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USDA Food Security Dashboard

Saquib Ahsan and Keithly Jones

Selected presentation for the International Agricultural Trade Research Consortium's (IATRC's) 2023 Annual Meeting: The Future of (Ag-) Trade and Trade Governance in Times of Economic Sanctions and Declining Multilateralism, December 10-12, 2023, Clearwater Beach, FL.

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USDA Food Security Dashboard

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Global Market Analysis - Trade & Economic Analysis Division

USDA Foreign Agricultural Service
U.S. DEPARTMENT OF AGRICULTURE

What is it?

- Evaluates food security and guides evidence-based policy decisions

- Has variety of metrics that reflect different facets of food security
  - Food insecurity indicators
  - Trade disruption vulnerability
  - Importance of imports
  - Daily caloric intake per person
  - Dietary calories by food groups

Powered by:

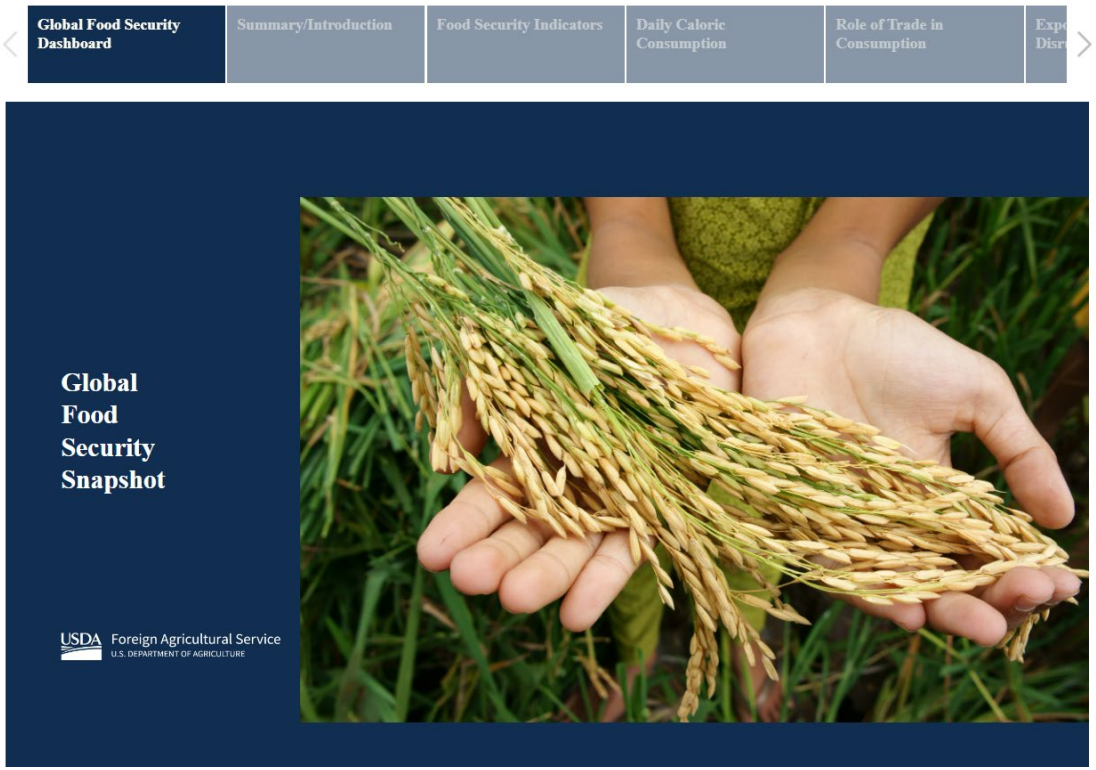
- Promotes evidence-based policies, stakeholder accountability, and collaboration

Purpose & Motivation

- Provide a one-stop shop for a range of food security measures
- Russian invasion in Ukraine resulted in a restriction of grain exports to several vulnerable countries, especially Africa. The geopolitical issues have impacted global food security.

