Marine Policy 71 (2016) 73–81

Contents lists available at ScienceDirect

Marine Policy

journal homepage: www.elsevier.com/locate/marpol

The Icelandic fishing industry: Its development and financial performance under a uniform individual quota system

Stefan B. Gunnlaugsson [a,*], Hordur Saevaldsson [b]

[a] Faculty of Business Administration, University of Akureyri, Iceland
[b] Faculty of Natural Resource Sciences, University of Akureyri, Iceland

ARTICLE INFO

Article history:
Received 6 April 2016
Received in revised form
12 May 2016
Accepted 13 May 2016
Available online 25 May 2016

Keywords:
Individual transferable quotas
Icelandic fishing industry
Profitability
Debt level
Fishing fee
Financial bubble

ABSTRACT

The Icelandic fishing industry has had to deal with reduced total catch for the past three decades. It has adapted well to the reduction and the Icelandic ITQ system has made this easier. The industry has adapted by reducing employment, closing factories and scrapping boats. Specialization has as well increased and the focus is more toward high-value markets. The profitability of the Icelandic fishing industry has markedly increased. This is especially true for the processing aspect of the industry where profits have soared. One of the main reasons for this increase is the ITQ management system. The rise in profitability of the fishing component, however, is considerably less than that of the processing part. This is the result of higher oil prices and the introduction of the fishing fee, and its subsequent increase, which is now a considerable expense for the fishing component of the Icelandic fishing industry. The debt levels of the industry reached a peak in 2008 after a massive escalation which began in 2004 and was mainly caused by the Icelandic financial bubble, 2004-2008, although the ITQ system also played a role here. Since 2008 the financial health of the industry has improved enormously. Currently, the financial situation of the Icelandic fishing industry is, on the average, sound; this particularly applies to the largest and smallest firms.

1. Introduction

The Icelandic fishing industry has been a paramount part of the Icelandic economy for centuries. It was one of the main employers and the largest export earner of the country until 2015 when tourism surpassed the fishing industry [1]. Thus, the development and management of this important industry have always been of utmost importance to the nation. Fishing around the island used to be open to all vessels until the 1950s, when Iceland extended its Exclusive Economic Zone (EEZ) in four stages; in 1976, this had reached 200 miles after which the commercially important stocks were completely under Icelandic jurisdiction. After 1976, the management of the fishing resource went through a few steps from fishing effort based management systems to a fisheries management based on individual transferable quotas (ITQs). In 1990, a uniform system of ITQs covering almost all fisheries in Iceland was established. It combined fundamental laws and regulations regarding fisheries into a comprehensive Fisheries Management Act (No. 38/1990), which entered into force in 1991 [2–4].

Since 1991, the Icelandic fishing industry has gone through many changes which were caused by developments in markets, technology and biology, as well as by the ITQ system [2,5,6]. The most notable aspect is that companies have become larger and more of them cover all stages of the value chain. They are involved in fishing, processing and marketing and are vertically integrated, thus maximizing value creation and profitability [2,5]. Fish auctions, which emerged in the 1980s after the de-regulation of primary fish markets, have had a profound effect on the Icelandic fishing industry. Even though a relatively small portion of catches is sold through them (about 20–30% of demersal species, but significantly less of pelagic) they have had a marked effect. They allow companies to specialize, thus enhancing value and production quality. The auctions also provide a stable flow of raw material for small and large companies which helps them to smooth out variations in the catch. The fish auctions have been of particular benefit to the processing industry, improving flexibility and specialization [5].

It is well documented that a quota system increases profitability in fisheries, the primary result being that fishing effort decreases, leading to a subsequent reduction of the fishing fleet [7–10]. Also, the system encourages fishermen to focus on quality instead of quantity; that is, they will try to maximize the price obtained for the catch [11–13]. Trading in fishing rights results in enterprises able to catch at the lowest cost buying the rights from other less efficient companies, thus improving the profitability of

* Corresponding author.
E-mail addresses: stefanb@unak.is (S.B. Gunnlaugsson), hordurs@unak.is (H. Saevaldsson).

http://dx.doi.org/10.1016/j.marpol.2016.05.018
0308-597X/

the industry [14,15]. This also increases debt, but not necessarily the debt burden, because lower cost should increase cash flow; thus offsetting the negative impact of additional debt on financial costs and profitability [14,16].

Previous research on the development of the Icelandic fishing industry has demonstrated that the ITQ system has yielded considerable economic benefits [5,14,16–21]. The findings in other countries have been similar [10,22–26]. However, these studies do not comprise a detailed analysis of long term trends in the profitability of the industry. Furthermore, they all lack a thorough examination of the development of debt levels and financial strength, both as regards the industry as a whole and individual companies. Thus, many questions remain unanswered regarding the lasting effect of ITQ systems. How has profitability developed in the long term? Which costs go down proportionally? Do profitability developments in the processing sector differ from those of the fisheries aspect of the industry? What is the impact of the fishing fee? How do debts evolve under a uniform ITQ system? This paper focuses on answering those questions by studying the Icelandic fishing industry and its development since the implementation of the uniform ITQ system in 1990. The novelty of this study is that new and extensive data regarding the development of the industry are presented. Comprehensive information about the financial performance and debt levels of the industry is analyzed and discussed in relation to the uniform ITQ system.

