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Why are the Spanish fishing our waters? An economic perspective

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Why are the Spanish fishing our waters? An economic perspective

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Abstract

Spain is one of the largest producers and per capita consumers of fish products in the world. The Spanish fleet represents a third of the total European Union fleet capacity and is the fourth largest fleet in the world. The entry of Spain into the EC has had a significant impact on its fishing policy, its fleet structure and the market for fish. Recently it has been involved in high-profiled disputes with the UK over the issue of quota hopping and adopting flags of convenience. These appear to be a result of the reduction of the number of fishing grounds open to the Spanish, and the need to maintain supply to a demanding consumer.

The purpose in this paper is to explore the economic rationale behind Spanish fishers buying up UK quota and operating in fisheries in which they have no recognised national claim. Firstly, the paper will explore the characteristics of the Spanish market for fish, then consider the management structure under which the Spanish fleet is currently operating. The aim in this paper is to explain how far the behaviour of the Spanish fishers is economically rational and whether such action is desirable from an economic perspective.

Introduction

Spain has the largest fishing fleet within Europe, and one of the largest in the world. However, Spain is not naturally well endowed with fish resources. The 8,000 km of Spanish coastline follows a particularly narrow part of the continental shelf and consequently its territorial waters are not considered to be as productive as those of other European nations. As a result, the Spanish fleet has had to fish outside its territorial waters to remain viable.

With the advent of Exclusive Economic Zones (EEZs) in the late 1970s Spain's distant water fishing fleet were excluded from a number of fishing grounds in which they were operating. In addition, the co-ordinated simultaneous declaration of EEZs by the nearby member states of the European Economic Community (EEC) in 1976 resulted in the loss of fishing opportunities for the Spanish inshore and near shore fleet. As a consequence alternative strategies had to be adopted.

One approach adopted by a number of Spanish vessels was to re-flag in nearby countries. Adopting a flag of convenience is a relatively common practice in the shipping industry, where vessels transfer their registration to another country (Tolofai 1987). By transferring the nationality of the ship's registration, vessel owners are able to lower costs or increase revenues. For example, less stringent regulations in some countries result in lower health and safety costs, while less restrictions on cargo limits can lead to higher revenues per trip. Hence, by changing the registration, shipping operations can improve their profitability and thereby gain a competitive advantage.

For fishing vessels, a key advantage of changing registration is access to the resource under the control of the new nation. Where these resources are under some form of quota control, such as in the United Kingdom (UK), these boats have been termed 'quota hoppers'. The key distinction between quota hoppers and flags of convenience ships is that the former relates specifically to

licensed fishing vessels while the latter relates to the nation of registration. All quota hoppers are also flags of convenience ships.

In the UK, quota hoppers are defined as British registered fishing vessels which are wholly or partly owned by overseas interests which fish against United Kingdom (UK) quotas and mainly land their catch abroad (MAFF 1996). It is estimated that there are approximately 150 quota hoppers registered in the UK. These are thought to represent 20 per cent of the fishing fleet over 10 metres in length and account for a substantial proportion of the UK's quota. This is thought to include 46 per cent of hake quota, 44 per cent of plaice quota, 18 per cent of sole quota, 35 per cent of megrim quota and 29 per cent of monkfish quota (MAFF 1996).

The origin of many of the quota hoppers is hard to determine. Estimates vary, but it is thought that there are in the region of 104 Anglo-Spanish vessels, accounting for £26m of UK quota (Portus 1996) and mostly operating in the waters off the South West. Most of the remainder are thought to be Dutch trawlers, mostly operating in the North Sea¹.

The UK fishing industry press has extensively reported on the quota hopping issue and its potential impact on UK fishers. UK fishers are largely opposed to Spanish involvement in their industry. While freedom of access and movement of goods and services is a key element of the Treaty of Rome, the UK Government has argued that effectively permitting transfer of quota to other nations goes against the 'principle of relative stability' in the Common Fisheries Policy (CFP). This principle established the basis for quota allocations in 1982 based on historical activity of the member states of the then EEC. While there have been some adjustments to the allocation since 1982, the allocation of quota between member states has been relatively fixed. This dispute has led to the development of protectionist legislation by the UK government, much of which has been subsequently overturned by the European Courts.

In this paper, the factors motivating the Spanish to enter the UK fishing fleet is examined along with the benefits and costs to the UK from such behaviour. The key factors examined are the Spanish market for fish, the development of the current Spanish fishing fleet, the status of the stocks of key target species and the subsequent development of the Anglo-Spanish fleet.

The Spanish Market for fish

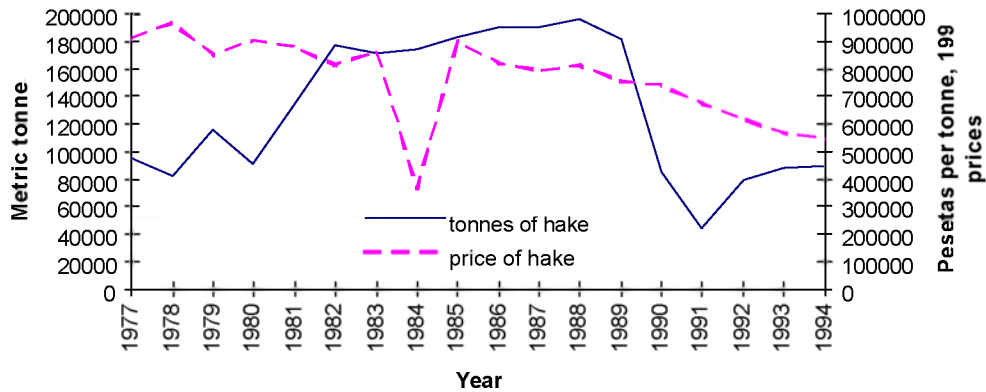
In 1991, the Spanish market for fish was estimated to be the world's ninth largest for edible fishery products (McFeeters 1991). Per capita consumption of seafood products in Spain from 1988 to 1990 was estimated to be 37.7kg/year, the second highest level of per capita consumption in the European Union (EU).