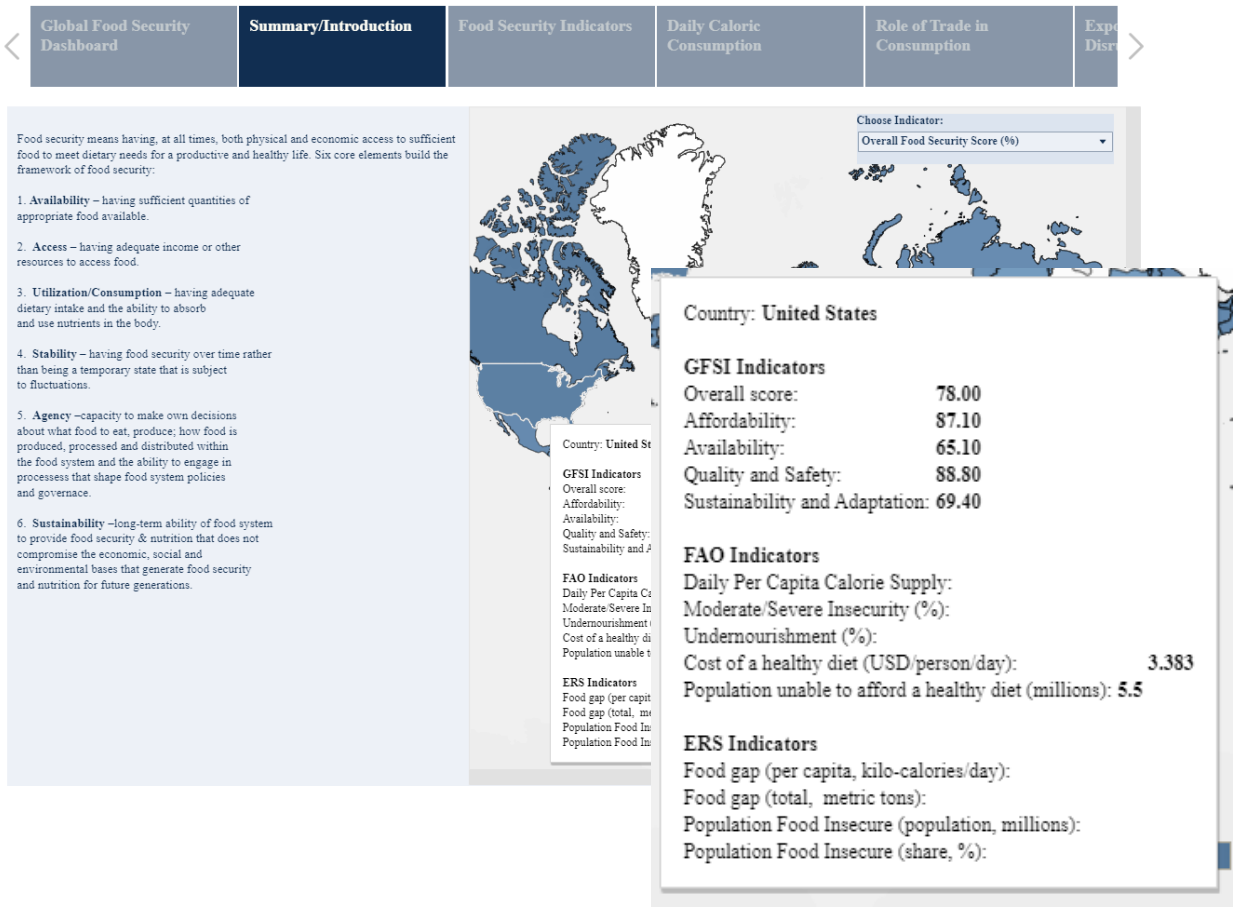
Sections of Dashboard

1. Summary/Introduction
2. Food Security Indicators
3. Daily Caloric Consumption
4. Role of Trade in Consumption
5. Exposure to Trade Disruption
6. Definitions of Indicators



1. Summary/Introduction

- Definitions and World Map
- 3 Food Security Data Sources
  - Global Food Security Index (GFSI) – The Economist
  - UN Food and Agriculture Organization (FAO)
  - USDA Economic Research Service (ERS)



