Macroeconomic Researcher Food Security Time Series and Large Language Chat GPT Dashboard

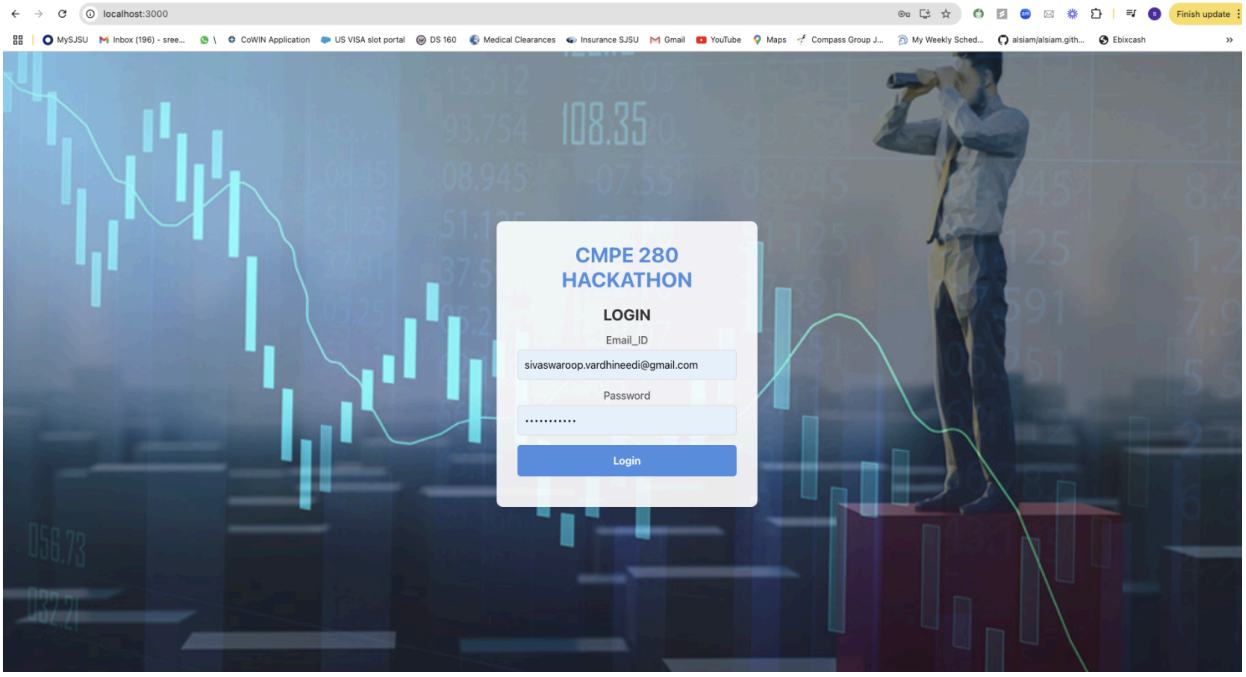
CODE HIEST

016835312 SIVA SWAROOP VARDHINEEDI
017419779 SRI CHARAN REDDY MALLU
017446936 MAHEK VIRANI

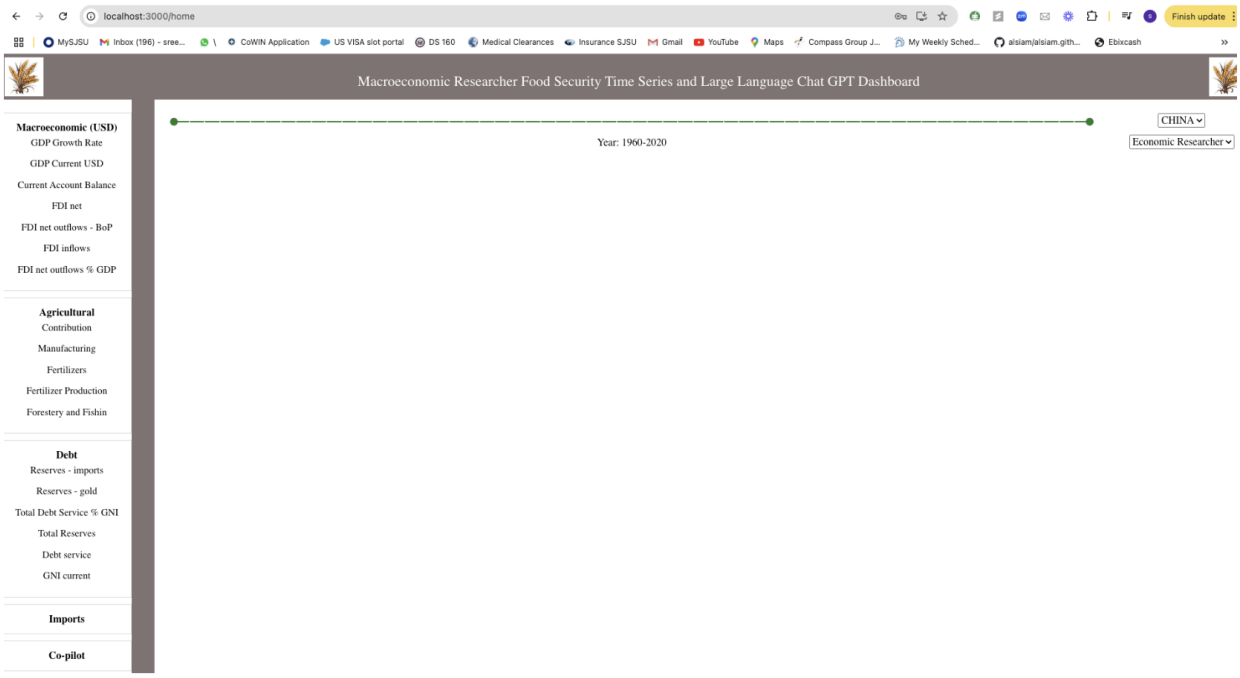
Introduction

This dashboard provides an interactive tool for researchers focusing on food security and macroeconomic indicators. It integrates time series data and large language model (LLM) capabilities to analyze trends in GDP, agricultural output, debt, imports, and other critical indicators related to food security. Leveraging data from sources like the FAO and World Bank, the dashboard serves as a comprehensive resource for examining the economic and agricultural factors impacting global food security.