Spanish consumers prefer fresh fish, which are estimated to account for a little under one half of total production (Janqueria Lopes *et al* 1996). Consumption of frozen fish is gaining popularity, but is largely considered to be inferior to fresh fish. Over the 1980s the market for frozen fish products is estimated to have increased by 70 per cent (McFeeters 1991). This is likely to be a European wide trend, with the increase in female participation in the labour force.

Species of particular importance on the Spanish market include hake, tuna, and sardines. Hake is the most popular whitefish in Spain and is estimated to account for up to 70 per cent of total fish consumption (Emmett 1994). Spanish production and the price of fresh hake are presented in Figure 1. It can be seen from this figure that Spanish production of fresh hake increased steadily during the 1980s, though fell significantly in 1989 until 1991, after which it began to gradually increase again. Production of frozen hake (not presented in Figure 1) fell over this same period. Thus there was an overall decline in absolute quantities of hake landed by Spanish fishers. Total production (i.e. landings) of all species from Spanish vessels was estimated to be about 1.2 million tonnes in 1993 (Commission of the European Communities DGXIV 1997).

¹ Most of the sole and plaice quota is likely to be used by the Dutch quota hoppers, while the rest is predominantly used by the Spanish.

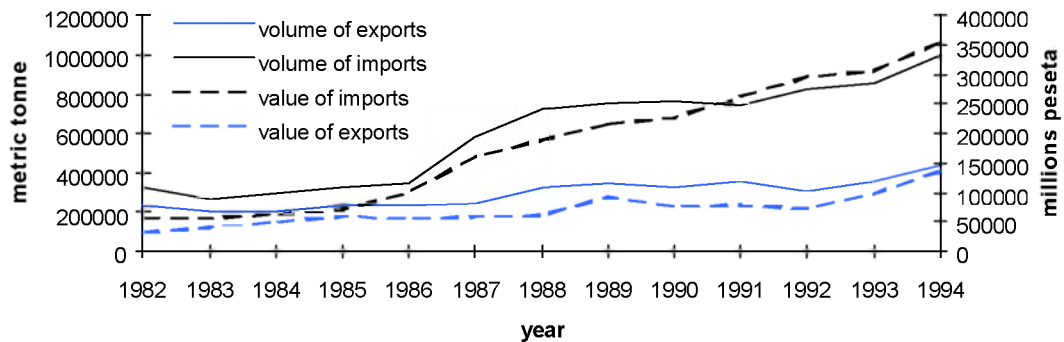
Figure 1: Spanish fresh hake production and price 1977-1994



Source: Lostado, R, University of Valencia, personal communication, 1997

Although Spain is a large producer of fish products, consumption outpaces production considerably (OECD 1994). Consequently, Spanish imports of seafood products are substantial. In 1994, imports exceeded one million tonnes (Figure 2), almost equivalent to the level domestic production (OECD 1996). The growth in imports since the early 1980s reflects the inability for the Spanish fleet to supply the domestic market as a result of the reduction in fishing opportunities.

Figure 2: Spanish imports and exports of fish products



Source: OECD (1996 and previous years)

The main species imported by Spain are presented in Table 1. White fish, and in particular hake, are the most imported species. This comes from a variety of sources and is imported both fresh and frozen. Main suppliers are the UK, France, Chile and Namibia. Namibian hake is one of the more popular types of hake on the Spanish market. Another type available is the Atlantic hake, which is caught off the coast of South America, though this is less popular, and receives a lower price. Fresh salmon accounts for a significant proportion of imports by value, this is primarily from Iceland and Denmark. Salted fish (both cod and anchovy) are also relatively important and are mostly from other European countries, namely Denmark and Portugal.

Table 1: Value of main imports by species and product form, 1995.

Type of import	Species	Value in 1995 (millions of pesetas)
Fresh fish	hake	20,000
	salmon	10,000
	sole	7,000
	megrin	6,100
	monkfish	5,600
	anchovy	5,500
	tuna	2,500
	cod	2,100
Frozen fish	hake	17,600
	yellowfin tuna	8,100
	sole	2,700
	cod	2,500
Fish fillets	frozen hake	14,000
	dried cod	11,500
	salted anchovy	11,500
	cod fillets	4,000
	fresh cod	2,500

Source: Lostado, R. University of Valencia, personal communication, December 1997

The development of the Spanish fishing fleet

Spain has the largest fishing fleet within Europe in terms of Gross Registered Tonnage (GRT). Though the Greece fleet is larger in terms of numbers of vessels, Greek boats are comparatively smaller and the fleet has an overall lower fishing capacity. On average, Spanish fishing vessels are larger than those of other European nations.

Expansion of the Spanish fleet at the end of World War II resulted in overexploitation of the poor local marine resources. The ensuing Spanish civil war reduced the level of fishing activity, but at the end of the war, the expansion continued and overexploitation again became a problem for Spanish territorial waters. Catch rates fell until the early 1960s when the Spanish Government implemented the 'Law of Fishing Social Credits' to facilitate the modernisation of the fishing fleet. The effect of this was to improve catching capacity and increase catch rates. This exacerbated the overexploitation problem and the fish stocks in and around Spain became severely depleted. To combat the subsequent decline in production, policies were implemented by the Spanish Government in the late 1960s and 1970s to encourage the development of an industrial, distant water fishing fleet.

The distant water vessels were designed to fish off the South African coastline, in particular for hake around Namibia (Brady 1990). The development of new processing facilities was undertaken to compliment the increases in production. By 1980, Spain had the third largest national fishing fleet in the world behind the USSR and Japan (Brady 1990).

However, the fishing grounds open to the Spanish fishers began to disappear with the advent of nations formally claiming their Exclusive Economic Zones (EEZs) 200 miles around their coastlines. Although a few grounds remained open to them, such as the Falklands Islands for squid and Namibia for hake (Garza-Gil *et al* 1996), the problem was resulting in financial crisis for much of the Spanish distant water fishing fleet. In addition to this, many of the inshore vessels had been encouraged to move away from traditional small scale fishing methods to the more intensive methods such as purse seining and trawling. This meant that domestic resources were being fished too intensively to permit the re-entry of the distant water fleet.

