



Consumer preferences for agricultural products considering the value of biodiversity conservation in the Mekong Delta, Vietnam



Huynh Viet Khai^{a,b}, Mitsuyasu Yabe^{b,*}

^a Department of Agricultural, Resource, and Environmental Economics, School of Economics and Business Administration, Can Tho University, Can Tho City, Vietnam

^b Laboratory of Environmental Economics, Department of Agricultural and Resource Economics, Faculty of Agriculture, Kyushu University, Hakozaki 6-10-1, Higashi-ku, Fukuoka City 812-8581, Japan

ARTICLE INFO

Article history:

Received 12 August 2014

Received in revised form 13 January 2015

Accepted 17 February 2015

Keywords:

Biodiversity conservation

Choice modeling

Eco-label

Environmentally friendly farming

Mekong Delta

ABSTRACT

Because biodiversity conservation is a crucial aspect of multifunctionality in agriculture, consumers may be willing to pay a higher premium for products with environmentally friendly farming techniques to preserve biodiversity. To analyze the effects of biodiversity on the market price of agricultural products, this study applied the choice experiment method to assess consumers' preferences for environmentally certified rice (termed "crane-friendly farming") proposed for growth in Tram Chim National Park, one of Vietnam's eight important bird areas. Our results indicate that the majority of Vietnamese Mekong Delta consumers agreed to buy the proposed environmentally certified rice. They were willing to pay a premium of VND 11 for one kilogram of environmentally certified rice to increase crane numbers and VND 1500 for a 100% increase in the biodiversity level. In addition, their implicit price for rice cultivation without chemical pesticides (organic rice) was VND 6200, a 62% premium over the price of normal rice.

© 2015 Elsevier GmbH. All rights reserved.

Introduction

Increasing demand for agricultural lands to produce food; bio-fuel; or fiber puts pressure on the balance between biodiversity conservation and agricultural production (Fischer et al., 2008). Land conversion for agriculture could result in the degradation of biodiversity; which plays an important role in creating ecosystem conditions; functions; and services necessary for agriculture (e.g.; nutrient recycling; pest control; pollution; and the regulation of water flows).

The Mekong Delta has great biodiversity, and it is considered a high-priority area for freshwater animal conservation. The location has historically been a center of tremendous fish and waterfowl abundance, and it is still a vital wintering ground for several migratory species (Baltzer et al., 2001). In total, 10 key wetland areas and 13 important bird areas were identified in the region (Buckton et al., 1999; Tordoff, 2002). Moreover, the region contains 386 species and subspecies of birds, including 92 species of water birds, but a species list has not been provided.

The Mekong Delta has historically been densely populated because it contains very fertile agricultural land, and conversion of wetlands to agriculture-producing land has continued in recent years. For instance, annual and perennial crop production increased from 2.40 million ha in 1985 to 2.55 million ha in 2008, while aquaculture production increased from 32,100 ha to 530,650 ha in the same period. By 2007, almost 88% of the total Mekong Delta area in Vietnam comprised agricultural farming areas (Garschagen et al., 2012). Increases in agricultural production and changes in land use have resulted in increased pressure on terrestrial biodiversity and ecosystems in the region. A variety of governmental projects on biodiversity conservation have been implemented to find methods to avoid biodiversity degradation. However, identifying whether the change in current management practices would generate net social benefits is complex for policymakers. It is relatively easy to calculate the costs but hard to estimate the benefits of biodiversity conservation programs. Although these benefits may be estimated by studying public preferences on conservation programs, such studies are difficult to conduct because of the generally low level of resident awareness and understanding of the meaning of biodiversity (Christie et al., 2006). Moreover, although there are substantial conservation activities (especially in biosphere reserves of the Mekong Delta recognized by UNESCO), these are not sufficiently strong or powerful to enlarge or improve the quantity and quality of biosphere reserves because of government budget constraints

* Corresponding author.

E-mail addresses: hvkhai@ctu.edu.vn (H.V. Khai), yabe@agr.kyushu-u.ac.jp (M. Yabe).

or low levels of support from local residents and authorities (Khai & Yabe, 2014).

An effective way to balance the benefits between agriculture and biodiversity conservation is to encourage environmental awareness and increase local resident's income, which reduces their illegal encroachment of reserve land for farming as well as fishing or hunting for rare animals in protected areas. Encouraging local residents around conservation sites to cultivate agriculture with environmentally friendly farming techniques is a policy that has been successfully applied in the developed world toward this goal. Products with environmentally friendly farming techniques or environmentally certified products require the use of chemical fertilizers and pesticides in a moderate manner that does not adversely affect animals and birds in the protected areas. Products recognized as environmentally certified products fetch higher prices and save input costs. Moreover, agricultural policymakers have recently started paying attention to environmentally friendly farming. A large number of government programs have been enacted and implemented to investigate the solutions for promoting and sustaining farming systems that protect and enhance the natural environment and global biodiversity.

