



# RETAIL DEMAND ESTIMATION OF ORGANIC AND OTHER VARIANTS OF RICE IN THE PHILIPPINES

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and its Implications to Sustainability and Self Sufficiency

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# Outline

- Background
- Objectives
- Methods
- Findings
- Conclusion



# Background

- **Rice – an indispensable part of the Filipino diet**  
(35% of the total food consumption; 85% of the total cereal consumption)<sup>1</sup>
- **Self-sufficiency target**  
(Food Staples Sufficiency Program: farm productivity improvement and increase in the competitiveness of Filipino Rice farmers)

<sup>1</sup>Aguilar, F. (2005). *Rice in the Filipino Diet and Culture*. Makati: Philippine Institute for Development Studies.

<sup>2</sup>Clarete, R. (2012). *Rice self-sufficiency, pitfalls and remedies*. University of the Philippines, School of Economics.

# The Problem

- Trade-off between feeding the people and environmental preservation.
- Policies for self-sufficiency are often towards increasing yield through subsidies for farm inputs, mechanization, and irrigation<sup>1</sup>.
- Incentives to increase yield have led to:
  - inefficient utilization of energy
  - overexploitation and excessive usage of water
  - indiscriminate use of inorganic fertilizers and other inputs<sup>2,3</sup>.

<sup>1</sup> Rasul, G. (2016). Managing the food, water, and energy nexus for achieving the Sustainable Development Goals in South Asia. *Environmental Development*, 18, 14-25.

<sup>2</sup> Pingali, P. (2007). Agricultural growth and economic development: a view through the globalization lens. *Agricultural Economics*, 37(s1).

<sup>3</sup> Rigby, D., & Caceres, D. (2001). Organic farming and the sustainability of agricultural systems. *Agricultural Systems*, 68, 21-40.



# The Problem

- Organic food for environmental sustainability<sup>1</sup> but not for food security?<sup>2</sup>
- Reasons for buying organic include:
  - superior taste
  - nutrition and health benefits
  - food safety concerns
  - environmental preservation<sup>3,4,5</sup>
- For rice, sufficient demand for organic be established in order to incentivize farmers to adopt organic farming<sup>6</sup>

<sup>1</sup>Kesavan, P., & Swaminathan, M. (2008). Strategies and models for agricultural sustainability in developing Asian countries. *Philosophical Transactions*, 363(1492), 877-891.

<sup>2</sup> Azadi, H., & Ho, P. (2010). Genetically modified and organic crops in developing countries: A review of options for food security. *Biotechnology Advances*, 28, 160-168.

<sup>3</sup> Dettman, R. (2008). Organic Produce: Who's Eating it? A Demographic Profile of Organic Produce Consumers. American Agricultural Economics Association . Orlando.

<sup>4</sup> Dimitri , C., & Greene, C. (2002). Growth Patterns in the U.S. Organic Foods Market. *Agriculture Information Bulletin*, 777.

<sup>5</sup> Gil, J., Garcia, A., & Sanchez, M. (2000). Market Segmentation and Willingness to Pay for Organic Products in Spain. *International Food and Agribusiness Management Review*, 3(2), 207-226.

<sup>6</sup> Idda, L., Madau, F., & Pulina, P. (2008). The Motivational Profile of Organic Food Consumers: a Survey of Specialized Stores Customers in Italy. 12th Congress of the European Association of Agricultural Economists.