The Economist

USDA Economic Research Service
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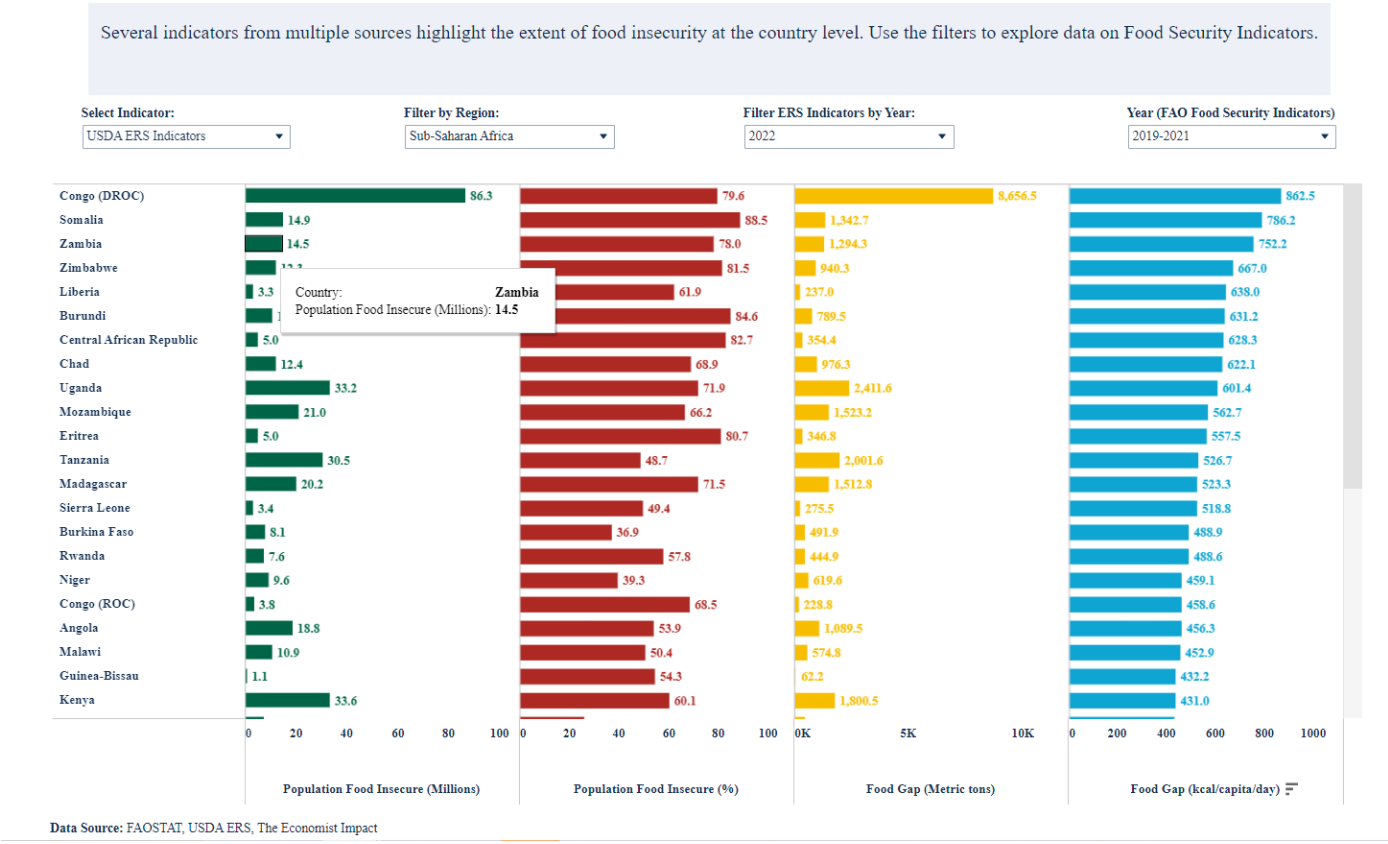
2. Food Security Indicators

- More in-depth analysis from the Summary/Introduction tab
- Compare countries/metrics within a region
- Filter by:
  - Food security data source
  - Region
  - Year/Timeframe