According to Yabe et al. (2013), the value of environmentally certified products can be divided into two types. The first type, considered a property of private goods that consumers can own, is environment-related value (e.g., the positive image of agricultural products in terms of health, safety, or closeness to nature, and symbols used as a brand). Such value is available only to consumers who make purchases but not to those who do not buy the products. The second type, considered a property of public goods, is the value related to the environment not for specific individuals but for all residents; for example, biodiversity value is a public good that is identified in environmentally certified products.

Moreover, to avoid biodiversity degradation Vietnam's government began to implement policies and laws about biodiversity conservation in early 1960s. Subsequently, many legislative developments and institutional reforms have developed the aims of conservation and sustainable use of biodiversity, including: Forest Protection and Development Law in 1991 (amended in 2004); Land Use Law in 1993 (amended in 1998 and 2003); Environmental Protection Law in 1993 (amended in 2005); Fishery Law in 2003; and most recently, the Biodiversity Law was approved by the National Assembly in November 2008. Vietnam participated in the Convention of Biological Diversity in 1994, and to fulfill its commitments and obligations under the Convention, in 1995 the government of Vietnam approved the first National Biodiversity Action Plan (NBAP). The NBAP and its successors have directed biodiversity conservation activities in Vietnam. In 2006, the second NBAP (to 2010) and its orientation toward 2020 (known as NBAP 2007) was prepared and approved on 31st May 2007, ensuring conservation objectives are integrated into the country's socioeconomic development. NBAP 2007 consists of five major goals each with several specific objectives. Key objectives include: consolidation and development of the special-use forest system; regeneration of 50% of degraded watershed forests; effective protection of valuable and endangered plants and animals threatened by extinction; establishment of 1.2 million hectares of internationally and nationally important protected wetlands and marine protected areas; regeneration of 200,000 ha of mangrove forests; development of demonstrations for sustainable use of plants and animal resources; control, prevention, and ceasing exploitation, trade, and consumption of endangered wildlife species; examination of 100% of national imported species and gene resources; education and public awareness-raising about biodiversity conservation so that 50% of the population regularly receive information about biodiversity. However, there remain some difficulties and obstacles in implementing the NBAPs, such as: poor cooperation between

ministries, sectors, local authorities, and biodiversity management agencies; inadequate mechanisms for benefit-sharing; weak community participation in biodiversity conservation; and especially budget constraints (MNRE, 2008).

This study mainly assesses biodiversity value through people's attitudes toward environmentally certified rice. Rice is labeled environmentally certified if farmers apply environmentally friendly farming techniques, such as meeting required standards for chemical use that do not adversely affect the habitats of animals and plants. The study assumes that if consumers are willing to pay a higher price for rice produced by environmentally sound techniques, the added value is considered the biodiversity value. The results of this study might help to solve some of the previously stated problems. The sale of environmental certified rice with higher price could give the investors a return on their money and make biodiversity conservation commercially competitive. Through the purchase of products with environmental friendly farming technique, businesses can play a pioneering role in making conservation financially sustainable.

Literature review

Measurements of consumer utility or choice based fundamentally on the attributes of a commodity have been developed by economists in different ways. Hammitt (1986) applied the hedonic method to analyze consumers' willingness-to-pay (WTP) for premiums assuming that consumers derive utility from a good's characteristics, such as appearance, taste, and function. Goods usually possess multiple characteristics, with many goods sharing the same characteristic. The hedonic method characterizes the price of the good as the sum of its attribute values. Such models of consumer utility can be easily modified to include the consumer's preference for goods with environmentally superior characteristics, with and without labeling. Only those consumers with environmental preferences experience utility increases with the purchase of products perceived to be less harmful to the environment. Concerned consumers base purchase decisions on the price premium associated with environmentally sensitive goods; that is, they purchase environmentally sensitive goods up to the point where the marginal benefits of environmental consumerism equal the marginal costs, represented by the price premium.

A number of studies have addressed consumers' concerns about environmentally certified or eco-labeled commodities. Wong (2002) used a censored probit model to estimate the mean WTP for environmentally friendly beef products in Georgia. He found that people with higher education were more concerned about beef commodities produced with environmental sound techniques. The study by Loureiro et al. (2002) applied a double-bounded logit model to assess the mean WTP for eco-labeled apples in Portland, Oregon. The study estimated a premium of about 5 cents per pound over an initial price of 99 cents and investigated female respondents with children. Those with strong environmental and food-safety concerns were more likely to pay a premium for eco-labeled apples. Consumer survey data in former West and East Berlin were collected by Moon et al. (2002) to identify the WTP for foods produced using environmentally sound techniques. The study results indicated that the WTP of residents in East Berlin for a premium for eco-labeled foods was lower than that of residents in West Berlin, suggesting that marketing of such foods would be more successful in West Berlin.

Brecard et al. (2009) addressed the theoretical motivations of the consumption of eco-friendly products and the factors influencing European perceptions regarding the fact that "fish caught using an environmentally friendly technique may carry a special label." Their results showed a significant connection between the desire

Download English Version:

<https://daneshyari.com/en/article/4399774>

Download Persian Version:

<https://daneshyari.com/article/4399774>

[Daneshyari.com](https://daneshyari.com)