Login



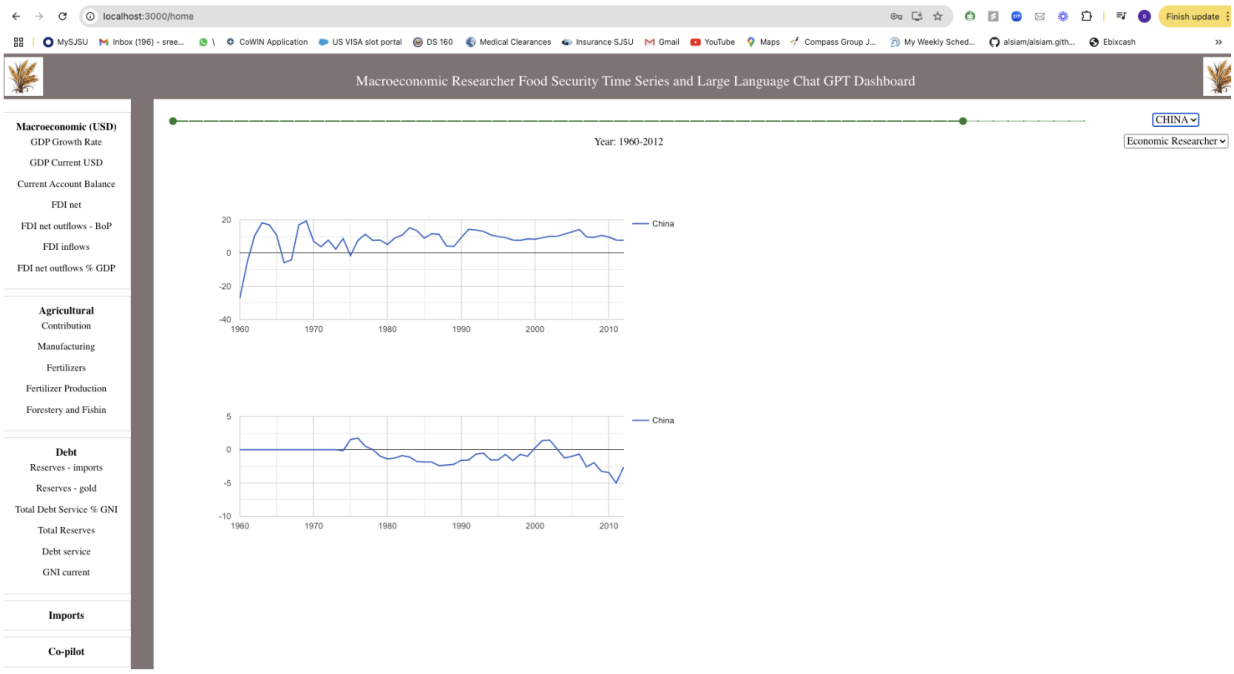
Dashboard



Macroeconomic Indicators (USD)

The "Macroeconomic" section of the dashboard presents key economic indicators, including GDP growth rate, current GDP in USD, and the balance of foreign direct investment (FDI). These indicators help researchers understand the economic context of food security by revealing trends in economic growth and investment flow.

Macroeconomic graphs (Drag option and slider)



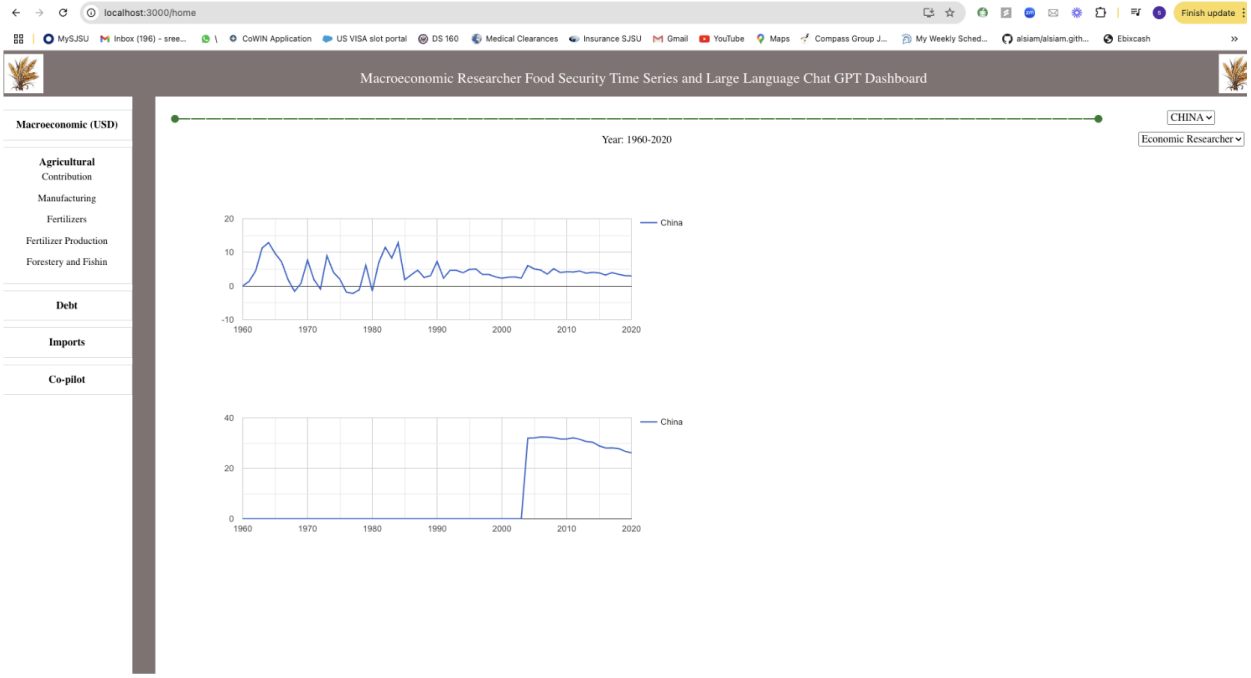
Key Features:

1. GDP Growth Rate Visualization: This chart displays the year-over-year GDP growth rate for selected countries, offering insights into economic expansion or contraction. For instance, users can observe fluctuations in GDP growth for China from 1960 to 2020.
2. FDI Analysis: The FDI section provides a breakdown of net inflows and outflows, which indicate foreign investment levels. This data highlights which economies are attracting or losing foreign capital, impacting their economic stability.