With the declaration of EEZs by adjacent EEC nations, many of the fishers operating in these waters were excluded and thereby forced to change their fishing behaviour. For example, prior to

1977, almost 460 Spanish vessels fished on Gran Sol, a fishing ground which is now mostly within Irish fishing limits (Little, J., Wales and West Coast Fish Producer Organisation, personal communication, 1997).

Given the changes in the international fishing environment, Spain was forced to find alternative destinations for its fishing capacity, which was now well in excess of its fishing opportunities. It was at this juncture that Spanish fishers and fish producers began to invest in other nations, setting up companies that could operate out of these host nations, allowing the fishing vessels to utilise the host nations' fish resources legitimately (Little, J, Wales and West Coast Fish Producer Organisation, personal communication, 1997).

In the meantime, Spain (along with Portugal) had applied and was accepted into the then EEC in 1986. As a consequence of the acceptance of the two fishing nations, fishing capacity was estimated to have increased by 65 per cent. However, only limited access was granted to the new Member States fishing fleets for the initial 10 year transitional period under the Act of Accession. The benefits for the fishing industry of joining the EEC were apparent (i.e. access to EEC waters), however, membership of the EEC also meant that the fishing industry became subject to regulation under the CFP. The Structural Policy of the CFP made provisions for fleet reduction under the Multi-Annual Guidance Programmes (MAGP). Capacity targets for the fleets of each member state were set under each MAGP². If these were met, then funds were available in the form of grants and aid for modernisation of vessels.

A breakdown of the Spanish fishing fleet by fleet segment, by tonnage and engine power in 1991 and 1996 is given in Table 2. In 1996, 94.2 per cent of all Spanish vessels were operating in national and EU waters, but these sectors of the fleet accounts for only 61 per cent of the whole fishing fleet in terms of power and 77.6 per cent of the total crew employed in the industry (Lostado, R, Univerisity of Valencia, personal communication, January 1998). The largest sector of the fleet measured by tonnage is the international and third country trawler/dredger segment. This is followed by the trawlers and dredgers operating within EU waters. The largest fleet segment by engine power is the pelagic seiners and netters operating in EU waters, which indicates the relative importance of the EU fishing grounds to the Spanish fishing fleet in the 1990s.

Table 2 also details the MAGP targets for the Spanish fleet for the period. All segments of the fleet exceeded the target reductions under the MAGP, with the greatest reduction in tonnage and power in the distant water trawlers and dredgers. The fleet segment that experienced the smallest decline in tonnage and power was the tuna fleets, though there was no call for reduction from the MAGP.

Table 2: Breakdown of the Spanish fleet by fleet segment and MAGP targets, 1991-1996

Fleet segment	1991		1996		MAGP objectives	
	GRT	kW	GRT	kW	GRT	kW
<i>Inshore and EU waters</i>						
Trawlers and polyvalent dredgers	148,133	496,509	114,054	410,370	134,198	435,792
Pelagic seiners, netters etc. ¹	139,896	619,482	124,260	569,193	146,742	628,246
<i>Third country/international</i>						
Trawlers and polyvalent	264,695	572,344	148,759	354,889	233,565	494,264
Pelagic seiners, netters etc	31,859	99,264	28,283	85,866	33,201	101,092
Tuna fleet	58,648	127,680	54,907	116,118	67,918	138,133
<i>Total</i>	<i>643,231</i>	<i>1,915,27</i>	<i>470,263</i>	<i>1,536,43</i>	<i>615,624</i>	<i>1,797,52</i>
		9		6		7

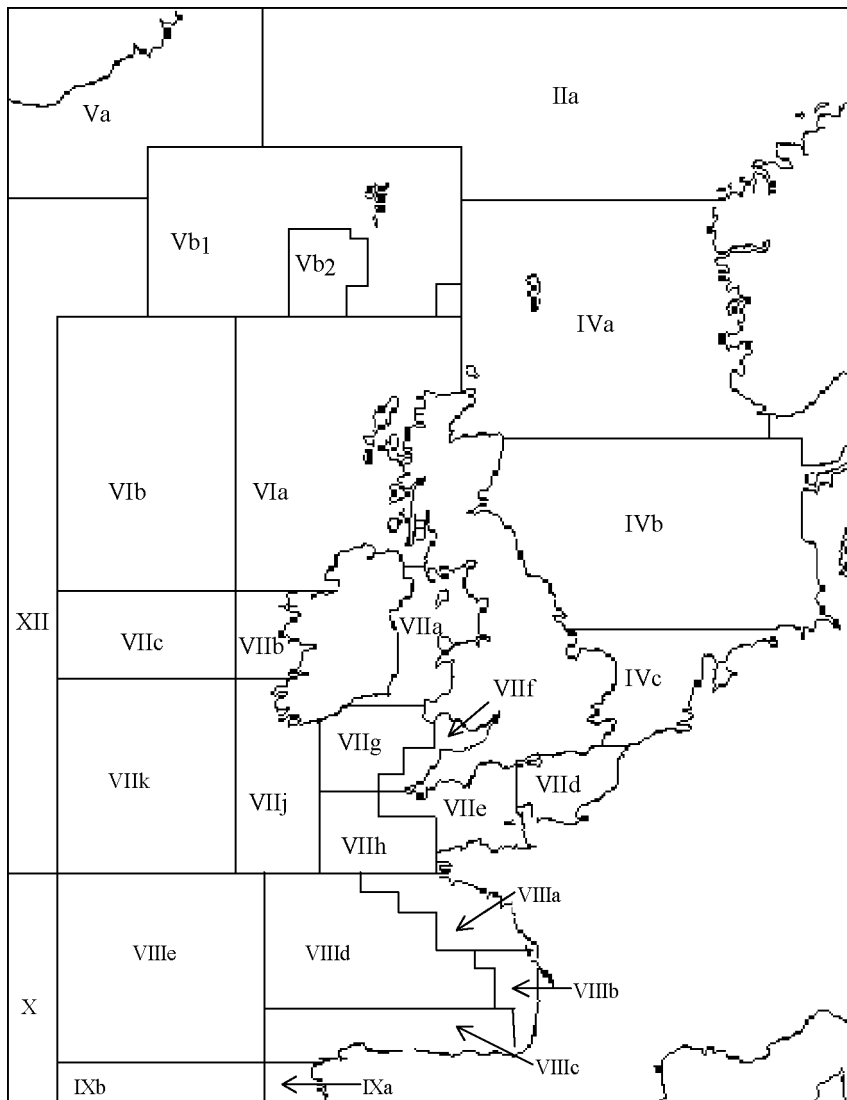
² A series of programmes have been running. The first two MAGPs were concerned more with preventing capacity from increasing than decreasing capacity. Capacity reduction was specified as a goal of the third MAGP (MAGPIII), which ran from 1992 to 1996. A fourth MAGP containing further fleet reduction targets is currently underway.

