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IRRI
INTERNATIONAL RICE RESEARCH INSTITUTE
MICHIGAN STATE UNIVERSITY

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Can we keep up with the demand?
Emerging trends in global rice consumption

Agricultural & Applied Economics Association's 2010, AAEA, CAES & WAEA Joint Annual Meeting, Denver, Colorado, 25-27 July 2010

Background

This study aims to examine the trends in consumption of rice using a structural econometric model of the global rice market.

Ito, Peterson, and Grant (1989) claimed that rice is becoming an inferior good in Asia and that there is a "potential for excess supplies of rice to develop in Asia putting downward pressure on price".

Huang, David, and Duff (1991) contended that while negative income elasticities are supported by high-income level countries such as Japan, Taiwan, Singapore, Malaysia and Thailand, the population and consumption of these 5 countries account for less than 10% of the totals for Asia. Thus, for most of Asia, rice is not an inferior good. Huang et al. projected that income elasticity will likely remain positive throughout the 1990s and concluded that rice supply prospects remained weak.

Rice is a staple food in Asia. It accounts for more than 40% of the caloric consumption of most Asians. Poor people spends as much as 30–40% of their income to buy rice (IRRI, 2008). Because of the political and economic importance of rice, agricultural policies of Asian governments have been largely focused on attaining rice self-sufficiency in the pursuit for food security.

There had been several suggestions that the growth in demand for rice has started to slow down as a result of urbanization, increases in per capita incomes, and the already high level of rice consumption reached in many Asian countries. Researchers believe that in developed countries in Asia, rice became an inferior good several decades ago (Wen Chern et al., 2003). However, the literature is not clear on this.

Methodology

The IRRI Global Rice Model (IGRM) is used to examine the trends in rice consumption and its impact on global food security.

IRGM is a partial equilibrium structural econometric simulation model that includes **18 major rice producing, consuming, and trading countries**.

The representative country model includes supply, demand, trade, ending stock, and market equilibrium conditions.

For major rice producing countries, supply is modeled in a regional framework to capture different mix of crops due to climatic differences and regional heterogeneity in availability of water and other natural resources.

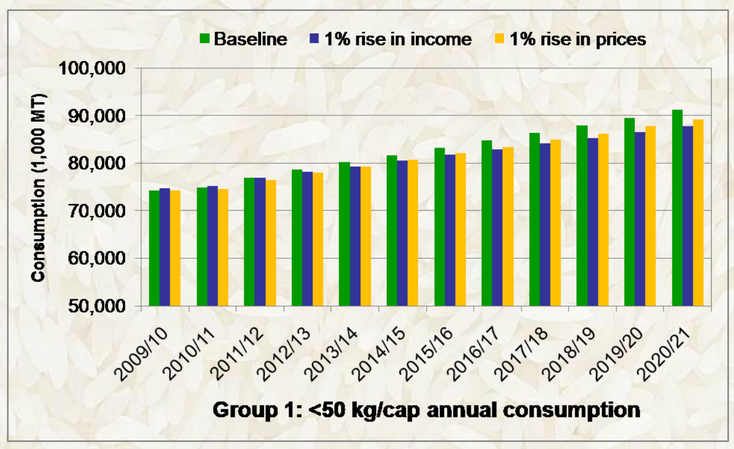
On the demand side, rice consumption is divided into food, seed, and other uses.

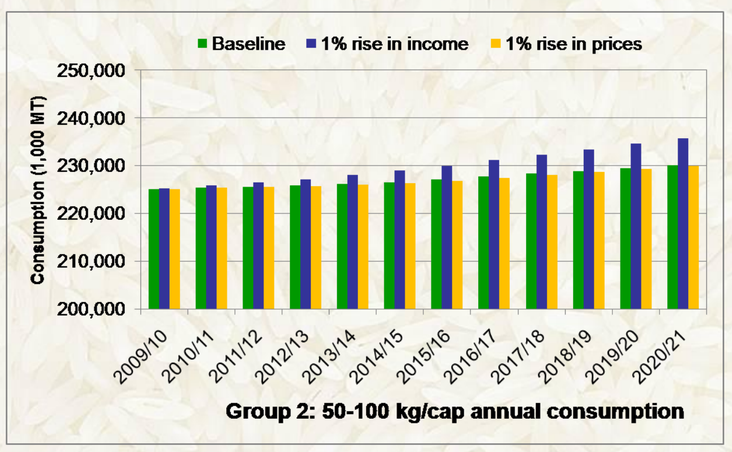
Individual country models are linked through the net trade equations to solve for Thai FOB (5% broken, Bangkok) to appropriately link individual country models to the world rice economy.

