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Valuation of fishing rights associated with Swedish real estate

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ABSTRACT

In the economic literature on fisheries there is a long tradition of presenting the role of private property rights in efficient and sustainable fisheries management. We contribute to the literature by analyzing the market value of one of the world's most well defined fishing rights: the ownership of Swedish property where the fishing rights are an inseparable part of the real estate that can be traded in an open market. The fishing rights are primarily used for recreational fishing. For real estate that includes dwellings and vacation homes, the estimated value of these rights is about SEK 60,000 (about €6300), in 2016 prices. This corresponds to 4.5% of the average real estate value. However, the values are heterogeneous, and for real estate with agricultural and/or forestry land the value of the rights is less than SEK 10,000. This could be due to forest owners (as opposed to vacation home owners) primarily view the real estate as a means of generating economic returns, and the potential for this is low for fishing. The valuation of the right is expected to be a determinant of engagement in resource management and is thus important in the development of public policies for both the fish resource and recreational fisheries.

Introduction

In a landscape scattered with lakes and rivers, water bodies have become a natural and integrated part of property in Sweden, and many farmers and home owners in rural areas own natural resources in the form of fishing rights in nearby waters. These rights are defined as an area in which the rights holder has the (often exclusive) right to fish, for example, in a lake or a part of a lake.

Forest owners is an important group among fishing rights owners. They are a major group of owners of water area with fishing rights and forestry management activities may affect quality of connected water resources, both locally and over larger areas. On one hand fishing rights might be seen as an economic and/or recreational opportunity and on the other it may be perceived as an obstacle for efficient forestry management.

As resource owners, the property owners with fishing rights are crucial to consider in the development of governmental policies such as protection of biodiversity, water management, and development of rural enterprises based on recreational fishing, and so on (Waldo and Paulrud, 2012). Not only do property owners have the exclusive right to fish, but the government has also delegated them the management of the majority of Swedish inland and coastal waters.

Owners of fishing rights have acquired their right as an inseparable part of a property (e.g., a vacation home or land acquired for forestry or agriculture). Since fishing rights (and the responsibilities that come with them) are inseparable from the property, a crucial question is whether the owners value their fishing rights or if the rights are a non-valued attribute that comes with the property. It is expected that the owner's valuation of the fishing right is a determinant of the interest in management of water and fish population resources. In fact, only 24% of property owners had any objective related to owning the fishing right (Paulrud et al., 2011).

The economic literature on fisheries, has a long tradition of presenting the role of private property rights for efficient and sustainable fisheries management (see e.g., Hannesson, 2005; Arnason, 2005; Costello et al., 2008), but the focus has been on marine commercial fisheries. Less study has been done on property owners with fishing rights. An exception is Stensland (2010) who found, for Norwegian recreational salmon fishing, that heterogeneity among landowners affects the goals of those with the fishing right.

Thus, this paper contributes to the literature with estimated implicit market prices of fishing rights based on purchases of property in Sweden. Estimates are given for forest owners and for

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regular dwellings and vacation homes. The results obtained show a difference in the price depending on the type of property, a result consistent with those of Stensland (2010).

The next section describes the data source. Third section follows with a discussion of price function modeling and estimation. Fourth section presents the analyses made and results obtained, while the final section contains a discussion of the results and their implications on the implementation of governmental policies.

Data and institutional background

Sweden has about 100,000 lakes that are larger than 1 ha. Historically, fishing in these waters was an important source of food and the right to fish has been included in the property. The right to fish in private waters is a disposition right associated with the property and does not necessarily require that any form of watercourse belong to that property. On the other hand, some properties may lack fishing rights despite containing a part of, for example, a lake within their boundaries. The historical development of fishing rights has generated differences regarding what is included in the right. Most rights involve fishing with passive gear such as nets and with active gear such as rods. The right also allows property owners to exclude others from fishing on their fishing grounds. However, along the Swedish east coast sport fishing is allowed in private waters and on the west coast only oyster fisheries are private. Fishing rights can be implemented in three ways. The first is the right to fish in the waters where the property has a sole owner, the second is the right to fish in a limited part of a body of water shared with other properties, and the third is a share in a jointly owned fishing in a body of water (Fiskeriverket, 2007).