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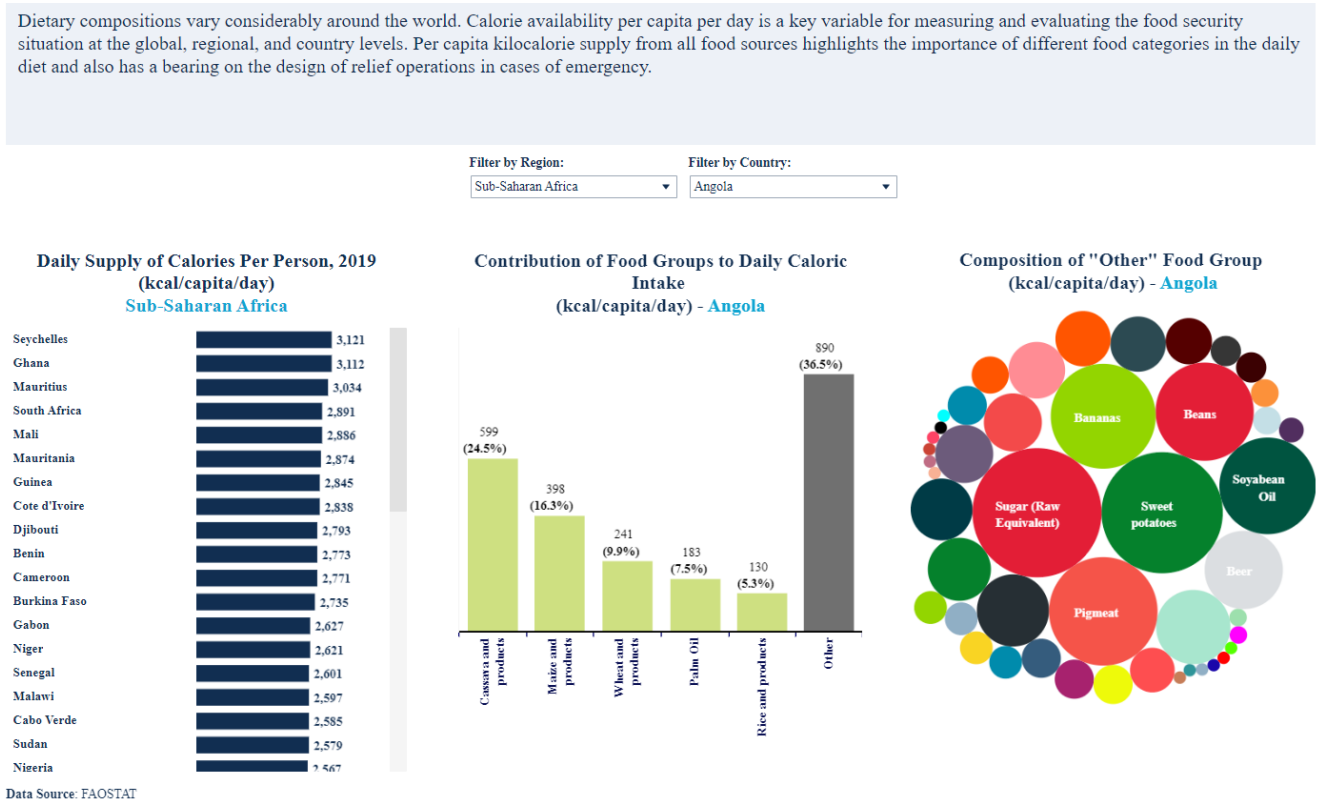
3. Daily Caloric Consumption

- Dietary consumptions vary among countries
- Compare overall daily supply of calories per person by country
- Pick a country to see breakout of major food groups
- For each food group, see the food balance in terms of supply and distribution
- Find out what accounts for "other" food groups



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Trivia Question #1

In Southeast Asia, which country has the highest Daily Supply of Calories Per Person, 2019 (kcal/capita/day)?