FDI analysis:

Agricultural Indicators

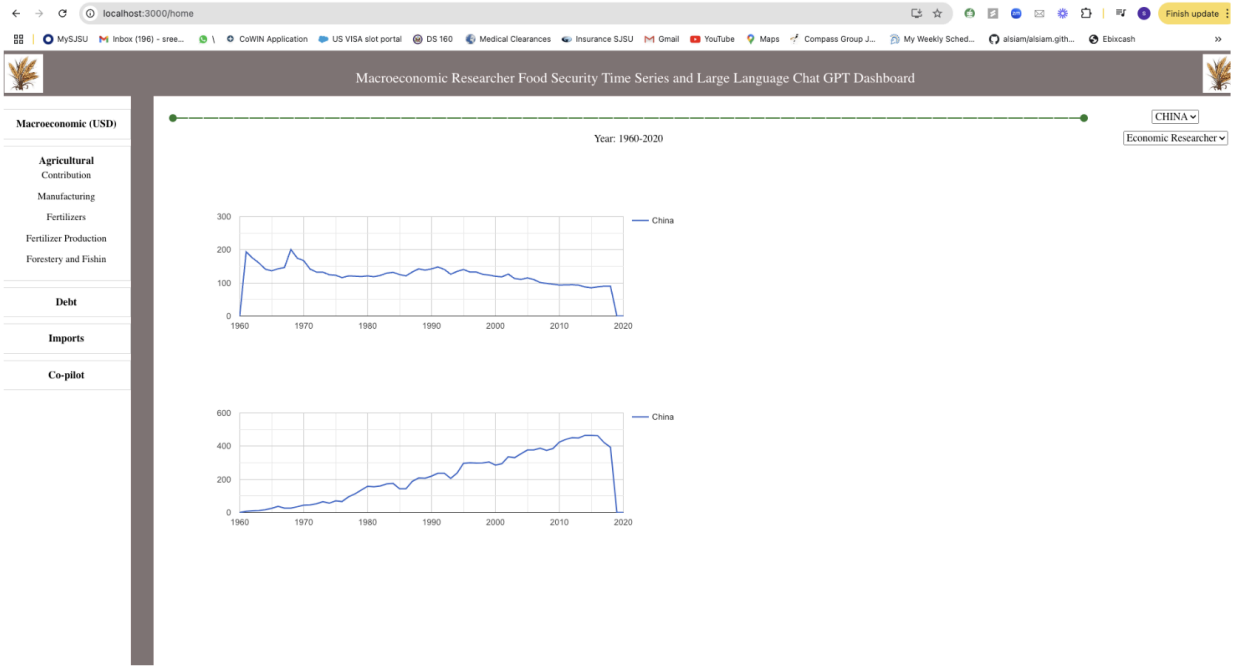
The "Agricultural" section focuses on indicators that are directly tied to food production and sustainability. This includes metrics such as agricultural contribution to GDP, fertilizer consumption, and forestry activities. By examining these trends, users can assess the health of the agricultural sector and its capacity to sustain food production.



Key Features:

1. Agricultural Contribution: The agricultural contribution indicator shows the percentage of GDP generated by agricultural activities. This metric is essential for evaluating the dependence of economies on agriculture.
2. Fertilizer Consumption: This visualization highlights the use of fertilizers, measured in kilograms per hectare, which is a critical factor for crop yield and food production.

