

Effects of Non-Tariff Trade Barriers in Rice Markets: The Case of Rice Export Ban Imposed by India

Walter Ac-Pangan, Nathan Hendricks
Department of Agricultural Economics, Kansas State University



Overview

- FAO All Rice Price Index (FAO, 2024) reached its highest nominal level in 16 years.
- When international prices spike, the governments tend to intervene, trying to reduce the effects of high prices. (Jensen and Kim, 2017).
- India is the world's largest rice exporter (40 % of global rice trade in 2022).
 - ❖ Export ban on broken rice (September 2022)
 - ❖ Export ban of non-basmati rice (July 2023)
- On average, Non-Trade Barriers can have similar trade restrictions effects as tariffs (Kee et al. 2009; Head and Ries 2008; Hoekman and Nicita 2011; Bratt 2017).

Research Question

- What is the effect of the Indian export bans on broken and milled rice on the global rice markets?

Objectives:

- Quantify the impact of export bans on trade flows changes in India and among major rice exporters.
- Identify the redistribution effects of export bans on trade flows at the country level.
- Assess changes in trade flows across regions and income-level country categories.

Methods and Data

- We use the import trade flows from UN COMTRADE.
- Monthly bilateral data of broken rice (100640) and milled rice (100630).
- We used Pseudo Poisson Maximum Likelihood estimator.
- Countries contributing to the 90% of rice market trade flows.

- 4-HS Product Level Code: Rice (1006)
- 6-HS Product Level Code: Broken Rice (100640), Milled Rice (100630)
- 8-HS Product Level Code: Non-Basmati Rice (10063090)

- Model 1:

$$Y_{i,j,m,y} = \exp[\beta_1 EB_BrokenRice_{m,y} * 1[i = India] + \beta_2 EB_BrokenRice_{m,y} * 1[i \neq India] + \alpha_{i,j} + \alpha_{j,m} + \alpha_{i,y}] + \epsilon_{i,j,m,y}$$

where

- $Y_{i,j,m,y}$ is the value of imports in millions of KG (or millions of USD) from exporting country (i) to importing country (j), at month (m) and year (y).
- $EB_BrokenRice_{m,y}$ is a binary variable, equal to “1” if the broken rice export ban imposed by India is in effect and country (i) is India, and 0 otherwise.
- $EB_BrokenRice_{m,y}$ is a binary variable, equal to “1” if the export ban imposed by India is in effect and the exporter country (i) is another major rice exporter but India, and “0” otherwise
- Fixed Effects: $\alpha_{i,j}$ are exporter-importer, $\alpha_{m,y}$ are month-year, $\alpha_{j,m,y}$ are importer-month-year