A. Malaysia
B. Vietnam
C. Timor Leste
D. Cambodia

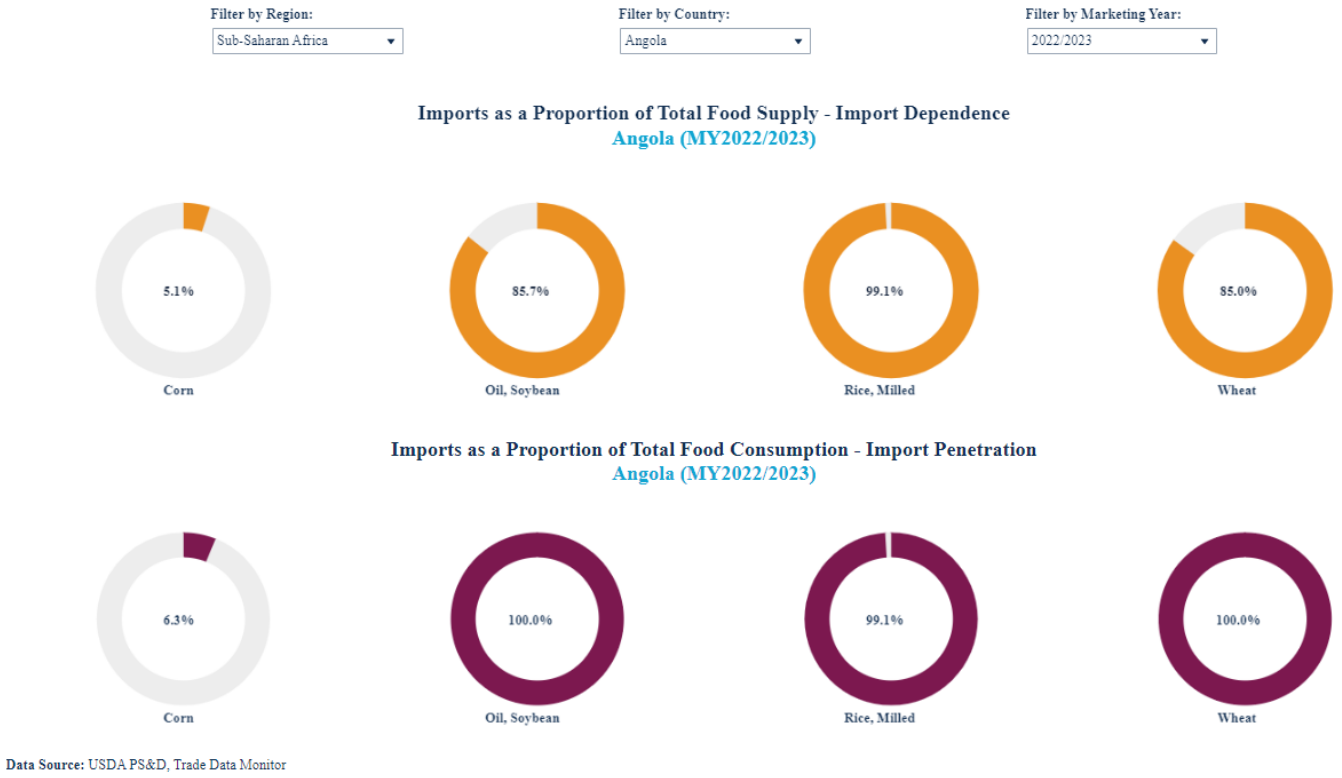
Trivia Question #1

In Southeast Asia, which country has the highest Daily Supply of Calories Per Person, 2019 (kcal/capita/day)?

A. Malaysia (2,933)
B. Vietnam (2,937)
C. Timor Leste (2,231)
D. Cambodia (2,697)

4. The Role of Trade in Consumption

- Countries must produce and import the proper proportion of foods
- For each country, get metrics for import dependence and penetration for each major commodity group, including:
  - Corn
  - Soybean oil
  - Milled rice
  - Wheat
  - Soybeans
  - Sunflower oil



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4. The Role of Trade in Consumption

$$Import\ Dependence = \frac{Imports}{Total\ Supply}$$

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$$Import\ Penetration = \frac{Imports}{Total\ Consumption}$$