Fertilizer production



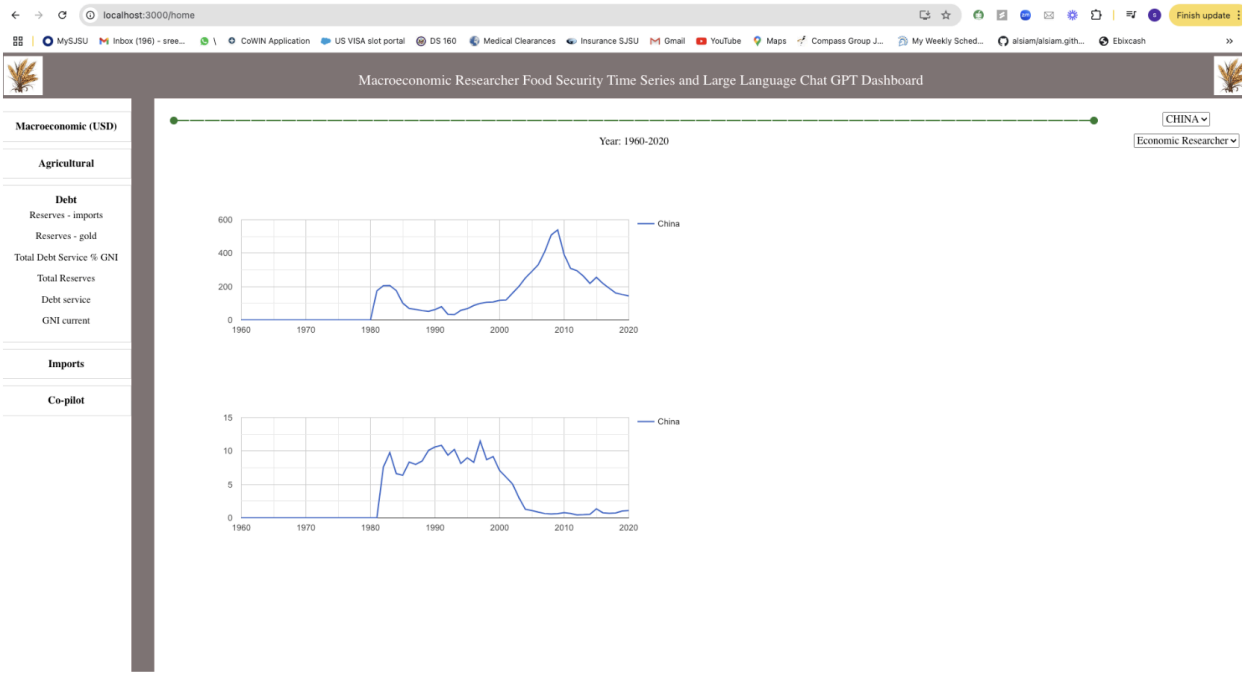
Debt Indicators

Debt metrics are crucial for understanding a country's financial health and its ability to maintain sustainable food security. The "Debt" section provides data on total reserves, debt service as a percentage of GNI, and other financial reserves, including gold.

Key Features:

1. Total Reserves: This indicator shows the total monetary reserves available to a country, which can support imports of food and other essentials during economic downturns.
2. Debt Service: Debt service as a percentage of GNI reflects the portion of income dedicated to debt repayment, impacting a country’s financial flexibility for investing in food security.