1. Includes boats operating in the Canaries. Source: Commission of the European Communities 1997a

The Spanish fishery for hake

Hake is the most popular white fish on the Spanish market and has been the main target species of most of the distance water fishing fleet operating off Africa. Hake are widely distributed in EU waters and the Spanish fleet has had a long history of fishing this species. As noted above, prior to the formation of the EU and the declaration of the EEZ, Spanish fishers were active in what are now Irish waters. Following the declaration of the EEZ, the domestic Spanish fishing fleet were largely limited to the southern stock of hake covering ICES division VIIIc and IXa (Figure 3). Landings from this stock have declined since 1983 as a result of its overexploitation and the stock is considered to be well outside its safe biological limits (ACFM 1996). Advice for the Advisory Committee on Fisheries Management (ACFM) has been to limit fishing mortality to as low a level as possible to allow the stock to recover. Despite this advice, agreed total allowable catches (TACs) have generally been greater than the recommended levels (ACFM 1996).

Figure 3: Map of ICES divisions in Europe



The northern stock of hake lies largely within the EEZ of the EU (ICES areas IIIa, IV, VI, VII and VIIIa,b). With the advent of the declaration of the EEZ, many Spanish boats lost access to this resource. This loss of access most likely contributed to the subsequent overexploitation of the

southern stock as effort from the north was directed onto the southern stock. Following the introduction of EEZs by the member states of the EEC, an agreement between the EEC and Spain provided for a basic list of 300 Spanish vessels entitled to fish in the Community waters, not all of which were allowed to fish at the same time. Similar arrangements were built into the Act of Accession, with an additional allowance for 150 vessels on the periodic list during the transitional period.

In 1994, Spanish and French landings accounted for 85 per cent of the total landings from the northern hake stock (ACFM 1996). As with the southern stock, the northern stock is thought to be overexploited. ACFM recommended a 30 per cent reduction in fishing mortality in 1996 (ACFM 1996). There were also concerns about the large number of juvenile hake being caught despite the existing mesh size restrictions and minimum landing size (ACFM 1996).

In addition to hake, the Spanish fleet also take megrims and monkfish. These are largely caught by the hake fleet, with megrims primarily as bycatch. Stocks of these species are also relatively depleted in the area of the Spanish coast (Divisions VIIIc and IXa) (ACFM 1996).

The development of the Spanish quota hopper fleet in the UK

Quota hopping by Spanish fishing vessels has largely been an attempt to access a greater share of a diminishing resource in order to maintain supplies to the domestic market. The first Anglo-Spanish boats came into the UK fleet at the end of 1979, with a substantial number of boats entering in 1980-82 (Little, J., Wales and West Coast Fish Producer Organisation, personal communication, 1997). Spanish owned fishing companies were established in the UK and the boats re-registered as UK vessels under the 1894 Merchant Shipping Act. Although licences had been required by UK boats to fish within and beyond the UK waters since 1971 (under the Sea Fish (Conservation) Act of 1967), these were not limited in the areas being fished by the Anglo-Spanish boats (predominantly the waters south west of England and below Ireland) and were freely available.

Quotas were introduced on a number of key stocks in the early 1980s, with a formula for the allocation of quota between member states being decided in 1982 (the basis of the 'principle of relative stability'). National allocations were fished competitively. Hence, the Anglo-Spanish fleet had the same access to the quota as other UK licensed fishing boats.

In November 1986, the UK Government estimated that there were 73 Spanish-owned vessels fishing against UK quotas. Fifty of these had been formerly registered as Spanish vessels, while the remainder had been vessels formerly owned by UK citizens but subsequently sold to Spanish fishers. By April 1987, the National Federation of Fishermen's Organisations (NFFO) estimated that there were at least 120 quota hoppers. The rate at which the quota hoppers were appearing to increase was of particular concern to the fishing industry.

The UK Government and the UK fishing industry claimed that quota hopping was against the principle of relative stability³ of the CFP and in order to 'establish a real economic link' between the UK and the quota hoppers, the Government announced new licence conditions to apply to vessels from January 1986. The conditions imposed stated firstly that the fishing vessels had to be registered under the 1894 Merchant Shipping Act, had to normally operate from the UK, Channel Islands or the Isle of Man, the crew onboard UK registered fishing boats had to be made up of at least 75 per cent UK or EEC nationals, and the skipper and crew must all pay National Insurance contributions. It should be noted that under the condition of the Act of Accession, Spanish and Portuguese fishers were not considered as EEC nationals for the duration of the transitional period.

The conditions on obtaining a fishing licence proved to be insufficient to prevent the quota hoppers and so changes were later made to the Merchant Shipping Act in 1988. The 1988 Act specified that in order to register a boat in the UK, at least 75 per cent of the boat (or 75 per cent of shares

³ This was the basis of the fixed quota allocations between member states.

in the case of companies) must be owned by British citizens resident and domicile in the UK. This effectively made it impossible for the Anglo-Spanish boats to re-register under the new Act. The UK government also faced a legal challenge on the conditions of the new Merchant Shipping Act by a number of Anglo-Spanish companies represented by Factortame.

These conditions were designed to make it virtually impossible for the quota hoppers to operate in the UK, and the Anglo-Spanish vessels were de-registered in 1989. At this point legal challenges between the key Spanish owned companies (Agegate Ltd and Jaderow Ltd) and the UK Government ensued. The UK Government, supported by Ireland and Belgium argued that it was simply trying to preserve UK quota for genuine UK vessels and that many other countries operated registration and licensing laws just as restrictive as the UK.