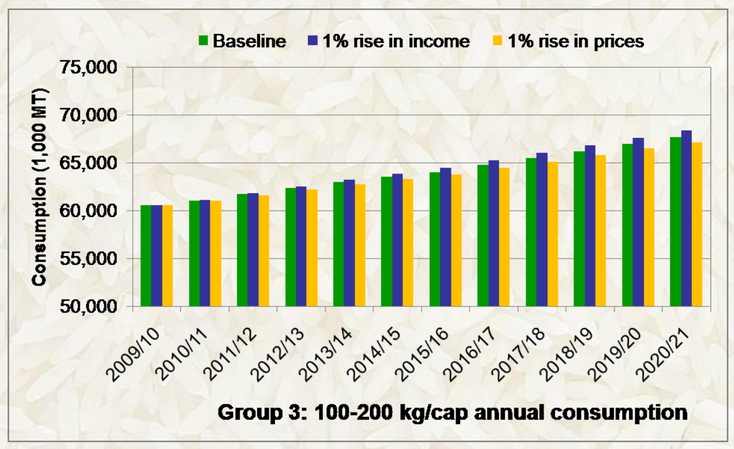
The analysis simulated different scenarios of income and domestic price levels and its effect on rice consumption. The scenario results were compared with the baseline to quantify the effect of changes in income and prices on domestic and global rice consumption.

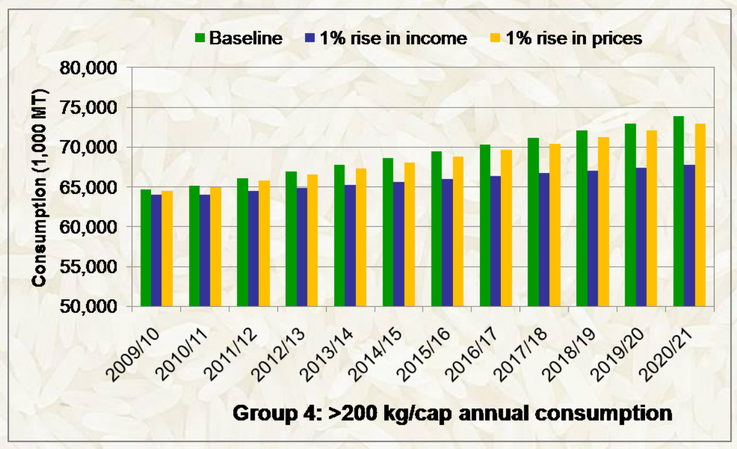
Results

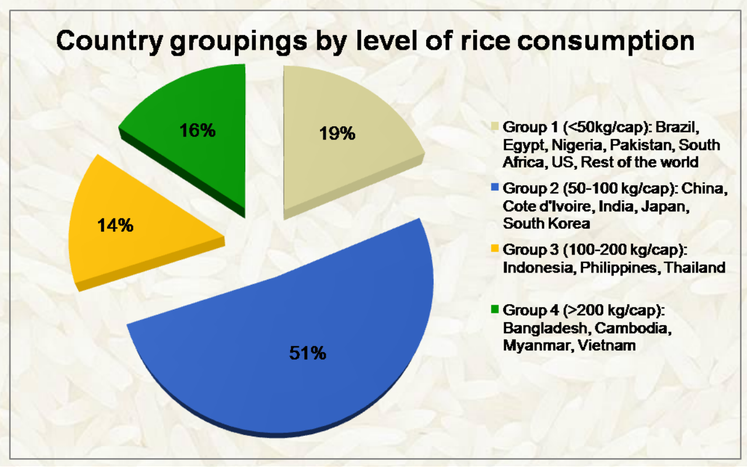
Trends in consumption

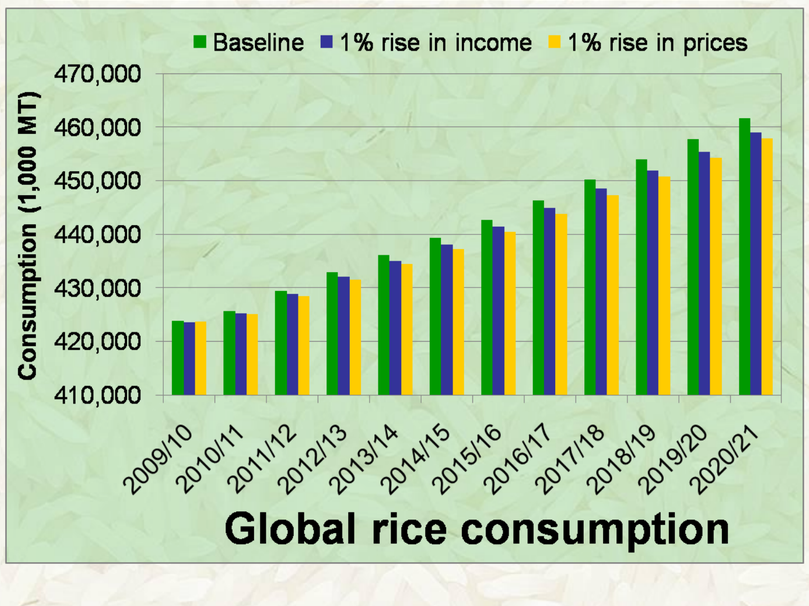












Conclusion

The increase in consumption is expected in countries who consume 50-200 kg/cap of rice per year (Groups 2 and 3), accounting for 65% of global rice demand. This confirms that ***for most of Asia rice is not an inferior good.*** The increase is countered by the expected decline of consumption in countries that are consuming very low levels (Group 1: <50 kg/cap) and those who are consuming very high levels (Group 4: >200 kg/cap) of rice per year. Rice consumption is generally responsive to changes in own price. ***Over-all, we expect a decline in rice consumption in the next 10 years***, given improvements in national incomes and increase in domestic price of rice.

References

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