Total reserves and Debt Service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Macroeconomic (USD)
Agricultural
Debt
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Total Debt Service % GNI
Total Reserves
Debt service
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Imports
Co-pilot
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Economic Researcher
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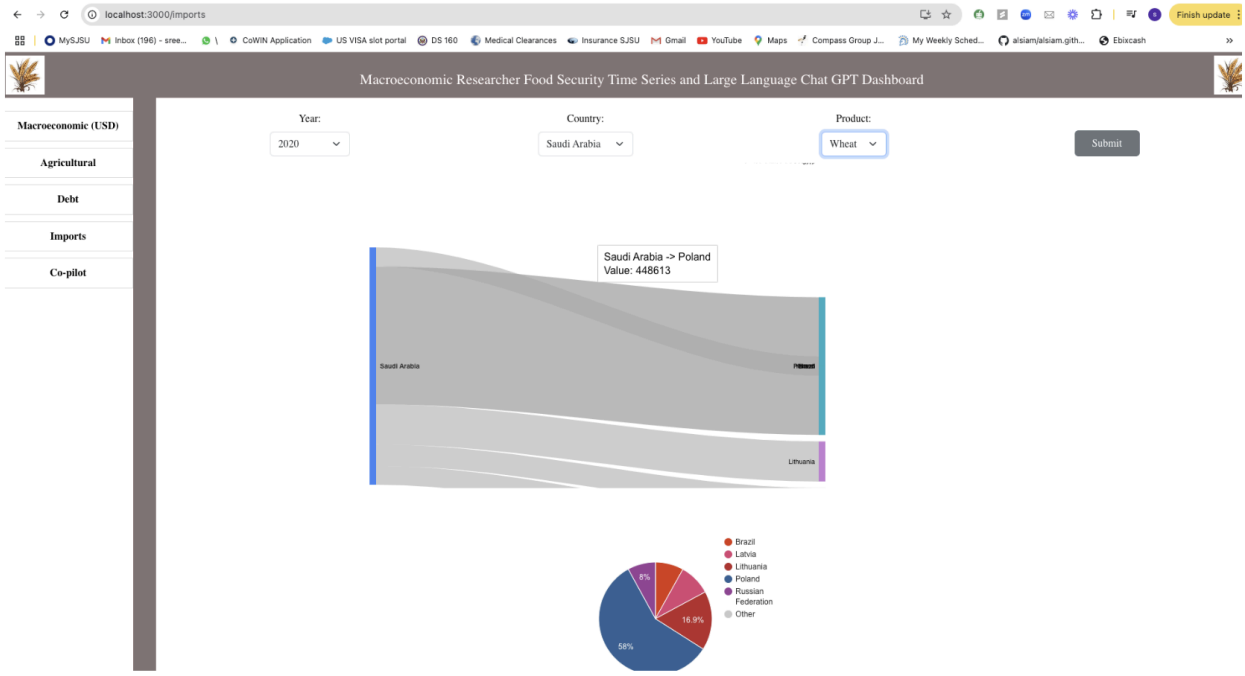
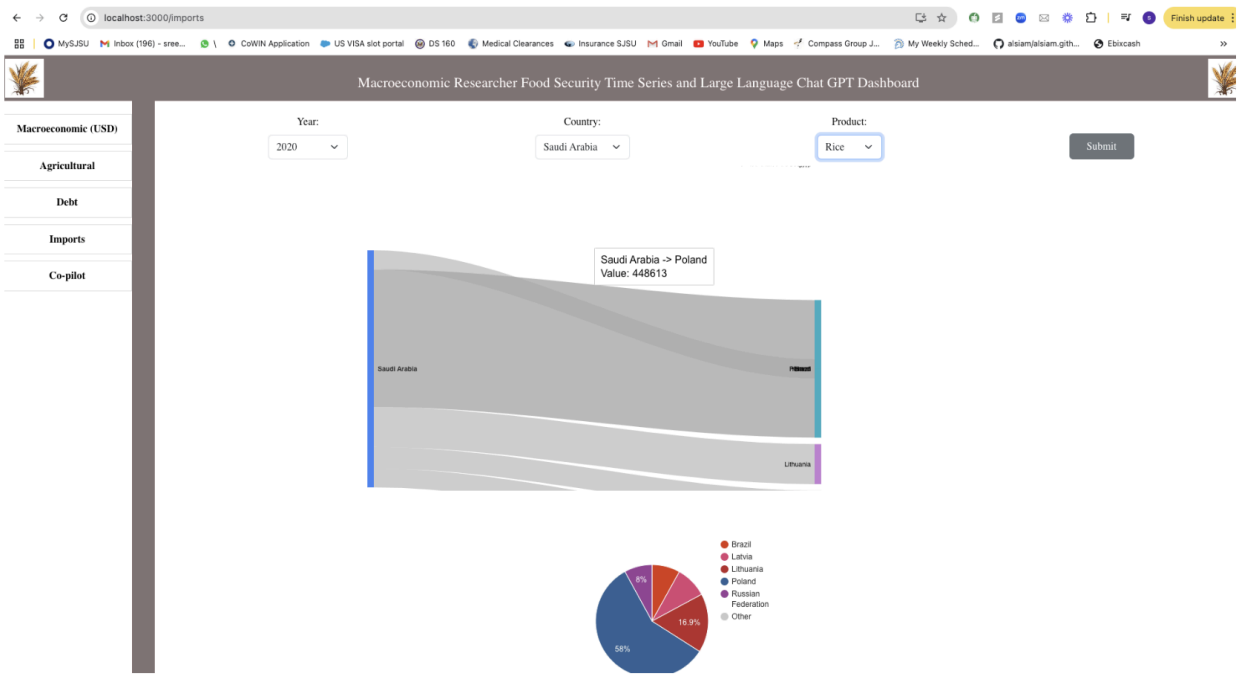
Imports and Food Security

The "Imports" section focuses on the imports of essential food items, such as wheat and rice, which are critical for food security, especially for countries with limited agricultural output. This section provides data on imports from various countries, detailing quantities and origins.