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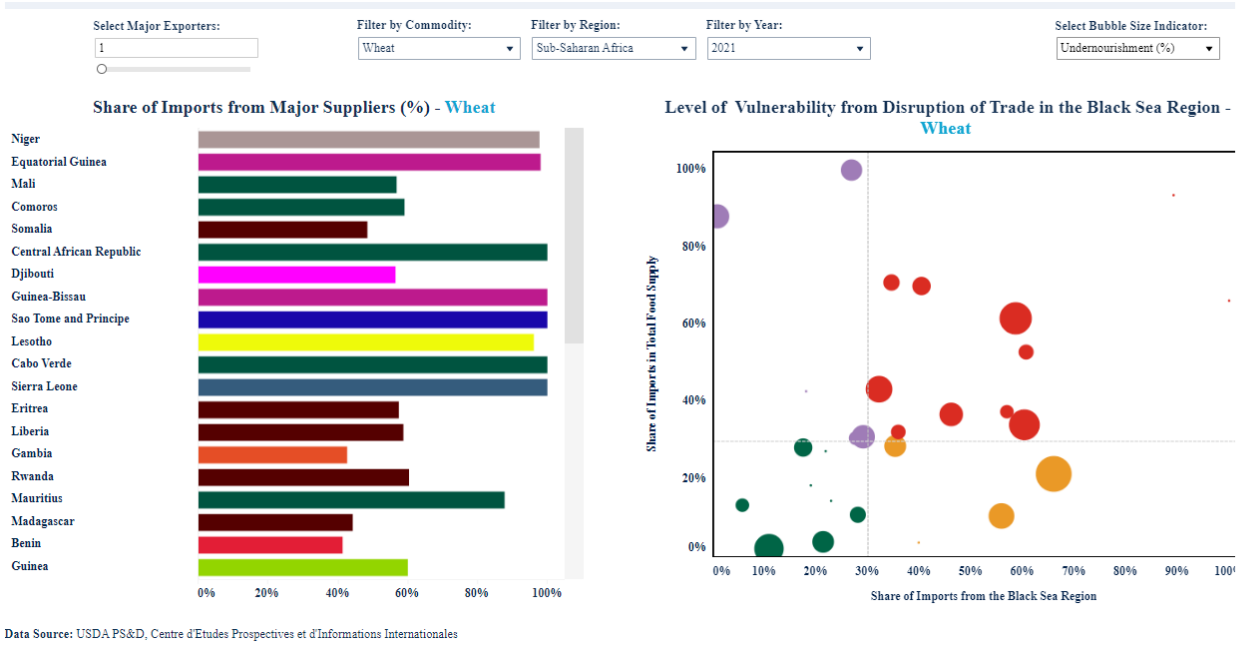
5. Exposure to Trade Disruption

- Food importers could be exposed to trade disruptions and failures
- Determine level of exposure to trade disruption in the Black Sea Region for certain commodities.
- Key commodities: barley, corn, soybean oil, sunflower seed oil, wheat
- Find:
  - Market share of key suppliers
  - Level of trade disruption
  - Undernourishment
  - Insecurity score

- Data sources: USDA PS&D and CEPII



Data Source: USDA PS&D, Centre d'Etudes Prospectives et d'Informations Internationales