- Model 2: Country Specific Coefficients

- Model 3: By Income Group and by Region

Results

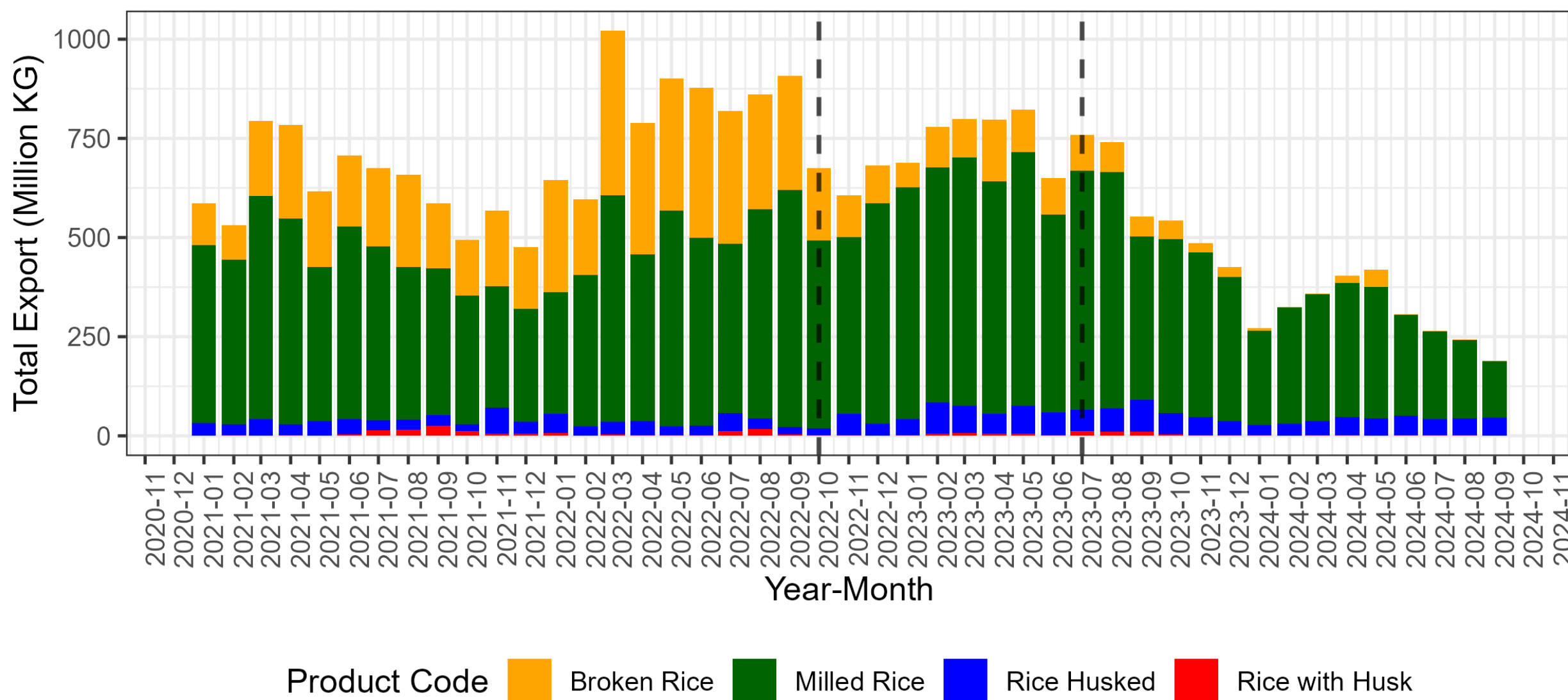


Figure 1: India Rice Exports by Product at the HS-6 product level code.

Broken rice:

Trade deflection and trade depression effects

- Export Increased: Spain (2.043), Paraguay (0.797), Laos (0.842), Mozambique (0.161), Italy (0.254).
- Export Decrease: Pakistan (-0.914), China (-0.517), United Arab Emirates (-1.880).

Milled rice:

Trade deflection and trade depression effects

- Exports Increased: Thailand (0.337), USA (0.262), Pakistan (0.687), China (0.566), Uruguay (0.606), Laos (2.377), Tanzania (1.546).
- Export Decreased: Belgium (-2.444), Australia (-0.450), Peru (-0.821).

Broken Rice (100640)

Comparison 1-year before and 1-year after the implementation of the export ban. India market share change from 38% to 22%.

Milled Rice (100630)

Comparison 1-year before and 1-year after the implementation of the export ban. India market share change from 30% to 23%.

Conclusions

Reduce the export volume of rice from India:

- Supply reduction
- As a world major rice exporter any action or policy implemented by India in their rice exports will have an effect in the international rice markets.

Changes in Trade Flows:

- The countries that increase their market share in the international broken rice markets as exporter are Myanmar, Vietnam, Pakistan, Thailand.
- The countries that increase their market share in the international milled rice markets as exporter are Thailand, Vietnam, Pakistan, US.

Export bans Comparison:

- The effects of the broken rice export ban had a larger impact on the international broken rice markets since India had a major market share of exports, and the exports from other countries increased but were not statistically significant.
- Milled rice export ban had a lower negative impact. However, the increase in exports from other countries was statistically significant.