The Swedish fishing rights are a form of territorial fishing rights (Christy, 1982), which is one of many ways that property rights for a fishery can be defined (see also Brady and Waldo, 2009). A Swedish territorial fishing right might be used similar to farmland since the owner has the right to actively change the ecosystem in order to increase production. Examples of this are improving the living conditions of crayfish by changing bottom conditions and improving spawning grounds for salmon. The OECD (OECD, 2006) rates Swedish fishing rights as the strongest among OECD countries.

The data is made up of responses from a probability sample survey conducted in 2009 and reported by Paulrud et al. (2011). The defined population object of the survey was property in Sweden with at least one tax assessment unit. Corresponding records at the end of December 2008 in the Real Property Register (RPR) managed by the Lantmäteriet, were defined as the sampling frame. A stratified sampling design was used with a total sample size of 5965 units.

Within the sample there are two domains of interest. One domain is property privately owned by physical persons and has ordinary dwellings and vacation homes (domain 1). These units are identified via the stratification used and by information available from the RPR. However, the data do not contain information making it possible to differentiate between dwellings and vacation homes. The total number of units within this domain is 2268.

The second domain of interest is property that is privately owned by physical persons and includes agricultural land and/or forestry land (domain 2). These properties may also include regular dwellings and vacation homes. There were 694 units within this domain.

Information on a number of variables was obtained from the RPR. Most important are sales price, year of sale, and rateable value in 2008. These variables are not subject to missing values because of non-response. Some real estate are recorded with a sales price from a year prior to the early 1990s. At the beginning of the 1990s, major changes were made in the Swedish tax system and the interest subsidy for new dwellings was gradually removed. There was also a clear drop in the number of new dwellings built in the early 1990s and the number has remained at this lower level. It is reasonable to assume that the reforms of the tax system and the removal of rental subsidies have had an impact on the real estate market (e.g., Cheng et al., 2010). Because of these reforms and changes in valuation of real estate attributes over time (e.g., Cho et al., 2011), we restricted the analysis to sales made in 1992 and later.

Furthermore, some recorded sale prices are zero. The reasons for a zero sale price cannot be unfolded in this study. However, the pattern over years in the frequency of zeros is similar to the pattern of proportions of new dwellings (for the number of units with an observed sales price larger than zero, see Table 1). Thirty-three percent of the units in domain 1 has a zero recorded sales price, while this proportion is only 6% after 1991. A similar pattern is observed for domain 2. Sample selection effects in the two domains were tested by using a two-equation sample selection model (Heckman, 1979). The results did not indicate a sample selection effect in the relation between observed sale prices and rateable values.

Rateable values

Rateable values in 2008 for real estate in domain 1 were assessed in 2006, reflecting market conditions in 2004. For real estate in domain 2, assessments were made in 2008, reflecting the market in 2006. Of importance is that the real estate characteristics used for the assessment did not include fishing rights or water area, while major potential confounding characteristics were included.

One included characteristic is view over lake or sea. Further, real estate were classified in five categories with respect to distance from water. Lakeside real estate including a beach were treated as a separate category. The assessment also included information on access to a dock, both if it was a separate one for the specific real estate or if it was shared with others.

The process of establishing rateable values included a division of the market into smaller geographical areas (around 8500). Within these smaller areas, levels of normal values of the real estate were obtained by analyses of observed sales. At the final stage in assessing a rateable value, any special circumstances of importance for the market value are considered.

Sample data

Sample survey data were collected via a mail questionnaire sent to one of the owners of each property selected. If more than one owner was recorded in the RPR, the owner chosen was the first recorded owner. Response rates for the domains of interest are reported in Table 1. The response rate was 59.5% for units in domain 1 with non-zero sale prices and a purchase after 1991. The corresponding response rate for domain 2 was 51.5%. Respondents within the subsample of units with a non-zero sale price, reported a fishing right property in 23% of the cases in domain 1 and in 71% of the cases in domain 2 (see Table 1).

Summary statistics for the response set are presented in Table 2 with division of observations over domains and real estate with and without forest area. Rateable values are indicated to be higher than sales prices in general. Rateable values reflect 75% of market values in 2006, while sales prices are recorded for sales in the years 1992–2009. The range of year of sale are similar (1992–2009) between domains and between real estate with and without fishing rights, respectively. For both domains, a larger fraction of real estate with water area have associated fishing rights, compared with real estate without water area. In domain 2, only 24 out of 158 real estate are without forest area.

In comparison with fishing right owners in domain 1, the descriptives in Table 2 suggest fishing rights owners in domain 2