



## **Hans H. Ruthenberg-Graduierten-Förderpreis 2020/**

## **Hans H. Ruthenberg Award for Graduates 2020**

Franziska Steinhübel “Do Indonesian Consumers Value Organic Rice? – Evidence from a Willingness to Pay Experiment with Randomised Pricing”, University of Passau, 2018

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### **Problem Statement**

Despite the undisputed impact of the Green Revolution on food production and poverty reduction, the intensive use of chemical inputs has sparked a debate about health and environmental implications of conventional farming. Organic farming represents one alternative production system to conventional farming that aims at enhancing sustainable agricultural production as well as food security and safety on a multi-dimensional level. While the number of farmers involved in organic farming is increasing worldwide, the global share of arable land that is certified organic is only about 1.2% (Lernoud & Willer, 2018). In many countries of the Global South organic foods are produced exclusively for export. The inaccessibility of organic products to local consumers raises questions about food security and social equity (Reganold and Wachter, 2016).

Most attempts to further expand organic farming activities mainly focus on the supply-side. Yet, when discussing shifts of agriculture into new directions, such as organic farming, the demand for organic products remains a crucial driver especially for the profitability of farmers (Meemken & Qaim, 2018). To increase the adoption of organic farming, consumer prices for organic products need to exceed production costs. Accordingly, the demand for organic food depends on consumers' willingness to pay (WTP) a price premium for it compared to conventional food.

### **Research Question**

In the scope of my master thesis I aim to elicit the revealed WTP of potential new consumers for organic rice in Indonesia and the role of information on health and environmental benefits. Detailed information about local consumers' motivation to purchase organic food is necessary to improve the awareness of the organic market potential among policy makers, farmers and other stakeholders in Indonesia.

The thesis was written as part of the German-Indonesian interdisciplinary research project IndORGANIC at the Passau University, which aims at analyzing the potential of organic farming in Indonesia to improve food sustainability in the long run. A revised version of the

thesis is currently under review in the Journal Ecological Economics. The contribution of the thesis to the existing body of literature on food security and organic food is twofold: First, only few studies have analyzed the WTP for organic food in low-income countries. Second, while most WTP studies in that context focus on the stated WTP of consumers, I opted for an incentive-compatible elicitation mechanism based on the Becker-DeGroot-Marschak (BDM) approach. This allows to avoid potential hypothetical bias (Miller, 2011).

To obtain important information on how to effectively promote organic food consumption, the BDM approach was combined with two treatments to which participants were randomly assigned. These treatments were designed to identify the channels that determine respondents' demand for organic products. The literature suggests that health-related aspects (Didier and Lucie, 2008; Krystallis and Chrysosoidis, 2005) and environmental concerns (Nandi et al., 2017) are important motivations to purchase organic food.

## **Data and Methods**

The treatments consisted of a short audio-visual video shown to households which either included information about the health or environmental benefits of organic farming. The experiment was carried out among randomly selected urban and semi-urban households of the Special Region of Yogyakarta on the island Java in April 2018. As rural dwellers rather consume products that they grow themselves (i.e. subsistence consumption) or purchase rice directly from farmers in their village, they might be less open towards new products. Moreover, rural dwellers are relatively poor compared to urban dwellers and may present only little potential for the marketing of organic food.

To analyze the treatment effects and the determinants of respondents' WTP, a basic ordinary least squares (OLS) model was estimated. For this purpose, the revealed WTP was regressed on the treatment variables and a set of control variables. The control variables comprise variables concerning respondent and household characteristics, health and environment conditions, and perceived benefits of organic food which are subsequently included. Standard errors are robust and clustered at the community level. The data analysis was conducted using the software Stata.

## **Results**

The results suggest that respondents are willing to pay an average price premium of 20.1 % for organic rice in comparison to conventional rice. This is consistent with the existing literature on WTP for organic food products (Hamm and Rödiger, 2015; Probst et al., 2012; Ha, Shakur & Pham Do, 2019; Wahida et al., 2013; My et al., 2018). Yet, the mean WTP of respondents of this study is below the actual market price of certified organic rice. The level of households' income is associated with a highly significant causal effect on respondents' WTP. Surprisingly, the provision of information about the benefits of organic food with regards to health and environment aspects was not effective in further raising respondents' WTP. However, irrespective of the kind of information respondents were provided with, the health aspect seemed to be the main motivation to pay higher prices for organic food. This finding is consistent across all income and education levels.

The results of the thesis provide valuable information on consumers' demand and preferences regarding organic food which can support the design of alternative measures to increase knowledge about and demand for organic food. As almost half of the respondents are willing

to pay a price premium for organic rice, this indicates high potential for domestic supply among urban and suburban Indonesian consumers.

The results show that health benefits were the most frequently mentioned perceived benefits of organic food among all consumers, irrespective of the treatment group. This may also explain why the results did not find a significant impact of the provision of health-related information on consumers' WTP. Furthermore, a generally low level of environmental awareness might explain why the information on environmental benefits did also not lead to a significant effect. Consequently, raising consumers' awareness about other benefits, such as the environmental benefits remain a challenge. Possibly, a longer and more detailed video would help generate a larger effect. The most promising target groups for organic food in Indonesia seem to be younger, better-educated and wealthier consumers and may serve as an orientation for future campaigns.

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