In 1991, a preliminary opinion was given by the European Court that while the UK had the right to insist that a UK registered vessel must be managed within the UK, the MSA contravened EC law. Part II of the MSA was deemed to be unlawful since it was regarded as a clear violation of the rights of EC citizens to exercise an activity in any member state. A vessel owned by a company registered in the UK and operated out of the UK was entitled to be registered as a British vessel.

The Government announced that vessels de-registered under the Merchant Shipping Act would have to formally apply to be reregistered. They would also have to re-apply for fishing licences, the issuing of which would be at the Ministry's discretion. Many of the Anglo-Spanish vessels which had been kept in port for up to 18 months started claims for compensation. Spanish and Dutch vessels were awarded £30m compensation by European Courts in 1991 (WorldFish Report 1998), although this ruling has under appeal.

The Anglo-Spanish boats are still subject to restrictive licence conditions (as are all UK boats). New conditions are proposed to ensure that boats over 10 metres in length operating with UK licences maintain an economic link with the UK regional economies. Under the proposed restrictions, all boats would need to meet one of four conditions, these being: landing at least 50 per cent of quota catch by weight into the UK; drawing at least 50 per cent of the vessel's crew from UK coastal area residents; incurring operating expenses in the UK equivalent to at least 50 per cent of the net value of quota stocks landed or 50 per cent of the operating costs net of crew wages; or combinations of the above that equate to at least one criteria being met. (WorldFish Report 1998).

Quota allocation and trading in the UK

The allocation of quota in the UK is linked to the licensing scheme. Percentage quota shares each year are allocated to groups of vessels based on their recent patterns of catches. In the case of the over 10 metre (in length) fleet, each vessel has in effect a notional quota allocation each year based on its track record of landings during the previous three years (for the majority of stocks).

By aggregating these notional individual quotas, group allocations are made to producers' organisations (vessel owners' associations recognised under EC law) which can then manage those allocations as they see fit, for example by means of monthly landings limits or individual quotas.⁴ The quota shares allocated to vessels not in membership of a producers' organisation (the so-called "non-sector") are managed by the Government Fisheries Departments using a system of monthly landings limits. Uptake of the quota shares reserved for the 10 metre and under sector is not normally regulated unless the level of estimated landings dictates an early fishery closure.

During the period of exclusion of the Spanish quota hoppers (1989-91), the indigenous South Western fleet expanded into the hake, monkfish, megrim and ling fisheries, species in which they

⁴The management of quota allocations by the various UK producers' organizations has recently been surveyed by Hatcher (1997). Note that individual quotas are allocated directly by the Government only to a small number of larger vessels in respect of certain pelagic and external waters stocks.

had shown little or no interest previously since these species are not particularly popular on the UK market for fish. These indigenous vessels began to build up track records for catching these species and export markets began to develop.

Allocating quota to the Anglo-Spanish vessels became problematic as the exclusion of these boats resulted in a loss of track record. In contrast, track records had been established by the UK owned boats for these species over the period of the exclusion. From the UK fishers' perspective, re-allocating quota to the Anglo-Spanish vessels imposed a direct cost on them in the form of reduced quota.

The mechanism for quota trading in the UK is not straight forward. At present, individual quotas do not formally exist. However, quota shares can be traded in the industry through sale of track record⁵ (Hatcher 1997) (Table 3). Before 1995, individual landings track records were normally attached to the vessel rather the licence, except where a licence was transferred onto a new vessel or where a licence aggregation was undertaken (in which case the track records of the old licensed vessels were aggregated onto the new vessel). From 1995, however, track records were formally attached to licences.

It is not possible to determine the level of purchases of track record by Anglo-Spanish vessels as such records do not exist. Many Anglo-Spanish vessels would have been allocated licences so would not have needed to purchase track record. Other Anglo-Spanish vessels purchased boats and licences in the early 1980s so would have received the track record associated with the boats. However, as the quotas were fished competitively, and hence fishers could build up their track record, the current track record may not bear much relationship with that originally purchased.

Table 3. Track record trading prices, 1997

Species	Trading price of track record (£/tonne)
Sole	6,000-10,000
Monkfish	3,300
Saithe	2,500
Hake	2,000
Cod	1,200
Plaice	1,200
Mackerel	700
Herring	350

Source: Nautilus Consultants (1997)

What are the economic effects of quota hopping?

Protectionist policies are in place in many countries to prevent or limit foreign involvement in fishing. For example, following the 1987 US Anti-Reflagging Act, US vessels over 5 tonnes net must be built and registered in the US and US citizens must own a majority interest (Kingston and Brown 1993). This was specifically designed to prevent foreign vessels flagging as American boats to access US fish resources (American Fisheries Act Coalition 1998). Similar ownership regulations are imposed in Canadian fisheries (Kingston and Brown 1993). In Norway, at least 60 per cent of equity capital must be owned by Norwegian nationals. A survey of all maritime EU states found that they all had in place restrictions on the ability of foreign nationals to own or operate fishing vessels (Eurofish 1989). The European Court has recently ruled the registration policies of France and Greece as illegal under the Community law (Commission of the European Communities 1997b).

Despite the proliferation of such policies, little economic analysis has been undertaken to examine whether or not policies are beneficial or detrimental to the domestic industry.

⁵ Track records are to be converted to individual fixed quota shares this year. However, for the period being examined, individual quotas did not formally exist.

Protectionist policies are often justified on the basis that it is protecting a developing industry, or regional employment. However, the costs of such policies are often overlooked.

Foreign involvement in the fishing sector creates both economic costs and benefits. In this section we will examine some of the potential benefits and costs of permitting foreign involvement in the UK domestic fisheries.

Potential economic benefits

There are obvious benefits for allowing foreign participation in domestic fisheries where the resource is under-utilised (Kingston and Brown 1993). In particular is the ability to generate a revenue (in the form of access charges) from a resource that would otherwise not be achieved through domestic exploitation. In addition, foreign involvement can result in technology transfer and market access than can assist the development of the under-utilised resource by the domestic fleet. Where this is the case, the issue is how much foreign investment should be permitted and the level and method of royalty payments (Charles 1986).