# Objectives

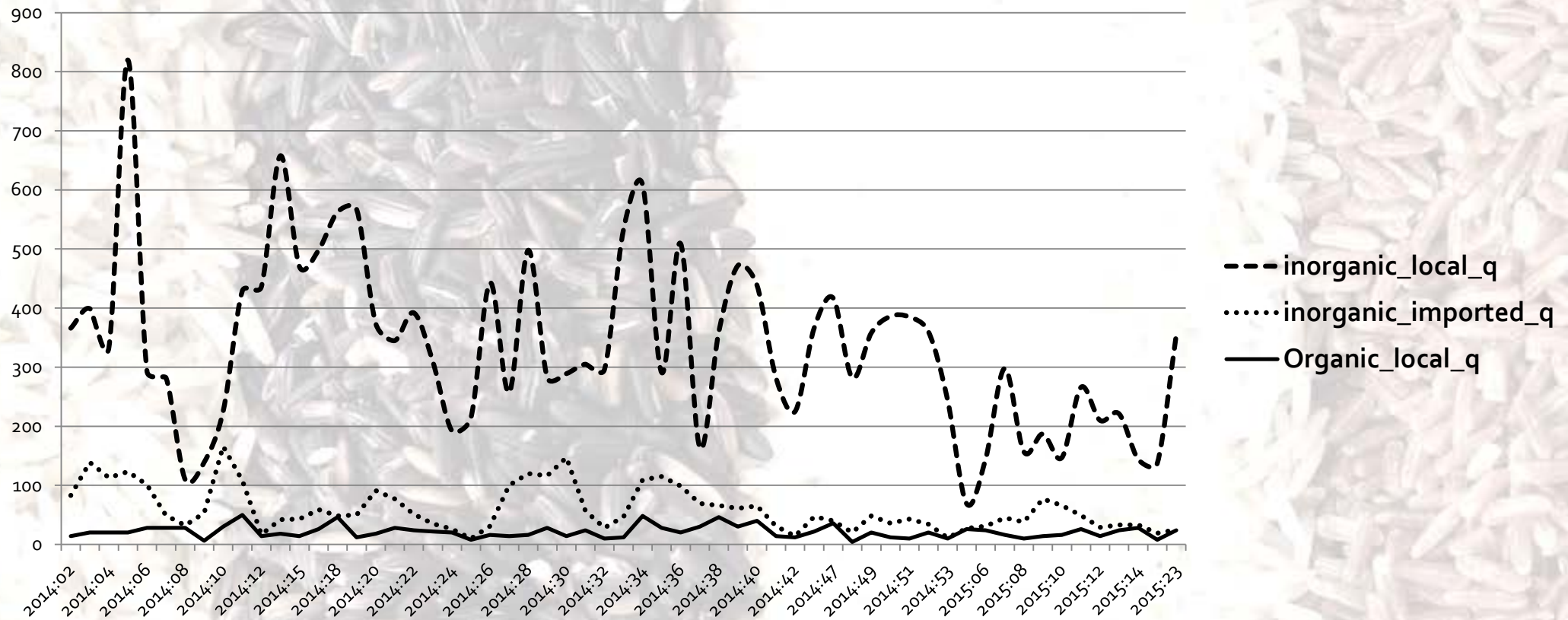
- to understand the consumer demand and the positioning of imported or local and inorganic or organic rice in the market.
- contribute to the understanding of how the market for organic rice behaves and how it could possibly affect both self-sufficiency and sustainability of rice

# Methods

- Weekly Point of Sale Data from the Supermarket
- Data aggregation- clustering and pooling of data based on attributes (organic, inorganic, imported, local)
- Almost Ideal Demand System- to determine the demand and expenditure elasticities of the rice variants at the means



# Findings and Implications





# AIDS Result

	Local organic	Local inorganic	Imported inorganic
Expenditure elasticity	0.090 (1.500)	1.159 (0.064)	0.836 (2.281)
Hicksian (compensated)			
Local organic	-1.281 (1.808)	1.089 (1.388)	0.192 (2.000)
Local inorganic	0.153 (0.199)	-0.416 (0.332)	0.263 (0.929)
Imported inorganic	0.142 (0.414)	1.386 (0.028)	-1.528 (1.075)
Marshallian (uncompensated)			
Local organic	-1.290 (1.808)	1.021 (0.072)	0.179 (2.190)
Local inorganic	0.031 (0.199)	-1.288 (0.013)	0.098 (1.169)
Imported inorganic	0.054 (0.413)	0.757 (0.012)	-1.647 (1.068)

# Conclusion

- Increases in consumer income does translate to a significant increase in the demand for organic rice.
- Demand for both local and imported inorganic rice have much higher expenditure elasticities
- Organic rice is highly substitutable with local inorganic rice (high cross price elasticity).
- Both local and imported inorganic rice also have low cross-price elasticity with local organic rice (highly substitutable).
- Therefore, there is no strong and evident demand for organic rice, at least for Davao City.



# Conclusion

In comparison to previous studies, consumption of organic products is highly related with the consumers' interest in food safety, health and environmental preservation<sup>1,2,3</sup>

Filipinos, although they have gained awareness about organic products, many are still not able to understand and appreciate the concept behind it<sup>4</sup>

The low demand for organic rice would be less of an incentive for rice farmers to further their organic production or even to adopt organic farming for the non-producers.

<sup>1</sup> Iqbal, M. (2015). Consumer Behaviour of Organic Food: A Developing Country Perspective. International Journal of Marketing and Business Communication, 4(4), 58-67.

<sup>2</sup> Sriwaranun, Y., Gan, C., Lee, M., & Cohen, D. A. (2015). Consumers' willingness to pay for organic products in Thailand. International Journal of Social Economics, 42(5), 480-510.

<sup>3</sup> Jensen, K., Denver, S., & Zanolli, R. (2011). Actual and potential development of consumer demand on the organic food market in Europe. NJAS - Wageningen Journal of Life Sciences, 58, 79-84.

<sup>4</sup> Ara, S. (2003). Consumer Willingness to Pay for Multiple Attributes of Organic Rice: A Case Study in the Philippines. 25th International Conference of Agricultural Economists. Durban.

# Conclusion

- However, other drivers of demand such as demographics, quality, product attributes (variety, color, net weight), and brand (consumer loyalty) were seen to affect consumer behavior towards rice but were not considered in this study<sup>1</sup>
- Thus the need to further understand the drivers of demand for organic rice specific to the Philippines is acknowledged.

<sup>1</sup>Musa, M., Othman, N., & Fatah, F. A. (2011). Determinants of Consumers Purchasing Behavior for Rice in Malaysia. *American International Journal of Contemporary Research*, 1(3), 159-167.





**THANK YOU!**

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