2. The catch, export value and prices

A good measure of the catch around Iceland is the development in the fishing in cod-equivalent kilos which is a measure of the value of different species based on their market value. It is used to compare landings of different species of fish in Iceland. To explain this, the cod-equivalent kilo of saithe (*Pollachius virens)* is now 0.77 [27] which means that 1.30 kg of saithe (1/0.77) equal the value of one kilogram of cod (*Gadus morhua*). Fig. 1 illustrates the catch of Icelandic vessels in cod-equivalent kilos since 1950. As the picture shows catches steadily increased until 1966. Then an almost complete collapse in the herring fishery (*Clupea harengus)* resulted in the total catch of Icelandic vessels dropping by 20% in cod-equivalent kilograms. A long period follows where landings steadily increased until the fisheries peaked in 1981, exceeding 750 thousand tonnes, as a result of a sharp rise in the fishing of cod that year which was then by far the most important species. From 1988 until 2008 catches steadily declined in cod-equivalent kilos, mainly because of reduced catches of groundfish species; that is, cod, haddock (*Melanogrammus aeglefinus*), redfish (*Sebastes marinus*) and Greenland halibut (*Reinhardtius hippoglossoides*). The landings reached a low in 2008 when they were only slightly above 400 thousand cod-equivalent tonnes. Since then they have kept increasing, climbing to 690 thousand tonnes in 2013. It is worth mentioning, however, that the cod-equivalent coefficient for each year follows fluctuations in the price change of that species [27]. Fig. 1 shows the catch in constant cod-equivalent kilos from 1990, demonstrating that increased catches in cod-equivalent tonnes since 2008 are mainly occasioned by shifts in the coefficients, but not because of more landings. The value of the coefficients for pelagic species has increased and this is the main reason for the upswing since 2008 [27].

Even though the total catch has declined since it reached its peak in the 1980s, in cod equivalent kilos, the export value of the Icelandic fishing industry has been sustained. Fig. 2 indicates the export value of Icelandic fish products 1991–2013 in both Icelandic kronur (ISK) and Euro (EUR). All numbers are at constant prices and thus the figure shows inflation-adjusted development. As the figure illustrates, the real value of fish products in ISK has increased by about 35% from the year 1991 even though the catch went down 19% in cod-equivalent kilos calculated with an average coefficient during that period. The export value peaked 2011–2012 when it exceeded 280 billion ISK. During this period, the catch of important pelagic species culminated, and in addition, the prices were also elevated. However, the export value in EUR has evolved differently, the value peaked in 2002 following record capelin (*Mallotus villosus)* seasons and favourable market prices. Around the 2008 global economy crisis seafood prices fell and simultaneously total catch declined. This lead up to low EUR export prices in 2009, but the ISK export value increased because of the devaluated IS krona.

There have been marked fluctuations in the prices of fish products during the past few decades. Fig. 3 presents the development of Icelandic seafood prices in SDR. SDR is an abbreviation for a currency unit used by the International Monetary Fund [30]. The prices of fishmeal and oil have risen most steeply, or by more than 220% during this period. There have been significant swings in the of fishmeal and oil prices which increased dramatically in 1996–1998, or by 60%. The following years saw some price reductions, but since 2005 price levels have risen by 190%. The main reason for a considerably steeper increase in fishmeal and oil prices than in those of other fish products lies in heightened demand in aquaculture which, in turn, has boosted the market prices of fishmeal and oil [31]. There has not been such a significant increase in the prices of prawn and groundfish. The price of groundfish increased

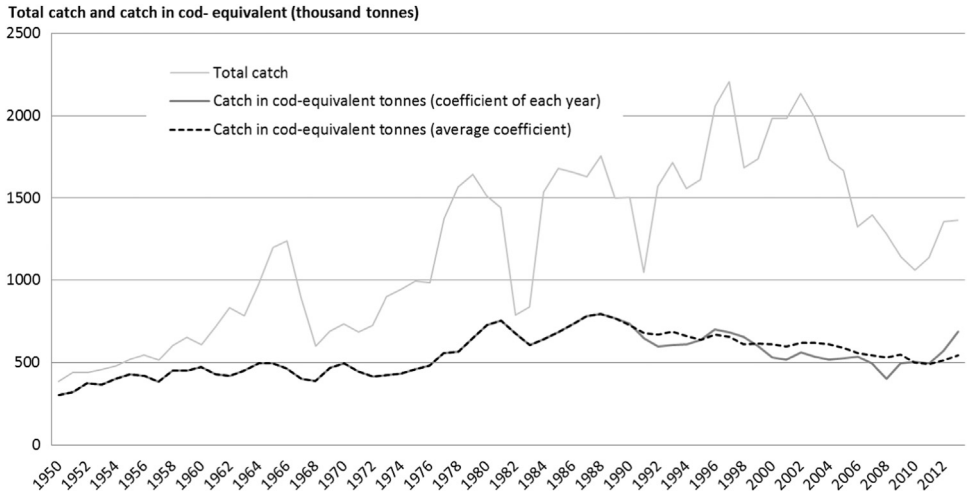

Fig. 1. The total catch of Icelandic vessels 1950–2013. The total catch in tonnes, catches in cod- equivalent tonnes and catches in cod-equivalent tonnes with an average cod-equivalent coefficient. Source: [28].