The majority of EU fisheries, however, are not under-utilised. As noted previously, most are currently fully exploited and in many cases are overexploited (ACFM 1996). The benefits of foreign involvement in such a case are less obvious.

Access to the UK quota requires the purchase of a licence and track record. Assuming an efficient and competitive market, then the value of the licence and/or quota (or in the case of the UK, track record) should largely reflect the discounted future economic rents in the fishery (Huppert, Ellis and Noble 1996)⁶. Given this, an individual fisher would only sell his or her track record if the price exceeded the expected future profits from their own use of the quota.

From the individual fisher's perspective, sale of the track record results in a net benefit as he or she has achieved a greater return on their asset than they could otherwise achieve. From the buyer's perspective, they would also see the transaction as a benefit as they would expect to earn more from using the quota than they paid for it as a result of being a lower cost producer. From an economic efficiency perspective, such a transaction is also efficient as the resource is being exploited by the least cost producer.

A difficulty lies in the fact, however, that no formal market exists. Instead, track record is sold through private transactions or brokers. Information on bid prices is not generally known. A survey of UK fishers operating in the English Channel (Pascoe, Robinson and Coglan 1997) found that most fishers could not place a value on their licence or track record. Given this, it is possible that the prices paid for the track record are less than the Spanish boats would be willing to pay, and hence the potential benefits to the UK fishers from such a trade may have been less than they could otherwise have been.

As noted above, many of the quota hoppers entered the UK fishery before licences were restricted. Hence, many of the boats would not have been required to purchase a UK licence. While additional track record purchases may have taken place in recent years, the benefits to UK fishers generated by these sales is likely to be small relative to the total value of track record held by the Anglo-Spanish vessels.

Provided licences or track record have been purchased, the ability of the Spanish fleet to purchase these relies on the assumption that these are lower cost boats and hence have a comparative advantage in fishing. Unfortunately, cost information was not available on the fleet. Munro (1985) suggests that relative factor proportions can be used to provide information on the potential comparative advantage of fishing fleets. While no specific studies of factor proportions in fishing have been undertaken, Bowen *et al* (1987) estimated the ratio of net trade to national endowments for most EU countries and concluded that Spain was labour abundant compared with the UK (particularly in the agriculture sector), and while both Spain and the UK were capital

⁶ Anderson (1987) has found that quota prices also contain an element of 'option value'. Hence the price of quota may exceed the discounted value of future profits.

deficient, the deficiency was greater in the UK. Hence it would be expected that the opportunity cost of both capital and labour would have been greater in the UK than Spain.

While the data used by Bowen *et al* (1987) are dated and probably of little relevance to the current situations in both countries, it is fairly likely that the cost of labour in Spain is still less than that of the UK given that they have the highest rate of unemployment in Europe, currently estimated to be 22.9 per cent.

The cost of capital may also be lower in Spain due to a greater emphasis on subsidised fleet building under the fleet modernisation objectives of the CFP. Community aid for fleet modernisation and construction in Spain was roughly 6 times that received by the UK over the period 1986 to 1993 although the fleet size was only 3 times that of the UK (CEMARE 1996). Planned Spanish aid for fleet renewal over the period 1994-99 is estimated to be about 10 times that planned for the UK (Table 4) when differences in fleet size have been taken into account. As a result, it is likely that the cost of capital to Spanish fishers is less than that of UK fishers.

Table 4. Proposed aid for fleet renewal, 1994-99, and fleet size 1995

Country	Total aid	GRT (‘000)	Aid/GRT (ECU/GRT)
Spain	458	656	6982
UK	16	247	648
Total EU	805	2100	3833

Source: CEMARE 1996, Commission of the European Communities DGXIV [no date].

Given this, the trade in quota may have been distorted by the existence of subsidised capital. While UK fishers may have still benefited from the transactions, from a EU wide perspective the quota may not have been allocated to the most efficient boats and hence may not have been an efficient outcome. In effect, the UK fishers who sold their quota may, in fact, have benefited from the fleet construction subsidies in Spain. Without appropriate data, however, it is not possible to determine what effects subsidies had on the price paid for quota.

A mix of foreign and domestic fishers has other benefits, particularly when stocks are highly variable from year to year (Beddington and Clark 1984). Foreign fleets are generally more mobile than domestic vessels and hence operate on a more opportunistic basis. That is, they are more capable of diverting their effort elsewhere when stocks are low than the domestic fleet. This could benefit the domestic fleet as there would be less competition for the limited resource in years of poor recruitment to the fishery (Beddington and Clark 1994). In the EU, however, where many key stocks are subject to quota control, the ability of the Spanish fishers to divert effort elsewhere is limited unless they purchase quota for other species from different fishers.

Potential costs

The main potential cost from the sale of quota to foreign fishers is often seen as the loss of income and employment in the local fishing communities. However, from a broader national view these concerns are misplaced (Munro 1985). The income generated by fishing represent the cost of not using that employment elsewhere in the economy (assuming that the payment to crew is a true reflection of its opportunity cost). Hence the benefits of using these inputs in fishing represent the benefits lost elsewhere in the economy (Munro 1985). In the long run the resources freed up in the fishing sector can be utilised in other parts of the economy.

While this may be true in the long term, the short term impact of such a change may have costs to the local economy. Sale of quota (or more precisely track record) out of the domestic fleet results in a short term loss of employment of the crew and skipper, with subsequent flow on effects to the rest of the local economy.

If the vessels land their catch directly to Spanish ports, then the UK does not benefit from the landing, processing and exporting of the fish and fish products. There is evidence to suggest that landings to Spain have been increasing (see MAFF 1997). The volume and value of UK vessel landings to Spain in 1996 is given in Table 5. It can be seen that as a proportion of total UK

landings, only 3.5 per cent of fish and shellfish are landed directly into Spain by UK registered vessels. However, significant landings of bass, conger eels, hake, halibut, torsk, tuna cuttlefish and squid are directed to the Spanish market, with landings to Spain representing between 40 and 96 per cent of total landings by UK vessels (home and abroad).

