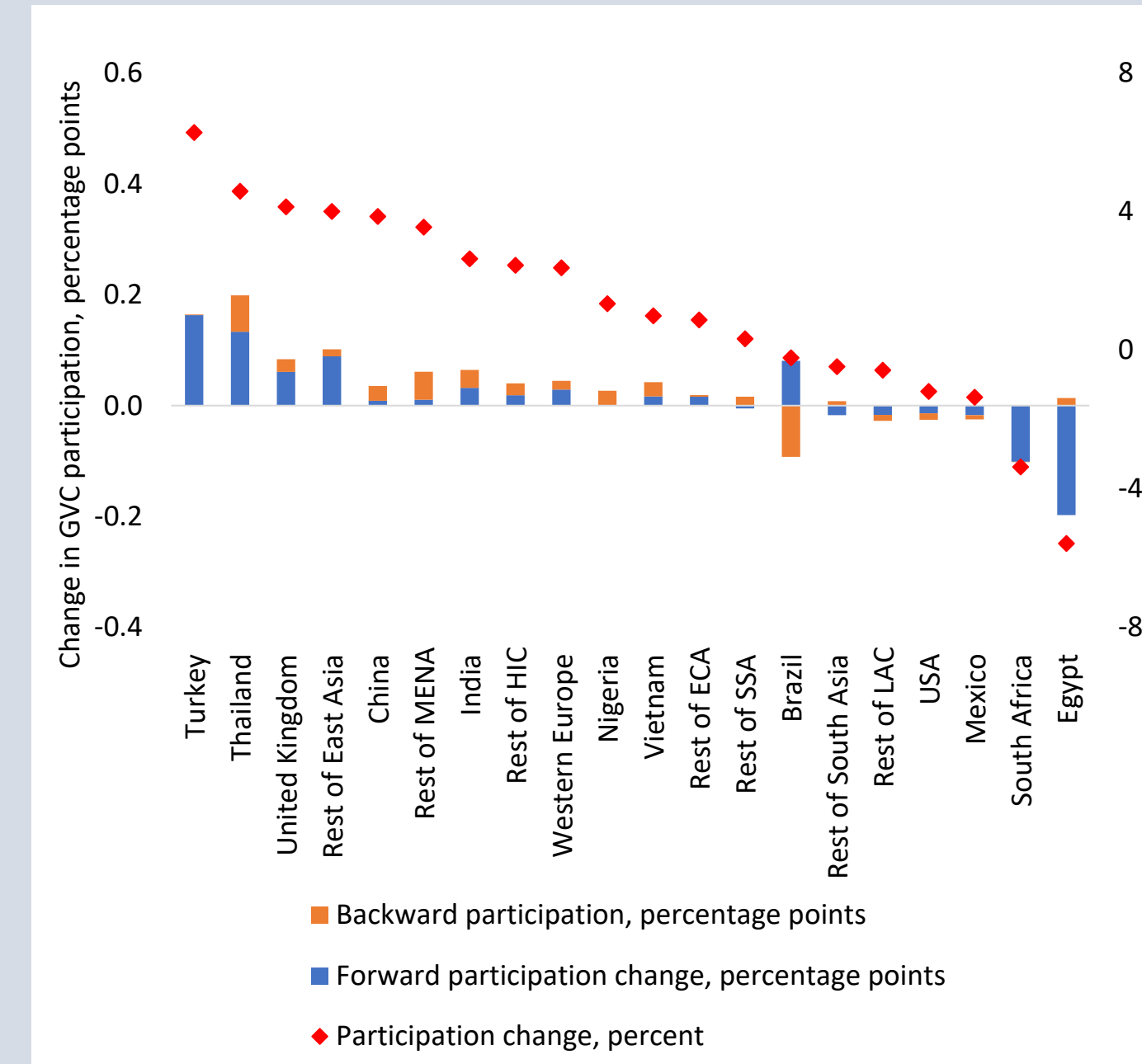


Figure 6. Impact of trade policies on GVC participation of agricultural and food sectors