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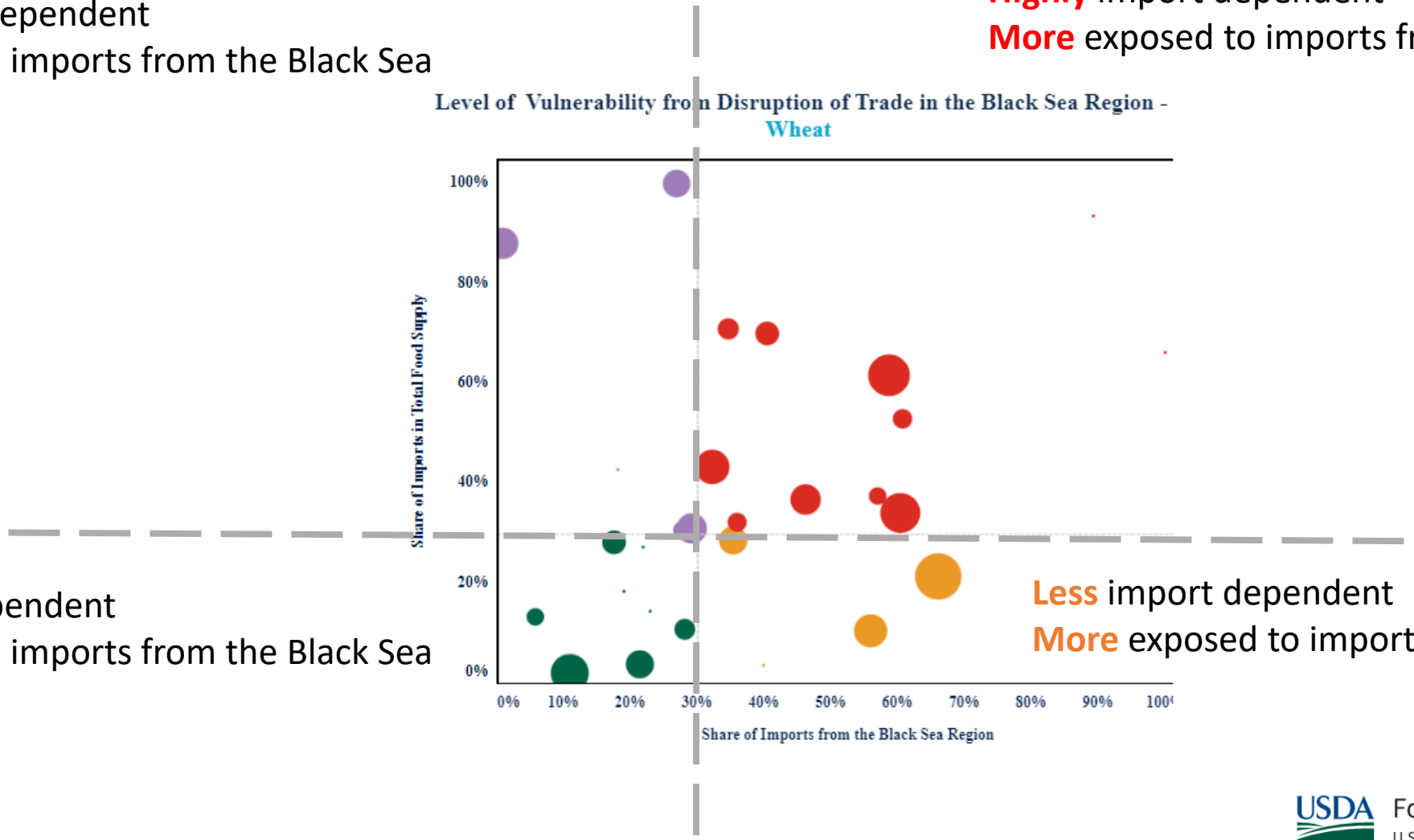
5. Exposure to Trade Disruption

Highly import dependent
Less exposed to imports from the Black Sea

Highly import dependent
More exposed to imports from the Black Sea



Less import dependent
Less exposed to imports from the Black Sea

Less import dependent
More exposed to imports from the Black Sea

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Trivia Question #2

In Sub-Saharan Africa, which country is less dependent on wheat imports but highly exposed to the Black Sea Trade?

A. Zambia
B. Botswana
C. Liberia
D. Ethiopia

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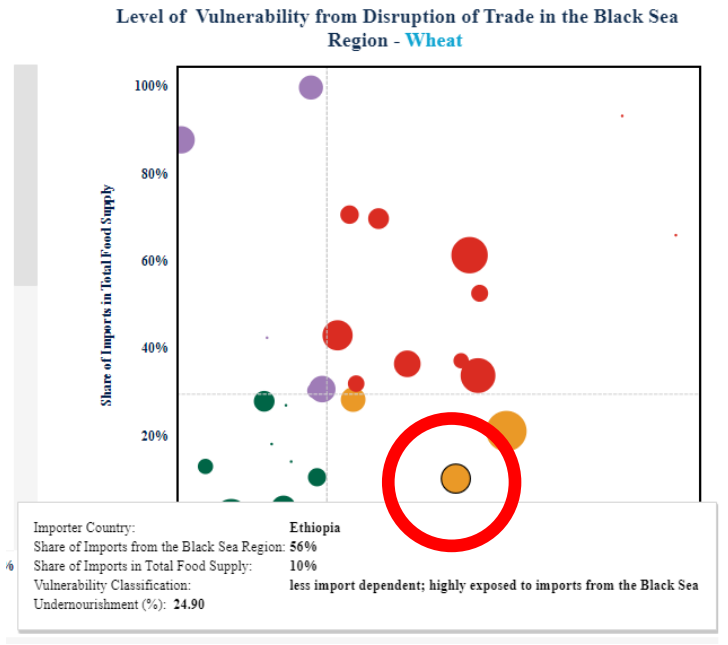