Table 5: Landings by UK vessels, total and to Spain, 1996.

Species	Total UK landings			Spain			% volume of UK landings to Spain	Spanish price as a % of UK Price
	quantity (tonnes)	value (£'000s)	price per tonne	Quantity (tonnes)	Value (£000)	price per tonne (£)		
Bass	19	96	5052.63	17	90	5294.12	89.47	104.78
Brill	652	3213	4927.91	40	177	4425.00	6.13	89.79
Cod	79835	74276	930.37	166	214	1289.16	0.21	138.56
Conger Eels	190	106	557.89	181	99	546.96	95.26	98.04
dabs	1682	1489	885.26	13	12	923.08	0.77	104.27
Dogfish	10128	7383	728.97	214	215	1004.67	2.11	137.82
Gurnards	223	203	910.31	90	117	1300.00	40.36	142.81
Haddock	89675	54693	609.90	112	105	937.50	0.12	153.71
Hake	5451	12352	2266.01	2289	4299	1878.11	41.99	82.88
Halibut	12	35	2916.67	9	21	2333.33	75.00	80.00
Lemin soles	5515	12931	2344.70	50	96	1920.00	0.91	81.89
Ling	14184	12930	911.59	4628	5648	1220.40	32.63	133.88
Megrims	7313	12748	1743.20	1058	1879	1775.99	14.47	101.88
Monks or Anglers	32167	57266	1780.27	1830	4285	2341.53	5.69	131.53
Plaice	25686	33034	1286.07	46	40	869.57	0.18	67.61
Pollack	3669	3640	992.10	563	751	1333.93	15.34	134.46
Redfish	572	776	1356.64	163	263	1613.50	28.50	118.93
Saithe	15864	7303	460.35	340	440	1294.12	2.14	281.12
Skates and Rays	9219	8822	956.94	727	1075	1478.68	7.89	154.52
Soles	3132	18006	5749.04	2	7	3500.00	0.06	60.88
Torsk	17	15	882.35	13	11	846.15	76.47	95.90
Turbot	1236	7500	6067.96	54	222	4111.11	4.37	67.75
Whiting	37988	19541	514.40	382	335	876.96	1.01	170.48
Blue whiting	14360	1007	70.13	29	34	1172.41	0.20	1671.88
Witches	3537	4285	1211.48	1170	1107	946.15	33.08	78.10
Other demersal	21237	27016	1272.12	7205	9731	1350.59	33.93	106.17
Total Demersal	407784	383566	940.61	21432	31291	1460.01	5.26	155.22
Horse Mackerel	50733	9834	193.84	212	154	726.42	0.42	374.75
Mackerel	148127	58729	396.48	42	16	380.95	0.03	96.08
Pilchards	11981	1972	164.59	4641	894	192.63	38.74	117.03
Tuna	296	198	668.92	287	85	296.17	96.96	44.28
Other Pelagic	2729	772	282.89	3	4	1333.33	0.11	471.33
Total Pelagic	343941	90005	261.69	5185	11153	2151.01	1.51	821.98
Crabs	22910	26986	1177.91	1448	2988	2063.54	6.32	175.19
Cuttlefish	49	87	1775.51	46	84	1826.09	93.88	102.85
Nephrops	29690	58904	1983.97	610	1547	2536.07	2.05	127.83
Squids	6869	11176	1627.02	3126	5003	1600.45	45.51	98.37
Other Shellfish	18873	12473	660.89	81	93	1148.15	0.43	173.73
Total Shellfish	140643	163001	1158.97	5311	9715	1829.22	3.78	157.83
Total All Species	892277	636471	713.31	31928	42160	1320.47	3.58	185.12

Source: MAFF 1997.

This potential loss, however, is not limited to quota hoppers only. Any UK boat may land their catch outside the UK and many do. About 30 per cent of UK catch was landed abroad in 1996, most of which was not by quota hoppers. As a consequence, landing abroad cannot be seen as a problem associated with quota hoppers *per se*. Further, the restrictions imposed on these boats may serve to reduce some of these potential costs. These boats are still required to land part of their catch in UK ports, and maintain some economic links to the fishing communities. Hence, while direct employment in the domestic fleet would most likely decreased, the flow on effects to the rest of the community might not be as substantial. These restrictions aimed at dissuading quota hoppers may have a negative impact on UK boats who predominately land abroad. These boats would also be required to comply with the institutions potentially reducing their revenues and increasing their costs.

Net benefit or cost?

To a large extent, the question as to whether or not quota hopping provides a net benefit or cost depends on the management objectives (Munro 1985, 1989). In the EU, the issue of management objectives is made more difficult by the potentially conflicting objectives of the individual member states and that of the EU as whole. The former groups are intent on maximising their own benefits of their own use of the resource, whilst the latter aims to maximise the overall benefits of the use of the resource, without disadvantaging or advantaging any individual member states.

From the UK perspective, individual fishers who sell their track record clearly benefit from the transaction. If the objective of fisheries management is to improve the returns to fishers then allowing such transactions is an optimal policy. From the national perspective, such a transaction may result in a net short term cost, although arguably in the long run these costs do not exist.

From the EU perspective, the existence of differences in fleet subsidies between different fishing fleets may have resulted in a less than optimal allocation of resources. In addition, the restrictions imposed on the boats by the EU would have resulted in greater costs than if quota trading was free between fishers of different countries⁷.

Policy implications

The issue of quota hopping has implications for three major policies that will affect the UK fishing industry over the next few years. These include the decommissioning policy, the potential for quota trade between member states and the potential for resource rent or licence charges.

Under the MAGP discussed previously, each EU member state is required to reduced its fleet capacity to achieve predetermined targets. This is aimed at reducing the level of over-capacity in EU fisheries with consequent benefits in terms of stocks and profitability of the remaining fishers. The UK aims to achieved its target through a decommissioning programme that effectively buys the boats from the fishers. Prior to 1997, the UK scheme purchased vessel capacity units (VCUs)⁸ only. The loss of track record associated with the licence were not compensated for by the scheme. However, as different boats had different track records depending on their main fishing activity, the value offered for VCUs was only adequate to compensate fishers with relatively low track records, such as fishers who predominantly targeted non-quota species.