Wheat



Rice

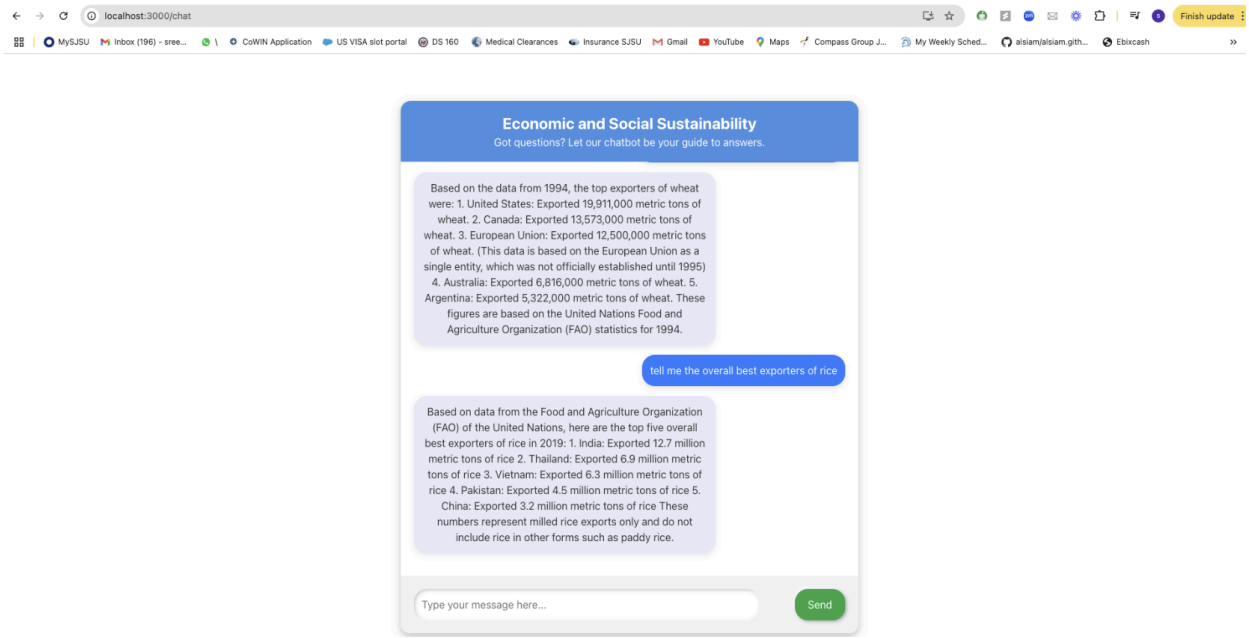


Key Features:

1. Food Import Visualization: Users can view import trends over time for key food commodities, highlighting reliance on imports for food security.
2. Country-Specific Data: The dashboard allows users to filter imports by product and country, offering granular insights into trade dependencies and food security vulnerabilities.

Co-Pilot Chat Interface

The "Co-Pilot" section integrates a large language model (LLM) to assist users with queries related to the data. This chat interface allows users to ask questions about trends, obtain summaries, or clarify data points. The LLM is designed to provide structured answers based on the data available in the dashboard.



Key Features:

1. Interactive Q&A: Users can interact with the LLM to gain insights on complex topics, such as the impact of GDP on food imports or the significance of debt indicators for food security.
2. Data-Driven Responses: The chat interface draws on the dashboard's data, allowing for data-driven answers that enhance understanding.

Conclusion

This dashboard is a powerful tool for researchers focused on food security and macroeconomic stability. By combining visual data analysis with interactive LLM capabilities, it provides a comprehensive platform for exploring the complex factors influencing global food security. With data from multiple sources and interactive

visualizations, researchers can derive actionable insights, making it a valuable resource in the field.