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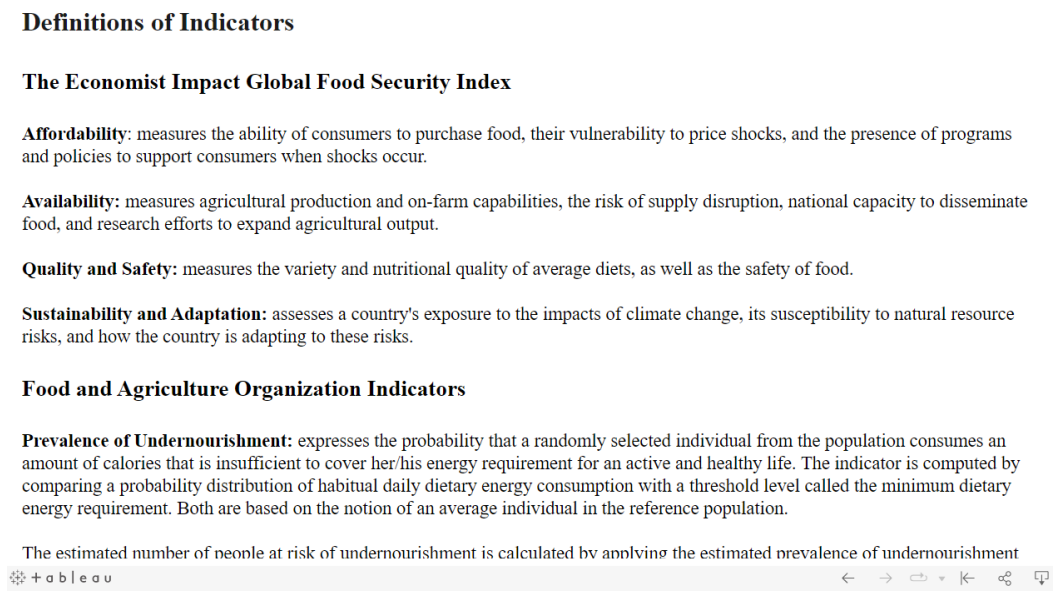
6. Definitions

- Reference for key food security terms for:
  - The Economist Impact's Global Food Security Index
  - UN Food and Agriculture Organization (FAO)
  - USDA ERS
- Import penetration and dependency
- Quadrants of the Black Sea Grain Trade in terms of level of vulnerability



Definitions of Indicators

The Economist Impact Global Food Security Index

Affordability: measures the ability of consumers to purchase food, their vulnerability to price shocks, and the presence of programs and policies to support consumers when shocks occur.

Availability: measures agricultural production and on-farm capabilities, the risk of supply disruption, national capacity to disseminate food, and research efforts to expand agricultural output.

Quality and Safety: measures the variety and nutritional quality of average diets, as well as the safety of food.

Sustainability and Adaptation: assesses a country's exposure to the impacts of climate change, its susceptibility to natural resource risks, and how the country is adapting to these risks.

Food and Agriculture Organization Indicators

Prevalence of Undernourishment: expresses the probability that a randomly selected individual from the population consumes an amount of calories that is insufficient to cover her/his energy requirement for an active and healthy life. The indicator is computed by comparing a probability distribution of habitual daily dietary energy consumption with a threshold level called the minimum dietary energy requirement. Both are based on the notion of an average individual in the reference population.

The estimated number of people at risk of undernourishment is calculated by applying the estimated prevalence of undernourishment

Uses & Moving Forward

- The International Food Assistance Division is using the dashboard to evaluate countries for the McGovern Dole Food Assistance Program

- Collect feedback and make improvements
- Measure impact and results
- Update data yearly

Questions?

Please send follow up questions, comments, and suggestions to:

saquib.ahsan@usda.gov