In 1997, the scheme was changed to allow fishers to sell their track record separately from their VCUs which were still purchased under the decommissioning scheme. This addressed the problem of the scheme being unattractive to fishers who were making the greatest impact on the quota stocks.

⁷ This may have also reduced the price received by UK fishers as the potential willingness to pay of the Spanish fishers would have been less than if they did not incur the additional costs resulting from the restrictions.

⁸ These are an administrative measure of boat capacity based on length and engine power. The number of VCUs held by a boat is given by $\text{length} \times \text{breadth} + 0.45 \times \text{engine power (in kW)}$.

MAGP IV is to run from 1997 to 2001. Fleet segments that are most likely to be targeted by the scheme are those that target quota species as these were the segments that did not achieve their targets in previous MAGPs. This will free up track record for purchase by other fishers, including the Anglo-Spanish boats.

From the previous discussion on the benefits and costs of quota hopping, this is likely to have benefits to the UK fishers leaving the fishery in that they may be able to sell their track record for a greater amount than if the Anglo-Spanish boats were prevented from purchasing this track record. This could provide a greater incentive for less profitable fishers to leave the industry and improve the probability that the programme will achieve its targets.

Employment consequences of Anglo-Spanish boats purchasing this track record are not likely to be different than any other boats purchasing the track record. Consolidation of quota by boats will lead to a reduction in employment regardless of the nationality of the owner or crew.

If the ability of the Anglo-Spanish boats to purchase the track record was a reflection of differences in subsidies (particularly capital costs), then the decommissioning programme may lead to a greater misallocation of resources than before. Without information on the relative cost structures of the fleets and the underlying levels of subsidisation it is not possible to determine the final outcome.

Trade in quota between individuals of member states is on the agenda for discussion in the European Commission (Fraga Estévez 1997). This is largely being pushed by Spanish delegates who are seeking alternative ways of increasing the Spanish quota share. Under the CFP, quota is allocated to the member states in fixed proportions under the principle of relative stability. As Spain was largely outside the original negotiations it has received a smaller share than it desires. Quota hopping is currently the only avenue by which Spanish vessels (or vessels from any other country) can gain access to additional quota.

Imposing a fixed quota allocation reduces the potential economic benefits from a quota system. While fleets can adjust within their own country's allocation, efficient fleets in one country are unable to purchase quota from less efficient fleets in another country. Hence, from an EU perspective, allowing quota trade could result in an efficiency gain.

Allowing such trade may have some consequences for the UK. The Anglo-Spanish boats that are currently tied to the UK through the licensing restrictions would be free to relocate their activity elsewhere. This would most likely result in a reduction in the UK fleet. As most of the crew employed are Spanish, it is not likely to have any major employment consequences. However, the relocation of the companies may have flow on effects in the fishing communities.

If the willingness to purchase additional quota by Spanish boats is based on subsidised inputs, then UK fishers could stand to benefit through receiving more for their quota than it is possible worth. From the individual UK fisher perspective this could be seen as a benefit. However, as further purchases of quota from UK fishers may have employment consequences in fishing communities, this may not be seen as a benefit at the broader UK level, particularly in the short term. From an EU perspective, differences in subsidies between countries could result in a misallocation of the fishery resource as the countries with the greatest subsidies could buy the most quota. This would be counter to the objectives of the CFP.

A further recent policy issue is the possibility of imposing a charge on licences and/or quota (Oliver 1998). Cost recovery levies, if implemented, would be paid by all boats registered in the UK. This would include the Anglo-Spanish boats. Hence, these boats would be contributing to the cost of management in the same manner as any other UK boat. If these boats were allowed to purchase quota outright rather than rely on the current quota hopping arrangements, then presumably both management costs and revenue would decrease accordingly. In such a case, ownership is irrelevant.

If resource rent charges were introduced, however, the national ownership of the quota could be quite important. Under the current arrangements, the UK Government could still obtain a return for the use of the resource from Anglo-Spanish boats as well as other UK boats. If these boats leave the UK as a result of the ability to transfer quota from the UK, then the UK Government loses a potential source of revenue. In this instance, maintaining the current arrangements, while less efficient from a EU perspective, may be more beneficial to the UK than allowing quota to trade freely between countries.

Conclusions

The purpose in this paper was to establish an economic rationale behind Spanish quota hopping in the UK. The key factors affecting the extent of quota hopping included the Spanish market for fish, the historical development of the Spanish fishing fleet and the development of UK Government responses. To fully determine the distribution of the potential costs and benefits and therefore the policy implications of the current quota hopping situation, costs and earnings information for both fishing fleets need to be obtained, as well as detailed information on the different levels of subsidies for Spanish and UK fishing operations. Though it has proved to be impossible to locate the data necessary to decisively determine the causes and the sustainability of the activity at this stage, an attempt has been made to focus attention on the potential costs and benefits of foreign investment in domestic fishing industries.

Munro (1985) pointed out that the issue of who should benefit from the management of the fishing industry is a key issue in deciding whether foreign investment is desirable and at an appropriate level. Under both the current system and the alternative trading system of allocation of quota, the potential benefits accrue to the individual fishers. From a national perspective, given the costs involved in management and the fact that the resource is owned by society, arguably, there should be some attempt at recovering some of the costs of management and retrieving the dissipated rent. Introducing a charge for licences would provide a way of ensuring that benefits from the fish resource go to the member state. This is bound to be politically unattractive for national fishers but less so if imposed on foreign fishers. It is unlikely that within the EU it would be possible to distinguish.

Overall, the 'problem' of quota hopping is one more of an emotive or nationalistic problem than an economic problem. However, the 'problem' of quota hopping does demonstrate a general problem facing the CFP. That is, policies that provide benefits at the national level may not provide benefits at the international (EU) level. Further, policies that benefit fishers may not benefit nations. Pressures are applied by different groups, each seeking to implement the policy that most benefits them. This results in pluralistic management rather than effective and efficient management.

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